Regular Meeting

Mission: "Engaging All Learners to Achieve Success"

The Regular Meetingstarted at 5:30 PMon Monday, October 17, 2022. The meeting was held at Columbus Public Schools Administration Building
2508 27th St.
Columbus, NE 68601

Candace Becher:	Present
Mark Brown:	Present
Michael Jeffryes:	Present
Doug Molczyk:	Present
Theresa Seipel:	Present
Douglas Willoughby:	Present

I. Board Meeting

I.A. Call to Order

I.B. Roll Call of Board

I.C. Pledge of Allegiance

I.D. Notice of Open Meeting Posted

I.D.1. President insures all can hear proceedings

I.E. Mission Statement

Theresa Seipel and Candy Becher, Board Members, read the Mission Statement.

I.F. Opportunity for Public to be Heard

I.F.1. Presentations

I.F.1.1. Bank of the Valley Presentation

Eric Hall from Bank of the Valley presented a check for $4600.00 for donations from the School Pride Program Credit Card program. He said that overall we have received $11,571, there are 285 cards in the community. For each card ordered $50.00 is donated to the district.

I.F.1.2. Centennial Elementary Presentation

Andy Luebbe, Centennial Elementary Principal, presented a report on learning and activities at Centennial. He talked about the new faces in the building. The theme for starting school was, "Rolling Out the Red Carpet" which included photo opportunities, door and classroom decorations with movie themes. Mr. Luebbe shared the 4 areas of non-negotiables and things that staff and students do everyday, Be Safe, Be Respectful, Be Responsible and Be Kind-The Discoverer Way. Staff is using Well-Managed Classroom for Tier 1 and BIST for Tier 2 for behavior management, paras have had the training, and teachers continue to review and track data on behavior interventions. Mr. Luebbe explained that students and staff review building expectations at the beginning of each semester in the classrooms and at Expectation Stations. Well-Managed Classroom and BIST skills are reviewed each week. Students can earn tickets by demonstrating that they are safe, respectful and responsible. There are weekly drawings for prizes. Centennial has a program called Gold Coin weeks, which are short weeks before breaks, when students are recognized for being safe, respectful and responsible. Students are working hard to earn prizes, special lunches and activities. Mr. Luebbe talked about the Quarterly Assemblies, classrooms can earn the Golden Award, and students can earn awards such as the Star Citizen, Perfect Attendance, Citizenship and AR awards. CPS activity groups provide the entertainment at these assemblies. The students get to see what activities they may participate in as middle and high school students.

Mr. Luebbe gave some examples of how the safe seat and recovery rooms are utilized, he also shared some data on office referrals. Centennial Staff is using trust accelerators to ensure they are doing the right thing for students, with so many new people in the building it is an important task. He talked about Smart Goals, Data Into Action, Teacher Involvement & Input Surveys, Collaboration and Staff Appreciation. Mr. Luebbe shared all the student involvement activities including UBUNTU (Family), The Talent Show, Student Council, Battle of the Books, Read Across America & One School One Book, Field Day and Move Up Day. There is a lot of parent involvement happening at Centennial as well, this includes Family Nights, Parent-Teacher Conferences, PAC and the end of the year Centennial Family Picnic.

I.G. Board Special Functions

I.G.1. Hearings

I.G.1.1. Adjourn Regular Meeting to Begin Special Hearings

I.G.1.2. Special Hearing - Annual review on Parent Relations Goals, Policy 1005.02, Regulations and Exhibits

Troy Loeffelholz, Superintendent, spoke about the annual hearings on this policy. He said it encourages relationships with parents and/or guardians, the policy shares information on reasons the school may call on them. Also includes forms for objections from parents on curriculum content.

I.G.1.3. Special Hearing - Annual Review of Policy 1005.03, Regulations and Exhibits - Parental Involvement in the School

I.G.1.4. Adjourn Special Hearings and Return to Meeting

I.G.2. Approval of Clark & Enersen for Architectural Services

Representatives from Clark & Enersen thanked the group for choosing them as CPS' architectural firm, they are looking forward to the opportunity. They said they are looking forward to having a successful bond campaign.

I.G.3. First Reading of Policy 204.12 Public Comment in Board Meetings

Dr. Loeffelholz said there are no big changes, this policy clarifies the rules and is easier to read.

I.G.4. First Reading of Policy 902.02 Construction Plans and Specifications

The amount on this policy is periodically adjusted by state statute.

I.G.5. First Reading of Policy 902.04 Bids and Awards for Construction Contracts

The amount on this policy is periodically adjusted by state statute. Dr. Loeffelholz also said he questioned why the amounts would be different on these two policies. He will share the information at the next meeting.

I.G.6. CHS Winter Percussion Excursion Approval

Dave Hiebner, CHS Principal, said that there was a date change due to the schedule changing, so this approval form was submitted to update all the information regarding this trip.

I.H. Items to be removed from the Consent Agenda

I.I. Consent Agenda

I.I.1. Approval of Minutes

I.I.2. Financial Reports M2, M3, M4a

General Fund cash balance is where it needs to be. Bond Fund is in good shape for paying off bonds in December. We are retiring the 2012 bond. Special Building Fund shows an influx of the bond funds for the completion of the preschool and daycare.

Mr. Kay said most of the property tax has been received. We will receive revenue from state aid each month.

I.I.3. Financial Report M5

Mr. Kay said that the M5 financial report is for the addtional bills that come in, it includes bills for staffing. These are bills from Associated Staffing and ServiceMaster by Shevlin. He said most of the districts budget is paid out to personnel to serve our students.

I.I.4. Certified Personnel

Tayler Bauer has been hired to take a special education position for 2nd semester.

I.I.5. Classified Personnel

Mr. Kay said the EL Family Liaison position has been hired. There is the typical shuffling around in classified staff.

I.I.6. Professional Travel

Dr. Loeffelholz said the travel report consists of teacher fairs at UNK and UNL. CIA Accelerated learning seminars.

I.J. Acceptance of Gifts/Donations

$61,507.08 contributions for the month; $281,324.25 for the year.

I.K. Curriculum and Instruction

I.K.1. Administrative Functions

I.K.1.1. Nebraska Career and Technical Education Standards

Teresa Hausmann, Director of Curriculum, Instruction and Assessment, asked the board to adopt the Skilled and Technical Sciences Program of Study Standards dated 2023-2024. Currently, CPS does not offer all the programs, but this will be good for the programs offered now and in the future. The focus at this time is the welding pathway standards.

I.K.1.2. Nebraska Math Standards

Mrs. Hausmann offered information on the Math Standards approved by the Nebraska State Board of Education and asked the CPS board to adopt these standards. She also gave kudos to Julie Kreikemeier, our Math Coach on participating in the writing committee to write these standards.

I.K.2. Updates

CIA Updates included department goals, staff connections made to date, and on-site professional development dates. Mrs. Hausmann also shared information about the K-12 Select-a-Session Professional Development process. She shared information about the new EL Family Liaison hire. Proficiency Reporting supports were explained along with Mentor/Mentee Updates. Mrs. Hausmann shared the onsite visit date with Cognia for the CPS accreditation, April 3rd and 4th, 2023.

I.L. Business Operations and Human Relations

I.L.1. Administrative Functions

I.L.1.1. Fundraising Applications

Chip Kay, Director of Finance and Human Resources**,** briefly discussed our fundraising policy. Applications included all of West Park's fundraisers for the year, Close-Up, CHS musical fundraisers, and the elementary buildings Penny Campaign for 2022. Doug Willoughby, Board Vice President, donated his pennies for the fundraiser.

I.L.2. Updates

Mr. Kay said that CPS is using data from the surveys to make some changes. The calendar is giving teachers more time for work. He said we are doing a lot of things other districts are not doing that directly affects the work-life balance, he gave kudos to Dr. Loeffelholz and the Board for those changes. He shared some feedback from the conference he attended, which included opportunities of growing your own teachers and paras. He said he feels like he brought more back for us than he shared.

I.M. Buildings & Sites/Technology

I.M.1. Administrative Functions

I.M.2. Updates

Leonard Kwapnioski, Director of Building/Sites & Technology, gave an update on Kramer, he said Area D, the training center, is completely framed, the state electrical inspection was completed. Metal door frames are 6 weeks out for delivery. The daycare area is 90% painted, gym is being primed today along with half of the parking lot was poured today.

I.N. Student Services

I.N.1. Administrative Functions

I.N.2. Updates

Jason Harris, Director of Student Services and Special Education updated the group, including all state reports coming due in October, grant claims to wrap up the year. SPED final financials are due at the end of the month.

I.O. Superintendent's Report

Dr. Loeffelholz said the fall activity season is coming to an end already, quickly getting into winter. He talked about Clark & Enersen setting up meeting dates, the RFP in November for a contractor, and campaign organization groups. Dr. Loeffeholz said he listened to Matt Blomstedt, Nebraska Education Commissioner, it was good to hear his perspective on NDE. He said the Listening Session went well with the new plan, board members discussed how good it was to have Dr. Loeffelholz there to address questions and concerns during the meeting.

I.P. Board Sharing

The Board continues to appreciate all the work being done in regard to staff suggestions and building morale. Looking forward to working with Clark & Enersen. Glad to hear updates

from Centennial Elementary through the Listening Session and the presentation by Andy Luebbe, Centennial Elementary Principal. Several comments on the positive aspects of having Dr. Loeffelholz attend the Listening Sessions and his responsiveness to the needs of staff.

II. Executive Session

III. Adjourn
Adjourned at 7:18.

I, the undersigned, being the duly qualified Secretary for the School District No. 1 of Columbus, Nebraska, certify that the preceding is a true and correct copy of the minutes of the Regular School Board meeting of Monday, October 17, 2022.

_____ _____

President Secretary

CENTENNIAL ELEMENTARY

Home of the STARS!

2022-2023 Board Presentation

Rachel Maher
Preschool

Rachel York
Kindergarten

Brooke Lee 1st
Grade

Brayden Olson
2nd Grade

Ashlee Rathman
2nd Grade

Lauren Terveen
3rd Grade

Juwan Ortiz
4th Grade

Karen Iwansky
SPED

Conner Lowery
PE

Sheila Garcia
Preschool Para

Nicole Konz
Preschool Para

Ashlee Marvin
EL Para

Patricia Nunley
SPED Para

New Faces at Centennial

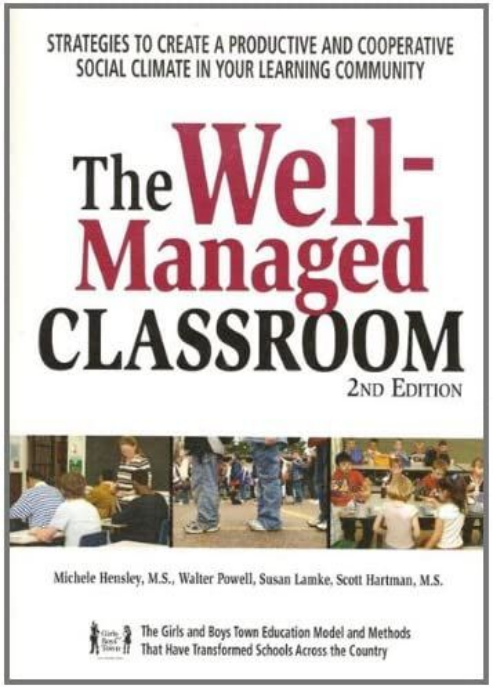
Staff decorated their classrooms with movie themes for this school year

Theme: Centennial - Rolling Out The Red Carpet in 2022-2023

AND AS ALWAYS…

Non-Negotiables

School Rules - The Discoverer Way



We reviewed our Tier 1 (Well Managed Classroom) and Tier 2 (BIST) Behavior Processes with staff. Paras had classroom management and behavior intervention training at CMS. Teachers review BIST Tracking Data during team meetings.

Non-Negotiables

Well-Managed Classroom & BIST



Students and staff review building expectations at the beginning of each semester in the classroom and also at Expectation Stations. We also review a WMC or BIST skill each week.

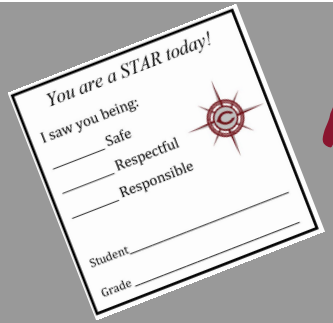
Non-Negotiables

Expectation Stations

Students earn tickets by demonstrating that they are safe, respectful and responsible.

Mrs. Romshek, Centennial Counselor, does weekly drawings for prizes.

Student names were drawn from the ticket tower for a chance to put a PIE IN THE FACE of a Centennial Celebrity. Also, the school earns rewards for filling up the ticket tower.



Non-Negotiables Star Tickets

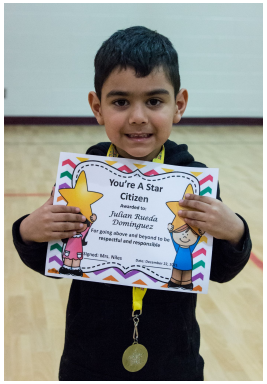



Gold Coin weeks are times of year (short weeks, before breaks, holidays, etc.) when we recognize the students that are being safe, respectful and responsible. Students work hard to participate in special lunches or activities like pumpkin painting, chalk art, rock painting, snowflake making, etc.

Non-Negotiables

Gold Coin Week

Golden Awards, Student Awards & CPS Pride



Classrooms earn Golden Awards for PE, Music, Counseling, Media and Attendance. Students earn Star Citizen, Perfect Attendance, Citizenship and AR awards. CPS activity groups provide the entertainment.

Non-Negotiables

Quarterly Assemblies

Centennial Trust Accelerators

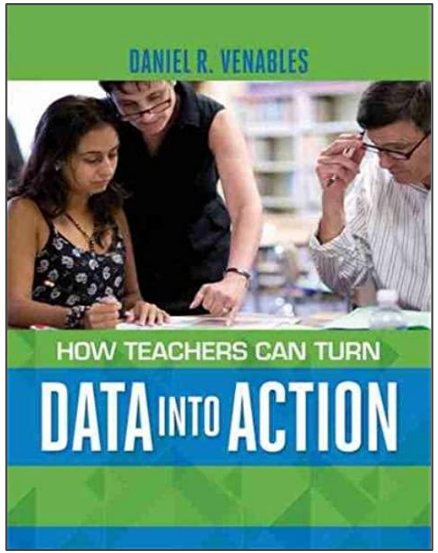
Operate with Positive Intent
Own the decision of the group
Deliver the mail to the right address
Solution focused discussions
Honest and respectful communication

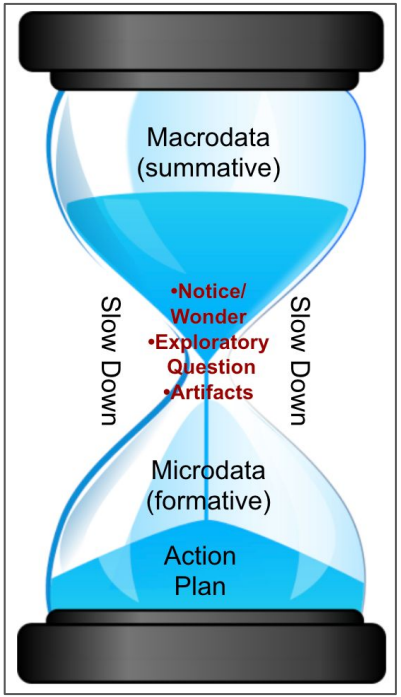
Trust Accelerators

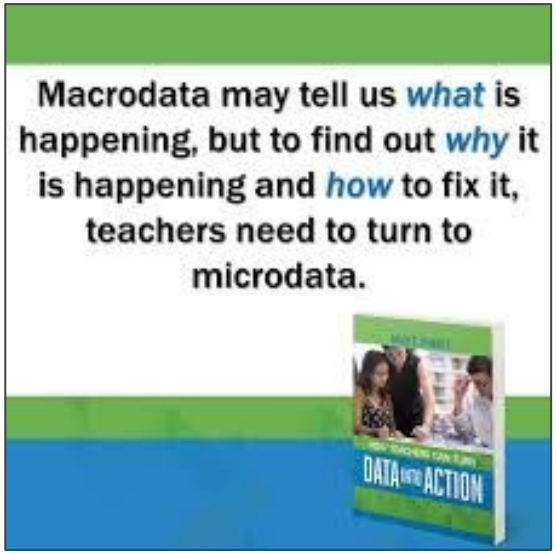

SMART
SPECIFIC
MEASURABLE
ACHIEVABLE
REALISTIC
TIMELY
GOAL


I can't
do it

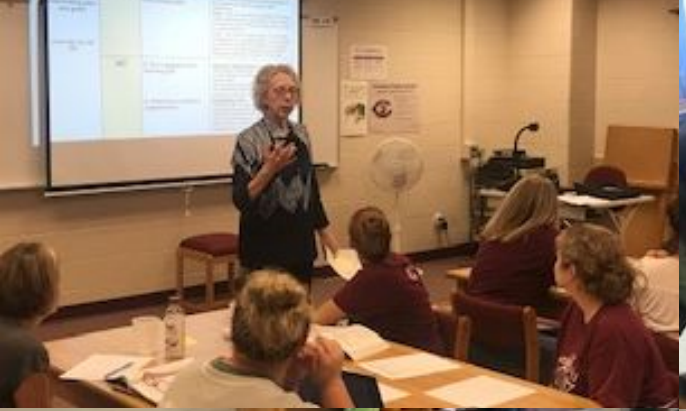
Goals

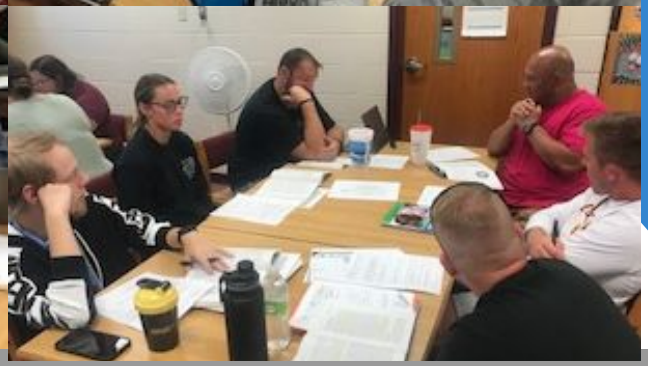






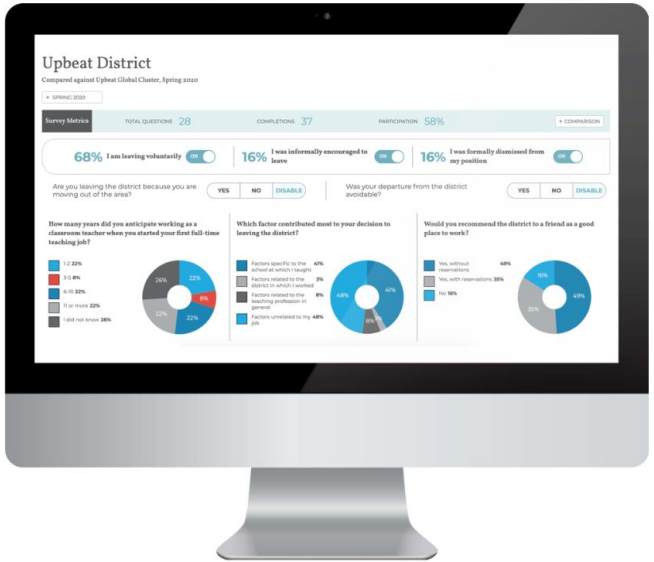
Data Into Action



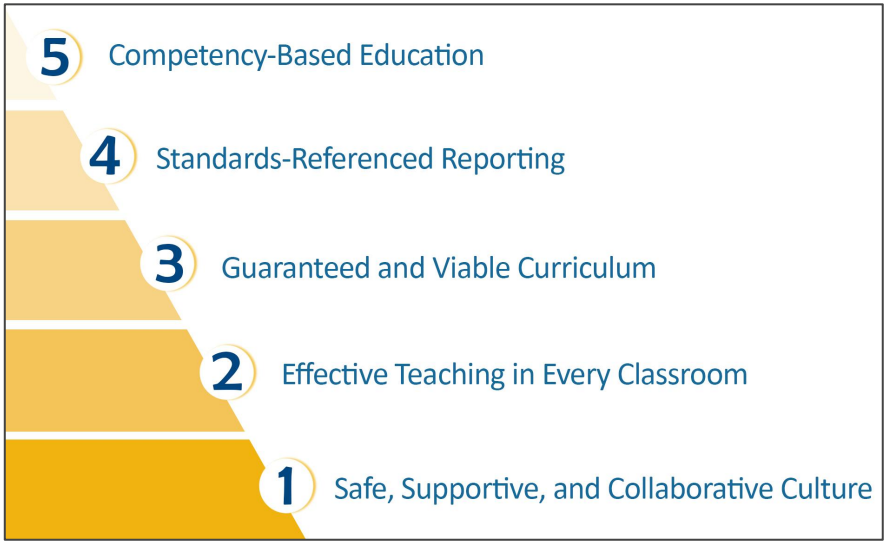


Centennial Teachers meet on early dismissal Wednesdays in PLC groups. Each group reviews data, determines the instructional gap and learning gap, sets goals and implements strategies to improve student achievement for all students.

Data Into Action



UpBeat Surveys
Fall and Spring each year



High Reliability Schools Surveys
Level 1 last year, Level 2 & 3 this year, Level 4 next year

Teacher Involvement & Input Surveys

We play Guess the CN Celeb every Friday morning.

Staff get together for a Husker watch party.

Staff get together for a BINGO night.

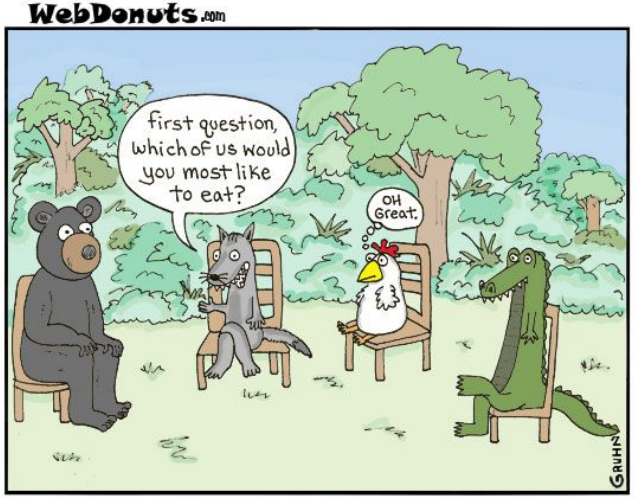
Teacher Involvement & Input
Collaboration & Appreciation

Staff entertain students with a rendition of of the 12 Days of Christmas

Staff participate in spirit days, including Ugly Holiday Sweaters

Teacher Involvement & Input

Teacher appreciation days include a visit from the Snack Shack cart with help from Student Council



Ice breakers in the wild

With so many new staff members, Centennial Staff purposely focused on developing relationships

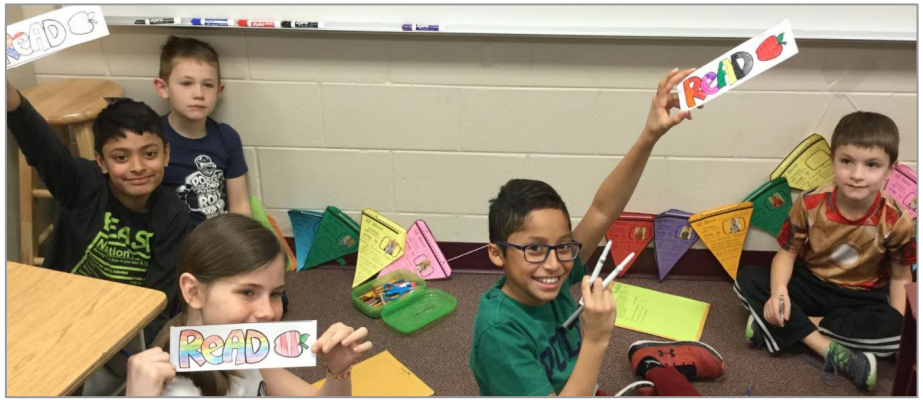
Teacher Involvement & Input

Collaboration & Appreciation

Students participated in a Pumpkin Decorating Contest. Over 150 pumpkins entries were submitted.

Centennial hosted an Easter Egg hunt

Student Involvement



Grade levels combine for some fun reading or special activities (International Dot Day, Red Ribbon Week, 100th day, Read Across America) during UBUNTU time.

Student Involvement

UBUNTU means Family!

Student Involvement

Talent Show

Student Council sells prepackaged snacks on Fridays

Student Council sells candy canes to support needy families

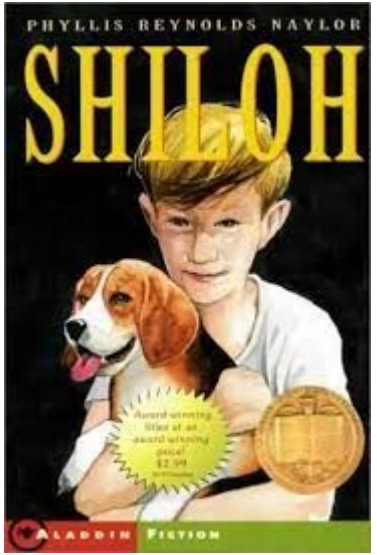
Student Council coordinates the 100th day food drive for Simon House

Student Involvement

Student Council

Students participate in Battle of the Books

Students participate in Read Across America activities



The whole school reads a book together and participates in activities.

Student Involvement

Battle Of The Books, Read Across America & One School One Book






Student Involvement

Field Day

On one of the last days of school, the Centennial students “move up” to their next year’s homeroom class to meet their teacher and start building relationships.

Student Involvement

Move Up Day

Students make gingerbread houses

Santa visits Centennial and delivers some holiday cheer.

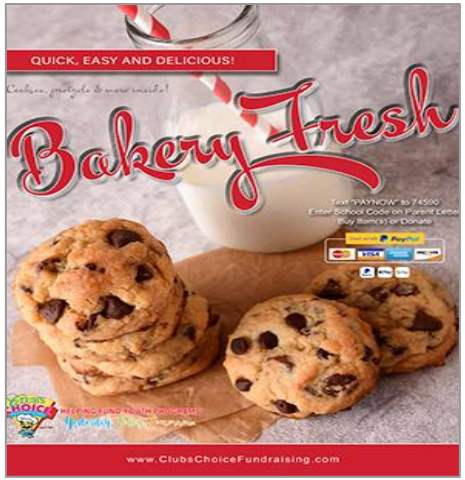
Student Involvement

Family Food Nights at Runza, Valentino's, Godfather's, Sonic and DQ

Parent-Teacher Conferences occur in September and February. This year we had 93% attendance and are rescheduling those missed PTC.

Parent Involvement

Family Nights & PTC



The Centennial PAC is supportive of our teachers and students. They have purchased soccer goals, recess equipment, etc. for our students and plan fundraisers and cookie dough sales.

Parent Involvement
Centennial PAC





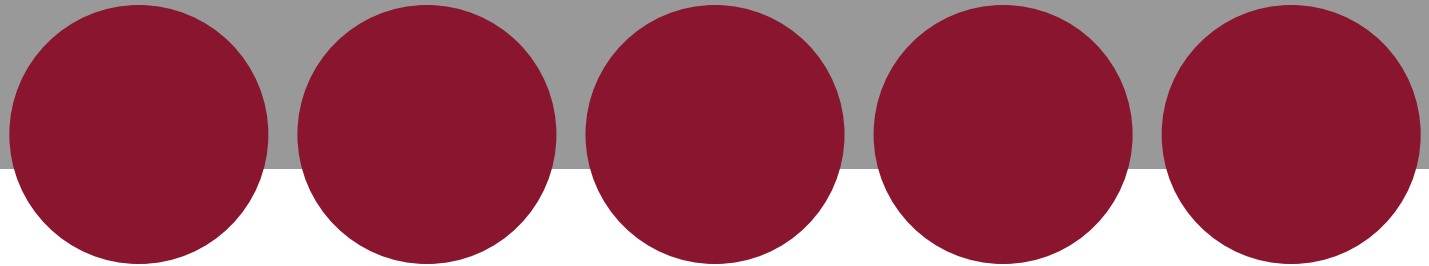
Parent Involvement

Centennial Family Picnic

Centennial Family...2022-2023

Keep Shining Stars!

Centennial Elementary



Thank you!

PARENT RELATIONS GOALS

It is the general goal of the district to foster relationships with parents which encourage cooperation between the home and school in establishing and achieving common educational goals for students. The board believes parents should be active participants in education by demonstrating interest in and support for their school and the district, by becoming informed about their role as partners in education, and by becoming involved in the education of their children.

While parents are individually responsible for their children, the district provides direct services of education and indirect services of child care for students during the time when they are within the supervision of school personnel. Consistent with these shared responsibilities and as appropriate to the maturity of the student, members of the school staff will consult with parents regarding student progress and achievement, methods to enhance student development, and matters of correction.

Additionally, parental involvement in the schools is encouraged through regular communication with the school principal and staff, the parent/teacher organizations, the school volunteer program, and other opportunities for participation in school activities and district programs. It is assumed that the relationship described in the general goal is fostered if the district will:

- consult with and encourage parents to share in school planning, in setting objectives, and evaluating programs;
- help parents understand the education process and their role in promoting this process;
- provide for parent understanding of school operations;
- provide opportunities for parents to be informed of their child's development and the criteria for its measurement; and
- help parents improve in their role as parents.

Cross Reference: 508.07 Custody and Parental Rights
611.01 Student Progress Reports
611.04 Parent Conferences

Policy
Adopted: 2/12/07

COLUMBUS PUBLIC SCHOOLS
Columbus, Nebraska

PARENT/GUARDIAN INVOLVEMENT AND PARTICIPATION

•The Parent/Guardian and Student Handbook shall include Policy 1005.02 and provide parents/guardians with the information as to when and how they can access instructional materials.

•The Parent/Guardian and Student Handbook shall be mailed to the home or the Parent/Guardian and Student Handbook shall be sent home with students. If sent home with students, parents/guardians shall return to the school a signed form indicating that they have received the Parent/Guardian and Student Handbook.

•Parent/guardian permission is required for out of town field trips. Parent/guardian notification is required for in town field trips. See also Policy 607.05.

•The Parent/Guardian and Student Handbook shall include an invitation to parents/guardians to attend and monitor instructional activities.

•Administrators shall notify parents/guardians in advance of special activities, such as assemblies, unless time does not permit.

•If a principal denies a parent's/guardian's request to attend and monitor instructional and/or special activities, the principal shall notify the parent/guardian of his/her rights of appeal as described in this regulation. Also, a full report including, but not limited to, the circumstances and rationale for the denial shall be sent to the Superintendent.

•Administrators shall notify parents/guardians if a substitute teacher will teach their child for four or more weeks.

•Administrators shall have available for parent/guardian access and review the curriculums, instructional materials, and school climate surveys used in their schools.

•Administrators shall provide additional opportunities for parents/guardians to review the materials listed above. Parents/guardians shall be notified in advance of such opportunities. Administrators shall take advantage of these opportunities to inform parents/guardians of how they can be more involved in the schools by contacting school staff and/or the Volunteer Coordinator at the Administration Building.

•Parents/guardians may obtain copies of curriculum for review by checking them out from the Professional Library located at the Administration

building. Parents/Guardians may obtain a personal copy of materials at their own expense.

•Parents/guardians shall be notified in the parent/student handbook, that lessons may be taught by a school counselor in the classroom setting. Lessons shall follow the district's curriculum.

•Parents/guardians are encouraged to notify teachers if there are topics of concern to them. Teachers shall notify the parents/guardians in advance if these topics are to be used in planned lessons. The administrator shall be responsible for annually advising staff in August that there are subjects which may be sensitive or of concern to parents/guardians as part of classroom discussion. Such subjects which may arise that are not in the District curriculum may include, but are not limited to: death and dying; religious events and holidays; magic, witches, and sorcery. Teachers are also to be reminded by principals that any classroom discussion of a controversial topic should be in accordance with current Board Policy.

•Parents/guardians shall be notified in advance of Family Life instruction involving human sexuality (grades 5-12). Permission slips will be included with the notification. If the notification is mailed to the home, the school shall require a parental/guardian response only if the parent/guardian does not give permission for the student to participate. If notification is sent home with the students, the school shall require a parent/guardian response indicating whether the student will or will not participate.

•If a parent/guardian has an objection to any instructional material or school experience, the school shall provide the parent/guardian with an appropriate form which may be used to express his or her objection. Forms and appeal procedures may be obtained from building secretaries.

•It shall be the responsibility of the administrator to notify parents/guardians in advance when their children will be taking standardized tests.

•It shall be the responsibility of the administrator to notify parents/guardians in advance of school sponsored surveys beyond the school climate surveys. If the notification is mailed to the home, the school shall require a parent/guardian response only if the parent/guardian does not give permission for the student to participate. If notification is sent home with the students, the school shall require a parent/guardian response indicating whether the student will or will not participate.

•The Board of Education shall hold an annual public hearing on Parent/Guardian Involvement and Participation in accordance with the statute.

Regulation
Adopted: 05/08/95
Revised: 03/12/01

COLUMBUS PUBLIC SCHOOLS
Columbus, Nebraska

Revised: 02/12/07
Revised: 03/03/08
Revised: 01/12/15

PARENT/GUARDIAN OBJECTION FORM

Type of Objection (Material/Activity, etc.)_____

Reported by _____
Parent or Guardian, Please Print Name

Student's Name _____ Building_____

Address _____

Telephone_____ Date_____

1. What specifically do you object to: _____
_____

2. Reason(s) for the objection._____

_____

3. What solution do you seek to remedy the objection? _____

_____

4. Does the solution require the removal of the student from an instructional activity?

YES_____ NO _____ Other (Explain)
_____

5. Other comments you wish to make regarding your objection: _____

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6. Do you wish to have a conference regarding your objection?

YES_____ NO _____ Other _____
_____
_

(To be filled out by the School in Triplicate Within 3 School Days of Receipt)
Date Objection Received_____

Administrator's Name _____

Solution Proposed to Parent by Administrator and Date Solution will be in Effect

_____

_____

(Over)

Copies to be sent within 3 school days
upon receipt of the objection:

Date

_____ Copy to parent (Including appeal procedures)
_____ Copy to Superintendent.
_____ Principal's file

PARENT APPEAL PROCEDURES

In the event a parent is denied access to any topic listed in Board Policy 1005.02 or who is unsatisfied with the solution presented by the administrator in accordance with the Parental Objection Provisions of 1005.02, said parent has the right of appeal as listed below.

1. Upon receipt of the administrator's decision the parent has five school days to appeal that decision by contacting the Office of the Superintendent of Schools.

2. The Superintendent of Schools shall inform the Board no later than the next regularly scheduled Board meeting that an appeal has been made. The privacy of the individual filing the appeal shall be maintained.

3. The Superintendent of Schools shall meet with parent and administrator in an attempt to resolve the matter within ten school days of receipt of such an appeal.

4. The parent shall receive from the Superintendent his/her decision within five school days of the meeting stated in #3.

5. Upon receipt of the Superintendent's decision, the parent shall have five school days to appeal this decision to the Board of Education to be considered at its next regularly scheduled meeting. Such requests are made by contacting the Office of the Superintendent of Schools. Appeals to the Board will include the parent's/guardian's name and the nature of the objection.

6. Final decision will rest with the Board of Education.

Form
Approved: 5/8/95
Revised: 2/12/07

COLUMBUS PUBLIC SCHOOLS
Columbus, Nebraska

PARENTAL AND FAMILY INVOLVEMENT IN THE SCHOOLS

It is the policy of the district to provide full access to the parent and family members of any student of the district to review textbooks, tests, curriculum and instructional materials, records of a student of any such parent, unless otherwise prohibited by law, and to any surveys of students done by the school district. Summary information regarding the district's curriculum, testing, and surveys will be provided at the beginning of each school year. Requests for access to specific instructional materials should be addressed to the teacher or building principal.

Requests by parents and family members to attend and monitor courses, assemblies, counseling sessions and other instructional activities shall also be made to the building principal or teacher. While requests to monitor are usually granted, if the request is denied, reasons for the denial will be provided.

It is the policy of the district to provide as consistent an experience as possible in all classroom instruction, testing, surveys, and other school experiences. It is the policy of the district not to excuse students from classroom instruction, testing, and other school experiences unless an objection is submitted to the building principal or teacher outlining the specific experience, the basis for the objection and a proposed solution for dealing with the objection that would be satisfactory to the parent and family members.

The request for the student to be excused will be reviewed by the building principal and a decision provided to the parents and family members. While verbal objections and decisions are valid, written follow-up to verbal communications is required from the parent and family members, and the principal. If a student is excused from the requested activity no penalty will be assessed but an agreed upon alternative activity must be performed to the satisfaction of the teacher and principal.

It is the policy of the district to use only testing methods and testing instruments that are not of an experimental nature and to avoid using any testing materials or testing techniques that are not generally recognized by educational professionals to be within sound educational standards and both educationally and academically appropriate. It is the policy of the district to notify parents and family members of any standardized testing that may be scheduled within the school district.

It is the policy of the district to notify parents and family members of any survey which may be scheduled and to conduct student surveys judiciously, with full consideration of the fact that parents and family members may find items of the survey objectionable.

The following activities will also be included in the board's plan for parental and family involvement:

1. The board will involve parents and family members in the development of the Title I plan, the process for school review of the plan and the process for improvement;

Approved _____ Reviewed _____ Revised _____

2. The board will provide the coordination, technical assistance and other support necessary to assist participating schools in planning and implementing effective parental and family~~parent~~ involvement activities to improve student academic achievement and school performance;
3. The board will build the schools' and parents' and family members' capacity for strong parental and family involvement;
4. The board will coordinate and integrate parental and family involvement strategies under Title I with other programs such as Head Start, Reading First, etc.;
5. The board will conduct with the involvement of parents and family members, an annual evaluation of the content and effectiveness of the parental and family involvement policy in improving the academic quality of the school served including identifying barriers to greater participation by parents and family members in Title I activities (with particular attention to ~~low-income~~ parents and families who have low income, Limited English Proficient (LEP),~~) parents,~~ minorities, ~~parents with~~ disabilities and ~~parents with~~ low literacy) and use the findings of the evaluation to design strategies for more effective parental and family involvement and to revise, as necessary, the parental and family involvement policies; and
6. The board will involve parents and family members in Title I activities.

The parent and family members or guardian of a student may have access to that student's records during normal business hours of the district according to Policy 507.01 Student Records Access.

This policy is adopted following a public hearing to receive public comments and suggestions.

Legal Reference: Neb. Statute 79-530 to 533
No Child Left Behind, Title I, Sec. 1118, P.L. 107-110

Cross Reference:
507.01 Student Records Access
606.03 Objection to Instructional Materials
610.02 Test or Assessment Administration
611.01 Student Progress Reports
611.04 Parent Conferences
1002. District Annual Report
1005.01 Public Complaints

Title 1 Parent Involvement Policy
for Title I Schools in the Columbus Public School District

P.L. 103-382 affirms the principle that parental involvement is a vital part of the Title I program.

At the district level, it is the policy of Columbus Public Schools that parents of all participating children in Title 1 Schools have the opportunity to be involved in the joint development of the district plan and the district's review process for the purpose of school improvement. The district provides coordination, technical assistance, and other necessary support in the planning and implementation of parent involvement activities. The district encourages parent involvement and supports the partnership between home/school/community by providing understandable information about standards and assessments; providing training and materials for parents to help their children and to involve other parents; educating school personnel about involving parents and the value of parent contribution.

It is the policy of Columbus Public Schools that:

1. **This jointly developed; written Title 1 policy is distributed to all parents.**
   This policy will be included in the parent handbook.
2. **An annual meeting is held for all parents.**
   An annual meeting will be held each year. Notification will be given in a letter mailed to parents.
3. **Parents are given assistance in understanding the requirements of the Title I Law, National Educational Goals, content standards, performance standards, and assessments.**
   Assistance will be provided at the annual meeting, parent-teacher conferences, informational meetings, The State Parent Involvement Conference, and in school publications.
4. **Parents receive an explanation of the school's performance profile, expected proficiency levels for students, and their student's assessment results.**
   Individual reports will be given to parents at parent-teacher conferences.
5. **Parents receive timely responses to all parent recommendations. All information is sent to parents in the language used in the home. Full opportunities are provided for all parents to participate in Title I activities.**
   Responses can be either verbal or written. An interpreter or translator will be used when necessary.
6. **A jointly developed school/parent compact outlines how parents, the entire school staff, and students share the responsibility for improved student achievement and the means by which the school and parents continue to**

build and develop partnerships to help children achieve the state's high standards.

Parents and staff have the opportunity to provide input into the development of the compact. The compact will be reviewed at the annual meeting.

7. **The Title I program provides opportunities for parents to become partners with the school in promoting the education of their children at home and at school. Parents are given help monitoring their student's progress. The school provides assistance to parents on how they can participate in decisions related to their student's education. The school provides reasonable support for parental involvement activities as requested by parents.**

   The Title I staff can attend training sessions. Parents and staff may attend the Parent Involvement Conference each year. Opportunities for further training will appear in local publications.
8. **The school coordinates and integrates parent involvement programs and activities with other programs as appropriate.**

   The school provides shared training opportunities, transitional meetings, and publications.
9. **An annual evaluation of this parental involvement policy shall be conducted to determine the effectiveness of this policy and the barriers of this policy for increasing parent involvement. Policy evaluation findings shall be used in designing strategies for school improvement and revising parent policies.**

   Surveys will be given to the parents. The results will be used for the distribution of reports/summaries and for action plans for improvement.

_____

_____

(Signature and date of Authorized Official)

Policy COLUMBUS PUBIC SCHOOLS
Adopted: 4/10/06 Columbus, Nebraska
Regulation Number Changed: 2/12/07

PUBLIC COMMENT IN BOARD MEETINGS

The board recognizes the importance of citizen participation in school district matters. In order to assure citizens are heard and board meetings are conducted efficiently and in an organized manner, the board shall set time aside for public comment, *[at a specific time during the meeting][and] [prior to the discussion of each agenda item]*. If the pressure of business or other circumstances dictate, the board president may decide to eliminate this practice at a particular meeting and will announce that decision at the beginning of the meeting. The orderly process of the board meeting shall not be interfered with or disrupted. Subjects for comment should involve areas within the board's proper responsibility.

The board has the discretion to limit the amount of time set aside for public comment. The board president shall specify the total amount of time available for public comment prior to opening the public comment period. If public comment is allowed prior to individual agenda items, that limit on the total comment period should also be defined. Individual comments will be limited to 5 minutes for each participant. The board president will recognize these individuals to make their comments at the appropriate time. Only those speakers recognized by the board president shall be allowed to speak. Comments by others are out of order. If disruptive, the individual making the comments or another individual causing disruption may be asked to leave the board meeting.

~~It is helpful if citizens wishing to address the board on a certain agenda item will notify the superintendent prior to the board meeting. Citizens wishing to present petitions to the board relating to that item may do so at this time. However, the board will only receive the petitions and will not act upon them or their contents.~~
The board requires any member of the public desiring to address the body to identify himself or herself, including an address and the name of any organization represented by such person unless the board waives the address requirement to protect the security of the individual.

Individuals who have a complaint about employees or students who have complaints shall follow policies 403.05 and 504.01 respectively. The board will follow policy 1005.01 in handling public complaints.

Any written or printed materials to be circulated for a meeting of the school board must be submitted to the superintendent by the Wednesday preceding a Monday night meeting~~.~~ ~~Adding~~ and such information will only be added to the agenda packet ~~will be~~ at the discretion of the superintendent after consultation with the board president.

Legal Reference: Nebraska Statute 84-1408 to 1414

Cross Reference: 201.07 Board Member Liability
403.05 Public Complaints about Employees

Approved _____ Reviewed _____ Revised _____

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If the pressure of business or other circumstances dictate, the board president may decide to call for a vote to stop or eliminate public participation by a super majority approval vote of the board. The board president will recognize these individuals to make their comments at the appropriate time.

The orderly process of the board meeting shall not be interfered with or disrupted. Only those speakers recognized by the board president shall be allowed to speak. Comments by others are out of order. If disruptive, the individual making the comments or another individual causing disruption may be asked to leave the board meeting.

Citizens wishing to address the Board on a certain agenda item should notify the superintendent prior to the board meeting. Citizens wishing to present petitions to the Board relating to that item may do so at this time. However, the Board will only receive the petitions and not act upon them or their contents.

Subjects for comment should involve areas within the Board's proper responsibility. Discussion on unrelated matters is to be discouraged.

Individuals who have a complaint about employees or students who have complaints shall follow policies 403.05 and 504.01 respectively. The Board will follow policy 1005.01 in handling public complaints.

Any written or printed materials to be circulated for a meeting of the school board must be submitted to the superintendent by the Wednesday preceding a Monday night meeting. This material will be transmitted to the members of the Board for their consideration.

Legal Reference:	Nebraska Statute 84-1408 to 1414
Cross Reference:	201.07 School Board Liability 403.05 Public Complaints about Employees

Policy
Adopted: 12-08-03
Revised: 08/11/08
Revised: 08/16/21

COLUMBUS PUBLIC SCHOOLS
Columbus, Nebraska

CONSTRUCTION PLANS AND SPECIFICATIONS

The Board may engage the services of consultants or other personnel to study the needs of the school district's buildings and sites in providing the education program. The results of these services will be considered in planning the education program and in making decisions about the improvement and acquisition of additional buildings and sites.

In any construction involving architecture or engineering with a cost contemplated to exceed $100,000, and an amount as periodically adjusted by state statute, the board shall engage an architect, a professional engineer, or a person or persons under the direct supervision of an architect or professional engineer to prepare the plans, specifications and estimates for the construction. It shall be the responsibility of the superintendent to make a recommendation to the board regarding the need for such services and who should perform such services for the board.

Buildings considered for purchase or construction by the board or currently owned by the school district and used for the education program must meet, or upon improvement be able to meet, the specifications set by the board. The Board shall make this determination.

Prior to construction or renovation of buildings and sites the board shall make a determination of the method by which it will obtain construction services. If the Board elects by a seventy-five percent affirmative vote to use the Construction Management at Risk or Design-Build methods rather than the traditional Design-Bid-Build method, policies for that respective method must be established prior to selecting the construction services provider.

Prior to remodeling or other construction of buildings and sites, the Board may appoint a committee of consultants, employees, citizens, or others to assist the Board in developing the specifications for the new or improved buildings and sites. These specifications shall be consistent with the education program, and they shall provide the architect with the information necessary to determine what is expected from the facility. It shall be within the discretion of the Board to determine whether a committee shall be appointed.
It shall be the responsibility of the superintendent to make a recommendation to the Board regarding the specifications of buildings and sites.

Legal Reference_____Neb. Statute 81-3445
Cross Reference: 104 Educational and Operational Planning

Policy
Adopted: 6/11/07
Revised: 12/21/15

COLUMBUS PUBLIC SCHOOLS
Columbus, Nebraska
Reviewed: 11/16/15

CONSTRUCTION PLANS AND SPECIFICATIONS

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In any construction involving architecture or engineering with a cost contemplated to exceed $~~100~~118,000, and an amount as periodically adjusted by state statute, the board shall engage an architect, a professional engineer, or a person or persons under the direct supervision of an architect or professional engineer to prepare the plans, specifications and estimates for the construction.

It shall be the responsibility of the superintendent to make a recommendation to the board regarding the need for such services and who should perform such services for the board.

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Legal Reference: Neb. Statute 81-3445

Cross Reference: 104 Educational and Operational Planning

Approved _____ Reviewed _____ Revised _____

BIDS AND AWARDS FOR CONSTRUCTION CONTRACTS

Public, competitive sealed bids are required for construction projects, including renovation and repair, with a cost exceeding $~~100~~109,000 and an amount as periodically adjusted by state statute. This does not apply to the acquisition of existing buildings, purchase of new sites or site expansions by the district. The sealed bids shall be opened in public on the date and hour as advertised.

The award of construction contracts will, generally, be made to the lowest responsible bidder. The board, in its discretion, after considering factors relating to the construction, including, but not limited to, the cost of the construction, availability of service and/or repair, completion date, and any other factors deemed relevant by the board, may choose a bid other than the lowest bid. Resident bidders of the state of Nebraska may be given preference over nonresident bidders in some instances according to state statutes. The board shall have the right to reject any or all bids, or any part of the bids, to waive informalities, and to enter into the contract or contracts deemed to be in the best interests of the school district.

It shall be the responsibility of the superintendent to make a recommendation accompanied by supportive reasoning to the board for construction contract bids.

The district will require the successful bidder to submit a performance labor and material payment bond for an amount not less than the contract price on any project with a total cost of more than ten thousand dollars.

Legal Reference: Neb. Statute 73-101 et seq.
52-118

Cross Reference: 706 Expenditures

Approved _____ Reviewed _____ Revised _____

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It shall be the responsibility of the superintendent to make a recommendation accompanied by supportive reasoning to the board for construction contract bids.

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Legal Reference: Neb. Statute 73-101 et seq.

52-118

Cross Reference: 706 Expenditures

Policy
Adopted: 6/11/07
Revised: 2/11/08
Revised: 10/19/2015

COLUMBUS PUBLIC SCHOOLS
Columbus, Nebraska

FIELD TRIP OR EXCURSION APPROVAL FORM
Activities That Result In Loss Of Student Days
Out of State Activities

Date: 10/12/22

Proposed excursion date: 3/11-12/2023

Student group for which request is made: CHS Winter Percussion

Purpose of trip:

To Compete at the WGI Regional Competition in Denver

Educational benefit:

This culminating activity is the closest regional event to Columbus. This provides an opportunity for the percussionists to learn from some of the best adjudicators in the country and compete on a regional level.

Nature of request (Check One) ✓ 1 time only Annual

Is the event sanctioned? (NSAA Activity) Yes ✓ No

Cost of trip: ~$350. per student

Cost to district: no district funds are requested at this time.

How will funds be raised: Students will make payments beginning in November. Additionally funds from hosting a contest, booster support and other fundraisers will be used.

Timelines of event: Departure for Denver early Friday March 11, Compete Saturday, . Departure for return to Columbus Sunday morning.

Number of student school days forfeited: none

Other pertinent information:
Itinerary from previous trip is attached.

Approval signatures:

Principal: [signature] Date: 10/12/2

Superintendent: Date:

School Board President:

Date of formal board approval:

Attach the following information along with this request.

1. *A detailed budget including expenses and revenue.*
2. *Travel information.*
3. *Parental permission form.*
4. *NSAA Waiver for competitions in excess of 600-miles round trip.*

WGI Denver Regional

Competition is at: **Legend High School,** 22219 Hilltop Road, Parker CO 80138

We are Staying at: The Element Hotel, 9985 Park Meadows Dr, Lone Tree, CO 80124

Friday, Mar 11, 2022

- 7:00am Rehearsal
- 8:30am Load Trailer
- 9:00am Departure.
- 11:30pm Lunch in Kearney
- 6:00pm - Dinner in Denver
- 7:30pm - Check in at Hotel/sectionals
- 9:30 p.m. - In Rooms
- 10:00 p.m. - Lights out

Saturday Mar 12, 2022

- 8:30 a.m. - Breakfast in Hotel
- 9:00 a.m. - Ensemble walk through at Hotel
- 10:00 a.m. - Depart Hotel
- 10:30 a.m. - Arrival at Legend High School
- 12:27 p.m. - Performance Time
- Lunch and Dinner TBD, likely to be concessions on site.
- 5:15 p.m. - Finals Begin
- 7:15 p.m. - Finals End
- 8:00 p.m. - Return to Hotel
- 10:30 p.m. - Lights out

Sunday, Mar 13, 2022

- 7:30 a.m. - Breakfast
- 8:00a.m. - Depart for Columbus
- 12:00p.m. - Lunch Stop
- 3:30 p.m. - Arrive at CHS Unload

STUDENT NAME_____

PARENTS MUST SIGN:

I have been notified of my child's participation in this event and that he/she will off-campus and under the supervision of Mr. Peabody during the listed times. I understand that all school policies will be in effect and that my child will be expected to comply with these rules and policies.

If you intend to have your child ride home from this event with you please indicate that on this form.

_____ _____

(Date) (Parent signature)

Regular Meeting
Monday, September 19, 2022, 6:00 PM Central

ESU7/CPS Student Services Building
2563 44th Avenue
Columbus, NE 68601

Candace Becher:	Present
Mark Brown:	Present
Michael Jeffryes:	Present
Doug Molczyk:	Absent
Theresa Seipel:	Present
Douglas Willoughby:	Present

Present: 5, Absent: 1.

I. Board Meeting

I.A. Call to Order

I.B. Roll Call of Board

Motion to excuse board member Mr. Molczyk. Passed with a motion by Mark Brown and a second by Candace Becher.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

I.C. Notice of Open Meeting Posted

I.C.1. President insures all can hear proceedings

I.D. Opportunity for Public to be Heard

No one spoke to the Board.

I.E. Board Special Functions

I.E.1. Columbus Public Schools 2022-2023 Budget

The Superintendent recommends the Board approve the 2022-2023 Columbus Public Schools Budget, as submitted. Passed with a motion by Mark Brown and a second by Michael Jeffryes.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

Discussion from the Board was that Mr. Kay did a great job during the hearing.

I.E.2. 2022-2023 Final Tax Request

The Superintendent recommends the Board approve the 2022-2023 Final Tax Request, as submitted. Passed with a motion by Theresa Seipel and a second by Candace Becher.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea

Yea: 5, Nay: 0, Absent: 1

Mr. Kay said by state statute we are required to go through the resolution. He shared that the overall budget is down 5.53%. He will need to get signatures from all board members.

I.E.3. Close Up/Washington DC Trip Approval

The Superintendent recommends that the Board approve the Field Trip/Excursion Approval Form for the Close Up/Washington DC Trip, as submitted. Passed with a motion by Candace Becher and a second by Mark Brown.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

Dave Hiebner, CHS Principal, commented on the great opportunity for this trip is for students. Really great to be able to plan to go after COVID.

I.E.4. RFP Process Approval

The Superintendent recommends that the Board approve the RFP Process, as submitted. Passed with a motion by Mark Brown and a second by Theresa Seipel.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

Dr. Loeffelholz said a vote is not required, but it is good to be transparent for the community. The proposals will be due Oct. 4th. The Finance Committee will need to schedule a committee meeting to narrow down the list for architect interviews. Dr. Loeffelholz also shared the plan to tour school sites on the short list on Wednesday and Friday of this week.

I.F. Recognitions

I.G. Items to be removed from the Consent Agenda
There were no items removed from the Consent Agenda.

I.H. Consent Agenda

Motion to approve the Consent Agenda with addition of the EL family liaison. Passed with a motion by Michael Jeffryes and a second by Mark Brown.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

I.H.1. Approval of Minutes

I.H.2. Financial Reports M2, M3, M4a

Chip Kay, Director of Finance and Human Resources briefed the board regarding the financial reports. The amounts showing are for the end of the fiscal year 2021-2022.

The M3 report is the final revenue statement for the 21-22 fiscal period. It shows 95% of the expected property taxes were collected, 100% of the state aid funds. ESSERS money is on its way through our reimbursement process.

Report M4a shows the slowest two weeks of the budget year, very few checks are written while closing out. He said some time sensitive bills were paid.

I.H.3. Financial Report M5

Report M5 reflects the first 2 weeks of September, many purchase orders are created for beginning of the year items. Mr. Kay said we try to time outgoing funds with revenue receipts. Some payments going out are for the full year of services, memberships that are due, ALICAP insurance premium payment for the year is showing on the report. There is a payment to Gopher for PE equipment.

I.H.4. Certified Personnel
There were no certified staff hires or resignations.

I.H.5. Classified Personnel
Mr. Kay spoke to the classified staff additions at the start of the school year. He said staff is down to 6-8 openings, half are custodial openings that are being filled by ServiceMaster.

I.H.6. Professional Travel

Dr. Loeffelholz mentioned the After-School Program Regional Meeting that Sara Colford attended along with a HAC Meeting for Tim Kwapnioski and a counseling conference attended district wide by CPS counseling staff. He said there was travel by Mr. Kay, Mr. Harris and Mr. L. Kwapnioski along with his own travel in the last month.

I.I. Acceptance of Gifts/Donations

The Superintendent recommends that the Board accept the attached gifts/donations
Passed with a motion by Michael Jeffryes and a second by Candace Becher.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

Dr. Loeffelholz shared the Foundation Report. Total contributions for the month of August were $8,403.87; total contributions for the year is $219,817.17.

I.J. Business Operations and Human Relations

I.J.1. Administrative Functions

I.J.1.1. Fund Raising Applications

The Superintendent recommends that the Board approve the Fundraising Applications, as submitted. Passed with a motion by Mark Brown and a second by Candace Becher.

Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

Mr. Kay informed the board that there were a lot of applications this month, he said, an application won't be attached if it doesn't meet the criteria specified by board policies.

I.J.1.2. Surplus Property Declaration Approval

The Superintendent recommends that the Board approve the listed items to be declared as surplus property. Passed with a motion by Candace Becher and a second by Mark Brown.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

Noted to be declared surplus were guitars, chairs, table and English composition texts.

I.J.2. Updates

I.K. Buildings & Sites/Technology

I.K.1. Administrative Functions

I.K.1.1. Approval for Toro Mower Purchase

The Superintendent recommends that the Board approve the Toro Mower Purchase. Passed with a motion by Mark Brown and a second by Theresa Seipel.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

Mr. Kwapnioski is away at a conference. Dr. Loeffelholz said all the board members received a memo regarding the mower attributes and costs. Mark Brown, board member said the current mower has 5000 hours on it. The information shows that this bid is $8000.00 less than the next bid.

I.K.2. Updates

I.L. Curriculum and Instruction

I.L.1. Updates
Teresa Hausmann, Director of Curriculum, Instruction and Assessment, said she would have data to share at the next meeting.

I.M. Student Services

I.M.1. Updates

Jason Harris, Director of Student Services and Special Education was also away at a conference. Dr. Loeffelholz said that Mr. Harris just finished working on reimbursements. There are a lot of reports coming due. The October 1st count for state aid is coming up

quickly. Mr. Harris is working with Santiago Vasquez, Suzanne Stevenson and Eric Edzards to get the data in Synergy so that the report is ready and all students are accurately accounted for.

I.N. Superintendent's Report

Dr. Loeffelholz thanked the Board for taking the time to meet for two Board Retreats. He said he felt like it cleared the air on where we are going and what we want to do, along with wanting to be completely transparent with staff. Dr. Loeffelholz said we will start scheduling meetings with staff and with community members separately.

I.O. Board Sharing

The Board shared that they enjoyed the Kramer tour last week. Really felt the Board Retreat was great to talk about just the one subject and get ideas about what everyone is thinking and next steps. They are happy that school has started, and things are moving along. All are very appreciative for all the hard work being done and feel it is great to see all the good things that are happening.

II. Executive Session

III. Adjourn

Motion to adjourn Passed with a motion by Theresa Seipel and a second by Douglas Willoughby.

Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea

Yea: 5, Nay: 0, Absent: 1

Adjournment at 6:56.

I, the undersigned, being the duly qualified Secretary for the School District No. 1 of Columbus, Nebraska, certify that the preceding is a true and correct copy of the minutes of the Regular School Board meeting of Monday, September 19, 2022.

_____ _____

President Secretary

Tax Request Hearing
Monday, September 19, 2022, 5:45 PM Central

ESU7/CPS Student Services Building
2563 44th Avenue
Columbus, NE 68601

Candace Becher:	Present
Mark Brown:	Present
Michael Jeffryes:	Present
Doug Molczyk:	Absent
Theresa Seipel:	Present
Douglas Willoughby:	Present

Present: 5, Absent: 1.

I. Board Meeting

I.A. Call to Order

I.B. Roll Call of Board

Motion to excuse Mr. Molczyk from the meeting. Passed with a motion by Mark Brown and a second by Candace Becher.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

I.C. Notice of Open Meeting Posted

I.C.1. President insures all can hear proceedings

I.D. Board Special Functions

I.D.1. Hearings

I.D.1.1. Special Hearing for the purpose of receiving public input on the 2022-2023 Columbus Public Schools Tax Request

Chip Kay, Director of Finance and Human Resources shared information about the Tax Request Hearing Notice. He gave a brief description of all documents showing the Tax Asking Request information. Mr. Kay mentioned that the county assessor sets the tax valuation. The overall tax asking is up 5% from last year, the district had a loss of 3.8 million in state aid.

I.D.1.1.1. Opportunity for Public to be Heard

II. Adjourn

Motion to adjourn Passed with a motion by Candace Becher and a second by Mark Brown.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

I, the undersigned, being the duly qualified Secretary for the School District No. 1 of Columbus, Nebraska, certify that the preceding is a true and correct copy of the minutes of the Regular School Board meeting of Monday, September 19, 2022.

_____ _____

President Secretary

Budget Hearing 2022-23
Monday, September 19, 2022, 5:30 PM Central

ESU7/CPS Student Services Building
2563 44th Avenue
Columbus, NE 68601

Candace Becher:	Present
Mark Brown:	Present
Michael Jeffryes:	Present
Doug Molczyk:	Absent
Theresa Seipel:	Present
Douglas Willoughby:	Present

Present: 5, Absent: 1.

I. Board Meeting

I.A. Call to Order

I.B. Roll Call of Board

Motion to excuse Mr. Molczyk. Passed with a motion by Mark Brown and a second by Candace Becher.
Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

I.C. Pledge of Allegiance

I.D. Notice of Open Meeting Posted

I.D.1. President insures all can hear proceedings

I.E. Mission Statement

I.F. Board Special Functions

I.F.1. Hearings

I.F.1.1. Special Hearing for the purpose of receiving public input on the 2022-2023 Columbus Public Schools Budget

Chip Kay, Director of Finance and Human Resources shared information about the Budget Hearing Notice. He gave a brief description of all documents showing the CPS Budget numbers for the 2022-2023 school year. The overall budget has decreased by 6%.

Mr. Kay also mentioned that CPS will be retiring a bond in December.

I.F.1.1.1. Opportunity for Public to be Heard

II. Adjourn

Motion to adjourn Passed with a motion by Theresa Seipel and a second by Michael Jeffryes.

Doug Molczyk: Absent, Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea
Yea: 5, Nay: 0, Absent: 1

I, the undersigned, being the duly qualified Secretary for the School District No. 1 of Columbus, Nebraska, certify that the preceding is a true and correct copy of the minutes of the Regular School Board meeting of Monday, September 19, 2022.

_____ _____

President Secretary

Columbus Public Schools Administration Building
2508 27th St.
Columbus, NE 68601

Board Retreat 2
Monday, September 12, 2022 6:00 PM Central

Candace Becher:	Present
Mark Brown:	Present
Michael Jeffryes:	Present
Doug Molczyk:	Present
Theresa Seipel:	Present
Douglas Willoughby:	Present

Present: 6.

I. Committee As A Whole

I.A. Call to Order

I.B. Roll Call of Board

I.C. Pledge of Allegiance

I.D. Notice of Open Meeting Posted

I.D.1. President insures all can hear proceedings

I.E. Board Special Functions

I.E.1. RSP & Associates Study Discussion

There was discussion on why the enrollment projections were much lower than expected based on the data we are actually seeing in Columbus with growth in the community. The report shows the most growth in elementary schools not middle and high school.

I.E.2. Notice and Wonder Statements

The Board shared their notice and wonder statements based on information from the report. Conversations included changes to our numbers when the casino opens, birthrates in Columbus, projected greatest growth areas and the possibility of area attendance boundaries being moved to alleviate future overcrowding in elementary buildings.

I.E.3. Facility Action Planning

Dr. Troy Loeffelholz, Superintendent, offered information on some short term fixes and added that once Kramer opens and preschool is moved, it will open up a small amount of space at most of the elementary buildings. He also said North Park, Emerson and West Park still use one space for a gym and cafeteria, adding an eating area to these buildings would be very beneficial. Dr. Loeffelholz also mentioned that adding classrooms to those

buildings would be easy. He also said floor plans for cafeterias and some classrooms have already been created from the last time space was in question.

Questions about needing the remodel/additions along with an additional new school were discussed. The board members also say they still get comments and questions about having the fifth graders in the same building with the eighth graders. Another question is how large does the district want the elementary enrollments to become? The happiest teachers we have seem to be at Emerson and West Park, our smallest school sites.

When discussing the middle school, they will need more cafeteria space for student lunch periods.

Dr. Loeffelholz asked the Board, are you looking at short-term solutions or 10–20-year solutions? The goal is to look long term for CPS. When the decisions were made to build a new high school and to create the Kramer Education Center, those were long term solutions.

People would like us to be everything to everyone, but we may not be able to do that because of budgetary constraints. CPS needs to remember the CORE services, which includes programming at every level in the district. We are short some programming and staff. The discussion on more programming led to our EL programming and the need to hire another person. There are more students that need special education services, some buildings are ill-equipped in some areas. The goal would be to take care of some of these issues earlier and possibly have less programming at the middle school and high school for these services. The percentages at CPS are 20% special education and 18% EL.

Dr. Loeffelholz requested that the board share what their dreams would be if money was not such a large factor. Discussion continued on those ideas, add to the elementary buildings, build a new elementary school, add a fifth and sixth grade wing at CMS, and add 12 rooms to CHS.

Additional ideas were to create an alternative school, add all the programming needed for special education and EL, and build a sports complex.

I.E.4. Financial Discussion

Mr. Kay shared some information on the financial part of making more space for our students. He shared cost of building a new elementary school and additions to existing buildings. He said right now bond rates are high, but they can be refinanced, he will monitor rates. CPS has bonds that will be retired in December 2022.

I.E.5. Next Steps

Dr. Loeffelholz said the next steps would be to make a list based on conversations about the priorities. He recommended we get an RFP with an architect for cost estimation. Look at how much we could request in bond funds and how much if 1.5 cents were added.

Community meetings will need to be scheduled, participants will be asked what their dreams would be, they may have different ideas.

I.E.6. AASPA Discussion

Chip Kay, Director of Finance and Human Relations said he has been asked to speak at the AASPA Conference in Orlando, FL. He is requesting the Board give him permission to attend the conference at very little cost to the district. Most of the cost will be paid by UpBeat.

I.F. Adjourn

Motion to adjourn. Passed with a motion by Michael Jeffryes and a second by Douglas Willoughby.

Candace Becher: Yea, Mark Brown: Yea, Michael Jeffryes: Yea, Doug Molczyk: Yea, Theresa Seipel: Yea, Douglas Willoughby: Yea

Yea: 6, Nay: 0

Adjourned at 7:54.

I, the undersigned, being the duly qualified Secretary for the School District No. 1 of Columbus, Nebraska, certify that the preceding is a true and correct copy of the minutes of the Regular School Board meeting of Monday, September 12, 2022.

_____ _____

President Secretary

Columbus Public Schools
Summary of Cash Balances
September 30, 2022

	DESCRIPTION	BEGINNING BALANCE	MONTH TO DATE RECEIPTS	MONTH TO DATE EXPENDITURES	END OF MONTH BALANCE	YTD BALANCE PRIOR YEAR
General Fund	Attachment M4a			$ 4,078,596.34		
	Attachment M5 (prior Bd Mtg)			$ 1,115,939.96		
	Transfer to GP Savings	$ (2,000,000.00)				
	GEN FUND - GREAT PLAINS STATE BANK	$ 3,237,826.43	$ 8,627,242.58	$ 5,194,536.30	$ 4,670,532.71	$ 5,342,062.93
	GEN FUND- GP SAVINGS	$ 3,004,029.89	$ 2,003,292.02		$ 5,007,321.91	
	Dividends		$ 1,193.87			
	Management Fees			$ 222.53		
	Investment Gain			$ 8,122.74		
	GENERAL FUND - FNB TRUST	$ 925,423.95	$ 1,193.87	$ 8,345.27	$ 918,272.55	$ 954,884.90
	General Fund -Cash Balance				$ 10,596,127.17	
Depreciation GF	Dividends		$ 3,013.42			
	Management Fees			$ 566.57		
	Investment Gain			$ 22,272.12		
	DEPRECIATION - FNB	$ 2,356,142.81	$ 3,013.42	$ 22,838.69	$ 2,336,317.54	$ 2,271,108.48
Tempora ry Funds GF	**PAYROLL - PINNACLE BANK**	$ 142,985.71	$ 3,827,939.87	$ 3,799,221.01	$ 171,704.57	$ 158,893.96
	PAYFLEX - PINNACLE BANK	$ 48,398.59	$ 10,300.19	$ 6,747.68	$ 51,951.10	$ 46,025.74
Activities	Administration	$ 897,049.45	$ 55,042.09	$ 68,945.68	$ 883,145.86	$ 857,120.73
	Middle School	$ 162,320.25	$ 19,296.75	$ 18,388.34	$ 163,228.66	$ 108,717.22
	High School	$ 555,122.70	$ 125,553.68	$ 68,151.81	$ 612,524.57	$ 512,858.63
	ACTIVITY FUNDS - COLUMBUS BANK	$ 1,614,492.40	$ 199,892.52	$ 155,485.83	$ 1,658,899.09	$ 1,478,696.58
Nutrition Fund	Credit card fees received		$ -			
	Interest Income		$ 699.53			
	State Reimbursement		$ -			
	Rct to Expenditures		$ 715.09			
	Student/Staff Meals		$ 74,743.83			
	NUTRITION FUND - CORNERSTONE BANK	$ 827,964.08	$ 76,158.45	$ 186,483.78	$ 717,638.75	$ 285,005.92
Bond Fund	B.O.K. Financial		$ -	$ -		
	Platte County Treasurer		$ 1,200,664.73			
	Butler County Treasurer		$ 3,918.09			
	Polk County Treasurer		$ 801.46			
	Dividends		$ 4,335.98			
	Management Fees			$ 600.89		
	Investment Gain			$ 1,877.68		
	BOND FUND - FNB	$ 2,498,875.61	$ 1,209,720.26	$ 2,478.57	$ 3,706,117.30	$ 2,876,528.23
Special Building Fund	Dividends		$ 341.37			
	Management Fees			$ 95.64		
	Investment Loss			$ 2,262.98		
	SPECIAL BLDG FUND - FNB TRUST	$ 397,718.12	$ 341.37	$ 2,358.62	$ 395,700.87	$ 407,111.48
	BCDM Architects			$ 5,981.17		
	Capital One Public Funding			$ 407,974.24		
	Gilmore & Bell P.C.			$ 2,000.00		
	Kutak Rock LLP			$ 12,665.00		
	Midlands Mechanical Inc			$ 161,968.77		
	Mueller & Schoepf Drywall Inc			$ 156,159.00		
	Rutt's Heating & Air Conditioning, Inc.			$ 110,306.90		
	SPECIAL BLDG FUND - BANK OF THE VALLE	$ 613,637.62	$ 2,915,984.80	$ 857,055.08	$ 2,672,567.34	$ 3,783,409.96
	Special Building Fund - Cash Balance				$ 3,068,268.21	

Columbus Public Schools
General Fund Revenue Detail
September 30, 2022

Account Number	Description	Budget	Month to Date	Year to Date	Balance	Percent
01.1.01100.000.000	Property Taxes	($24,325,478.00)	($6,870,881.07)	($6,870,881.07)	($17,454,596.93)	28.25%
01.1.01115.000.000	Carline Taxes	($21,000.00)	($2,782.82)	($2,782.82)	($18,217.18)	13.25%
01.1.01120.000.000	Public Power District Sales Ta	($850,000.00)	$0.00	$0.00	($850,000.00)	0.00%
01.1.01125.000.000	Motor Vehicle Taxes	($2,343,000.00)	($204,893.98)	($204,893.98)	($2,138,106.02)	8.74%
01.1.01312.000.000	Tuition, Summer School	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.01323.000.000	Tuition, SpEd School Age	($35,000.00)	$0.00	$0.00	($35,000.00)	0.00%
01.1.01510.000.000	Interest	($15,000.00)	($8,716.29)	($8,716.29)	($6,283.71)	58.11%
01.1.01540.000.000	Income from Real Property	($25,000.00)	$0.00	$0.00	($25,000.00)	0.00%
01.1.01801.000.000	CASP /Parent Fees	($35,000.00)	($5,769.00)	($5,769.00)	($29,231.00)	16.48%
01.1.01910.000.000	Rental Fees	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.01911.000.000	Local License Fees	($25,000.00)	$0.00	$0.00	($25,000.00)	0.00%
01.1.01990.000.000	Miscellaneous Local Receipts	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.02110.000.000	County Fines&License Fees	($155,000.00)	($39,193.17)	($39,193.17)	($115,806.83)	25.29%
01.1.02790.580.001	School Field Trips	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.03110.000.000	State Aid	($14,316,378.00)	($1,431,638.00)	($1,431,638.00)	($12,884,740.00)	10.00%
01.1.03120.000.000	SpEd Receipts from the State	($2,602,545.00)	$0.00	$0.00	($2,602,545.00)	0.00%
01.1.03125.000.000	SpEd Transportation Receipts f	($135,000.00)	$0.00	$0.00	($135,000.00)	0.00%
01.1.03130.000.000	Homestead Exemption	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.03131.000.000	Property Tax Credit	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.03155.000.000	Textbook Loan Receipts	($25,000.00)	$0.00	$0.00	($25,000.00)	0.00%
01.1.03180.000.000	Pro-Rate Motor Vehicle	($50,000.00)	$0.00	$0.00	($50,000.00)	0.00%
01.1.03400.000.000	State Apportionment	($525,000.00)	$0.00	$0.00	($525,000.00)	0.00%
01.1.03500.110.000	Elementary Attendance Monitor	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.03535.000.000	High Ability Learner Allocatio	($25,000.00)	$0.00	$0.00	($25,000.00)	0.00%
01.1.03540.000.000	State Early Childhood Grant	($150,940.00)	($29,607.00)	($29,607.00)	($121,333.00)	19.62%
01.1.03541.000.000	Early Childhood Endowment Gran	($164,500.00)	($24,548.00)	($24,548.00)	($139,952.00)	14.92%
01.1.03590.000.000	Opportunity Grant	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.03599.000.000	Education Quest College Access	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.03599.000.001	Education Quest College Access	($20,000.00)	$0.00	$0.00	($20,000.00)	0.00%
01.1.03995.000.000	Nebraska VR	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.04505.000.000	ESSA Title I Receipts	($568,214.00)	$0.00	$0.00	($568,214.00)	0.00%
01.1.04509.000.000	ESSA Title II Receipts	($106,004.00)	$0.00	$0.00	($106,004.00)	0.00%
01.1.04510.000.000	ESSA Title IV SSAE Grant	($41,513.00)	$0.00	$0.00	($41,513.00)	0.00%
01.1.04516.000.000	IDEA Preschool Enrollment/Pove	($24,723.00)	$0.00	$0.00	($24,723.00)	0.00%
01.1.04518.000.000	IDEA Enrollment/Poverty Grant	($928,690.00)	$0.00	$0.00	($928,690.00)	0.00%
01.1.04521.000.000	IDEA Proportionate Share	($134,873.00)	$0.00	$0.00	($134,873.00)	0.00%
01.1.04524.000.000	ECF	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.04525.000.000	Carl Perkins Grants	($41,918.00)	$0.00	$0.00	($41,918.00)	0.00%
01.1.04526.000.000	Perkins Revision Grant	($100,000.00)	$0.00	$0.00	($100,000.00)	0.00%
01.1.04527.000.000	ESSA Title III LEP Grant	($79,934.00)	$0.00	$0.00	($79,934.00)	0.00%
01.1.04528.000.000	Title III Immigrant	($54,397.00)	($12,223.00)	($12,223.00)	($42,174.00)	22.47%
01.1.04530.000.000	Federal Grant NC/FF/ECF	$0.00	$0.00	$0.00	$0.00	#DIV/0!

Columbus Public Schools
General Fund Revenue Detail
September 30, 2022

Account Number	Description	Budget	Month to Date	Year to Date	Balance	Percent
01.1.04531.000.000	ESSA Title IV Part B 21st Cent	($149,163.00)	$0.00	$0.00	($149,163.00)	0.00%
01.1.04708.000.000	Medicaid in Public Schools	($34,643.00)	$0.00	$0.00	($34,643.00)	0.00%
01.1.04969.000.000	ESSA Title IV SSAE Grant	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.04995.000.000	FEMA/Federal Disaster Funds	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.04996.000.000	Covid 19 Revenue	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.04997.000.000	Cares Act II	($350,000.00)	$0.00	$0.00	($350,000.00)	0.00%
01.1.04998.000.000	Cares Act III	($1,400,000.00)	$0.00	$0.00	($1,400,000.00)	0.00%
01.1.05200.000.000	Transfers from Other Funds	$0.00	$0.00	$0.00	$0.00	#DIV/0!
01.1.05690.000.000	Other Non-Revenue Receipts (Rt	$0.00	$0.00	$0.00	$0.00	#DIV/0!
		($49,857,913.00)	($8,630,252.33)	($8,630,252.33)	($41,227,660.67)	17.31%
	Transfers					
	Reimbursements/ Refunds		($2,122.87)			
	Interest - Other Accounts		$5,132.62			
	Total Revenue		**($8,627,242.58)**			

Check Number	Vendor	Amount
12812	SCHOOL DISTRICT #1-PAYROLL	$3,689,616.24
12813	ASSOCIATED STAFFING, INC	$6,217.01
12814	CENTRAL NEBRASKA REHAB. SERV	$9,377.44
12815	CITY OF COLUMBUS WATER & SANITATION DEPA	$50.99
12816	CITY OF COLUMBUS-TRANSFER STATION	$433.32
12817	COLUMBUS SCHOOL LUNCH FUND-CHS	$715.09
12818	LOUP POWER DISTRICT	$287.47
12819	LOUP POWER DISTRICT	$33.71
12820	MOSER, ELIJAH	$105.00
12821	NAFME (NATIONAL ASSOC. FOR MUSIC EDUC.)	$135.00
12822	NASB ALICAP	$447.00
12823	PINNACLE BANK OMAHA	$165.00
12824	PRESTO-X-COMPANY	$19.02
12825	QUADIENT FINANCE USA, INC	$556.15
12826	QUALITY SOUND & COMMUNICATIONS INC	$16.17
12827	REMIND101, INC	$11,786.74
12828	SERVICEMASTER BY SHEVLIN	$78,782.00
12829	UNK ACADEMIC AND CAREER SERVICES	$110.00
12830	AMAZON CAPITAL SERVICES	$1,877.65
12831	CAPITAL ONE/WALMART	$478.37
12832	HY-VEE FOOD STORES	$112.65
12833	SUPER SAVER	$1,131.29
12834	ALLSMAN, LOGAN	$15.36
12835	ASSOCIATED STAFFING, INC	$4,312.95
12836	AWARDS & ENGRAVING	$9.35
12837	BETHUNE, JENEE	$480.00
12838	CAROLINA BIOLOGICAL SUPPLY CO.	$100.97
12839	COMPUTERS ETC	$28.64
12840	DAYLIGHT DONUTS	$29.35
12841	ELECTRICAL ENGINEERING & EQUIP	$3,771.36
12842	GERHOLD CONCRETE CO. INC.	$20.83
12843	JACKSON SERVICES INC.	$148.74
12844	MATHESON TRI-GAS INC	$84.70
12845	MECHANICAL SALES INC	$1,682.00
12846	MOSER, ELIJAH	$88.38
12847	NASB (NE. ASSOCIATION OF SCHOOL BOARDS)	$456.00
12848	NEBRASKA SAFETY CENTER	$150.00
12849	NEBRASKA STATE FIRE MARSHAL	$240.00
12850	NEBSPRA	$70.00
12851	OCCUPATIONAL HEALTH SERVICES	$140.00
12852	PAYFLEX SYSTEMS USA, INC.	$734.80
12853	PRINTCO GRAPHICS, INC	$4,792.73
12854	QUADIENT FINANCE USA, INC	$1,275.99
12855	RUTT'S HEATING & AIR CONDITIONING, INC -	$1,162.50
12856	SCHOOL SPECIALTY, LLC	$493.10

Check Number	Vendor	Amount
12857	STEALTH BROADBAND	$12,010.88
12858	T-BONE TRUCK STOP	$1,586.70
12859	VALENTINOS OF COLUMBUS	$539.50
12860	WEMHOFF, ELIZABETH ALEXANDRIA	$53.76
12861	WOODRIVER ENERGY LLC	$1,824.80
12862	YOUNG, GAVIN	$66.56
12863	ADVANCED FIRE & SAFETY	$584.44
12864	ALLOWAY, LINDA	$500.00
12865	ASSOCIATED STAFFING, INC	$5,505.46
12866	CENTRAL COMM COLLEGE-COL	$15.00
12867	CITY OF COLUMBUS - FINANCE DEPT	$9,952.53
12868	CUNA MUTUAL GROUP	$608.88
12869	DANNELLY, VICTORIA	$212.75
12870	EDUPOINT EDUCATIONAL SYSTEMS	$45,671.00
12871	FIRST NATIONAL BANK OMAHA	$300.09
12872	FIRST NATIONAL BANK OMAHA	$3,074.01
12873	FIRST NATIONAL BANK OMAHA	$2,370.99
12874	FIRST NATIONAL BANK OMAHA	$1,104.18
12875	FIRST NATIONAL BANK OMAHA	$862.00
12876	FIRST NATIONAL BANK OMAHA	$229.38
12877	FIRST NATIONAL BANK OMAHA	$699.25
12878	GAVER, ALLY	$54.00
12879	HIRERIGHT	$34.40
12880	LINCOLN JOURNAL STAR	$356.82
12881	LOUP POWER DISTRICT	$68,098.88
12882	NASPA (NE ASSOC. OF SCHOOL PERSONNEL ADM	$40.00
12883	NCSA	$335.00
12884	OCCUPATIONAL HEALTH SERVICES	$108.00
12885	QUIZLET	$61.18
12886	REARDON LAWN & GARDEN EQUIP.	$194.36
12887	SAPP BROS PETROLEUM	$252.00
12888	SERVICEMASTER BY SHEVLIN	$2,682.30
12889	SNYDER, JENNIFER	$1,000.00
12890	U AND I SANITATION LLC	$1,860.00
12891	UNIVERSITY OF MARYLAND	$350.00
12892	UNIVERSITY OF NE - KEARNEY	$1,000.00
12893	VALENTINOS OF COLUMBUS	$293.32
12894	VIVIAL	$69.90
12895	ACE HARDWARE-COLUMBUS	$69.25
12896	ADVANCE AUTO PARTS	$78.08
12897	AMPLIFIED IT	$1,250.00
12898	AUTOMATION DIRECT	$351.50
12899	BLICK ART MATERIALS	$472.22
12900	BOMGAARS	$134.16
12901	CAPITAL SANITARY SUPPLY	$1,447.03

Check Number	Vendor	Amount
12902	COLUMBUS MUSIC	$18.50
12903	CPM EDUCATIONAL PROGRAM	$157.14
12904	D&K TRAILERS, INC.	$637.50
12905	DEMCO, INC	$219.88
12906	EAKES OFFICE SOLUTIONS	$593.70
12907	EDUPOINT EDUCATIONAL SYSTEMS	$750.00
12908	ESU #7	$533.27
12909	FASTENAL	$114.64
12910	FERGUSON ENTERPRISES INC	$14,186.73
12911	FUN AND FUNCTION	$34.73
12912	GOPHER	$1,871.58
12913	HADLEY-BRAITHWAIT CO.	$28.95
12914	HAL LEONARD	$43.25
12915	INDUSTRIAL ARTS SUPPLY COMPANY	$1,086.24
12916	LUNCHTIME SOLUTIONS, INC	$150.60
12917	MCS - MY CENTRAL SUPPLY	$210.52
12918	MEAD LUMBER COMPANY	$17.56
12919	MENARDS-COL	$1,094.30
12920	MIDWEST GLASS SERVICE INC.	$6.13
12921	MURPHY-1099, DAWN	$875.00
12922	RUTT'S HEATING & AIR CONDITIONING, INC -	$156.93
12923	RUTT'S MECHANICAL SERVICES, INC	$62,064.00
12924	SCHOLASTIC INC.	$538.45
12925	THE HOME DEPOT PRO	$1,592.63
12926	TIRE OUTLET INC	$15.00
12927	TOOFAST SUPPLY	$118.49
12928	VOSS LIGHTING	$375.00
	Total Fund Expenditures	$4,078,596.34

Check Number	Vendor	Amount
12929	AMAZON CAPITAL SERVICES	$5,430.28
12930	CAPITAL ONE/WALMART	$659.49
12931	HOBBY LOBBY	$37.60
12932	HY-VEE FOOD STORES	$484.82
12933	SUPER SAVER	$551.31
12934	AHRENS, KYLER	$36.69
12935	ASSOCIATED STAFFING, INC	$5,753.19
12936	CITY OF COLUMBUS WATER & SANITATION DEPA	$6,721.83
12937	CITY OF COLUMBUS WATER & SANITATION DEPA	$64.14
12938	DANNELLY, VICTORIA	$104.07
12939	EDUPOINT EDUCATIONAL SYSTEMS	$6,000.00
12940	ESU #7	$480.00
12941	GAVER, ALLY	$108.00
12942	GRAND CANYON EDUCATION	$3,670.00
12943	JACKSON SERVICES INC.	$148.69
12944	LANGUAGE LINE SERVICES INC	$14.75
12945	LOUP POWER DISTRICT	$272.84
12946	MATSON, PAUL	$25.41
12947	NCS PEARSON INC	$933.32
12948	ONE SOURCE	$343.00
12949	PDX READING SPECIALIST, LLC	$181.86
12950	PERRY, GUTHERY, HAASE, & GESSFORD, P.C.	$488.00
12951	PLUNKETTS PEST CONTROL	$690.00
12952	PRESTO-X-COMPANY	$21.21
12953	QUADIENT FINANCE USA, INC	$875.03
12954	QUALITY SOUND & COMMUNICATIONS INC	$16.17
12955	SOCIAL THINKING	$254.30
12956	VERIZON WIRELESS	$403.10
12957	WEMHOFF, ELIZABETH ALEXANDRIA	$80.21
12958	WOODRIVER ENERGY LLC	$34.73
12959	POPPY PUMPKIN PATCH	$420.00
12960	ASSOCIATED STAFFING, INC	$3,809.32
12961	BIG APPLE BAGELS	$107.45
12962	CITY OF COLUMBUS - FINANCE DEPT	$27,536.55
12963	CITY OF COLUMBUS-TRANSFER STATION	$240.81
12964	COLFORD, SARA	$37.20
12965	COLUMBUS SCHOOL LUNCH FUND-CHS	$1,337.02
12966	CULLIGAN	$65.19
12967	EMBASSY SUITES - LINCOLN	$268.00
12968	ESU #7 SPECIAL EDUCATION	$27,063.08
12969	ESU #10	$60.00
12970	FATHER FLANAGAN'S BOYS' HOME	$25,725.00
12971	HAMPTON INN-KEARNEY	$742.00
12972	HOMETOWN LEASING	$6,749.98

Check Number	Vendor	Amount
12973	LOEFFELHOLZ, TROY	$171.79
12974	LOUP POWER DISTRICT	$33.39
12975	MOSYLE CORPORATION	$1,604.00
12976	NASB (NE. ASSOCIATION OF SCHOOL BOARDS)	$2,696.00
12977	NCSA	$290.00
12978	NCSA	$235.00
12979	NSASSP	$80.00
12980	PINNACLE BANK OMAHA	$165.00
12981	SERVICEMASTER BY SHEVLIN	$43,622.00
12982	SODEXO, INC & AFFILIATES	$351.00
12983	SWANK MOVIE LICENSING USA	$783.00
12984	WOODRIVER ENERGY LLC	$6,561.92
12985	YOUNG, GAVIN	$97.28
12986	A-1 FLAGS, POLES & REPAIR	$413.00
12987	ALLEN, ETHAN	$97.97
12988	ALONSO, DORELI	$57.16
12989	BATES, LINDSEY	$270.76
12990	BLASER, AMY	$270.76
12991	BLAZER MANUFACTURING CO.INC.	$20.00
12992	BOMGAARS	$194.33
12993	BRADY, LANA CHERISE	$250.56
12994	CAPITAL SANITARY SUPPLY	$215.77
12995	CISNEROS, MAURO	$68.12
12996	COLE, CRYSTAL	$149.63
12997	COLUMBUS MUSIC	$277.80
12998	CYZA, NICOLE	$270.76
12999	DONOGHUE, TRACY	$384.76
13000	EAKES OFFICE SOLUTIONS	$21,055.21
13001	EDUPOINT EDUCATIONAL SYSTEMS	$9,000.00
13002	ESPINO, ROSARIO	$137.72
13003	ESPINOZA-MANZANO, LIZBETH	$64.96
13004	ESTRADA, NEREIDA	$247.40
13005	ESU #7	$55.83
13006	EXPERT TA, LLC	$270.00
13007	FERGUSON ENTERPRISES INC	$99.96
13008	FREEMAN, TYLER	$187.04
13009	GALLEY, SHANNON	$224.44
13010	GEHRING CONST. & READY MIX CO.	$28.56
13011	GRACE ABBOTT SCHOOL OF SOCIAL WORK	$80.00
13012	GRAFE, TARA	$427.52
13013	GREAT PLAINS BUILDING SUPPLY CO.	$50.98
13014	HOESING, KRISTIN	$236.91
13015	HOLLIS, EMILY	$270.75
13016	IMAGE TECH & PRINTING	$594.00

Check Number	Vendor	Amount
13017	INNESS, SARAH	$236.91
13018	JARESKE, CHRISTINA	$236.91
13019	JARESKE, KELSEY	$236.91
13020	JUAREZ, ANDREA	$37.12
13021	KOHL, CHELSEY	$224.44
13022	LAPOINTE, KENDRA	$187.04
13023	LOVELESS, STACY	$270.76
13024	LUNCHTIME SOLUTIONS, INC	$937.00
13025	MATHESON TRI-GAS INC	$31.85
13026	MEAD LUMBER COMPANY	$6.98
13027	MENARDS-COL	$604.40
13028	MERRILL, KIM	$352.70
13029	MICEK, ERICA	$240.48
13030	MUCHMORE, KELLY	$270.76
13031	MUELLER, PAM	$169.22
13032	NCECBVI	$4,600.00
13033	NEBRASKA STATE FIRE MARSHAL	$120.00
13034	O'REILLY AUTO PARTS-COL	$35.96
13035	OMAHA MUSIC THERAPY LLC	$3,754.08
13036	ONE SOURCE	$41.00
13037	ORTIZ, MARIA	$92.80
13038	PACZOSA, MEGAN	$224.44
13039	PAPER TIGER, INC.	$284.55
13040	PAR, INC	$291.50
13041	PRESENCELEARNING INC	$28,423.78
13042	PYRAMID SCHOOL PRODUCTS	$71.38
13043	REALLY GREAT READING COMPANY, LLC	$215.04
13044	REIGLE IMPLEMENT	$39.45
13045	RETZLAFF, JESSICA	$270.76
13046	RIVERSIDE PORTABLES, LLC	$255.00
13047	RUTT'S HEATING & AIR CONDITIONING, INC -	$202.76
13048	SCHOLASTIC INC.	$104.39
13049	SCHOOL SPECIALTY, LLC	$58.22
13050	SERRANO, ANGEL	$111.36
13051	SETTLES, ERIN	$236.92
13052	SONOVA USA, INC.	$126.59
13053	SPECIALTEE SCREEN PRINTING	$3,030.00
13054	STAROSCIK, KRISTINE	$228.01
13055	STEMPEK, STACI	$272.54
13056	TAYLOR, BROOKE	$338.45
13057	TELLEZ, GAMALIEL	$384.76
13058	THE DBQ COMPANY	$1,875.00
13059	THE HOME DEPOT PRO	$145.84
13060	TIRE OUTLET INC	$15.00

Check Number	Vendor	Amount
13061	TWOREK, DANIEL	$270.76
13062	VERNIER SOFTWARE & TECHNOLOGY	$1,092.65
13063	VIERGUTZ, NATISHIA	$224.45
13064	WEMHOFF, ASHLEY	$304.60
13065	ZIMMERMAN, ALYSSA	$137.16
13066	ESU #7	$15,176.13
	Total Fund Expenditures	**$288,807.49**

Travel Report

October 2022

DATE	# DAYS	NAME	EVENT NAME	EST COST$	
9/12/2022	3.00	JORDAN HITCHCOCK	RHYTHIN TWENTY LEADERSHIP RETREAT - ESTES PARK, CO	$495.00	
9/15/2022	0.75	SARA COLFORD	UNK TEACHER FAIR - KEARNEY	$0.00	
9/16/2022	1.00	SARA COLFORD	ASP CONFERENCE - KEARNEY	$0.00	
9/19/2022	3.00	LEONARD KWAPNIOSKI	MES CONFERENCE - LAS VEGAS	$0.00	
9/19/2022	2.00	JASON HARRIS	THRIVING CHILDREN & FAMILIES CONFERENCE - KEARNEY	$312.50	
9/19/2022	2.00	SARA COLFORD	THRIVING CHILDREN & FAMILIES CONFERENCE - KEARNEY	$0.00	
9/20/2022	1.00	KRISTIN BIGGS	NE ASD NETWORK TRANSITION TRAINING - NORFOLK	$165.00	
9/20/2022	1.00	RYAN GOETSCH	NE ASD NETWORK TRANSITION TRAINING - NORFOLK	$165.00	
9/21/2022	1.00	AMY HAYNES	SCHOOL LAW CONFERENCE - KEARNEY	$140.00	
9/22/2022	1.00	CHIP KAY	CONSTRUCTION CONFERENCE - KEARNEY	$95.00	
9/22/2022	2.00	BRANDI FLEMING	NACIA CONFERENCE - NEBRASKA CITY	$0.00	
9/22/2022	2.00	JESSICA VOLKER	NACIA CONFERENCE - NEBRASKA CITY	$0.00	
9/22/2022	2.00	MICHELLE OPPLIGER	NACIA CONFERENCE - NEBRASKA CITY	$0.00	
9/22/2022	2.00	TERESA HAUSMANN	NACIA CONFERENCE - NEBRASKA CITY	$0.00	
9/23/2022	1.00	KIM LOEFFELHOLZ	COUNSELOR UPDATE FOR UNIV & STATE COLLEGES - OMAHA	$0.00	
9/23/2022	1.00	GUADALUPE MARINO RAMIREZ	COUNSELOR UPDATE FOR UNIV & STATE COLLEGES - OMAHA	$0.00	
9/28/2022	1.00	CINDY CAMPBELL	HASTINGS COLLEGE MURAL DAY - HASTINGS	$165.00	
9/28/2022	1.00	KELSEY PLANCE	UNK HEALTH SCIENCE CAREER FAIR - KEARNEY	$165.00	
9/28/2022	1.00	KIM LOEFFELHOLZ	UNK HEALTH SCIENCE CAREER FAIR - KEARNEY	$0.00	
9/28/2022	1.00	SAMANTHA WOLFF	UNK HEALTH SCIENCE CAREER FAIR - KEARNEY	$165.00	
9/28/2022	2.00	JASON HARRIS	EDUCATORS ACADEMY FOR LEGISLATIVE ADVOCACY - LINCOLN	$496.00	
10/5/2022	0.75	AMY HAYNES	REGION III MEETING - NORFOLK	$0.00	
10/11/2022	1.00	BRANDI FLEMING	ACCELERATED LEARNING SEMINAR - KEARNEY	$0.00	
10/11/2022	1.00	TERESA HAUSMANN	ACCELERATED LEARNING SEMINAR - KEARNEY	$0.00	
10/11/2022	1.00	MICHELLE OPPLIGER	ACCELERATED LEARNING SEMINAR - KEARNEY	$0.00	
10/11/2022	1.00	JESSICA VOLKER	ACCELERATED LEARNING SEMINAR - KEARNEY	$0.00	
10/13/2022	2.00	TROY LOEFFELHOLZ	GNS MEETING - NEBRASKA CITY	$0.00	
				$0.00	
				$2,363.50	**Total**

COLUMBUS PUBLIC SCHOOLS FOUNDATION

2508 27th Street, P.O. Box 947, Columbus, NE 68602-0947 Phone: 402-563-7000, Ext. 13033 Fax: 402-563-7005

October 11, 2022

Doug Molczyk
Board of Education
Columbus Public Schools

Dear President Molczyk and Members of the Board:

The Foundation contributed the following items to Columbus Public Schools during the month of September. On behalf of the Board of Directors for the CPS Foundation and the officers of the thirteen umbrella organizations, we respectfully submit these items to the Board of Education for acceptance.

Foundation
$10,475.20 - Athletic Hall of Fame
$250.00 - CMS Student Emergency Supplies
$25.98 - Educators Rising
$61.17 - Stem on the Go
$639.00 - Discoverer Dash
$379.47 - Staff Campaign Prize
$20,409.26 - Columbus After School Program
$1,429.79 - Comfort Closet
$1,000.00 - Scholarship
$1,925.70 - Classroom Grant
$3,975.00 - Striv TV Platform
$12,015.73 - School Supply Grant

Centennial PAC
$241.52 - Staff Meeting Supplies
$79.98 - Open House Supplies
$205.05 - Popcorn Supplies
$107.17 - Ticket Tuesday Supplies

Emerson PTO
$122.66 - Welcome Back Teacher Breakfast and Snacks
$11.00 - Printing
$18.70 - PTO Meeting Snacks
$359.25 - Student of the Month Medals

North Park PTO
$66.68 - Welcome Back Teacher Breakfast
$96.00 - Open House Cookies
$56.64 - New Teacher Notepads
$902.57 - IPad Charging Station Cords
$96.93 - Parent Teacher Conference Meal
$78.56 - Supplies for Fundraiser/Fall/NP PTO

Band Boosters
$519.23 - Columbus Marching Festival Supplies
$924.00 - Apparel Order
$84.00 - Window Decals
$500.00 - Senior Banners

Sports Boosters
$2,442.00 - Spirit Signs
$375.00 - Signs and Banners
$1,211.70 - Program Printing

West Park PTO
$53.89 - Open House Ice Cream Sandwiches
$105.38 - IPad Charging Station Power Strips
$242.88 - Playground Equipment
$19.99 - American Flag

The total contributions for the month of September was **$61,507.08**
The total contributions for the FY 2022 total is **$281,324.25**
**CPS Foundation's fiscal year is January 1 through December 31.*

Thank you for your consideration.
Sincerely,

Nicole Anderson
Director of Marketing & Foundation

NEBRASKA CAREER AND TECHNICAL EDUCATION

CTE®
Learning that works for Nebraska

NEBRASKA DEPARTMENT OF EDUCATION

SKILLED AND TECHNICAL SCIENCES

PROGRAM OF STUDY STANDARDS

2023–2024

ARCHITECTURE & CONSTRUCTION

ENERGY & ENGINEERING

MANUFACTURING

TRANSPORTATION, DISTRIBUTION, & LOGISTICS

NEBRASKA CAREER AND TECHNICAL EDUCATION STATE MODEL PROGRAMS OF STUDY

CAREER FIELD OVERVIEW

The Skilled and Technical Sciences Career Field Area provides opportunities for students to deepen their understanding of topics in areas such as architectural and design drafting, construction, electricity/electronics, home maintenance, welding, manufacturing, engineering, energy, technical education, and transportation, distribution, and logistics.

PROGRAMS OF STUDY

Programs of Study are the primary delivery model for Career and Technical Education (CTE) in Nebraska. They include a sequence of courses which progresses in specificity and rigor and are updated regularly to align with Nebraska's workforce needs and economic development priorities. This document includes the programs of study and course-based standards for the Skilled and Technical Sciences career field. These state model programs of study were developed to:

- Assist secondary schools in creating meaningful sequences of courses that adequately prepare individuals for seamless transitions to postsecondary education and careers eliminating duplication of coursework;
- Assist students in identifying appropriate courses for high school and postsecondary education that lead to their chosen career;
- Encourage collaboration between secondary and postsecondary education through curricular alignment;
- Offer opportunities for high-quality workplace experiences aligned to students' career interests;
- Promote the advancement of early postsecondary opportunities (including dual-credit courses) for all students; and
- Support postsecondary education options for students to further prepare them for successful transitions to their future careers.

Nebraska's programs of study are organized around Nebraska's CTE Model, which provides a way for students to explore the diversity of career options available to them.

NEBRASKA CAREER AND TECHNICAL EDUCATION MODEL

1 CORE ACADEMICS AND CAREER READINESS

At the center of the NCE Model is the expectation for all students to develop a solid academic core. The next ring identifies specific career readiness standards and practices that prepare students for success in postsecondary education as well as entrepreneurship/employment.

2 CAREER FIELDS

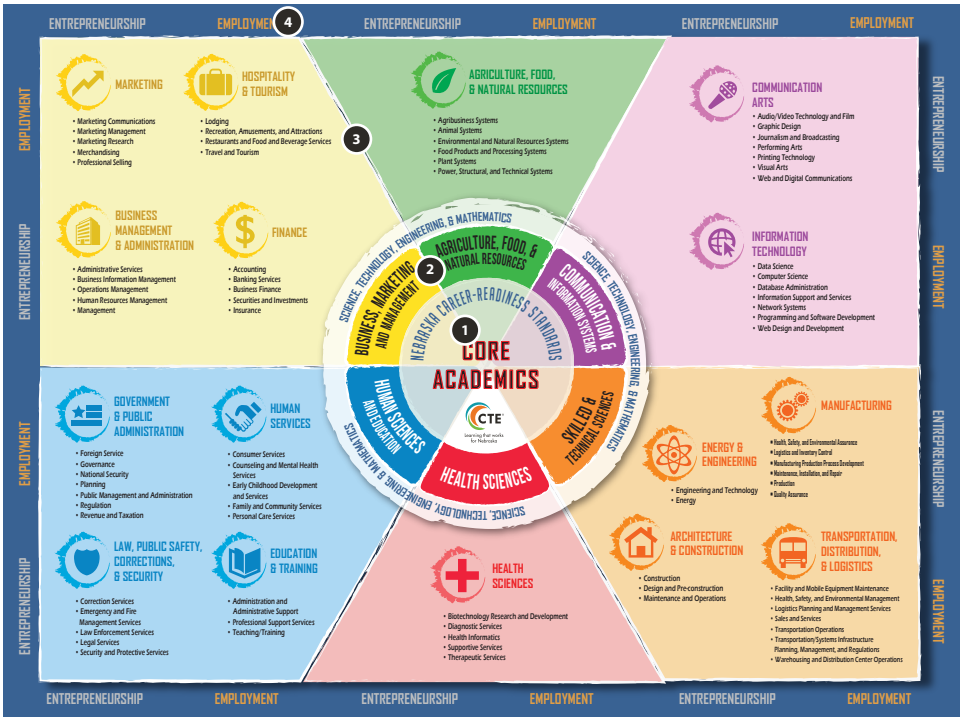
The six career fields represent broad sectors of the job market on which students may choose to focus.

3 CAREER CLUSTERS

Each career field is composed of career clusters radiating out from it. The clusters are more specific segments of the labor market. Each cluster is a grouping of careers that focus on similar subjects or similar skills. A basic understanding and exploration of each of the clusters will provide students with a solid foundation for career decision-making to conceptualize the entire world of work.

4 EMPLOYABILITY AND ENTREPRENEURSHIP

Career education provides the opportunity to gain the knowledge and skills for both employment and entrepreneurship. The reality for Nebraska and the United States is that entrepreneurship will help ensure economic growth and vitality. By infusing entrepreneurship competencies, career education is helping create the next generation of America's innovators and entrepreneurs.



The model is a visual map of "career fields" and "career clusters/pathways" and organizes the 16 National Career Clusters into six broad sectors of entrepreneurship and employment:

- Agriculture, Food and Natural Resources
- Business, Marketing and Management
- Communication and Information Systems
- Health Sciences
- Human Sciences and Education
- Skilled and Technical Sciences

These fields break down into more specific Career Clusters, Pathways and Occupational Specialties. The model provides a way for:

- Students to explore the diversity of career options available to them.
- Students to begin to prepare for their career with plans for secondary and post-secondary education.
- Schools to organize curriculum into Programs of Study that prepare students for opportunities in Nebraska's economy.

COURSE SEQUENCING

The courses within the State Model Program of Study are intended to be offered sequentially, to allow learners to build upon foundational knowledge and skills learned in introductory and intermediate courses and applied in more advanced capstone coursework. Non-duplicative sequences of courses ensure students transition to postsecondary education without duplication of classes and content. CTE enrollment data is collected at the course level. Students who participate and concentrate in CTE generally have more positive outcomes such as higher graduation rates along with postsecondary success.

Introductory Courses

Introductory courses set the foundation for a program of study by introducing students to broad foundational knowledge relative to an occupational area and career field.

Intermediate Courses

Intermediate courses build on the foundational knowledge of Introductory courses to further develop the academic, technical, and career readiness skills within a particular career field and occupational area.

Capstone Courses

Capstone courses are occupationally specific and further develop the necessary and required academic, technical, and career readiness skills needed for seamless transitions to postsecondary education and employment. Capstone courses often provide opportunities for students to earn postsecondary credit.

Levels of Participation

CTE Participant

A student who has earned one or more credits in any career and technical education program area.

CTE Concentrator

A secondary student who, in grades 9 through 12, has earned credit in at least two courses in a single career cluster program at the intermediate or capstone level.

State Model Programs of Study are coordinated, nonduplicative sequences of academic and technical content at the secondary and postsecondary levels that incorporate challenging State academic standards, address both academic and technical knowledge and skills, including Nebraska's Career Readiness Skills, are aligned with the needs of industries in Nebraska's economy, progress in specificity, have multiple entry and exit points that incorporate credentialing, and culminate in the attainment of a recognized postsecondary credential.

COURSE-BASED STANDARDS

Individual CTE courses, which make up the sequence of courses for Programs of Study, include content area standards and indicators to provide a framework for quality teaching and learning. While not required by state law, districts are encouraged to adopt these State Model Programs of Study and their related course-based standards. CTE State Model Programs of Study and course-based standards are revised on a five-year cycle to remain responsive to the rapid advances and needs of business and industry, help students explore a variety of postsecondary options and corresponding entrance requirements to help identify their next steps, and to align to changes in postsecondary programs.

Standards

At the highest level of generality, content area standards include a set of broad, overarching content-based statements that describe the basic cognitive, affective, or psychomotor expectations of students. They reflect long-term goals for learning.

Indicators

Under each standard are indicators, which further describe what a student must know and be able to do to meet the standard. Indicators are performance-based statements that provide educators with a clear understanding of the expected level of student learning and guidance. Indicators provide guidance for an assessment of student learning.

EXPANDED LEARNING OPPORTUNITIES

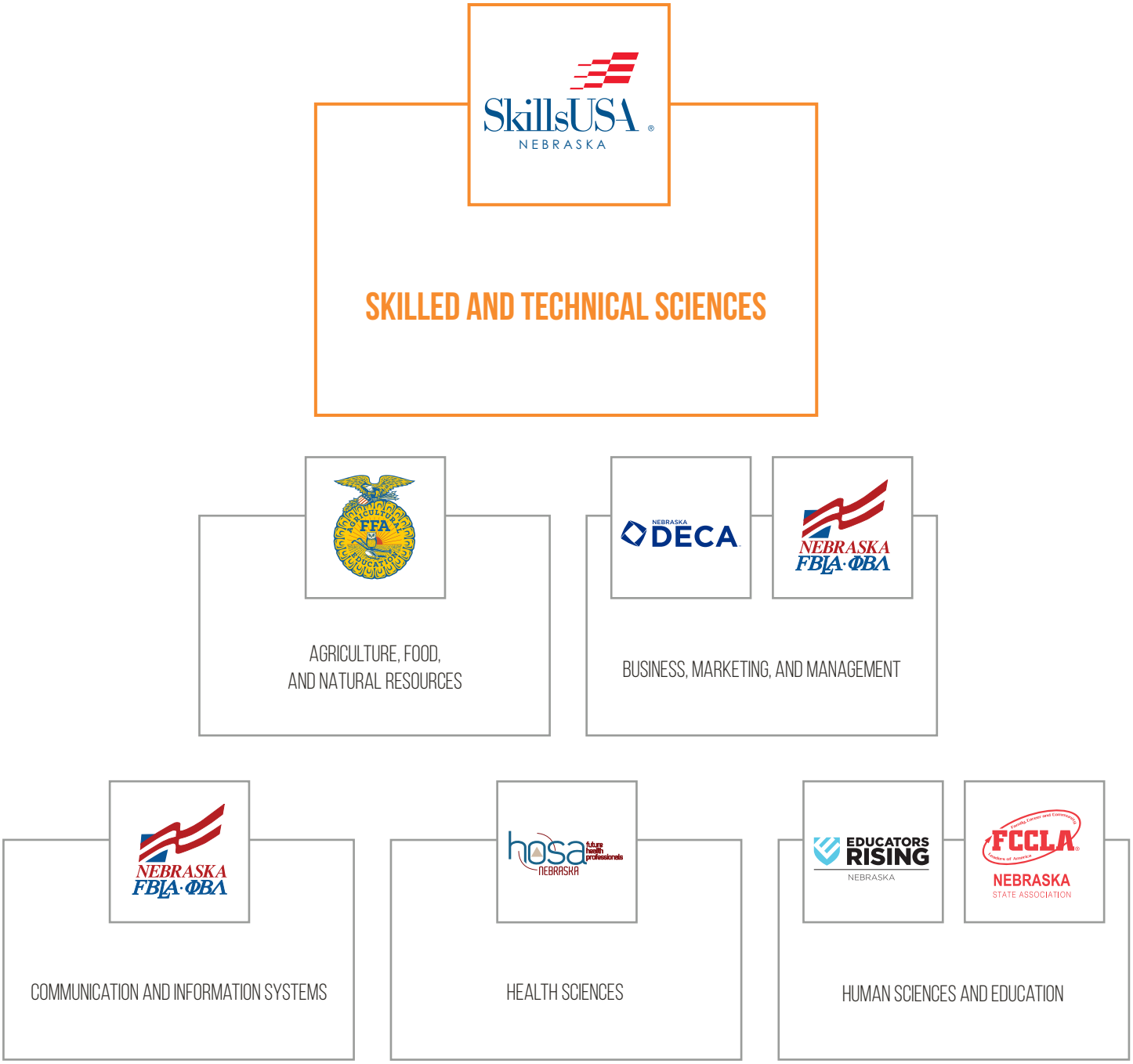
Expanded learning opportunities build on, support, and enhance learning within and outside of regular school programming. They are a critical component of Nebraska's educational landscape and should be intentionally supported to further develop students' college and career readiness. To signal aligned expanded learning opportunities, each Program of Study identifies additional areas where students may desire to personalize their program and take additional coursework or work-based learning that aligns with their interests. These expanded learning opportunities are not considered part of a Program of Study nor are they required, but rather a meaningful opportunity for students to continue to learn after completing the Program of Study sequence of courses within the context of their career interests. Along with aligned coursework, two prominent expanded learning opportunities include participating in Work-based Learning or a Career and Technical Student Organization.

Work-Based Learning

Work-Based Learning (WBL) connects learners with employers to prepare them for success in an everchanging workplace. WBL is a planned program of meaningful experiences related to the career interests of learners that enables them to acquire knowledge and skills in a real or simulated work setting. It requires strong partnerships between schools, colleges, and local employers. WBL is learning through work, not simply learning about work. Expanding high-quality WBL opportunities for students is one of Nebraska's CTE strategic priorities and is a program quality accountability indicator. Nebraska CTE affirms WBL as a critical component of career development. Throughout the State Model Programs of Study, courses where WBL is embedded into the class is noted in the course title (e.g., "Architecture & Construction Work-Based Learning Experience"). It is also signaled as an expanded learning opportunity across all programs of study.

Career And Technical Student Organizations

Career and Technical Student Organizations (CTSOs) are an extension of classroom instruction—applying classroom learning to real-world experiences. CTSOs provide opportunities for all students to develop career readiness skills through activities, competitions, and community service. Nebraska recognizes seven CTSOs aligned with the state's Programs of Study and career field areas. These include:



CAREER READINESS STANDARDS

Embedded into the State Model Programs of Study and courses are the Nebraska Career Readiness standards. These standards rest on important "practices and proficiencies" with long-standing importance in career education. These standards and related practices are not limited to formal CTE programs nor to the middle school or high school level. Rather, these standards and practices should be used over and over again with increasing complexity and relevance by students as they progress through their educational pathway. The standards themselves do not dictate curriculum, pedagogy or delivery of content. Schools and colleges may handle the teaching and assessing of these standards in many different ways.

THE CAREER READY INDIVIDUAL...

1. Applies appropriate academic and technical skills

2. Communicates effectively and appropriately

3. Contributes to employer and community success

4. Makes sense of problems and perseveres in solving them

5. Uses critical thinking

6. Demonstrates innovation and creativity

7. Models ethical leadership and effective management

8. Works productively in teams and demonstrates cultural competency

9. Utilizes technology

10. Manages personal career development

11. Attends to personal and financial well-being

ARCHITECTURE AND CONSTRUCTION CLUSTER

Program of Study Name	Introductory Course	Intermediate Course	Capstone Course	Expanded Learning Opportunity
ARCHITECTURAL DESIGN (Pages 10–17)	100100 - Introduction to Skilled and Technical Sciences	100140 - Architectural Design 1, OR 090109 - Home Design and Interiors (FCS)	100141 - Architectural Design 2	320703 - Architecture & Construction Work-Based Learning Experience
CONSTRUCTION (Pages 18–26)	100100 - Introduction to Skilled and Technical Sciences, OR 100405 - Residential Electrical Wiring	1000110 - Construction Trades 1, OR 016000 - Power, Structural, & Technology Systems Fundamentals (AFNR)	100120 - Construction Trades 2	320703 - Architecture & Construction Work-Based Learning Experience

ENERGY AND ENGINEERING CLUSTER

Program of Study Name	Introductory Course	Intermediate Course	Capstone Course	Expanded Learning Opportunity
ENERGY (Pages 27–35)	100406 - Fundamentals of Energy	100408 - Sustainable Energy	100407 - Physics & Mathematics of Energy	320707 - Energy & Engineering Work-Based Learning Experience
ENGINEERING (Pages 36–47)	100100 - Introduction to Skilled and Technical Sciences, OR 103191- Engineering Design & Systems Thinking, OR 100160 - PLTW Principles of Engineering, OR 100161 - PLTW Introduction to Engineering Design	103192 - Engineering Problem Solving, OR 103194 - Robotics, OR 100164 - PLTW Aerospace Engineering, OR 100162 - PLTW Civil Engineering & Architecture, OR 101901 - PLTW Computer Integrated Manufacturing, OR 100403 - PLTW Digital Electronics	103193 - Systems Engineering & Project Management, OR 103195 - Advanced Robotics, OR 100163 - PLTW Engineering Design & Development	320707 - Energy & Engineering Work-Based Learning Experience

MANUFACTURING CLUSTER

Program of Study Name	Introductory Course	Intermediate Course	Capstone Course	Expanded Learning Opportunity
MANUFACTURING (Pages 48–84)	100100 - Introduction to Skilled and Technical Sciences, OR 100130 - Drafting & Design	101920 - Manufacturing Processes - Woods, OR 101400 - Manufacturing Processes - Metals, OR 101950 - Manufacturing Processes - Plastics, OR 100401 - Introduction to Electronics	101921 - Manufacturing Production - Woods, OR 101401 - Manufacturing Production - Metals, OR 101951 - Manufacturing Production - Plastics, OR 101900 - Introduction to Mechatronics, OR 100402 - Advanced Electronics, OR	320715 - Manufacturing Work-Based Learning Experience 101922 - Advanced Manufacturing & Fabrication – Woods, OR 101402 - Advanced Manufacturing & Fabrication – Metals, OR 101952 - Advanced Manufacturing & Fabrication – Plastics
WELDING (Pages 85–95)	100100 - Introduction to Skilled and Technical Sciences	101930 - Welding 1, OR 016004 - Welding (AFNR)	101940 - Welding 2, OR 016005 - Metals & Fabrication (AFNR)	101941 - Welding 3, OR 320715 - Manufacturing/ Welding Work-Based Learning Experience

TRANSPORTATION, DISTRIBUTION, AND LOGISTICS CLUSTER

Program of Study Name	Introductory Course	Intermediate Course	Capstone Course	Expanded Learning Opportunity
TRANSPORTATION, DISTRIBUTION, & LOGISTICS - SUPPLY CHAIN (Pages 96–100)	101601 - Introduction to Transportation, Distribution & Logistics	100610 - Distribution & Logistics	101650 - Business Logistics	320717- Transportation, Distribution & Logistics Work-Based Learning Experience
TRANSPORTATION, DISTRIBUTION, & LOGISTICS - TECHNICIAN (Pages 101–116)	100100 - Introduction to Skilled and Technical Sciences, OR Power Equipment, OR 016003 - Power, Structural, and Technical Systems (AFNR)	101600 - Transportation 1	101620 - Transportation 2, OR 101640 - Collision Repair	101630 - Transportation 3, OR 320717 - Transportation, Distribution, & Logistics Work-Based Learning Experience

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES

COURSE DESCRIPTION

This introductory course provides the skills and technical knowledge for a beginning student in areas of industry, safety, material, equipment, and process understanding. This entry level course helps students gain a foundation in all areas of Skilled and Technical Sciences including Architecture and Construction; Energy and Engineering; Manufacturing; and Transportation, Distribution, and Logistics.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.19.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.19.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.19.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.19.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.19.1.d Employ the safe application of tools and machines.

STS.HS.19.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.19.1.f Demonstrate proper handling and storing of materials.

STS.HS.19.2 Identify career opportunities in Skilled and Technical Sciences areas.

STS.HS.19.2.a Identify responsibilities and characteristics of professionals in a skilled and technical sciences industry.

STS.HS.19.2.b Describe work behaviors needed to be employable in a skilled and technical sciences industry.

STS.HS.19.2.c Identify the training, education, certification, and licensing requirements for various careers in a skilled and technical sciences industry.

STS.HS.19.2.d Identify high wage, high demand, and high skill careers in skilled and technical sciences.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES (cont.)

STS.HS.19.3 Apply appropriate academic and technical skills to produce a product.

STS.HS.19.3.a Employ project-related math operations and formulas.

STS.HS.19.3.b Employ effective verbal, written, and/or visual communication skills.

STS.HS.19.3.c Define course content vocabulary.

STS.HS.19.3.d Conduct the accurate use of measurement tools.

STS.HS.19.4 Identify the materials, tools, machines, and equipment required to produce a product.

STS.HS.19.4.a Identify types of materials to be used for various products.

STS.HS.19.4.b Identify types of fasteners for various products.

STS.HS.19.4.c Identify types of adhesives for various products.

STS.HS.19.4.d Identify types of finishes for various products.

STS.HS.19.4.e Identify the correct tools, machines, and equipment appropriate for a specific operation or process.

STS.HS.19.5 Produce a product(s).

STS.HS.19.5.a Interpret working drawings of a product to be produced.

STS.HS.19.5.b Select the proper materials adhesives, fasteners and finishes for a product.

STS.HS.19.5.c Demonstrate the proper tool, machine, or equipment selection and usage for each corresponding operation needed to produce a product.

STS.HS.19.5.d Execute a plan of procedure.

ARCHITECTURAL DESIGN 1

COURSE DESCRIPTION

This intermediate course provides students with an introduction into Computer-Aided-Drafting (CAD) and the foundation for architectural design. Architectural styles, design and construction procedures as well as knowledge of working drawings needed to build a structure will be included.

Target Grades: 10-12.

STANDARDS AND INDICATORS:

STS.HS.6.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.6.1.a	Employ eye protection in compliance with Neb. Rev. Statute 79-715.
STS.HS.6.1.b	Identify office safety hazards.
STS.HS.6.1.c	Employ appropriate Personal Protective Equipment (PPE).
STS.HS.6.1.d	Employ proper ergonomics.
STS.HS.6.1.e	Complete applicable safety assessment with 100% accuracy.

STS.HS.6.2 Identify architectural career opportunities.

STS.HS.6.2.a	Identify the primary duties and attributes of an architect or architectural technician.
STS.HS.6.2.b	Describe the various careers within the architectural profession (i.e., drafting technician, designer, project manager, architect, landscape architect, and interior designer) and the training and certification needed for each.
STS.HS.6.2.c	Identify the relationships between all stakeholders involved in a construction project.
STS.HS.6.2.d	Identify positive work behaviors and personal qualities needed to be employable.

ARCHITECTURAL DESIGN 1 (cont.)

STS.HS.6.3 Apply math terminology, functions, and formulas to architectural design.

STS.HS.6.3.a	Identify whole numbers, decimals, fractions, and complex numbers.
STS.HS.6.3.b	Apply arithmetic operations.
STS.HS.6.3.c	Solve decimal/fraction conversions.
STS.HS.6.3.d	Apply algebraic skills to solve problems involving area, volume, and angles.
STS.HS.6.3.e	Explain scale using architect or engineer scales.

STS.HS.6.4 Utilize drafting and design technology.

STS.HS.6.4.a	Employ the appropriate technology tools (i.e., CAD, SolidWorks, Fusion 360, Inventor, etc.) for conveying information, solving problems, and expediting workplace processes.
STS.HS.6.4.b	Employ basic computer and information technology skills used in the drafting industry.
STS.HS.6.4.c	Employ ethical digital citizenship.

ARCHITECTURAL DESIGN 1 (cont.)

STS.HS.6.5 Analyze architectural styles across time.

STS.HS.6.5.a	Identify design principles, elements, and architectural styles.
STS.HS.6.5.b	Identify the building materials, locations, and design that have historically influenced architecture.
STS.HS. 6.5.c	Identify the influence that historical buildings have on today's architecture.

STS.HS.6.6 Identify typical building design and construction methods and practices.

STS.HS.6.6.a	Identify terms and definitions commonly used in the architectural profession.
STS.HS.6.6.b	Identify various digital drafting and modeling options (i.e., CAD/BIM).
STS.HS.6.6.c	Identify the types of materials, their properties, and applications used in building construction.
STS.HS.6.6.d	Identify different types of fasteners, adhesives, and finishes.

STS.HS.6.7 Communicate design solutions.

STS.HS.6.7.a	Identify common line types, symbols, and components that comprise architectural construction working drawings.
STS.HS.6.7.b	Identify dimensions on working drawing.
STS.HS.6.7.c	Create multi-page working drawings.
STS.HS.6.7.d	Employ correct annotation of line type, section line labels, and dimensions.
STS.HS.6.7.e	Create shaded and rendered presentation drawings.

ARCHITECTURAL DESIGN 2

COURSE DESCRIPTION

This capstone course allows students to create working drawings for residential construction and systems that meet industry standards and codes. Students will create working drawings of residential construction systems.

Target Grades: 11-12.

STANDARDS AND INDICATORS:

STS.HS.7.1 Apply safety principles, practices, and guidelines to the work environment.

STS.HS.7.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.7.7.b	Employ eye protection in compliance with Neb. Rev. Statute 79-715.
STS.HS.7.1.c	Identify office safety hazards.
STS.HS.7.1.d	Employ appropriate Personal Protective Equipment (PPE).
STS.HS.7.1.e	Employ proper ergonomics.

STS.HS.7.2 Identify architectural career opportunities.

STS.HS.7.2.a	Identify the primary duties and attributes of an architect or architectural technician.
STS.HS.7.2.b	Identify various careers within the architectural profession as well as the training and certification needed for each.
STS.HS.7.2.c	Identify the relationships between stakeholders involved in a construction project.
STS.HS.7.2.d	Identify positive work behaviors and personal qualities needed to be employable.

ARCHITECTURAL DESIGN 2 (cont.)

STS.HS.7.3 Apply math terminology, functions, and formulas to architectural design.

STS.HS.7.3.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.7.3.b Apply arithmetic operations.

STS.HS.7.3.c Solve decimal/fraction conversions.

STS.HS.7.3.d Apply mathematical functions used to solve problems.

STS.HS.7.3.e Interpret scale using architect or engineer scales.

STS.HS.7.4 Explain site characteristics and how they affect building design and land development.

STS.HS.7.4.a Identify the impact of infrastructure (i.e., storm water runoff, pedestrian and vehicular access).

STS.HS.7.4.b Explain environmental factors essential to design and construction.

STS.HS.7.5 Explain residential and commercial building systems.

STS.HS.7.5.a Identify general categories of structural systems in residential and commercial buildings.

STS.HS.7.5.b Explain code requirements and constraints as they pertain to current local and national building codes.

STS.HS.7.5.c Identify alternative construction methods and materials.

ARCHITECTURAL DESIGN 2 (cont.)

STS.HS.7.6 Create design solutions.

STS.HS.7.6.a Create multipage working drawings.

STS.HS.7.6.b Create applicable drawing views, details, schedules, notes, and index tables.

STS.HS.7.6.c Employ correct annotation of line type, section line labels, and dimensions.

STS.HS.7.7 Produce a project proposal.

STS.HS.7.7.a Employ architectural terminology in all communication.

STS.HS.7.7.b Employ correct annotation of line type, section line labels, and dimensions.

STS.HS.7.7.c Create shaded and rendered presentation drawings.

STS.HS.7.7.d Identify plan review requirements needed to obtain a building permit.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES

COURSE DESCRIPTION

This introductory course provides the skills and technical knowledge for a beginning student in areas of industry, safety, material, equipment, and process understanding. This entry level course helps students gain a foundation in all areas of Skilled and Technical Sciences including Architecture and Construction; Energy and Engineering; Manufacturing; and Transportation, Distribution, and Logistics.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.19.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.19.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.19.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.19.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.19.1.d Employ the safe application of tools and machines.

STS.HS.19.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.19.1.f Demonstrate proper handling and storing of materials.

STS.HS.19.2 Identify career opportunities in Skilled and Technical Sciences areas.

STS.HS.19.2.a Identify responsibilities and characteristics of professionals in a skilled and technical sciences industry.

STS.HS.19.2.b Describe work behaviors needed to be employable in a skilled and technical sciences industry.

STS.HS.19.2.c Identify the training, education, certification, and licensing requirements for various careers in a skilled and technical sciences industry.

STS.HS.19.2.d Identify high wage, high demand, and high skill careers in skilled and technical sciences.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES (cont.)

STS.HS.19.3 Apply appropriate academic and technical skills to produce a product.

STS.HS.19.3.a Employ project-related math operations and formulas.

STS.HS.19.3.b Employ effective verbal, written, and/or visual communication skills.

STS.HS.19.3.c Define course content vocabulary.

STS.HS.19.3.d Conduct the accurate use of measurement tools

STS.HS.19.4 Identify the materials, tools, machines, and equipment required to produce a product.

STS.HS.19.4.a Identify types of materials to be used for various products.

STS.HS.19.4.b Identify types of fasteners for various products.

STS.HS.19.4.c Identify types of adhesives for various products.

STS.HS.19.4.d Identify types of finishes for various products.

STS.HS.19.4.e Identify the correct tools, machines, and equipment appropriate for a specific operation or process.

STS.HS.19.5 Produce a product(s).

STS.HS.19.5.a Interpret working drawings of a product to be produced.

STS.HS.19.5.b Select the proper materials adhesives, fasteners and finishes for a product.

STS.HS.19.5.c Demonstrate the proper tool, machine, or equipment selection and usage for each corresponding operation needed to produce a product.

STS.HS.19.5.d Execute a plan of procedure.

RESIDENTIAL ELECTRICTRICAL WIRING

COURSE DESCRIPTION

This introductory course provides an overview of the theory, terminology, tools, and practical experience in the skills needed for a career in the field of residential wiring. Emphasis will be placed on electrical safety, types of electricity components used in residential wiring, and an opportunity to practice the knowledge and skills learned in the class.

Target Grades: 10-12.

STANDARDS AND INDICATORS:

STS.HS.29.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.29.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.29.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.29.1.c Employ eye protection in compliance with Neb. Rev. Statute 79–715.

STS.HS.29.1.d Employ the safe application of tools and machines.

STS.HS.29.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.29.1.f Demonstrate proper handling and storing of materials.

STS.HS.29.1.g List the techniques and practices used to prevent fires.

STS.HS.29.2 Identify career opportunities in the electrical industry.

STS.HS.29.2.a Describe work behaviors needed to be employable.

STS.HS.29.2.b Identify employment trends in the electrical industry.

STS.HS.29.2.c Identify the responsibilities and characteristics of professionals in the electrical industry.

STS.HS.29.2.d Identify the training, education, certification, and licensing requirements for careers in the electrical industry.

RESIDENTIAL ELECTRICTRICAL WIRING (cont.)

STS.HS.29.3 Demonstrate the use of electrical communications.

STS.HS.29.3.a Recall vocabulary related to the electrical environment.

STS.HS.29.3.b Apply math calculations for measurements and OHM'S law.

STS.HS.29.3.c Interpret electrical symbols, plans, drawings, and codes.

STS.HS.29.4 Demonstrate the proper uses of electrical components.

STS.HS.29.4.a Employ National Electric Code (NEC) standards when wiring electrical components.

STS.HS.29.4.b Demonstrate the rough-in of electrical devices to meet NEC standards.

STS.HS.29.4.c Demonstrate the connection of electrical devices to meet NEC standards.

STS.HS.29.4.d Demonstrate the installation of electrical devices to meet NEC standards.

STS.HS.29.5 Demonstrate the use of materials, tools, and equipment needed in electricity.

STS.HS.29.5.a Demonstrate the proper use of electrical tools and equipment.

STS.HS.29.5.b Identify the different types of wires used for electricity.

STS.HS.29.5.c Demonstrate the proper use of electrical hardware.

STS.HS.29.5.d Demonstrate the proper use of low and high voltage circuits.

CONSTRUCTION TRADES 1

COURSE DESCRIPTION

This intermediate course provides an overview of construction materials, tools, and processes needed for a basic construction project. This course will lay the groundwork for higher-level construction projects and for careers in the construction industry.

Target Grades: 10-12.

STANDARDS AND INDICATORS:

STS.HS.10.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.10.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.10.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.10.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.10.1.d Employ the safe application of tools and machines.

STS.HS.10.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.10.1.f Demonstrate proper handling and storing of materials.

STS.HS.10.1.g Demonstrate proper use of a ladder.

STS.HS.10.2 Identify career opportunities in the construction industry.

STS.HS.10.2.a Describe work behaviors needed to be employable.

STS.HS.10.2.b Identify employment trends in various construction sectors (e.g., residential, commercial, industrial, energy, green technologies, etc.).

STS.HS.10.2.c Identify the responsibilities and characteristics of professionals in the construction industry.

STS.HS.10.2.d Identify the training, education, certification, and licensing requirements for various careers in the construction industry.

CONSTRUCTION TRADES 1 (cont.)

STS.HS.10.3 Demonstrate use of construction communications.

STS.HS.10.3.a Interpret construction terminology.

STS.HS.10.3.b Identify construction tools and equipment.

STS.HS.10.3.c Interpret construction plans, drawings, and schedules.

STS.HS.10.4 Summarize building systems and components.

STS.HS.10.4.a Identify construction materials needed to complete a project (i.e., dimensional, engineered, and steel.

STS.HS.10.4.b Identify different types of fasteners, adhesives, and finishes needed to complete a project.

STS.HS.10.5 Demonstrate the building process

STS.HS.10.5.a Identify, receive, and inspect materials.

STS.HS.10.5.b Apply math functions and formulas to complete tasks.

STS.HS.10.5.c Correctly and accurately use tools and equipment to perform material takeoff (MTO) from the drawings and meeting specifications.

STS.HS.10.5.d Construct a project using dimensional, engineered, or steel components.

CONSTRUCTION TRADES 2

COURSE DESCRIPTION

This capstone course is designed for the student pursuing a career as a construction professional and combines technical skills with planning and management to prepare the student for all stages of a construction project.

Target Grades: 11-12.

STANDARDS AND INDICATORS:

STS.HS.11.1 Apply safety principles, practices, philosophy and guidelines to the work environment.

STS.HS.11.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.11.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.11.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79-715.
STS.HS.11.1.d	Employ the safe application of tools and machines.
STS.HS.11.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.11.1.f	Demonstrate proper handling and storing of materials.
STS.HS.11.1.g	Demonstrate proper use of a ladder.
STS.HS.11.1.h	Identify the role of OSHA in establishing and maintaining safe work environments.

STS.HS.11.2 Identify career opportunities in the construction industry.

STS.HS.11.2.a	Describe work behaviors needed to be employable.
STS.HS.11.2.b	Identify employment trends in various construction sectors (residential, commercial, industrial, energy, green technologies, etc.).
STS.HS.11.2.c	Identify the responsibilities and characteristics of professionals in the construction industry.
STS.HS.11.2.d	Identify the training, education, certification and licensing requirements for various careers in the construction industry.

CONSTRUCTION TRADES 2 (cont.)

STS.HS.11.3 Demonstrate use of construction communications.

STS.HS.11.3.a Define construction terminology.

STS.HS.11.3.b Identify construction tools and equipment needed for a project.

STS.HS.11.3.c Interpret construction plans, drawings and schedules.

STS.HS.11.4 Summarize building systems and components.

STS.HS.11.4.a Identify and inspect construction materials needed to complete a project (ie. dimensional, engineered, or steel).

STS.HS.11.4.b Identify different types of fasteners, adhesives, and finishes needed to complete a project.

STS.HS.11.4.c Describe the building systems needed to complete a construction project.

STS.HS.11.4.d Describe the building components needed to complete a construction project (i.e. trusses, joists, beams, etc.).

STS.HS.11.4.e Identify emerging building trends/technology.

STS.HS.11.5 Identify building codes and permitting processes.

STS.HS.11.5.a Identify local, state, and national building regulations and codes.

STS.HS.11.5.b Describe the requirements needed to obtain a building permit.

STS.HS.11.5.c Identify appropriate building inspections.

CONSTRUCTION TRADES 2 (cont.)

STS.HS.11.6 Demonstrate the building process.

STS.HS.11.6.a Identify, receive, and inspect materials.

STS.HS.11.6.b Apply math functions and formulas to complete job/workplace tasks.

STS.HS.11.6.c Employ tools and equipment to perform material takeoff (MTO) from the drawings and meeting specifications.

STS.HS.11.6.d Construct a project using dimensional, engineered, or steel components.

STS.HS.11.7 Install construction sub-systems (ie. electrical, plumbing, HVAC, etc.).

STS.HS.11.7.a Identify, receive, and inspect materials.

STS.HS.11.7.b Apply math functions and formulas to complete construction job/workplace tasks.

STS.HS.11.7.c Install structural, mechanical, and finish sub-systems correctly to meet current local, state, and national codes.

FUNDAMENTALS OF ENERGY

COURSE DESCRIPTION

This introductory course will focus on the various types, principles, and distribution methods of energy and energy systems.

Target Grades: 9-12.

STANDARDS AND INDICATORS:

STS.HS.16.1 Apply safety principles, practice, philosophy, and guidelines to the work environment.

STS.HS.16.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.16.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.16.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79–715.
STS.HS.16.1.d	Employ the safe application of tools and machines.
STS.HS.16.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.16.1.f	Demonstrate proper handling and storing of materials.

STS.HS.16.2 Determine career opportunities in the energy field.

STS.HS.16.2.a	Identify opportunities and employment trends in various energy sectors.
STS.HS.16.2.b	Identify the training, education, certification, and licensing requirements for energy occupation choices.
STS.HS.16.2.c	Identify the responsibilities of professionals in the energy industry.

FUNDAMENTALS OF ENERGY (cont.)

STS.HS.16.3 Summarize the history of energy generation and distribution.

STS.HS.16.3.a Summarize the history of electric power generation and distribution.

STS.HS.16.3.b Summarize the history of fluid and liquid fuel production and distribution.

STS.HS.16.3.c Identify emerging trends in energy generation and distribution.

STS.HS.16.4 Identify legal and societal influences affecting energy production and distribution.

STS.HS.16.4.a Identify the legal factors that impact the production and distribution of energy.

STS.HS.16.4.b Identify the impact society has on energy production and distribution.

STS.HS.16.4.c Identify the design and project creation process for energy production and distribution.

STS.HS.16.5 Classify the types of energy and their uses.

STS.HS.16.5.a Identify the seven forms of energy.

STS.HS.16.5.b Recognize energy transformations in various settings.

STS.HS.16.5.c Recognize renewable and non-renewable energy sources.

STS.HS.16.5.d Identify the law of conservation of energy.

FUNDAMENTALS OF ENERGY (cont.)

STS.HS.16.6 Appraise energy storage and distribution methods.

STS.HS.16.6.a Summarize the components of an energy delivery system.

STS.HS.16.6.b Identify key pieces of equipment used in the distribution and storage of fluid fuels and electrical power.

STS.HS.16.6.c Compare centralized power generation to distributed generation.

STS.HS.16.7 Apply units of measure used in the evaluation of energy production and delivery.

STS.HS.16.7.a Calculate equations using Ohm's Law.

STS.HS.16.7.b Calculate equations using thermal energy formulas.

STS.HS.16.8 Produce an energy-related product or structure.

STS.HS.16.8.a Generate sketches and plans for an energy-related product or structure.

STS.HS.16.8.b Determine structural requirements, specifications, and estimate costs of structures.

STS.HS.16.8.c Execute plans for construction of energy related products or structures.

SUSTAINABLE ENERGY

COURSE DESCRIPTION

This intermediate course will focus on energy sources and alternative forms of energy and their uses.

Target Grades: 10-12.

STANDARDS AND INDICATORS:

STS.HS.31.1 Apply safety principles, practice, philosophy, and guidelines to the work environment.

STS.HS.31.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.31.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.31.1.c Employ eye protection in compliance with Neb. Rev. Statute 79–715.

STS.HS.31.1.d Employ the safe application of tools and machines.

STS.HS.31.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.31.1.f Demonstrate proper handling and storing of materials.

STS.HS.31.2 Identify career opportunities in the sustainable energy field.

STS.HS.31.2.a Identify the responsibilities of professionals in the sustainable energy industry.

STS.HS.31.2.b Identify opportunities and employment trends in various sustainable energy sectors.

STS.HS.31.2.c Identify the training, education, certification, and licensing requirements for occupation choices within sustainable energy.

SUSTAINABLE ENERGY (cont.)

STS.HS.31.3 Explain societal topics concerning sustainable energy.

STS.HS.31.3.a Summarize energy systems' relation to the conservation and interaction of energy and matter.

STS.HS.31.3.b Explain the responsibilities and considerations involved in making decisions in the energy industry.

STS.HS.31.3.c Explain the economic and political ramifications of the energy industry.

STS.HS.31.4 Identify the various types of energy and their uses.

STS.HS.31.4.a Explain the characteristics of wind as an energy source.

STS.HS.31.4.b Explain how solar energy may be used as an alternative energy source.

STS.HS.31.4.c Explain how geothermal energy can be used as a form of energy.

STS.HS.31.4.d Explain how biomass is used as an alternative form of energy.

STS.HS.31.4.e Explain how water may be used in energy production.

STS.HS.31.5 Determine the materials, tools, and equipment needed to manufacture a sustainable energy product.

STS.HS.31.5.a Determine types of materials, fasteners, adhesives, and finishes needed to produce a specific product related to sustainable energy.

STS.HS.31.5.b Determine the correct tools and equipment needed to produce a specific product related to sustainable energy.

STS.HS.31.5.c Identify the components of an effective sustainable energy product construction plan.

SUSTAINABLE ENERGY (cont.)

STS.HS.31.6 Explain current trends and information related to sustainable energy production and distribution.

STS.HS.31.6.a Identify pros and cons of sustainable energy.

STS.HS.31.6.b Locate, organize, and reference reliable information from various sources to communicate trends in sustainable energy.

STS.HS.31.7 Execute accurate measurements using math and measurement tools pertaining to sustainable energy.

STS.HS.31.7.a Identify types of measurement tools used in sustainable energy.

STS.HS.31.7.b Demonstrate the accurate use of measurement and layout tools to 1/16" precision.

STS.HS.31.7.c Solve math functions and formulas to complete tasks within the sustainable energy field.

STS.HS.31.8 Construct a sustainable energy related product or structure.

STS.HS.31.8.a Create sketches and plans for a sustainable energy related product or structure.

STS.HS.31.8.b Determine structural requirements, specifications, and estimate costs of structures.

STS.HS.31.8.c Interpret plans to construct, maintain, or repair sustainable energy-related products or structures.

STS.HS.31.8.d Properly plan, build, and maintain the product or structure.

PHYSICS AND MATHEMATICS OF ENERGY

COURSE DESCRIPTION

This capstone course provides the skills and technical knowledge for a student in areas of industry, safety, material, equipment, and process understanding in various energy industries. Students will use knowledge and skills from previous energy courses.

Target Grades: 9-12.

STANDARDS AND INDICATORS:

STS.HS.27.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.27.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.27.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.27.1.c Employ eye protection in compliance with Neb. Rev. Statute 79–715.
- STS.HS.27.1.d Employ the safe application of tools and machines.
- STS.HS.27.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.27.1.f Demonstrate proper handling and storing of materials.

STS.HS.27.2 Identify career opportunities in fields related to the physics and mathematics of energy.

- STS.HS.27.2.a Identify the responsibilities and characteristics of professionals in the energy industry.
- STS.HS.27.2.b Identify career opportunities in the energy field.
- STS.HS.27.2.c Identify the training, education, certification, and licensing requirements for various careers in the energy industry.

PHYSICS AND MATHEMATICS OF ENERGY (cont.)

STS.HS.27.3 Execute accurate measurements using measurement tools.

STS.HS.27.3.a Identify types of measurement tools.

STS.HS.27.3.b Categorize measurement tools by use.

STS.HS.27.3.c Demonstrate the accurate use of measurement and layout tools to 1/16" precision.

STS.HS.27.4 Apply principles of physics and mathematics to the energy industry.

STS.HS.27.4.a Identify the applications of physics in energy production, distribution, and use.

STS.HS.27.4.b Identify the applications of mathematics in energy production, distribution, and use.

STS.HS.27.4.c Apply principles of physics and mathematics to the problem solving and product creation process.

STS.HS.27.5 Apply appropriate academic and technical skills to energy-centric activities and projects.

STS.HS.27.5.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.27.5.b Solve decimal/fraction conversions.

STS.HS.27.5.c Employ math functions and formulas to complete an energy job and workplace tasks.

STS.HS.27.5.d Communicate principles and terminology associated with the study and use of mathematics and physics.

PHYSICS AND MATHEMATICS OF ENERGY (cont.)

STS.HS.27.6 Identify the materials, tools, and equipment needed to manufacture a product used in the energy industry.

STS.HS.27.6.a Determine types of materials, fasteners, adhesives, and finishes needed to produce an energy product.

STS.HS.27.6.b Determine the correct tools and equipment needed to produce a specific product.

STS.HS.27.6.c Identify components of an effective plan to build an energy product.

STS.HS.27.7 Produce an energy product.

STS.HS.27.7.a Devise a plan to build an energy product.

STS.HS.27.7.b Execute a plan to create an energy product.

STS.HS.27.7.c Identify the elements of a finished energy product.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES

COURSE DESCRIPTION

This introductory course provides the skills and technical knowledge for a beginning student in areas of industry, safety, material, equipment, and process understanding. This entry level course helps students gain a foundation in all areas of Skilled and Technical Sciences including Architecture and Construction; Energy and Engineering; Manufacturing; and Transportation, Distribution, and Logistics.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.19.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.19.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.19.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.19.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.19.1.d Employ the safe application of tools and machines.

STS.HS.19.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.19.1.f Demonstrate proper handling and storing of materials.

STS.HS.19.2 Identify career opportunities in Skilled and Technical Sciences areas.

STS.HS.19.2.a Identify responsibilities and characteristics of professionals in a skilled and technical sciences industry.

STS.HS.19.2.b Describe work behaviors needed to be employable in a skilled and technical sciences industry.

STS.HS.19.2.c Identify the training, education, certification, and licensing requirements for various careers in a skilled and technical sciences industry.

STS.HS.19.2.d Identify high wage, high demand, and high skill careers in skilled and technical sciences.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES (cont.)

STS.HS.19.3 Apply appropriate academic and technical skills to produce a product.

STS.HS.19.3.a Employ project-related math operations and formulas.

STS.HS.19.3.b Employ effective verbal, written, and/or visual communication skills.

STS.HS.19.3.c Define course content vocabulary.

STS.HS.19.3.d Conduct the accurate use of measurement tools

STS.HS.19.4 Identify the materials, tools, machines, and equipment required to produce a product.

STS.HS.19.4.a Identify types of materials to be used for various products.

STS.HS.19.4.b Identify types of fasteners for various products.

STS.HS.19.4.c Identify types of adhesives for various products.

STS.HS.19.4.d Identify types of finishes for various products.

STS.HS.19.4.e Identify the correct tools, machines, and equipment appropriate for a specific operation or process.

STS.HS.19.5 Produce a product(s).

STS.HS.19.5.a Interpret working drawings of a product to be produced.

STS.HS.19.5.b Select the proper materials adhesives, fasteners and finishes for a product.

STS.HS.19.5.c Demonstrate the proper tool, machine, or equipment selection and usage for each corresponding operation needed to produce a product.

STS.HS.19.5.d Execute a plan of procedure.

ENGINEERING DESIGN AND SYSTEMS THINKING

COURSE DESCRIPTION

This course gives students the opportunity to develop skills and understanding of engineering. Students will learn about various elements of engineering design and how engineering requires systematic thinking. Topics will include safety, tools, math and science concepts, and engineering principles and processes.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.14.1 Apply safety principles, practice, philosophy, and guidelines to the work environment.

STS.HS.14.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.14.1.b	Employ eye protection in compliance with Neb. Rev. Statute 79–715.
STS.HS.14.1.c	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.14.1.d	Employ the safe application of tools and machines.
STS.HS.14.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.14.1.f	Demonstrate proper handling and storing of materials.

STS.HS.14.2 Execute accurate measurements using measurement tools commonly used in engineering.

STS.HS.14.2.a	Identify types of engineering measurement tools.
STS.HS.14.2.b	Categorize engineering measurement tools by use.
STS.HS.14.2.c	Demonstrate the accurate use of engineering measurement and layout tools to 1/16" precision.

ENGINEERING DESIGN AND SYSTEMS THINKING (cont.)

STS.HS.14.3 Solve math functions and formulas to complete engineering job/workplace tasks.

STS.HS.14.3.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.14.3.b Apply basic arithmetic operations.

STS.HS.14.3.c Solve decimal or fraction conversions.

STS.HS.14.4 Compare the primary engineering branches.

STS.HS.14.4.a Summarize each branch of engineering.

STS.HS.14.4.b Compare the engineering branches.

STS.HS.14.5 Explain engineering systems thinking.

STS.HS.14.5.a Define "system" in an engineering context.

STS.HS.14.5.b Explain a current system in an engineering context.

STS.HS.14.6 Produce an engineered solution.

STS.HS.14.6.a Identify engineering principles needed for a solution.

STS.HS.14.6.b Apply engineering principles.

STS.HS.14.6.c Identify engineering processes needed for a solution.

STS.HS.14.6.d Apply engineering processes.

STS.HS.14.6.e Apply task specific mathematical concepts.

STS.HS.14.6.f Apply task specific scientific concepts.

STS.HS.14.6.g Demonstrate proper use of engineering tools and software.

ENGINEERING PROBLEM-SOLVING

COURSE DESCRIPTION

This intermediate course exposes students to some of the major concepts that they will encounter in a postsecondary engineering course of study. Students will learn how to identify an engineering problem, research possible solutions, and determine the best solution for the problem.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.15.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.15.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.15.1.b	Employ eye protection in compliance with Neb. Rev. Statute 79–715.
STS.HS.15.1.c	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.15.1.d	Employ the safe application of tools and machines.
STS.HS.15.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.15.1.f	Demonstrate proper handling and storing of materials.

STS.HS.15.2 Describe engineering as a profession.

STS.HS.15.2.a	Identify opportunities and employment trends in the engineering branches.
STS.HS.15.2.b	Identify training, education, certification, and licensing requirements for careers in the different engineering branches.

ENGINEERING PROBLEM-SOLVING (cont.)

STS.HS.15.3 Employ the engineering design process to solve an engineering problem.

STS.HS.15.3.a	Define an engineering problem.
STS.HS.15.3.b	Research possible solutions.
STS.HS.15.3.c	Design viable solutions.
STS.HS.15.3.d	Identify the materials, tools, emerging technologies, and equipment needed to manufacture a solution to an engineering problem.
STS.HS.15.3.e	Solve mathematical and scientific problems required to create engineering solutions.
STS.HS.15.3.f	Determine structural requirements and specifications.
STS.HS.15.3.g	Estimate costs for the solution.

STS.HS.15.4 Explain professional engineering communications.

STS.HS.15.4.a	Identify a concise problem statement.
STS.HS.15.4.b	Explain the use of informal and formal presentations, using appropriate media, to engage and inform audiences.
STS.HS.15.4.c	Explain the documentation of the design process and project work using engineering drawings, engineering standards, and documentation protocols.

ROBOTICS

COURSE DESCRIPTION

This intermediate course is designed to explore the current and future use, design, construction, operation, and use of robots and automation technology. Students will apply mathematics formulas and calculations to design and construct a robot.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.30.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.30.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.30.1.b Employ eye protection in compliance with Neb. Rev. Statute 79–715.
- STS.HS.30.1.c Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.30.1.d Employ the safe application of tools and machines.
- STS.HS.30.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.30.1.f Demonstrate proper handling and storing of materials.

STS.HS.30.2 Solve robotics-related mathematics.

- STS.HS.30.2.a Solve calculations using whole numbers, decimals, fractions, and complex numbers.
- STS.HS.30.2.b Solve basic arithmetic and measurement operations.
- STS.HS.30.2.c Solve decimal/fraction conversions.
- STS.HS.30.2.d Calculate area.
- STS.HS.30.2.e Calculate circumference.
- STS.HS.30.2.f Calculate average.

ROBOTICS (cont.)

STS.HS.30.3 Employ robotics-related science principles.

STS.HS.30.3.a	Calculate fundamental electrical measurements using laws of electricity.
STS.HS.30.3.b	Calculate torque.
STS.HS.30.3.c	Calculate the center of gravity.
STS.HS.30.3.d	Calculate mechanical advantage.
STS.HS.30.3.e	Calculate gear ratios.
STS.HS.30.3.f	Calculate angular momentum.
STS.HS.30.3.g	Calculate trajectory.

STS.HS.30.4 Identify the different specialized areas of robotics.

STS.HS.30.4.a	Summarize each specialized field of robotics.
STS.HS.30.4.b	Identify the diversity of the robotics usage.
STS.HS.30.4.c	Identify the education, certification, or licensure required in a robotics-related career.

STS.HS.30.5 Design and assemble automation or robots that are functionally and mechanically correct.

STS.HS.30.5.a	Demonstrate use of a physical or simulated robot.
STS.HS.30.5.b	Demonstrate basic programming concepts: variables, data structures, control structures, and syntax.
STS.HS.30.5.c	Generate a mechanical solution for a robot to overcome a physical or simulated physics challenge.
STS.HS.30.5.d	Generate a programming solution for a robot to overcome a physical or simulated autonomous challenge.
STS.HS.30.5.g	Assemble various physical or simulated mechanisms to understand mechanical setups.
STS.HS.30.5.h	Construct a physical or simulated fully functioning robot that has proof of concept through engineering documentation protocols.

SYSTEMS ENGINEERING AND PROJECT MANAGEMENT

COURSE DESCRIPTION

This is a capstone engineering research course in which students will design and develop an original solution to a valid open-ended technical problem by applying the engineering design process.

Target Grades 11-12.

STANDARDS AND INDICATORS:

STS.HS.32.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.32.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.32.1.b Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.32.1.c Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.32.1.d Employ the safe application of tools and machines.

STS.HS.32.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.32.1.f Demonstrate proper handling and storing of materials.

STS.HS.32.2 Identify career opportunities in engineering areas.

STS.HS.32.2.a Identify responsibilities and characteristics of professionals in an engineering industry.

STS.HS.32.2.b Describe work behaviors needed to be employable in an engineering industry.

STS.HS.32.2.c Identify the training, education, certification, and licensing requirements for various careers in an engineering industry.

STS.HS.32.2.d Identify high wage, high demand, and high skill careers in engineering.

SYSTEMS ENGINEERING AND PROJECT MANAGEMENT (cont.)

STS.HS.32.3 Employ a formal engineering design process to create a solution to an existing problem.

STS.HS.32.3.a	Collaborate with industry experts, mentors, or advanced students.
STS.HS.32.3.b	Demonstrate authentic engineering methods and documentation.
STS.HS.32.3.c	Apply task-specific mathematical concepts.
STS.HS.32.3.d	Apply task-specific scientific concepts.
STS.HS.32.3.e	Complete a prototype or minimum viable product (MVP).
STS.HS.32.3.f	Perform engineering tests to evaluate the prototype or MVP.
STS.HS.32.3.g	Develop a marketing plan and production plan.
STS.HS.32.3.h	Report on the importance of each step of the engineering process.

ADVANCED ROBOTICS

COURSE DESCRIPTION

This course is a capstone experience in which students engineer robot solutions to complete a task. This includes design, construction, and programming a robot.

Target Grades 11-12.

STANDARDS AND INDICATORS:

STS.HS.5.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.5.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.5.1.b Employ eye protection in compliance with Neb. Rev. Statute 79–715.
- STS.HS.5.1.c Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.5.1.d Employ the safe application of tools and machines.
- STS.HS.5.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.5.1.f Demonstrate proper handling and storing of materials.

STS.HS.5.2 Identify careers in robotics.

- STS.HS.5.2.a Identify robotics industry vocabulary.
- STS.HS.5.2.b Identify the responsibilities of robotics professionals.
- STS.HS.5.2.c Identify the education, certification, or licensure required in a robotics-related career.

ADVANCED ROBOTICS (cont.)

STS.HS.5.3 Create a robotic solution (physical or simulated), using a formal engineering design process, to solve an existing problem.

STS.HS.5.3.a Demonstrate authentic engineering methods and documentation.

STS.HS.5.3.b Apply task-specific mathematical concepts.

STS.HS.5.3.c Apply task-specific scientific concepts.

STS.HS.5.3.d Explain each step of the design process.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES

COURSE DESCRIPTION

This introductory course provides the skills and technical knowledge for a beginning student in areas of industry, safety, material, equipment, and process understanding. This entry level course helps students gain a foundation in all areas of Skilled and Technical Sciences including Architecture and Construction; Energy and Engineering; Manufacturing; and Transportation, Distribution, and Logistics.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.19.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.19.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.19.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.19.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.19.1.d Employ the safe application of tools and machines.

STS.HS.19.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.19.1.f Demonstrate proper handling and storing of materials.

STS.HS.19.2 Identify career opportunities in Skilled and Technical Sciences areas.

STS.HS.19.2.a Identify responsibilities and characteristics of professionals in a skilled and technical sciences industry.

STS.HS.19.2.b Describe work behaviors needed to be employable in a skilled and technical sciences industry.

STS.HS.19.2.c Identify the training, education, certification, and licensing requirements for various careers in a skilled and technical sciences industry.

STS.HS.19.2.d Identify high wage, high demand, and high skill careers in skilled and technical sciences.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES (cont.)

STS.HS.19.3 Apply appropriate academic and technical skills to produce a product.

STS.HS.19.3.a Employ project-related math operations and formulas.

STS.HS.19.3.b Employ effective verbal, written, and/or visual communication skills.

STS.HS.19.3.c Define course content vocabulary.

STS.HS.19.3.d Conduct the accurate use of measurement tools

STS.HS.19.4 Identify the materials, tools, machines, and equipment required to produce a product.

STS.HS.19.4.a Identify types of materials to be used for various products.

STS.HS.19.4.b Identify types of fasteners for various products.

STS.HS.19.4.c Identify types of adhesives for various products.

STS.HS.19.4.d Identify types of finishes for various products.

STS.HS.19.4.e Identify the correct tools, machines, and equipment appropriate for a specific operation or process.

STS.HS.19.5 Produce a product(s).

STS.HS.19.5.a Interpret working drawings of a product to be produced.

STS.HS.19.5.b Select the proper materials adhesives, fasteners and finishes for a product.

STS.HS.19.5.c Demonstrate the proper tool, machine, or equipment selection and usage for each corresponding operation needed to produce a product.

STS.HS.19.5.d Execute a plan of procedure.

DRAFTING AND DESIGN

COURSE DESCRIPTION

This introductory course builds the skills necessary to understand ideas being communicated through drawings and documents, and in turn, convey ideas, duties, and tasks to others in a form representing the industry. Students will use and follow industry-specific verbal and visual skills to accomplish workplace/jobsite communications. Students will review traditional project phases and various roles within them to plan for and implement phases within a project. Students will develop working drawings that will be used in design and manufacturing. Computer-aided drafting/design (CADD) may be used.

Target Grades 11-12.

STANDARDS AND INDICATORS:

STS.HS.13.1 Apply safety principles, practice, philosophy, and guidelines to the work environment.

STS.HS.13.1.a Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.13.1.b Identify office safety hazards.

STS.HS.13.1.c Employ appropriate Personal Protective Equipment (PPE).

STS.HS.13.1.d Employ proper ergonomics.

STS.HS.13.1.e Complete applicable safety assessment with 100% accuracy.

STS.HS.13.2 Identify career opportunities in the drafting industry.

STS.HS.13.2.a Identify the various careers, primary duties, and attributes of a drafting technician or a design engineer.

STS.HS.13.2.b Identify the training, education, certification and licensing requirements for various careers of a drafting technician or design engineer.

STS.HS.13.2.c Identify the relationships between stakeholders involved in a manufacturing project.

STS.HS.13.2.d Identify positive work behaviors and personal qualities needed to be employable.

STS.HS.13.2.e Identify high-wage, high-demand, and high-skill drafting careers.

DRAFTING AND DESIGN (cont.)

STS.HS.13.3 Apply math terminology, functions, and formulas to mechanical drafting.

STS.HS.13.3.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.13.3.b Apply arithmetic operations.

STS.HS.13.3.c Solve decimal/fraction conversions.

STS.HS.13.3.d Explain scale using architect or engineer scales.

STS.HS.13.4 Apply conventional drafting standards used in mechanical drafting.

STS.HS.13.4.a Identify terms and definitions commonly used in the mechanical drafting profession.

STS.HS.13.4.b Employ multiple sketching methods such as oblique, isometric and/or orthographic projection.

STS.HS.13.4.c Apply dimensional information and general notes in mechanical plans.

STS.HS.13.5 Utilize drafting and design technology.

STS.HS.13.5.a Employ the appropriate technology tools (i.e., CAD, SolidWorks, Fusion 360, Inventor, etc.) for conveying information, solving problems, and expediting workplace processes.

STS.HS.13.5.b Employ basic computer and information technology skills used in the drafting industry.

STS.HS.13.5.c Employ ethical digital citizenship.

DRAFTING AND DESIGN (cont.)

STS.HS.13.6 Produce a multiview working drawing.

STS.HS.13.6.a	Explain working drawings.
STS.HS.13.6.b	Determine types of materials, fasteners, adhesives, and finishes needed to build a product.
STS.HS.13.6.c	Produce applicable drawing views, schedules, notes, and index tables.
STS.HS.13.6.d	Produce and label section lines.
STS.HS.13.6.e	Produce and label detail drawings.
STS.HS.13.6.f	Produce dimensions.

MANUFACTURING PROCESSES – WOODS

COURSE DESCRIPTION

In this intermediate class, students will be introduced to the basic manufacturing process in wood. An emphasis will be placed on safe tool and machine usage as well as reading plans and using materials to take a project from conception to reality.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.23.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.23.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.23.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.23.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79-715.
STS.HS.23.1.d	Employ the safe application of tools and machines.
STS.HS.23.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.23.1.f	Demonstrate proper handling and storing of materials and chemicals.

STS.HS.23.2 Identify career opportunities in woodworking areas.

STS.HS.23.2.a	Identify responsibilities and characteristics of professionals in a woods industry.
STS.HS.23.2.b	Describe work behaviors needed to be employable in a woods industry.
STS.HS.23.2.c	Identify the training, education, certification, and licensing requirements for various careers in a woods industry.
STS.HS.23.2.d	Identify high wage, high demand, and high skill careers in woodworking.

MANUFACTURING PROCESSES – WOODS (cont.)

STS.HS.23.3 Demonstrate accurate measurements using measurement tools used in woods.

- STS.HS.23.3.a Identify types of woods measurement tools.
- STS.HS.23.3.b Explain woods measurement tools by use.
- STS.HS.23.3.c Demonstrate the accurate use of woods measurement and layout tools to 1/16" precision.

STS.HS.23.4 Solve math functions and formulas to complete woods manufacturing tasks.

- STS.HS.23.4.a Identify whole numbers, decimals, fractions, and complex numbers.
- STS.HS.23.4.b Apply basic arithmetic operations used in woods manufacturing.
- STS.HS.23.4.c Solve decimal/fraction conversions used in woods manufacturing.

STS.HS.23.5 Explain the use of woods manufacturing communications.

- STS.HS.23.5.a Define woods manufacturing terminology.
- STS.HS.23.5.b Explain the language of wood manufacturing.
- STS.HS.23.5.c Explain business and interpersonal communication appropriate to the work in the woods manufacturing environment.

STS.HS.23.6 Determine the materials, tools, machines, and processes required to manufacture a woods product.

- STS.HS.23.6.a Identify the characteristics, properties, and origin of diverse woods.
- STS.HS.23.6.b Differentiate additive and subtractive woods manufacturing.
- STS.HS.23.6.c Identify woods fasteners by their industry standard applications.
- STS.HS.23.6.d Determine feed rate and/or speed settings for a wood material and process.
- STS.HS.23.6.e Explain the operation and application of common woods industry chemicals.
- STS.HS.23.6.f Determine the correct tools, machines, and processes needed to produce a specific wood product.
- STS.HS.23.6.g Estimate the amount of materials and supplies needed to manufacture a wood product.

MANUFACTURING PROCESSES – WOODS (cont.)

STS.HS.23.7 Manufacture a product that uses wood as its primary material.

STS.HS.23.7.a	Interpret plans, drawings, and specifications to process wood materials.
STS.HS.23.7.b	Employ the standard operation and application of tools and machines along the wood manufacturing process.
STS.HS.23.7.c	Employ the process of applying the correct types of materials, fasteners, adhesives, and finishes required to manufacture a specific wood product.
STS.HS.23.7.d	Critique a finished product.
STS.HS.23.7.e	Appraise the manufactured product.

MANUFACTURING PROCESSES – METALS

COURSE DESCRIPTION

In this intermediate class, students will be introduced to the basic manufacturing process in metal. An emphasis will be placed on safe tool and machine usage as well as reading plans and using materials to take a project from conception to reality.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.21.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.21.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.21.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.21.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.
- STS.HS.21.1.d Employ the safe application of tools and machines.
- STS.HS.21.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.21.1.f Demonstrate proper handling and storing of materials and chemicals.

STS.HS.21.2 Identify career opportunities in metals areas.

- STS.HS.21.2.a Identify responsibilities and characteristics of professionals in a metals industry.
- STS.HS.21.2.b Describe work behaviors needed to be employable in a metals industry.
- STS.HS.21.2.c Identify the training, education, certification, and licensing requirements for various careers in a metals industry.
- STS.HS.21.2.d Identify high wage, high demand, and high skill careers in metals.

MANUFACTURING PROCESSES – METALS (cont.)

STS.HS.21.3 Demonstrate accurate measurements using measurement tools used in metals.

- STS.HS.21.3.a Identify types of metals measurement tools.
- STS.HS.21.3.b Explain metals measurement tools by use.
- STS.HS.21.3.c Demonstrate the accurate use of metals measurement and layout tools to 1/16" precision.

STS.HS.21.4 Solve math functions and formulas to complete metals manufacturing tasks.

- STS.HS.21.4.a Identify whole numbers, decimals, fractions, and complex numbers.
- STS.HS.21.4.b Apply basic arithmetic operations used in metals manufacturing.
- STS.HS.21.4.c Solve decimal/fraction conversions used in metals manufacturing.

STS.HS.21.5 Analyze the use of metals manufacturing communications.

- STS.HS.21.5.a Define metals manufacturing terminology.
- STS.HS.21.5.b Interpret the language of metals manufacturing.
- STS.HS.21.5.c Explain business and interpersonal communication appropriate to the work in the metals manufacturing environment.

STS.HS.21.6 Determine the materials, tools, machines, and processes required to manufacture a metals product.

- STS.HS.21.6.a Identify the characteristics, properties, and origin of diverse metals.
- STS.HS.21.6.b Differentiate additive and subtractive metals manufacturing.
- STS.HS.21.6.c Identify metals fasteners by their industry standard applications.
- STS.HS.21.6.d Determine feed rate and/or speed settings for a metal material and process.
- STS.HS.21.6.e Explain the operation and application of common metals industry chemicals.
- STS.HS.21.6.f Determine the correct tools, machines, and processes needed to produce a specific metal product.
- STS.HS.21.6.g Estimate the amount of materials and supplies needed to manufacture a metal product.

MANUFACTURING PROCESSES – METALS (cont.)

STS.HS.21.7 Manufacture a product that uses metal as its primary material.

STS.HS.23.7.a	Interpret plans, drawings, and specifications to process metal materials.
STS.HS.23.7.b	Employ the standard operation and application of tools and machines along the metal manufacturing process.
STS.HS.23.7.c	Apply the correct types of materials, fasteners, adhesives, and finishes required to manufacture a specific metal product.
STS.HS.23.7.d	Explain how to critique a finished product.
STS.HS.23.7.e	Explain how to appraise the manufactured product.

MANUFACTURING PROCESSES – PLASTICS

COURSE DESCRIPTION

In this intermediate class, students will be introduced to the basic manufacturing process in plastics. An emphasis will be placed on safe tool and machine usage as well as reading plans and using materials to take a project from conception to reality.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.22.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.22.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.22.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.22.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.
- STS.HS.22.1.d Employ the safe application of tools and machines.
- STS.HS.22.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.22.1.f Demonstrate proper handling and storing of materials and chemicals.

STS.HS.22.2 Identify career opportunities in plastics areas.

- STS.HS.22.2.a Identify responsibilities and characteristics of professionals in a plastics industry.
- STS.HS.22.2.b Describe work behaviors needed to be employable in a plastics industry.
- STS.HS.22.2.c Identify the training, education, certification, and licensing requirements for various careers in a plastics industry.
- STS.HS.22.2.d Identify information concerning high wage, high demand, and high skill careers in plastics.

MANUFACTURING PROCESSES – PLASTICS (cont.)

STS.HS.22.3 Demonstrate accurate measurements using measurement tools used in plastics.

STS.HS.22.3.a Identify types of plastics measurement tools.

STS.HS.22.3.b Explain plastics measurement tools by use.

STS.HS.22.3.c Demonstrate the accurate use of plastics measurement and layout tools to 1/16" precision.

STS.HS.22.4 Solve math functions and formulas to complete plastics manufacturing tasks.

STS.HS.22.4.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.22.4.b Apply basic arithmetic operations used in plastics manufacturing.

STS.HS.22.4.c Solve decimal/fraction conversions used in plastics manufacturing.

STS.HS.22.5 Identify the use of plastics manufacturing communications.

STS.HS.22.5.a Define plastics manufacturing terminology.

STS.HS.22.5.b Identify the language of plastics manufacturing.

STS.HS.22.5.c Explain business and interpersonal communication appropriate to the work in the plastics manufacturing environment.

MANUFACTURING PROCESSES – PLASTICS (cont.)

STS.HS.22.6 Determine the materials, tools, machines, and processes required to manufacture a plastics product.

STS.HS.22.6.a Identify the characteristics, properties, and origin of diverse plastics.

STS.HS.22.6.b Differentiate additive and subtractive plastics manufacturing.

STS.HS.22.6.c Identify plastics fasteners by their industry standard applications.

STS.HS.22.6.d Determine feed rate and/or speed settings for a plastic material and process.

STS.HS.22.6.e Explain the operation and application of common plastics industry chemicals.

STS.HS.22.6.f Determine the correct tools, machines, and processes needed to produce a specific plastic product.

STS.HS.22.6.g Estimate the amount of materials and supplies needed to manufacture a plastic product.

STS.HS.22.7 Manufacture a product that uses plastic as its primary material.

STS.HS.23.7.a Interpret plans, drawings, and specifications to process plastic materials.

STS.HS.23.7.b Employ the standard operation and application of tools and machines along the plastic manufacturing process.

STS.HS.23.7.c Apply the correct types of materials, fasteners, adhesives, and finishes required to manufacture a specific plastic product.

STS.HS.23.7.d Critique a finished product.

STS.HS.23.7.e Appraise the manufactured product.

INTRODUCTION TO ELECTRONICS

COURSE DESCRIPTION

This intermediate course includes the theory, terminology, equipment, and practical experiences needed to begin developing career skills relevant to the electronics industry. Electronics measurements, calculations, and circuitry will be applied.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.17.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.17.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.17.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.17.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79–715.
STS.HS.17.1.d	Employ the safe application of tools and machines.
STS.HS.17.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.17.1.f	Demonstrate proper handling and storing of materials and chemicals.

STS.HS.17.2 Identify career opportunities in the electronics industry.

STS.HS.17.2.a	Describe work behaviors needed to be employable.
STS.HS.17.2.b	Identify employment trends in various electronics industries.
STS.HS.17.2.c	Identify the responsibilities and characteristics of professionals in the electronics industry.
STS.HS.17.2.d	Identify the training, education, certification, and licensing requirements for various careers in the electronics industry.

INTRODUCTION TO ELECTRONICS (cont.)

STS.HS.17.3 Employ electronic terminology, symbols, laws, and equipment.

STS.HS.17.3.a Identify proper electronic terminology and symbols.

STS.HS.17.3.b Compute the Laws of Electronics (i.e., Ohms, Watts, Kirchhoff's).

STS.HS.17.3.c Identify and operate basic electronic equipment.

STS.HS.17.4 Classify components and their uses in electronic circuits.

STS.HS.17.4.a Identify connections and components in electronic circuits.

STS.HS.17.4.b Explain the purpose of individual components in electronic circuits.

STS.HS.17.4.c Explain how individual components will affect the function of a circuit.

STS.HS.17.5 Design and construct electronic circuits.

STS.HS.17.5.a Illustrate locations and order for components in a functioning electronic circuit.

STS.HS.17.5.b Construct circuits that function in the way they are designed.

STS.HS.17.5.c Move and replace components to change the function of an electronic circuit.

MANUFACTURING PRODUCTION – WOODS

COURSE DESCRIPTION

In the capstone course for the wood manufacturing track, students will utilize tools and equipment to produce parts and projects within specifications. Students will use the knowledge and skills from previous manufacturing courses.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.26.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.26.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.26.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.26.1.c Employ eye protection in compliance with Neb. Rev. Statute 79–715.
- STS.HS.26.1.d Employ the safe application of tools and machines.
- STS.HS.26.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.26.1.f Demonstrate proper handling and storing of materials and chemicals.

STS.HS.26.2 Execute accurate measurements using woodworking measurement and layout tools.

- STS.HS.26.2.a Identify types of woodworking measurement and layout tools.
- STS.HS.26.2.b Categorize woodworking measurement and layout tools by use.
- STS.HS.26.2.c Demonstrate the accurate use of measurement and layout tools to 1/16" precision.

MANUFACTURING PRODUCTION – WOODS (cont.)

STS.HS.26.3 Solve math functions and formulas to complete woodworking job/workplace tasks.

STS.HS.26.3.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.26.3.b Apply basic arithmetic operations.

STS.HS.26.3.c Solve decimal and fraction conversions.

STS.HS.26.4 Identify career opportunities in the wood manufacturing industry.

STS.HS.26.4.a Describe work behaviors needed to be employable.

STS.HS.26.4.b Describe appropriate work behavior that meets or exceeds wood manufacturing industry standards.

STS.HS.26.4.c Identify the education, certification, or licensure required in wood manufacturing careers.

STS.HS.26.4.d Identify the value that may be added to the community by wood manufacturing professionals.

STS.HS.26.4.e Identify the industry standard compensation for a wood manufacturing professional.

STS.HS.26.5 Demonstrate the use of wood manufacturing communications.

STS.HS.26.5.a Define wood manufacturing terminology.

STS.HS.26.5.b Estimate manufacturing timelines based on criteria.

STS.HS.26.5.c Utilize business and interpersonal communication appropriate to the work environment.

MANUFACTURING PRODUCTION – WOODS (cont.)

STS.HS.26.6 Select the materials, tools, machines, and processes required to manufacture a wood product.

STS.HS.26.6.a	Identify the origins, characteristics, and properties of softwoods.
STS.HS.26.6.b	Identify the origins, characteristics, and properties of hardwoods.
STS.HS.26.6.c	Categorize fasteners by their industry standard applications.
STS.HS.26.6.d	Differentiate between various types of mechanical and chemical fasteners.
STS.HS.26.6.e	Estimate amount of materials and supplies needed for a wood product.
STS.HS.26.6.f	Explain the operation and application of common industry finishes.
STS.HS.26.6.g	Assess potential environmental and health impacts of using specific materials or processes.
STS.HS.26.6.h	Determine the correct tools and machines needed to produce a specific wood product.

STS.HS.26.7 Manufacture a production level product that uses wood as its primary material.

STS.HS.26.7.a	Interpret plans, drawings, and specifications to process materials.
STS.HS.26.7.b	Coordinate the standard operation and application of tools and machines along the manufacturing process.
STS.HS.26.7.c	Plan and apply the type of materials, fasteners, adhesives, and finishes required to manufacture a specific product.
STS.HS.26.7.d	Critique a finished product.
STS.HS.26.7.e	Appraise the manufacturing process for streamlining opportunities.

MANUFACTURING PRODUCTION – METALS

COURSE DESCRIPTION

In the capstone course for the metal manufacturing track, students will utilize tools and equipment to produce parts and projects within specifications. Students will use knowledge and skills from previous manufacturing courses.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.24.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.24.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.24.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.24.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79–715.
STS.HS.24.1.d	Employ the safe application of tools and machines.
STS.HS.24.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.24.1.f	Demonstrate proper handling and storing of materials and chemicals.

STS.HS.24.2 Execute accurate measurements using metals measurement and layout tools.

STS.HS.24.2.a	Identify types of metals measurement and layout tools.
STS.HS.24.2.b	Categorize metals measurement and layout tools by use.
STS.HS.24.2.c	Demonstrate the accurate use of measurement and layout tools to 0.010" or 0.001" precision or 1mm precision.

MANUFACTURING PRODUCTION – METALS (cont.)

STS.HS.24.3 Solve math functions and formulas to complete metals job/workplace tasks.

STS.HS.24.3.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.24.3.b Apply basic arithmetic operations.

STS.HS.24.3.c Solve decimal and fraction conversions.

STS.HS.24.4 Identify career opportunities in the metals manufacturing industry.

STS.HS.24.4.a Describe work behaviors needed to be employable.

STS.HS.24.4.b Describe appropriate work behavior that meets or exceeds metals manufacturing industry standards.

STS.HS.24.4.c Identify the education, certification, or licensure required in metals manufacturing careers.

STS.HS.24.4.d Identify the value that may be added to the community by metals manufacturing professionals.

STS.HS.24.4.e Identify the industry standard compensation for a metals manufacturing professional.

STS.HS.23.5 Demonstrate use of metal manufacturing communications.

STS.HS.24.5.a Define metal manufacturing terminology.

STS.HS.24.5.b Estimate metal manufacturing timelines based on criteria.

STS.HS.24.5.c Demonstrate business and interpersonal communication appropriate to the work environment.

MANUFACTURING PRODUCTION – METALS (cont.)

STS.HS.24.6 Describe the materials, tools, machines, and processes required to manufacture a metal product.

STS.HS.24.6.a Identify the characteristics, properties, and origin of diverse metals.

STS.HS.24.6.b Differentiate between additive and subtractive manufacturing.

STS.HS.24.6.c Categorize fasteners by their industry standard applications.

STS.HS.24.6.d Differentiate between various types of mechanical fasteners.

STS.HS.24.6.e Determine feed rate and speed settings for a material and process.

STS.HS.24.6.f Explain the operation and application of common industry chemicals.

STS.HS.24.6.g Assess potential environmental and health impacts of using specific materials and/or processes.

STS.HS.24.6.h Estimate amount of materials and supplies needed for a product.

STS.HS.24.6.i Determine the correct tools, machines and processes needed to produce a specific metal product.

STS.HS.24.7 Produce a production-level metalworking project.

STS.HS.24.7.a Interpret plans, drawings, and specifications to process materials.

STS.HS.24.7.b Coordinate the standard operation and application of tools and machines along the manufacturing process.

STS.HS.24.7.c Apply the type of materials, processes, and finishes required to manufacture a specific metal product.

STS.HS.24.7.d Critique a finished product.

STS.HS.24.7.e Appraise the manufacturing process for streamlining opportunities.

MANUFACTURING PRODUCTION – PLASTICS

COURSE DESCRIPTION

In the capstone course for the plastic manufacturing track, students will utilize tools and equipment to produce parts and projects within specifications. Students will use the knowledge and skills from previous manufacturing courses.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.25.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.25.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.25.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.25.1.c Employ eye protection in compliance with Neb. Rev. Statute 79–715.

STS.HS.25.1.d Employ the safe application of tools and machines.

STS.HS.25.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.25.1.f Demonstrate proper handling and storing of materials and chemicals.

STS.HS.25.2 Execute accurate measurements using plastics measurement and layout tools.

STS.HS.25.2.a Identify types of plastics measurement and layout tools.

STS.HS.25.2.b Categorize plastics measurement and layout tools by use.

STS.HS.25.2.c Demonstrate the accurate use of measurement and layout tools to 1/16" precision.

MANUFACTURING PRODUCTION – PLASTICS (cont.)

STS.HS.25.3 Solve math functions and formulas to complete plastics job/workplace tasks.

STS.HS.25.3.a Identify whole numbers, decimals, fractions, and complex numbers used in the workplace.

STS.HS.25.3.b Apply basic arithmetic operations used in the workplace.

STS.HS.25.3.c Solve decimal and fraction conversions used in the workplace.

STS.HS.25.4 Identify career opportunities in the plastics manufacturing industry.

STS.HS.25.4.a Describe work behaviors needed to be employable.

STS.HS.25.4.b Describe appropriate work behavior that meets or exceeds plastics manufacturing industry standards.

STS.HS.25.4.c Identify the education, certification, or licensure required in plastics manufacturing careers.

STS.HS.25.4.d Identify the value that may be added to the community by plastics manufacturing professionals.

STS.HS.25.5 Demonstrate the use of plastic manufacturing communications.

STS.HS.25.5.a Define plastic manufacturing terminology.

STS.HS.25.5.b Estimate manufacturing timelines based on criteria.

STS.HS.25.5.c Utilize business and interpersonal communication appropriate to the plastics manufacturing work environment.

STS.HS.25.4.d Identify the industry standard compensation for a plastics manufacturing professional.

MANUFACTURING PRODUCTION – PLASTICS (cont.)

STS.HS.25.6 Select the materials, tools, machines, and processes required to manufacture a plastic product.

STS.HS.25.6.a Identify the origins, characteristics, and properties of various types of plastics.

STS.HS.25.6.b Categorize fasteners by their industry standard applications.

STS.HS.25.6.c Differentiate between various types of mechanical and chemical fasteners.

STS.HS.25.6.d Estimate amount of materials and supplies needed for a plastic product.

STS.HS.25.6.e Explain the operation and application of common industry finishes.

STS.HS.25.6.f Assess potential environmental and health impacts of using specific materials or processes.

STS.HS.25.6.g Determine the correct tools and machines needed to produce a specific plastic product.

STS.HS.25.7 Manufacture a production level product that uses plastic as its primary material.

STS.HS.25.7.a Interpret plans, drawings, and specifications to process materials.

STS.HS.25.7.b Coordinate the standard operation and application of tools and machines along the manufacturing process.

STS.HS.25.7.c Plan and apply the type of materials, fasteners, adhesives, and finishes required to manufacture a specific product.

STS.HS.25.7.d Critique a finished product.

STS.HS.25.7.e Appraise the manufacturing process for streamlining opportunities.

INTRODUCTION TO MECHATRONICS

COURSE DESCRIPTION

Mechatronics combines the industrial skills of mechanics, electronics, hydraulics, and computer-based controls.

Target Grades: 11-12.

STANDARDS AND INDICATORS:

STS.HS.18.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.18.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.18.1.b Employ eye protection in compliance with Neb. Rev. Statute 79–715.

STS.HS.18.1.c Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.18.1.d Employ the safe application of tools and machines.

STS.HS.18.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.18.1.f Demonstrate proper handling and storing of materials.

STS.HS.18.2 Identify career opportunities in mechatronics.

STS.HS.18.2.a Describe work behaviors needed to be employable.

STS.HS.18.2.b Identify employment trends in mechatronics.

STS.HS.18.2.c Identify the responsibilities and characteristics of professionals in mechatronics.

STS.HS.18.2.d Identify the training, education, certification, and licensing requirements for careers in mechatronics.

INTRODUCTION TO MECHATRONICS (cont.)

STS.HS.18.3 Solve math functions and formulas to complete mechatronics job or workplace tasks.

STS.HS.18.3.a Identify whole numbers, decimals, fractions, and complex numbers.

STS.HS.18.3.b Apply basic algebraic operations.

STS.HS.18.3.c Interpret scientific notation.

STS.HS.18.3.d Interpret engineering notation.

STS.HS.18.4 Explain mechatronics systems.

STS.HS.18.4.a Explain the theory and applications of hydraulics.

STS.HS.18.4.b Explain the theory and application of electronics.

STS.HS.18.4.c Explain the theory and application of pneumatics.

STS.HS.18.4.d Explain the theory and applications of control systems.

STS.HS.18.4.e Explain the theory and applications of computer systems.

STS.HS.18.5 Demonstrate use of mechatronics communications.

STS.HS.18.5.a Define mechatronics terminology.

STS.HS.18.5.b Interpret the language of mechatronics.

STS.HS.18.5.c Interpret electrical schematics, spec sheets, mechanical drawings, and hydraulic circuit diagrams.

STS.HS.18.5.d Employ business and interpersonal communication appropriate to the work environment.

INTRODUCTION TO MECHATRONICS (cont.)

STS.HS.18.6 Construct a mechatronic device based upon given specifications.

STS.HS.18.6.a Employ measurement tools.

STS.HS.18.6.b Select fasteners to mount components.

STS.HS.18.6.c Employ appropriate wires or tubing to make correct electrical, hydraulic, or pneumatic connections.

STS.HS.18.6.d Employ best practices in laying out wires and tubes for neatness, security, and safe operation.

STS.HS.18.6.e Adjust and calibrate subsystems by using interdisciplinary skills.

STS.HS.18.6.f Explain construction, electrical, and mechanical blueprints.

STS.HS.18.7 Integrate instrumentation to identify and troubleshoot problems in a mechatronics system.

STS.HS.18.7.a Employ meters to test resistance, voltage, and current to assess electrical equipment.

STS.HS.18.7.b Perform precision measuring on mechanical, hydraulic, electronic, or pneumatic components.

STS.HS.18.7.c Utilize data gained from instrumentation to develop troubleshooting options.

ADVANCED ELECTRONICS

COURSE DESCRIPTION

This capstone course focuses on circuitry diagnostics and the application and design of circuits using the principles of analog and digital electronics. Students will learn safe practices with electronics and the importance of electronics in industry and society.

Target Grades: 11-12.

STANDARDS AND INDICATORS:

STS.HS.1.1 Apply safety principles, practices, philosophy and guidelines to the work environment.

STS.HS.1.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.1.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.1.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79-715.
STS.HS.1.1.d	Carry out the safe application of tools and machines.
STS.HS.1.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.1.1.f	Demonstrate proper handling and storing of materials.

STS.HS.1.2 Investigate career opportunities in the electronics industry.

STS.HS.1.2.a	Identify responsibilities and characteristics of professionals in industry.
STS.HS.1.2.b	Describe work behaviors needed to be employable.
STS.HS.1.2.c	Identify the training, education, certification, and licensing requirements for various careers in the electronics industry.
STS.HS.1.2.d	Identify high-wage, high-demand, and high-skill electronics careers.

ADVANCED ELECTRONICS (cont.)

STS.HS.1.3 Employ electronic terminology, symbols, laws, and equipment.

STS.HS.1.3.a Identify proper electronic terminology and symbols.

STS.HS.1.3.b Compute and manipulate the Laws of Electronics (i.e., Ohms, Watts, Kirchhoff's).

STS.HS.1.3.c Identify and operate all basic electronic equipment.

STS.HS.1.4 Construct electronic circuits.

STS.HS.1.4.a Interpret, design, and synthesize electronic circuits.

STS.HS.1.4.b Explain the characteristics of AC Electricity and its components.

STS.HS.1.4.c Explain basic solid state fundamentals.

STS.HS.1.4.d Explain logic gate circuits.

STS.HS.1.4.e Troubleshoot and analyze electronic circuits.

ADVANCED MANUFACTURING & FABRICATION – WOODS

COURSE DESCRIPTION

This expanded learning course allows students to go beyond the woods manufacturing program of study. Students will use the most advanced equipment, including CNC, to produce projects exceeding industry standards.

Target Grades: 11-12.

STANDARDS AND INDICATORS:

STS.HS.4.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.4.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.4.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.4.1.c Employ eye protection in compliance with Neb. Rev. Statute 79–715.
- STS.HS.4.1.d Employ the safe application of tools and machines.
- STS.HS.4.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.4.1.f Demonstrate proper handling and storing of materials and chemicals.

STS.HS.4.2 Execute accurate measurements using precision wood measurement tools.

- STS.HS.4.2.a Identify types of precision measurement tools.
- STS.HS.4.2.b Categorize precision measurement tools by use.
- STS.HS.4.2.c Differentiate between measurement tools and layout tools.
- STS.HS.4.2.d Demonstrate the accurate use of measurement and layout tools to 1/64" precision.
- STS.HS.4.2.e Demonstrate the accurate use of measurement and layout tools to 0.5mm precision.

ADVANCED MANUFACTURING - WOODS (cont.)

STS.HS.4.3 Solve math functions and formulas to complete woodworking job or workplace tasks.

STS.HS.4.3.a	Identify whole numbers, decimals, fractions, and complex numbers.
STS.HS.4.3.b	Apply intermediate arithmetic operations.
STS.HS.4.3.c	Apply basic geometric operations.
STS.HS.4.3.d	Solve decimal or fraction conversions.
STS.HS.4.3.e	Solve metric or United States Customary System (USCS) conversions.

STS.HS.4.4 Identify career opportunities in the wood manufacturing industry.

STS.HS.4.4.a	Describe work behaviors needed to be employable.
STS.HS.4.4.b	Employ appropriate work behavior that meets or exceeds wood industry standards.
STS.HS.4.4.c	Explain the required education, certification, or licensure needed for a wood manufacturing career.
STS.HS.4.4.d	Analyze the value that may be added to the community by manufacturing professionals.
STS.HS.4.4.e	Explain the industry standard compensation for a wood manufacturing professional.

STS.HS.4.5 Apply manufacturing communications.

STS.HS.4.5.a	Define wood manufacturing terminology.
STS.HS.4.5.b	Generate a wood project proposal.
STS.HS.4.5.c	Estimate manufacturing timelines based on criteria.
STS.HS.4.5.d	Utilize business and interpersonal communication appropriate to the work environment.

ADVANCED MANUFACTURING - WOODS (cont.)

STS.HS.4.6 Assess the materials, tools, machines, and processes required to manufacture a wood product.

STS.HS.4.6.a	Identify the characteristics, properties, and origin of softwoods.
STS.HS.4.6.b	Identify the characteristics, properties, and origin of hardwoods.
STS.HS.4.6.c	Differentiate additive and subtractive manufacturing.
STS.HS.4.6.d	Identify fasteners by their industry standard applications.
STS.HS.4.6.e	Differentiate between various types of mechanical and chemical fasteners.
STS.HS.4.6.f	Estimate amount of materials and supplies needed for a product.
STS.HS.4.6.g	Determine feed rate and speed settings for a material and process.
STS.HS.4.6.h	Explain the operation and application of common wood industry finishes.
STS.HS.4.6.i	Assess potential environmental and health impacts of using specific materials or processes.
STS.HS.4.6.j	Determine the correct tools, machines, and processes needed to produce a specific wood product.

STS.HS.4.7 Manufacture a custom-level product that uses wood as its primary material.

STS.HS.4.7.a	Interpret plans, drawings, and specifications to process materials.
STS.HS.4.7.b	Coordinate the standard operation and application of tools and machines along the manufacturing process.
STS.HS.4.7.c	Plan and apply the type of materials, processes, and finishes required to manufacture a specific product.
STS.HS.4.7.d	Critique a finished product.
STS.HS.4.7.e	Appraise the manufacturing process for streamlining opportunities.

ADVANCED MANUFACTURING & FABRICATION – METALS

COURSE DESCRIPTION

This expanded learning course allows students to go beyond the metals manufacturing program of study. Students will use the most advanced equipment, including CNC, to produce projects exceeding industry standards.

Target Grades: 11-12.

STANDARDS AND INDICATORS:

STS.HS.2.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.2.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.2.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.2.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79–715.
STS.HS.2.1.d	Employ the safe application of tools and machines.
STS.HS.2.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.2.1.f	Demonstrate proper handling and storing of materials and chemicals.

STS.HS.2.2 Execute accurate measurements using precision metal measurement tools.

STS.HS.2.2.a	Identify types of precision measurement tools.
STS.HS.2.2.b	Categorize precision measurement tools by use.
STS.HS.2.2.c	Differentiate between measurement tools and layout tools.
STS.HS.2.2.d	Demonstrate the accurate use of measurement and layout tools to 1/64" precision or 0.5mm precision.

ADVANCED MANUFACTURING - METALS (cont.)

STS.HS.2.3 Solve math functions and formulas to complete metals job or workplace tasks.

STS.HS.2.3.a	Identify whole numbers, decimals, fractions, and complex numbers.
STS.HS.2.3.b	Apply intermediate arithmetic operations.
STS.HS.2.3.c	Apply basic geometric operations.
STS.HS.2.3.d	Solve decimal or fraction conversions.
STS.HS.2.3.d	Solve metric or United States Customary System (USCS) conversions.

STS.HS.2.4 Identify career opportunities in the metal manufacturing industry.

STS.HS.2.4.a	Describe work behaviors needed to be employable.
STS.HS.2.4.b	Employ appropriate work behavior that meets or exceeds metal industry standards.
STS.HS.2.4.d	Explain the required education, certification, or licensure needed for a metal manufacturing career.
STS.HS.2.4.e	Analyze the value that may be added to the community by manufacturing professionals.
STS.HS.2.4.f	Explain the industry standard compensation for a metal manufacturing professional.

STS.HS.2.5 Apply manufacturing communications.

STS.HS.2.5.a	Define metal manufacturing terminology.
STS.HS.2.5.b	Generate a metal project proposal.
STS.HS.2.5.c	Estimate manufacturing timelines based on criteria.
STS.HS.2.5.d	Utilize business and interpersonal communication appropriate to the work environment.

ADVANCED MANUFACTURING - METALS (cont.)

STS.HS.2.6 Describe the materials, tools, machines, and processes required to manufacture a metal product.

STS.HS.2.6.a	Identify the various types of metals and their characteristics.
STS.HS.2.6.b	Differentiate additive and subtractive manufacturing.
STS.HS.2.6.c	Identify fasteners by their industry standard applications.
STS.HS.2.6.d	Differentiate between various types of mechanical and chemical fasteners.
STS.HS.2.6.e	Estimate amount of materials and supplies needed for a product.
STS.HS.2.6.f	Determine feed rate and speed settings for a material and process.
STS.HS.2.6.g	Explain the operation and application of common metal industry finishes.
STS.HS.2.6.h	Assess potential environmental and health impacts of using specific materials or processes.
STS.HS.2.6.i	Determine the correct tools, machines, and processes needed to produce a specific metal product.

STS.HS.2.7 Manufacture a custom-level product that uses metal as its primary material.

STS.HS.2.7.a	Interpret plans, drawings, and specifications to process materials.
STS.HS.2.7.b	Coordinate the standard operation and application of tools and machines along the manufacturing process.
STS.HS.2.7.c	Plan and apply the type of materials, processes, and finishes required to manufacture a specific product.
STS.HS.2.7.d	Critique a finished product.
STS.HS.2.7.e	Appraise the manufacturing process for streamlining opportunities.

ADVANCED MANUFACTURING & FABRICATION – PLASTICS

COURSE DESCRIPTION

This expanded learning course allows students to go beyond the plastics manufacturing program of study. Students will use the most advanced equipment, including CNC, to produce projects exceeding industry standards.

Target Grades: 11-12.

STANDARDS AND INDICATORS:

STS.HS.3.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.3.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.3.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.3.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79–715.
STS.HS.3.1.d	Employ the safe application of tools and machines.
STS.HS.3.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.3.1.f	Demonstrate proper handling and storing of materials and chemicals.

STS.HS.3.2 Execute accurate measurements using precision plastic measurement tools.

STS.HS.3.2.a	Identify types of precision measurement tools.
STS.HS.3.2.b	Categorize precision measurement tools by use.
STS.HS.3.2.c	Differentiate between measurement tools and layout tools.
STS.HS.3.2.d	Demonstrate the accurate use of measurement and layout tools to 1/64" precision or 0.5mm precision.

ADVANCED MANUFACTURING - PLASTICS (cont.)

STS.HS.3.3 Solve math functions and formulas to complete plastics job or workplace tasks.

- STS.HS.3.3.a Identify whole numbers, decimals, fractions, and complex numbers.
- STS.HS.3.3.b Apply intermediate arithmetic operations.
- STS.HS.3.3.c Apply basic geometric operations.
- STS.HS.3.3.d Solve decimal or fraction conversions.
- STS.HS.3.3.e Solve metric or United States Customary System (USCS) conversions.

STS.HS.3.4 Identify career opportunities in the plastics manufacturing industry.

- STS.HS.3.4.a Describe work behaviors needed to be employable.
- STS.HS.3.4.b Employ appropriate work behavior that meets or exceeds plastics industry standards.
- STS.HS.3.4.c Explain the required education, certification, or licensure needed for a plastics manufacturing career.
- STS.HS.3.4.d Analyze the value that may be added to the community by manufacturing professionals.
- STS.HS.3.4.e Explain the industry standard compensation for a plastics manufacturing professional.

STS.HS.3.5 Apply manufacturing communications.

- STS.HS.3.5.a Define plastic manufacturing terminology.
- STS.HS.3.5.b Generate a plastic project proposal.
- STS.HS.3.5.c Estimate manufacturing timelines based on criteria.
- STS.HS.3.5.d Utilize business and interpersonal communication appropriate to the work environment.

ADVANCED MANUFACTURING - PLASTICS (cont.)

STS.HS.3.6 Describe the materials, tools, machines, and processes required to manufacture a plastic product.

STS.HS.3.6.a	Identify the various types of plastics and their characteristics.
STS.HS.3.6.b	Differentiate additive and subtractive manufacturing.
STS.HS.3.6.c	Identify fasteners by their industry standard applications.
STS.HS.3.6.d	Differentiate between various types of mechanical and chemical fasteners.
STS.HS.3.6.e	Estimate amount of materials and supplies needed for a product.
STS.HS.3.6.f	Determine feed rate and speed settings for a material and process.
STS.HS.3.6.g	Explain the operation and application of common plastic industry finishes.
STS.HS.3.6.h	Assess potential environmental and health impacts of using specific materials or processes.
STS.HS.3.6.i	Determine the correct tools, machines, and processes needed to produce a specific plastic product.

STS.HS.3.7 Manufacture a custom-level product that uses plastic as its primary material.

STS.HS.3.7.a	Interpret plans, drawings, and specifications to process materials.
STS.HS.3.7.b	Coordinate the standard operation and application of tools and machines along the manufacturing process.
STS.HS.3.7.c	Plan and apply the type of materials, processes, and finishes required to manufacture a specific product.
STS.HS.3.7.d	Critique a finished product.
STS.HS.3.7.e	Appraise the manufacturing process for streamlining opportunities.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES

COURSE DESCRIPTION

This introductory course provides the skills and technical knowledge for a beginning student in areas of industry, safety, material, equipment, and process understanding. This entry level course helps students gain a foundation in all areas of Skilled and Technical Sciences including Architecture and Construction; Energy and Engineering; Manufacturing; and Transportation, Distribution, and Logistics.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.19.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.19.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.19.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.19.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.19.1.d Employ the safe application of tools and machines.

STS.HS.19.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.19.1.f Demonstrate proper handling and storing of materials.

STS.HS.19.2 Identify career opportunities in Skilled and Technical Sciences areas.

STS.HS.19.2.a Identify responsibilities and characteristics of professionals in a skilled and technical sciences industry.

STS.HS.19.2.b Describe work behaviors needed to be employable in a skilled and technical sciences industry.

STS.HS.19.2.c Identify the training, education, certification, and licensing requirements for various careers in a skilled and technical sciences industry.

STS.HS.19.2.d Identify high wage, high demand, and high skill careers in skilled and technical sciences.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES (cont.)

STS.HS.19.3 Apply appropriate academic and technical skills to produce a product.

STS.HS.19.3.a Employ project-related math operations and formulas.

STS.HS.19.3.b Employ effective verbal, written, and/or visual communication skills.

STS.HS.19.3.c Define course content vocabulary.

STS.HS.19.3.d Conduct the accurate use of measurement tools

STS.HS.19.4 Identify the materials, tools, machines, and equipment required to produce a product.

STS.HS.19.4.a Identify types of materials to be used for various products.

STS.HS.19.4.b Identify types of fasteners for various products.

STS.HS.19.4.c Identify types of adhesives for various products.

STS.HS.19.4.d Identify types of finishes for various products.

STS.HS.19.4.e Identify the correct tools, machines, and equipment appropriate for a specific operation or process.

STS.HS.19.5 Produce a product(s).

STS.HS.19.5.a Interpret working drawings of a product to be produced.

STS.HS.19.5.b Select the proper materials adhesives, fasteners and finishes for a product.

STS.HS.19.5.c Demonstrate the proper tool, machine, or equipment selection and usage for each corresponding operation needed to produce a product.

STS.HS.19.5.d Execute a plan of procedure.

WELDING 1

COURSE DESCRIPTION

This course introduces students to arc welding and cutting processes. Emphasis is placed on welding safety, basic welding procedures, and career opportunities in welding. Students will have an opportunity to learn and practice various welding positions. Production of a small product will be incorporated.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.36.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.36.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.36.1.b	Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.
STS.HS.36.1.c	Employ eye protection in compliance with Neb. Rev. Statute 79-715.
STS.HS.36.1.d	Employ the safe application of tools and machines.
STS.HS.36.1.e	Explain the main hazards that are possible in the lab setting.
STS.HS.36.1.f	Demonstrate proper handling and storing of materials.

STS.HS.36.2 Explain career opportunities in the welding industry.

STS.HS.36.2.a	Describe work behaviors needed to be employable.
STS.HS.36.2.b	Identify employment trends in the welding industry.
STS.HS.36.2.c	Identify the responsibilities and characteristics of professionals in the welding industry.
STS.HS.36.2.d	Identify the training, education, certification and licensing requirements for careers in the welding industry.

WELDING 1 (cont.)

STS.HS.36.3 Explain the use of welding communications.

STS.HS.36.3.a	Define welding terminology.
STS.HS.36.3.b	Measure metric and imperial measurements with an accuracy of a millimeter or 1/16 of an inch.
STS.HS.36.3.c	Explain mechanical drawings according to the American National Standards Institute (ANSI).
STS.HS.36.3.d	Explain welding symbols according to the AWS.
STS.HS.36.3.e	Explain information from a welding procedure sheet.

STS.HS.36.4 Determine the materials, tools, and equipment needed to weld.

STS.HS.36.4.a	Identify tools and their use in welding.
STS.HS.36.4.b	Identify welding equipment and proper set up procedures according to the manufacturer's recommendations.
STS.HS.36.4.c	Identify the material used in welding.
STS.HS.36.4.d	Identify the filler material used in welding.
STS.HS.36.4.e	Determine types of fasteners, adhesives, and finishes used for welding.

STS.HS.36.5 Perform metal cutting operations.

STS.HS.36.5.a	Perform an abrasive cutting procedure.
STS.HS.36.5.b	Perform mechanical cutting procedure.
STS.HS.36.5.c	Perform a hot (flame) source cutting operation.
STS.HS.36.5.d	Perform an arc cutting operation.

WELDING 1 (cont.)

STS.HS.36.6 Join material using any methods of welding procedure in the flat and horizontal positions.

STS.HS.36.6.a	Create a pad of surface welds with no welding defects according to AWS standards.
STS.HS.36.6.b	Create groove joints with no welding defects according to AWS standards.
STS.HS.36.6.c	Create fillet welds with no welding defects according to AWS standards.
STS.HS.36.6.d	Produce a product with the welding processes that are available.

WELDING 2

COURSE DESCRIPTION

This capstone course is a continuation of learning the knowledge and skills of the welding industry. Students will learn welding safety, communications, material and tool usage, and welding positions. Students will apply this knowledge and skill to produce a product.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.37.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

- STS.HS.37.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.37.1.b Use appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.37.1.c Use eye protection in compliance with Neb. Rev. Statute 79-715.
- STS.HS.37.1.d Carry out the safe application of tools and machines.
- STS.HS.37.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.37.1.f Demonstrate proper handling and storing of materials.

STS.HS.37.2 Investigate career opportunities in the welding industry.

- STS.HS.37.2.a Describe work behaviors needed to be employable.
- STS.HS.37.2.b Identify employment trends in the welding industry.
- STS.HS.37.2.c Identify the responsibilities and characteristics of professionals in the welding industry.
- STS.HS.37.2.d Identify the training, education, certification and licensing requirements for careers in the welding industry.

WELDING 2 (cont.)

STS.HS.37.3 Demonstrate the use of welding communications.

STS.HS.37.3.a	Explain welding terminology.
STS.HS.37.3.b	Describe a quality weld according to the American Welding Society (AWS).
STS.HS.37.3.c	Measure metric and imperial measurements within an accuracy of a millimeter or 1/32 of an inch.
STS.HS.37.3.d	Explain mechanical drawings according to the American National Standards Institute (ANSI).
STS.HS.37.3.e	Explain welding symbols according to the AWS.
STS.HS.37.3.f	Solve mathematical functions used in welding.
STS.HS.37.3.g	Interpret information from a welding procedure sheet.

STS.HS.37.4 Identify the materials, tools, and equipment needed to weld.

STS.HS.37.4.a	Identify tools and their use in welding.
STS.HS.37.4.b	Identify welding equipment and proper set up procedures according to the manufacturers' recommendations.
STS.HS.37.4.c	Identify the material used in welding.
STS.HS.37.4.d	Identify the filler material used in welding.
STS.HS.37.4.e	Identify types of fasteners, adhesives, and finishes used for welding.

WELDING 2 (cont.)

STS.HS.37.5 Perform metal cutting operations.

STS.HS.37.5.a Perform an abrasive cutting procedure.

STS.HS.37.5.b Perform a mechanical cutting procedure.

STS.HS.37.5.c Perform a hot (flame) source cutting operation.

STS.HS.37.5.d Perform an arc cutting operation.

STS.HS.37.5.e Perform an automated cutting operation.

STS.HS.37.6 Perform welding procedures in the flat, horizontal, and vertical positions.

STS.HS.37.6.a Create a pad of surface welds with no welding defects according to the AWS.

STS.HS.37.6.b Create groove joints with no welding defects according to AWS standards.

STS.HS.37.6.c Create fillet welds with no welding defects according to AWS standards.

STS.HS.37.7 Produce a product with welding processes.

STS.HS.37.7.a Use a drawing with welding symbols according to AWS.

STS.HS.37.7.b Cut the materials according to the technical drawing.

STS.HS.37.7.c Weld the materials according to the technical drawing.

STS.HS.37.7.d Finish the materials according to the technical drawing.

WELDING 3

COURSE DESCRIPTION

This is a project-oriented extended learning course that is designed to prepare a student for postsecondary and/or entry into industry. An emphasis on safety and welding operations will be covered. This course will assist the student going into a welding career.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.38.1 Apply safety principles, practices, philosophy and guidelines to the work environment.

- STS.HS.38.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.38.1.b Use appropriate Personal Protective Equipment (PPE) while in the lab setting.
- STS.HS.38.1.c Use eye protection in compliance with Neb. Rev. Statute 79-715.
- STS.HS.38.1.d Carry out the safe application of tools and machines.
- STS.HS.38.1.e Explain the main hazards that are possible in the lab setting.
- STS.HS.38.1.f Demonstrate proper handling and storing of materials.

STS.HS.38.2 Identify career opportunities in the welding industry.

- STS.HS.38.2.a Describe work behaviors needed to be employable.
- STS.HS.38.2.b Identify employment trends in the welding industry.
- STS.HS.38.2.c Identify the responsibilities and characteristics of professionals in the welding industry.
- STS.HS.38.2.d Identify the training, education, certification, and licensing requirements for careers in the welding industry.

WELDING 3 (cont.)

STS.HS.38.3 Demonstrate the use of welding communications.

STS.HS.38.3.a	Explain welding terminology.
STS.HS.38.3.b	Identify a quality weld according to the American Welding Society (AWS).
STS.HS.38.3.c	Measure metric and imperial measurements within an accuracy of a millimeter or 1/64 of an inch.
STS.HS.38.3.d	Explain mechanical drawings according to the American National Standards Institute (ANSI).
STS.HS.38.3.e	Explain welding symbols according to the AWS.
STS.HS.38.3.f	Solve mathematical functions used in welding.
STS.HS.38.3.g	Explain information from a welding procedure sheet.

STS.HS.38.4 Identify the materials, tools, fasteners, and equipment needed to weld.

STS.HS.38.4.a	Identify tools and their use in welding.
STS.HS.38.4.b	Identify welding equipment and proper set up procedures according to the manufacturer's recommendations.
STS.HS.38.4.c	Identify the material used in welding.
STS.HS.38.4.d	Identify the filler material used in welding.
STS.HS.38.4.e	Determine types of fasteners, adhesives, and finishes used for welding.
STS.HS.38.4.f	Identify automated or emerging technologies in welding.

WELDING 3 (cont.)

STS.HS.38.5 Perform metal cutting operations.

STS.HS.38.5.a Perform an abrasive cutting procedure.

STS.HS.38.5.b Perform a mechanical cutting procedure.

STS.HS.38.5.c Perform a hot (flame) source cutting operation.

STS.HS.38.5.d Perform an arc cutting operation.

STS.HS.38.5.e Perform an automated cutting operation.

STS.HS.38.6 Join material using any methods of welding procedure in the flat, horizontal, vertical, and overhead positions.

STS.HS.38.6.a Create a pad of surface welds with no welding defects according to the AWS.

STS.HS.38.6.b Create groove joints with no welding defects according to AWS standards.

STS.HS.38.6.c Create fillet welds with no welding defects according to AWS standards.

STS.HS.38.6.d Perform an AWS standard bend test.

STS.HS.38.7 Produce a product with welding processes that are available.

STS.HS.38.7.a Create a drawing with welding symbols according to AWS.

STS.HS.38.7.b Perform mathematical calculations to estimate the cost of materials for the product.

STS.HS.38.7.c Produce and finish the product to specifications.

INTRODUCTION TO TRANSPORTATION, DISTRIBUTION, AND LOGISTICS

COURSE DESCRIPTION

This course will introduce students to the basics of transportation, distribution, and logistics (TDL). Students will learn how the supply chain of products and materials operate to keep industry running and consumer products available.

Target Grades 9-11.

STANDARDS AND INDICATORS:

STS.HS.20.1 Apply safety principles, practices, philosophy and guidelines to the work environment.

- STS.HS.20.1.a Complete safety assessments with 100% accuracy.
- STS.HS.20.1.b Employ the requirements of safety glasses and other personal protective equipment (PPE).
- STS.HS.20.1.c Employ the safe use of tools, machines, and equipment in alignment with industry standards to maintain a safe workplace.
- STS.HS.20.1.d Describe the role of government agencies in providing a safe workplace.

STS.HS.20.2 Identify career opportunities in the transportation, distribution, and logistics (TDL) industry.

- STS.HS.20.2.a Identify the responsibilities and characteristics of professionals in the TDL industry.
- STS.HS.20.2.b Identify employment trends in the TDL industry.
- STS.HS.20.2.c Identify the training, education, certification, and licensing requirements for various careers in the TDL industry.

INTRODUCTION TO TRANSPORTATION, DISTRIBUTION, AND LOGISTICS (cont.)

STS.HS.20.3 Analyze the segments and functions of the TDL industry.

STS.HS.20.a	Describe the five modes of transportation used to distribute people and products.
STS.HS.20.b	Compare different cargo types and the modes of transportation typically used for each.
STS.HS.20.c	Identify the individual systems that combine to create the TDL industry.
STS.HS.20.d	Explain how the individual systems that combine to create the TDL industry function together.

STS.HS.20.4 Explain the purpose and components of transportation logistics.

STS.HS.20.4.a	Explain dispatch and the purpose of tracking products as they are transported throughout the supply chain.
STS.HS.20.4.b	Describe the components that impact transportation logistics (i.e., routing, scheduling, equipment, operator, etc.).
STS.HS.20.4.c	Explain the different types of shipping documentation and terms.
STS.HS.20.4.d	Describe strategic, tactical, and systems planning.

DISTRIBUTION AND LOGISTICS

COURSE DESCRIPTION

This intermediate course is a study of the acquisition, storage, use, packaging, transportation, and distribution of materials and products. It showcases all of the steps necessary to take raw materials and produce a product.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.12.1 Explain career opportunities in the transportation industry.

STS.HS.12.1.a	Identify the responsibilities and characteristics of professionals in the transportation industry.
STS.HS.12.1.b	Identify employment trends in the transportation industry.
STS.HS.12.1.c	Identify high-wage, high-demand, and high-skill careers in the transportation, distribution, and Logistics (TDL) industry.
STS.HS.12.1.d	Identify work behaviors needed to be employable.
STS.HS.12.1.e	Identify the training, education, certification, and licensing requirements for various careers in TDL.

STS.HS.12.2 Explain the segments and functions of the TDL industry.

STS.HS.12.2.a	Explain order processing, receiving, storage, retrieval, packaging, and shipping of a product in the global supply chain logistics life cycle.
STS.HS.12.2.b	Identify the role of product receiving in the global supply chain logistics life cycle.
STS.HS.12.2.c	Identify the role of product storage and retrieval in the global supply chain logistics life cycle.
STS.HS.12.2.d	Identify the role of order processing in the global supply chain logistics life cycle.
STS.HS.12.2.e	Explain inventory control principles.
STS.HS.12.2.f	Explain distribution and distributorships.

DISTRIBUTION AND LOGISTICS (cont.)

STS.HS.12.3 Explain the purpose and components of transportation logistics.

STS.HS.12.3.a	Explain dispatch and the purpose of tracking of products as they are transported throughout the supply chain.
STS.HS.12.3.b	Describe the components that impact transportation logistics (i.e. routing, scheduling, equipment, operator, etc.).
STS.HS.12.3.c	Explain the different types of shipping documentation and terms.
STS.HS.12.3.d	Describe strategic, tactical, and systems planning.

BUSINESS LOGISTICS

COURSE DESCRIPTION

This capstone course is an in-depth study of the logistics of a business operation as it relates to transportation and distribution. Students will learn about order processing, receiving, storage, retrieval, packaging, and shipping of materials and products.

Target Grades 11-12.

STANDARDS AND INDICATORS:

STS.HS.8.1 Identify career opportunities in the transportation, distribution, and logistics (TDL) industry.

- STS.HS.8.1.a Identify the most common TDL careers and related fields of employment.
- STS.HS.8.1.b Identify the traits and skills employers look for in their employees.
- STS.HS.8.1.c Identify the training, education, certification, and licensing requirements for various careers in the TDL industry.

STS.HS.8.2 Identify the segments and functions of the TDL industry.

- STS.HS.8.2.a Compare the different types of cargo with the different modes of transportation.
- STS.HS.8.2.b Explain order processing, receiving, storage, retrieval, packaging, and shipping of a product in the global supply chain logistics life cycle.

STS.HS.8.3 Explain the purpose and components of transportation logistics.

- STS.HS.8.3.a Explain dispatch.
- STS.HS.8.3.b Explain the purpose of tracking of products as they are transported throughout t he supply chain.
- STS.HS.8.3.c Identify the components that impact transportation logistics (i.e., routing, scheduling, equipment, operator, etc.).
- STS.HS.8.3.d Explain types of shipping documentation and terminology.
- STS.HS.8.3.e Explain strategic, tactical, and systems planning.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES

COURSE DESCRIPTION

This introductory course provides the skills and technical knowledge for a beginning student in areas of industry, safety, material, equipment, and process understanding. This entry level course helps students gain a foundation in all areas of Skilled and Technical Sciences including Architecture and Construction; Energy and Engineering; Manufacturing; and Transportation, Distribution, and Logistics.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.19.1 Apply safety principles, practices, philosophy, and guidelines to the work environment.

STS.HS.19.1.a Complete applicable safety assessment with 100% accuracy.

STS.HS.19.1.b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting.

STS.HS.19.1.c Employ eye protection in compliance with Neb. Rev. Statute 79-715.

STS.HS.19.1.d Employ the safe application of tools and machines.

STS.HS.19.1.e Explain the main hazards that are possible in the lab setting.

STS.HS.19.1.f Demonstrate proper handling and storing of materials.

STS.HS.19.2 Identify career opportunities in Skilled and Technical Sciences areas.

STS.HS.19.2.a Identify responsibilities and characteristics of professionals in a skilled and technical sciences industry.

STS.HS.19.2.b Describe work behaviors needed to be employable in a skilled and technical sciences industry.

STS.HS.19.2.c Identify the training, education, certification, and licensing requirements for various careers in a skilled and technical sciences industry.

STS.HS.19.2.d Identify high wage, high demand, and high skill careers in skilled and technical sciences.

INTRODUCTION TO SKILLS AND TECHNICAL SCIENCES (cont.)

STS.HS.19.3 Apply appropriate academic and technical skills to produce a product.

STS.HS.19.3.a Employ project-related math operations and formulas.

STS.HS.19.3.b Employ effective verbal, written, and/or visual communication skills.

STS.HS.19.3.c Define course content vocabulary.

STS.HS.19.3.d Conduct the accurate use of measurement tools

STS.HS.19.4 Identify the materials, tools, machines, and equipment required to produce a product.

STS.HS.19.4.a Identify types of materials to be used for various products.

STS.HS.19.4.b Identify types of fasteners for various products.

STS.HS.19.4.c Identify types of adhesives for various products.

STS.HS.19.4.d Identify types of finishes for various products.

STS.HS.19.4.e Identify the correct tools, machines, and equipment appropriate for a specific operation or process.

STS.HS.19.5 Produce a product(s).

STS.HS.19.5.a Interpret working drawings of a product to be produced.

STS.HS.19.5.b Select the proper materials adhesives, fasteners and finishes for a product.

STS.HS.19.5.c Demonstrate the proper tool, machine, or equipment selection and usage for each corresponding operation needed to produce a product.

STS.HS.19.5.d Execute a plan of procedure.

POWER EQUIPMENT

COURSE DESCRIPTION

This introductory course is designed to develop skills in the operation, service, maintenance, and repair of small gas engine and powered equipment. The material covered in this course will be an entryway to other transportation courses.

Target Grades 6-12.

STANDARDS AND INDICATORS:

STS.HS.28.1 Apply safety principles, practices, and guidelines to the work environment.

STS.HS.28.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.28.1.b	Identify and explain the use of personal protective equipment.
STS.HS.28.1.c	Describe proper use of a fire extinguisher.
STS.HS.28.1.d	Demonstrate power equipment battery safety best-practices.
STS.HS.28.1.e	Apply the safe use of tools, machines, and equipment in alignment with industry standards to maintain a safe workplace.
STS.HS.28.1.f	Describe the role of government agencies in providing a safe workplace.
STS.HS.28.1g	Describe the safe and environmental disposal of fluids.

STS.HS.28.2 Identify career opportunities in the Power Equipment industry.

STS.HS.28.2.a	List the most common power equipment careers and related fields of employment.
STS.HS.28.2.b	List the traits & skills employers look for in their employees.
STS.HS.28.2.c	Explain how to find job openings in the power equipment field & identify employment trends.
STS.HS.28.2.d	Explain the specialized tasks completed by each type of technician.
STS.HS.28.2.e	Explain the types of repair facilities.
STS.HS.28.2.f	Summarize the different systems used to pay technicians.
STS.HS.28.2.g	Identify the training, education, certification, and licensing requirements for various careers in the power equipment industry.

POWER EQUIPMENT (cont.)

STS.HS.28.3 Identify fundamentals of power equipment measurement and math.

STS.HS.28.3.a Measure power equipment parts and measurements using both English and metric measuring systems.

STS.HS.28.3.b Identify and use basic measuring tools.

STS.HS.28.3.c Solve power equipment problems using basic math skills.

STS.HS.28.4 Explain fundamentals of Power Equipment Service Information.

STS.HS.28.4.a Describe the different types of service information.

STS.HS.28.4.b Explain the different kinds of information and Illustrations used in service information.

STS.HS.28.4.c Utilize print and/or online service information.

STS.HS.28.4.d Explain how to read and use shop work orders.

STS.HS.28.4.e Describe how to order parts for repair.

STS.HS.28.5 Explain fundamentals of fasteners, gaskets, seals, and sealants used in Power Equipment.

STS.HS.28.5.a Identify commonly used power equipment fasteners.

STS.HS.28.5.b Select and use fasteners properly.

STS.HS.28.5.c Remove, select, and install gaskets, seals, and sealants correctly.

POWER EQUIPMENT (cont.)

STS.HS.28.6 Explain fundamentals of power equipment principles of engine operation.

STS.HS.28.6.a	Explain simple engine operation.
STS.HS.28.6.b	Describe four-stroke engine operation and explain the purpose of each stroke.
STS.HS.28.6.c	Describe two-stroke engine operation and explain the principles of two-cycle operation.
STS.HS.28.6.d	List the advantages and disadvantages of two-stroke and four-stroke engines.

STS.HS.28.7 Explain fundamentals of Power Equipment engine components and systems.

STS.HS.28.7.a	Describe the function of major moving components (e.g., piston, crankshaft, camshaft, valves).
STS.HS.28.7.b	Describe the fundamentals of power equipment fuel supply and air induction.
STS.HS.28.7.c	Describe the fundamentals of Power Equipment Ignition Systems.
STS.HS.28.7.d	Describe the fundamentals of power equipment lubrication Systems.
STS.HS.28.7.e	Describe the fundamentals of Power Equipment Cooling Systems.

STS.HS.28.8 Demonstrate the fundamentals of power equipment engine disassembly, inspection and reassembly.

STS.HS.28.8.a	List the steps involved in disassembling an engine.
STS.HS.28.8.b	Explain how to inspect various engine parts for damage and wear.
STS.HS.28.8.c	Describe the procedure for removing an engine from an implement.
STS.HS.28.8.d	Explain how to inspect engines for problems.
STS.HS.28.8.e	Demonstrate power equipment engine assembly.

POWER EQUIPMENT (cont.)

STS.HS.28.9 Explain fundamentals of Power Equipment Preventative Maintenance & Troubleshooting.

STS.HS.28.9.a	Explain the steps to perform preventive maintenance on various engine systems.
STS.HS.28.9.b	Summarize the steps to change the oil in a four-cycle engine.
STS.HS.28.9.c	Describe the steps to prepare an engine for storage.
STS.HS.28.9.d	Describe systematic troubleshooting.
STS.HS.28.9.e	Explain the importance of manufacturers' service manuals to determine engine specifications and explain why this information is necessary when servicing a small engine.
STS.HS.28.9.f	Discuss the importance of a maintenance schedule and records.

TRANSPORTATION 1

COURSE DESCRIPTION

This intermediate course will provide students with basic knowledge and skills of the tools and systems needed to be a TDL technician. The student will create foundational knowledge and skills to prepare them for being a conscientious automotive owner or to further their skills to find a career in the TDL industry.

Target Grades 9-12.

STANDARDS AND INDICATORS:

STS.HS.33.1 Explain safety principles, practices, and guidelines to the work environment.

- STS.HS.33.1.a Complete applicable safety assessment with 100% accuracy.
- STS.HS.33.1.b Employ the use of personal protective equipment (PPE).
- STS.HS.33.1.c Describe proper use of a fire extinguisher.
- STS.HS.33.1.d Demonstrate automotive lift safety best–practices.
- STS.HS.33.1.e Demonstrate automotive battery safety best-practices.
- STS.HS.33.1.f Describe the role of government agencies in providing a safe workplace.
- STS.HS.33.1.g Explain the safe and environmental disposal of fluids.

STS.HS.33.2 Identify career opportunities in the transportation industry.

- STS.HS.33.2.a List the most common transportation careers and related fields of employment.
- STS.HS.33.2.b List the traits and skills employers look for in their employees.
- STS.HS.33.2.c Explain the specialized tasks completed by each type of technician.
- STS.HS.33.2.d Identify the training, education, certification, and licensing requirements for various careers in the transportation industry.

TRANSPORTATION 1 (cont.)

STS.HS.33.3 Explain proper usage of hand tools, power tools, fasteners, and equipment.

STS.HS.33.3.a Identify common hand tools, power tools, and equipment needed for diagnosis and repair of the automobile or mobile equipment.

STS.HS.33.3.b Identify and use basic measuring tools.

STS.HS.33.3.c Identify proper fasteners, gaskets, seals, and sealants used in transportation.

STS.HS.33.4 Describe the systems and components in an automobile.

STS.HS.33.4.a Identify the major parts of a typical automotive engine.

STS.HS.33.4.b Explain the basic function of the major parts of an automotive engine.

STS.HS.33.5 Explain the fundamentals of vehicle maintenance and fluid service.

STS.HS.33.5.a Describe the steps to check a vehicle's fluid levels.

STS.HS.33.5.b Explain the importance of vehicle maintenance.

STS.HS.33.5.c Identify the process to locate and identify fluid leaks.

STS.HS.33.5.d Outline the process to complete an oil and filter change.

STS.HS.33.5.e Describe the process to perform a vehicle grease maintenance.

STS.HS.33.5.f Explain the process of how to inspect for general problems with air filters, hoses, belts, pulleys, and other components.

TRANSPORTATION 1 (cont.)

STS.HS.33.6 Explain the fundamentals of vehicle exterior maintenance.

STS.HS.33.6.a Describe the importance of keeping a vehicle's exterior clean.

STS.HS.33.6.b Identify the proper tools and materials needed to wash and wax a vehicle's exterior.

STS.HS.33.6.c Explain the importance of using the correct soaps and cleaning products.

STS.HS.33.6.d Describe the steps to washing and drying a vehicle.

STS.HS.33.7 Explain fundamentals of researching, purchasing, and owning a vehicle.

STS.HS.33.7.a Explain the costs of owning and operating a car.

STS.HS.33.7.b Identify models and submodels of vehicles.

STS.HS.33.7.c Describe how to search and locate vehicles for sale.

STS.HS.33.7.d Differentiate the benefits versus cost of buying new or used vehicles.

TRANSPORTATION 2

COURSE DESCRIPTION

This capstone course will expand on the basic concepts and systems needed by the TDL technician. It will focus on service and maintenance of automobiles and mobile equipment. Specific maintenance requirements with the various systems of the automobile and mobile equipment will be covered as well as replacement of needed parts. This course will help students that want to know how to keep a vehicle running in good order and for those that would like to continue on in the TDL field.

Target Grades 10-12.

STANDARDS AND INDICATORS:

STS.HS.34.1 Explain safety principles, practices, and guidelines to the work environment.

STS.HS.34.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.34.1.b	Identify and explain the use of personal protective equipment.
STS.HS.34.1.c	Describe proper use of a fire extinguisher.
STS.HS.34.1.d	Demonstrate automotive lift safety best–practices.
STS.HS.34.1.e	Demonstrate automotive battery safety best-practices.
STS.HS.34.1.f	Apply the safe use of tools, machines, and equipment in alignment with industry standards to maintain a safe workplace.
STS.HS.34.1.g	Describe the role of government agencies in providing a safe workplace.
STS.HS.34.1.h	Explain the purpose for safe and environmental disposal of fluids.

STS.HS.34.2 Identify career opportunities in the transportation industry.

STS.HS.34.2.a	Identify the most common transportation careers and related fields of employment.
STS.HS.34.2.b	Identify the traits and skills employers look for in their employees.
STS.HS.34.2.c	Identify the training, education, certification, and licensing requirements for various careers in the transportation industry.

TRANSPORTATION 2 (cont.)

STS.HS.34.3 Identify correct tools, equipment and fasteners needed to diagnose and repair automobiles and mobile equipment.

STS.HS.34.3.a Identify common hand tools, power tools, and equipment needed for diagnosis and repair of the automobile or mobile equipment.

STS.HS.34.3 .b Describe the different types of service information platforms.

STS.HS.34.3.c Explain fundamentals of on–board diagnostics and scan tools.

STS.HS.34.3.d Identify proper fasteners, gaskets, seals, and sealants used in transportation.

STS.HS.34.4 Summarize the various systems used on automobiles and mobile equipment.

STS.HS.34.4.a Explain the fundamentals of the lubrication system.

STS.HS.34.4.b Explain the fundamentals of the fuel system.

STS.HS.34.4.c Explain the fundamentals of the cooling system.

STS.HS.34.4.d Explain the fundamentals of the brake system.

STS.HS.34.4.e Explain the fundamentals of the suspension system.

STS.HS.34.4.f Explain the fundamentals of the electrical system.

STS.HS.34.4.g Explain the fundamentals of the ignition system.

STS.HS.34.4.h Explain the fundamentals of the exhaust system.

COLLISION REPAIR

COURSE DESCRIPTION

This capstone course exposes students to the knowledge and skills needed to be a collision repair and refinishing technician. Safety, materials, tools and estimating will be included in the instruction. Working experience will also be included.

Target Grades 11-12.

STANDARDS AND INDICATORS:

STS.HS.9.1 Demonstrate safety principles, practices, and guidelines to the work environment.

STS.HS.9.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.9.1.b	Identify and explain the use of personal protective equipment.
STS.HS.9.1.c	Describe proper use of a fire extinguisher.
STS.HS.9.1.d	Demonstrate automotive lift safety best-practices.
STS.HS.9.1.e	Demonstrate automotive battery safety best-practices.
STS.HS.9.1.f	Demonstrate the safe use of tools, machines, and equipment in alignment with industry standards to maintain a safe workplace.
STS.HS.9.1.g	Describe the role of government agencies in providing a safe workplace.

STS.HS.9.2 Explain proper usage of hand tools, power tools, fasteners, and equipment.

STS.HS.9.2.a	Identify common hand tools, power tools, and equipment needed for diagnosis and repair of the automobile or mobile equipment.
STS.HS.9.2.b	Identify and use basic measuring tools.
STS.HS.9.2.c	Identify proper fasteners, gaskets, seals, and sealants used in transportation.

COLLISION REPAIR (cont.)

STS.HS.9.3 Identify career opportunities in the transportation industry.

STS.HS.9.3.a List the most common transportation careers and related fields of employment.

STS.HS.9.3.b List the traits and skills employers look for in their employees.

STS.HS.9.3.c Explain the specialized tasks completed by a collision repair technician.

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STS.HS.9.3.d Identify the training, education, certification, and licensing requirements for various careers in the transportation industry.

STS.HS.9.4 Explain fundamentals of Collision Repair and Refinishing measurement and math.

STS.HS.9.4.a Employ both customary and metric measuring systems.

STS.HS.9.4.b Identify and use basic collision repair and refinishing measuring tools.

STS.HS.9.4.c Employ basic math skills used in collision repair and refinishing.

STS.HS.9.5 Identify fundamentals of Collision Repair Information.

STS.HS.9.5.a Describe the different types of service information.

STS.HS.9.5.b Explain the different kinds of information and Illustrations used in service information.

STS.HS.9.5.c Utilize print and online service information.

STS.HS.9.5.d Understand shop work orders.

STS.HS.9.5.e Describe how to order parts for repair.

COLLISION REPAIR (cont.)

STS.HS.9.6 Explain fundamentals of Nonstructural Repairs.

STS.HS.9.6.a	Describe steps for a nonstructural panel repair.
STS.HS.9.6.b	Explain steps for a bolted nonstructural panel replacement.
STS.HS.9.6.c	Identify the procedure to repair welded and bonded nonstructural panel replacement.
STS.HS.9.6.d	Recall steps and procedures for plastic repair.
STS.HS.9.6.e	Describe steps for glass repair.

STS.HS.9.7 Explain fundamentals of Structural Repairs.

STS.HS.9.7.a	Identify unibody/frame-straightening equipment.
STS.HS.9.7.b	Discuss the various types of measurements used for structural repairs.
STS.HS.9.7.c	Describe the steps for unibody straightening.
STS.HS.9.7.d	Identify the steps for full frame repair.
STS.HS.9.7.e	Summarize the process for various types of structural component replacement.

STS.HS.9.8 Explain fundamentals of Refinishing Technology used in Collision Repair.

STS.HS.9.8.a	Explain various refinishing materials used.
STS.HS.9.8.b	Describe steps for paint mixing and reducing.
STS.HS.9.8.c	Explain correct spray techniques.
STS.HS.9.8.d	Explain various techniques for surface preparation.
STS.HS.9.8.e	Identify steps for color matching.
STS.HS.9.8.f	Describe the process for paint application.
STS.HS.9.8.g	Explain the steps used in detailing.

STS.HS.9.9 Explain fundamentals of Estimating used in Collision Repair.

STS.HS.9.9.a	Describe the process of collision repair estimating.
STS.HS.9.9.b	Describe the steps involved in completing a repair estimate.
STS.HS.9.9.c	Explain the process for completing an estimate.

TRANSPORTATION 3

COURSE DESCRIPTION

This extended learning course focuses on the diagnosis, service, and repair of automobile and mobile equipment. This course will prepare students for postsecondary education and entry into the career.

Target Grades 11-12.

STANDARDS AND INDICATORS:

STS.HS.35.1 Apply safety principles, practices, and guidelines to the work environment.

STS.HS.35.1.a	Complete applicable safety assessment with 100% accuracy.
STS.HS.35.1.b	Identify and explain the use of personal protective equipment.
STS.HS.35.1.c	Describe proper use of a fire extinguisher.
STS.HS.35.1.d	Demonstrate automotive lift safety best–practices.
STS.HS.35.1.e	Demonstrate automotive battery safety best–practices.
STS.HS.35.1.f	Apply the safe use of tools, machines, and equipment in alignment with industry standards to maintain a safe workplace.
STS.HS.35.1.g	Describe the role of government agencies in providing a safe workplace.
STS.HS.35.1.h	Describe the safe and environmental disposal of fluids.

STS.HS.35.2 Identify career opportunities in the transportation industry.

STS.HS.35.2.a	List the most common transportation careers and related fields of employment.
STS.HS.35.2.b	List the traits and skills employers look for in their employees.
STS.HS.35.2.c	Explain how to find job openings in the transportation field.
STS.HS.35.2.d	Explain the specialized tasks completed by each type of technician.
STS.HS.35.2.e	Identify the training, education, certification, and licensing requirements for various careers in the transportation industry.

TRANSPORTATION 3 (cont.)

STS.HS.35.3 Identify fundamentals of transportation measurement and service information.

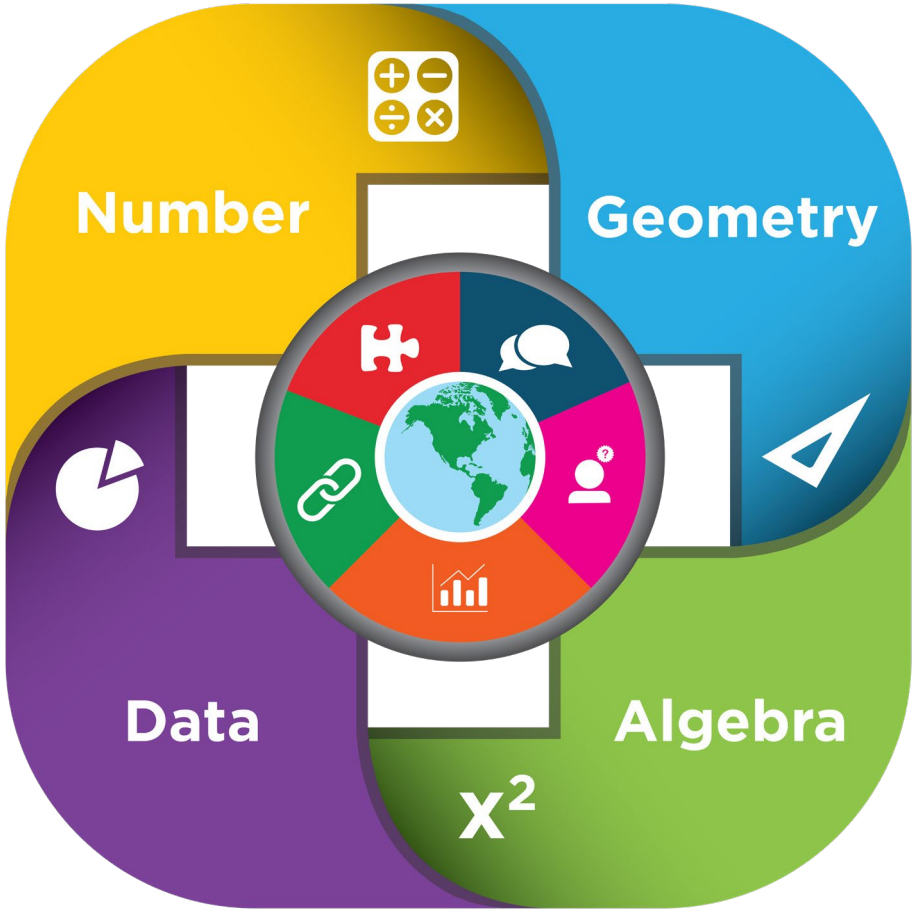
- STS.HS.35.3.a Measure with both customary and metric measuring systems.
- STS.HS.35.3.b Identify and use proper measuring tools for each task.
- STS.HS.35.3.c Describe the different types of service information.
- STS.HS.35.3.d Explain how to read shop work orders.

STS.HS.35.4 Identify correct tools, equipment and fasteners needed to diagnose and repair automobiles and mobile equipment.

- STS.HS.35.4.a Identify common hand tools, power tools, and equipment needed for diagnosis and repair of the automobile or mobile equipment.
- STS.HS.35.4.b Describe the different types of service information platforms.
- STS.HS.35.4.c Explain fundamentals of on–board diagnostics and scan tools.
- STS.HS.35.4.d Identify proper fasteners, gaskets, seals, and sealants used in transportation.

STS.HS.35.5 Explain fundamentals of vehicle systems and principles.

- STS.HS.35.5.a Explain the principles of electricity and magnetism.
- STS.HS.35.5.b Explain fundamentals of engine mechanical problem diagnosis.
- STS.HS.35.5.c Explain fundamentals of engine top end rebuilding.
- STS.HS.35.5.d Explain fundamentals of engine front end service.
- STS.HS.35.5.e Explain fundamentals of short block service.
- STS.HS.35.5.f Explain fundamentals of manual transmission, clutch, and automatic transmission technology.
- STS.HS.35.5.g Explain fundamentals of front and rear drive train technology.
- STS.HS.35.5.h Explain fundamentals of heating and air conditioning.
- STS.HS.35.5.i Explain fundamentals of diesel injection, turbochargers, and superchargers fundamentals.
- STS.HS.35.5.j Explain fundamentals of wheel alignment.
- STS.HS.35.5.k Explain fundamentals of restraint systems.



Nebraska's College and Career Ready Standards for Mathematics

Approved by the Nebraska State Board of Education on September 2, 2022

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Acknowledgements

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Introduction

College and career readiness for Nebraska's K-12 students requires content area standards that are clearly defined and increasingly rigorous across grade levels. The standards are designed to ensure all students have access to grade-level mathematics content centered on deep learning of concepts while actively building new knowledge from their experiences. The revised mathematics standards encompass a wide range of essential skills across the strands of Number, Algebra, Geometry, and Data. The standards, both individually and as an integrated whole, describe not only expectations for college and career readiness, but the 21st century mathematical literacies for critical and innovative thinking and problem solving. The progression of skills within each strand are research and evidence-based and designed to prepare Nebraska's students for postsecondary and workforce demands.

Content Area Standards Overview

Nebraska Revised Statute 79-760.01 requires the State Board of Education to adopt measurable academic content standards for the areas of reading, writing, mathematics, science, and social studies. Standards describe grade-level expectations for given content areas and provide a framework upon which Nebraska districts develop, establish, and implement curriculum. For effective teaching and learning to occur, the content area standards should drive local decisions related to instructional materials, resources, and interim, formative, and summative assessments.

The Nebraska Department of Education has identified quality criteria in the development of content area standards. These criteria ensure that standards are grounded in a strong research base of human cognition, motivation, and teaching and learning and describe essential knowledge and skills for college, career, and civic readiness. The revised mathematics standards, written by teams of Nebraska educators and reviewed by local and national experts, were developed with the following indicators of quality:

Measurable. Standards provide benchmarks against which student progress toward learning goals can be measured.

Appropriately challenging. Standards must build in complexity so that by the end of grade 12, students are prepared for postsecondary education and the workforce.

Connected. Student learning is most effective when it connects knowledge and skills to related topics and authentic applications.

Clearly worded. Content area standards must effectively communicate what students should know and be able to do.

Scaffolded. Indicators in the Nebraska content area standards scaffold student learning by sequencing connected knowledge and skills across grades so that students build and deepen understanding and ability over time.

Specific. Specificity assures that the language used in standards and indicators is sufficiently detailed to be accurately interpreted by educators.

Mathematics Standards Design

Nebraska's College and Career Ready Standards for Mathematics reflect the tiered structure common across all Nebraska content area standards. Grade-level standards include broad, overarching content-based statements that describe the basic cognitive or affective expectations of student learning. They also reflect, across all grade levels, the long-term goals for learning associated with college and career readiness. Indicators further describe what students must know and be able to do to meet the standard as well as provide guidance related to classroom instruction and assessment. In addition to standards and indicators, some of the standards include examples. The "e.g." statements, where appropriate, provide guidance relative to topics that may be included in a locally determined curriculum.

The structure of Nebraska's College and Career Ready Standards for Mathematics includes:

K-12 Content Strands. The strands are broad, general statements that are not grade-level specific. They reflect major topics in mathematics (number, algebra, geometry, and data) and the five mathematical processes.

Grade-Level Standards. The grade-level standards identify what students should know and be able to do by the end of each grade level or grade band. The standards are organized within K-12 Content Strands. The grade-level standards include a statement that describes the expectations for proficiency relative to the major work of the grade.

Indicators. The indicators provide additional specificity to distinguish expectations between grade levels. They are considered an integral part of the standard to be taught and assessed.

For grades K-8, the standards and indicators are written at grade level and are organized by four content strands: Number, Algebra, Geometry, and Data. The High School Standards and Advanced Topics Standards are organized by four content strands: Number, Algebra, Geometry, and Data.

Coding: The standards are organized using a coding system that includes the content area, the grade level, an abbreviation for the content strand, and the number within the strand. Lowercase letters represent indicators for some of the standards. (NOTE: not all standards include indicators.)

––—----**Example: MA.K.N.1.a**—--------

MA = Content Area (Math)

K = Kindergarten

N = Content Strand (Number)

1 = Standard

a = indicator

Approved by the Nebraska State Board of Education on September 2, 2022

The structure of Nebraska's College and Career Ready Standards for Mathematics includes:

Content Strand	Description
Number (N)	Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.
Ratios and Proportions (R) [1]	Students will understand ratio concepts and use ratio reasoning to solve problems.
Algebra (A)	Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.
Geometry (G)	Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.
Data (D)	Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

[1] Ratios and Proportions is a new content strand found only in Grades 6 and 7.

Grade Level Content Focus

In addition to the standards and indicators, this document includes information about content focus at the beginning of each grade level. Based on research and the progression of the disciplines, the information provides a snapshot of the "major work of the grade." This guidance leverages the structure and emphases of college- and career-ready mathematics standards. At every grade level, instruction should emphasize the development of the mathematical processes as the vehicle for content mastery.

Nebraska Mathematical Processes

Introduction. The Nebraska Mathematical Processes reflect overarching processes that students should master as they work towards college and career readiness. As described by the National Research Council (2001), mathematical processes are integral to all mathematics teaching and learning. The Nebraska Mathematical Processes reflect the interaction of skills necessary for success in math coursework as well as the ability to apply math knowledge and processes within authentic contexts. The processes highlight the applied nature of math within the workforce and clarify the expectations held for the use of mathematics in and outside of the classroom. Additionally, the Fordham Institute (2018) states that high quality standards for mathematics "integrate and promote the 'math processes' or mathematical habits of mind that every student should possess." Mathematical processes activate the learning process while increasing the likelihood that students will become mathematically proficient (Van de Walle et al., 2018).

To develop essential mathematical habits of mind, mathematically proficient students:

Make sense of problems and persevere in solving them. Students make sense of problems and look for entry points to plan solution pathways. A variety of tools including, but not limited to, mental math, estimation, concrete and visual models, and appropriate technology may be selected to support problem solving. Students form conjectures or inferences based on patterns or sets of examples and nonexamples and monitor their progress. Perseverance includes working without knowing if a plan will succeed, trying other plans if an initial plan does not work, and checking if a solution is reasonable. **(PROBLEM SOLVING)**

Reason quantitatively and abstractly and consider the reasoning of others. Students make sense of quantities and their relationships using quantitative and abstract reasoning. Quantitative reasoning uses the properties of numbers, operations, and geometric objects. Abstract reasoning includes making sense of and manipulating representations in terms of the original context. Students can represent a problem using numbers and mathematical symbols, solve the problem and then make sense of the solution in context of the original situation. Students can analyze their own reasoning and the reasoning of others by comparing different approaches, recognizing correctness and efficiency, and finding counterexamples. **(REASONING)**

Create and use representations to organize, record, and communicate mathematical ideas. Students will understand that representations of mathematical ideas – physical, visual, symbolic, contextual, and verbal – are an essential part of learning, doing, and communicating mathematics. Students create, use, and evaluate the effectiveness of representations to clearly communicate mathematical ideas. **(REPRESENTATIONS)**

Analyze mathematical relationships to connect mathematical ideas. Students routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense. By modeling mathematics in authentic contexts, students make connections among and between different areas of mathematics and other disciplines. Students seek out and make connections among different approaches and representations, including those of other students. **(CONNECTIONS)**

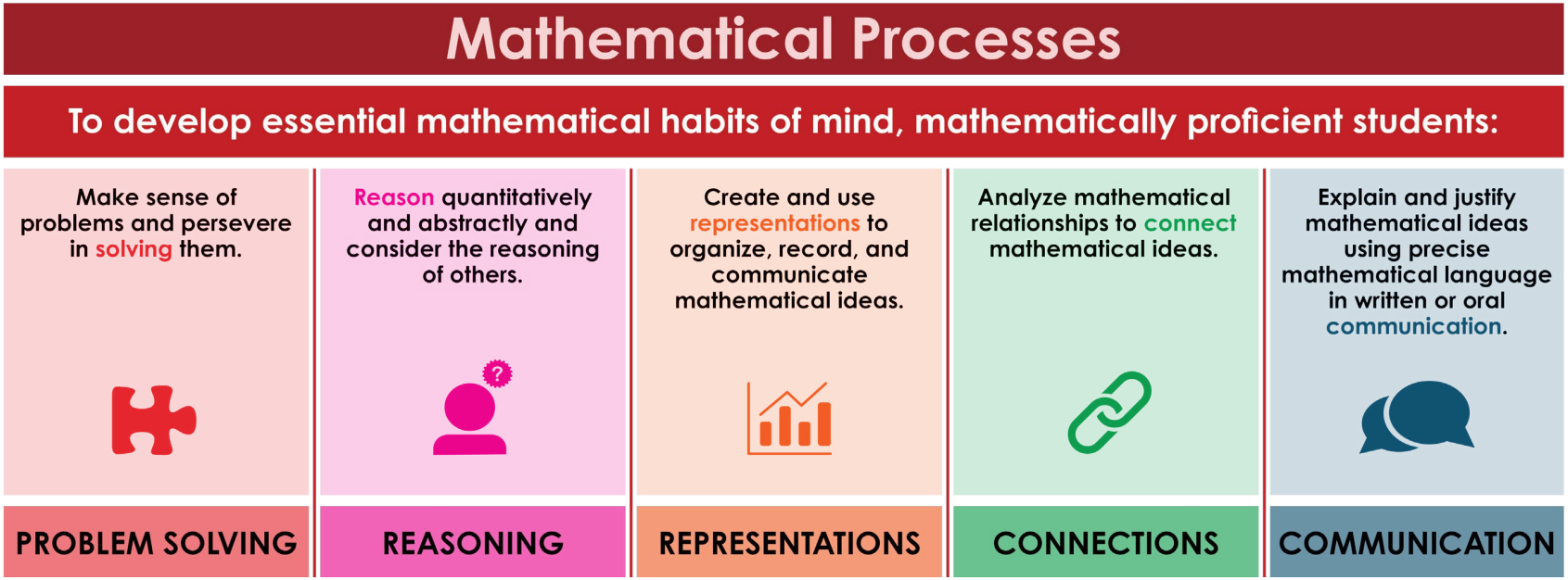
Explain and justify mathematical ideas using precise mathematical language in written or oral communication. Students will communicate their solutions with displays, explanations, and justifications. Students make sense of the mathematics by asking helpful questions that clarify or deepen understanding. Students will use precise mathematical language when explaining and justifying their work in written or oral form. **(COMMUNICATION)**

Kindergarten Standards

Kindergarten Content Focus

During Kindergarten, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Using numbers to represent quantities and to solve quantitative problems, such as quickly recognizing the number in a small set, counting objects in a set, producing sets of given sizes, and comparing and ordering sets or numerals.
- Working with numbers 11-19 to gain foundations for place value.
- Understanding addition as putting together and adding to and understanding subtraction as taking apart and taking from.
- Identifying, naming, and describing two- and three-dimensional shapes that are presented in a variety of ways.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

K.N.1 Subitizing: Students will quantify briefly shown collections and verbally label the arrangements without counting.

K.N.1.a Without counting, recognize and verbally label arrangements for briefly shown collections up to 10 (e.g., "I saw 5." "How did you know?" "I saw 3 and 2, that is 5."

K.N.2 Counting and Cardinality: Students will understand the relationship between numbers and quantities.

K.N.2.a Use one-to-one correspondence when counting objects to show the relationship between numbers and quantities and understand the last number counted is a direct representation of the total objects in a given set.

K.N.2.b Understand that each successive number name refers to a quantity that is one larger.

K.N.2.c Count out the number of objects given a number from 1 to 20.

K.N.2.d Count up to 20 objects arranged in a line, a rectangular array, or a circle, and count up to 10 objects in a scattered configuration.

K.N.2.e Count verbally forward and backward from any given number within 20.

K.N.2.f Count verbally in sequential order by ones and by tens to 100, making accurate decade transitions (e.g., 89 to 90).

K.N.2.g Write and name numbers 0 to 20. Represent a number of objects with a written numeral 0 to 20.

K.N.2.h Compare the number of objects in two groups, up to 20, using the words fewer than, more than, the same as.

K.N.3 Base Ten: Students will work with numbers 11 to 19 to gain a foundation for place value.

K.N.3.a Compose and decompose numbers from 11 to 19 into a group of ten ones and some more ones using a model, drawing, or equation.

K.N.4 Number and Algebraic Relationships: Students will understand and demonstrate the meaning of addition and subtraction.

K.N.4.a Represent and explain addition and subtraction as part-whole relationships, with addition as *putting together* and/or *adding to* and subtraction as *taking apart* and/or *taking from*, using objects, drawings, numbers, and equations.

K.N.4.b Compose and decompose numbers less than or equal to 10 into pairs in more than one way using verbal explanations, objects, or drawings.

K.N.4.c For any number from 1 to 9, find the number that makes 10 when added to the given number, sharing the answer with a model, drawing, or equation.

K.N.4.d Efficiently, flexibly, and accurately add and subtract within 5.

K.N.4.e Solve authentic problems that involve addition and subtraction within 10 (e.g., by using objects, drawings, and equations to represent the problem).

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

SEE NUMBER AND ALGEBRAIC RELATIONSHIPS IN NUMBER (K.N.4)

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

K.G.1 Shapes and Their Attributes: Students will identify and represent the attributes of two-dimensional shapes and three-dimensional solids.

K.G.1.a Identify and name two-dimensional shapes including circles, triangles, squares, and rectangles regardless of orientation or size.

K.G.1.b Identify and name three-dimensional shapes including spheres, cubes, cylinders, and cones regardless of orientation or size.

K.G.1.c Describe the relative positions of shapes in relation to other objects or shapes using terms such as above, below, in front of, behind, and next to.

K.G.1.d Create shapes using given materials and describe one or more of the attributes such as number of sides/corners.

K.G.1.e Combine simple shapes to compose larger shapes.

K.G.2 Measurement: Students will describe and compare measurable attributes.

K.G.2.a Describe measurable attributes of authentic objects including length, capacity, and weight.

K.G.2.b Directly compare two objects with a measurable attribute in common to describe which object is longer/shorter, heavier/lighter, and has more/less-capacity.

K.G.3 Time and Money: Students will know coin names and values and tell time to the hour.

K.G.3.a Identify the name and value of pennies, nickels, and dimes.

K.G.3.b Identify the parts of digital and analog clocks. Tell and write time to the hour using digital clocks and analog clocks using only the hour hand.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

K.D.1 Classification: Students will sort and classify objects using one or more attributes.

K.D.1.a Identify, sort, and classify objects by size, shape, color, and other attributes.

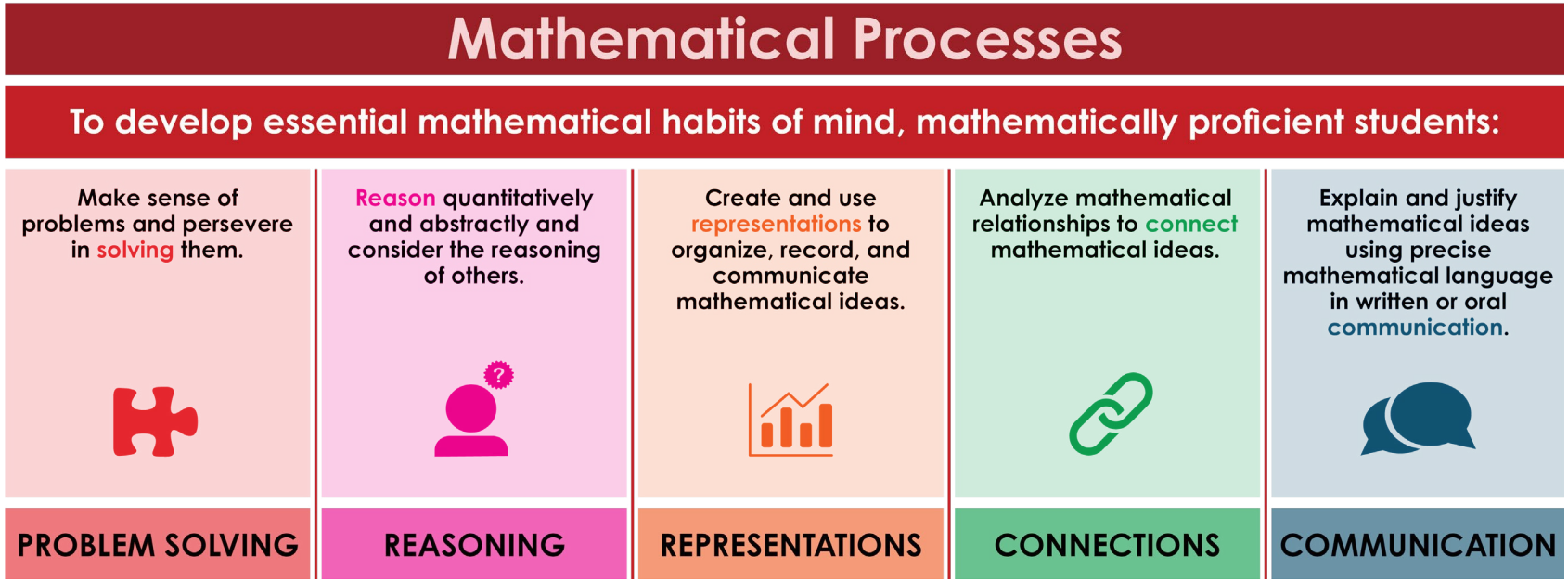
K.D.1.b Identify objects that do not belong to a particular group and explain the reasoning used.

Grade 1 Standards

Grade 1 Content Focus

During Grade 1, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Extending the counting sequence and strategies for solving quantitative questions.
- Representing and solving problems involving addition and subtraction to include work with equations and the properties of the operations.
- Developing understandings of addition and subtraction strategies for basic addition facts and related subtraction facts.
- Developing an understanding of whole number relationships, including grouping in tens and ones.
- Measuring lengths indirectly and by iterating length units.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

1.N.1 Subitizing: Students will quantify briefly shown collections and verbally label the arrangements without counting.

1.N.1.a Without counting, recognize and verbally label arrangements for briefly shown collections up to 20 (e.g.," I saw 16." "How did you know?" "I saw 10 and 6, that is 16").

1.N.2 Counting and Cardinality: Students will understand the relationship between numbers and quantities to extend the counting sequence.

1.N.2.a Count verbally by ones and tens within 120 starting at any given number.

1.N.2.b Count verbally by ones and tens within 120 starting at any given number. Understand that the given number is a direct representation of the total objects in a given set and counting on each successive number represents adding an additional object, and counting back each proceeding number represents removing an object.

1.N.2.c Write numerals to match a representation of a given set of objects for numbers up to 120.

1.N.2.d Understand patterns of skip counting by 2s, 5s, and 10s.

1.N.3 Base Ten: Students will represent and compare two-digit numbers to gain foundations for place value.

1.N.3.a Understand 10 as a bundle, collection, or (more abstractly) composition of ten ones and that the two digits of a two-digit number represent a composition of some tens and some ones.

1.N.3.b Compare two, two-digit numbers using words greater than, less than, equal to, and symbols <, >, =. Justify comparisons based on the number of tens and ones.

1.N.4 Number and Operations: Students will compute using addition and subtraction.

1.N.4.a Add and subtract within 20, using flexible strategies such as counting on or counting back, making ten, using ten, and using doubles and near doubles.

1.N.4.b Efficiently, flexibly, and accurately add and subtract within 10.

1.N.4.c Find the difference between two numbers that are multiples of 10, ranging from 10 to 90 using concrete models, drawings, or strategies, and write the corresponding equation.

1.N.4.d Mentally find 10 more or 10 less than a two-digit number without having to count and explain the reasoning used.

1.N.4.e Add within 100, including adding a two-digit number and a one-digit number, adding a two-digit number and a multiple of ten, using concrete models, drawings, and strategies that reflect an understanding of place value, the relationship between addition and subtraction, and the properties of operations. Relate the strategy to a written method and explain the reasoning used to solve.

1.N.4.f Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; sometimes it is necessary to compose a ten.

1.N.4.g Subtract multiples of ten from two-digit numbers (positive or zero differences) using concrete models, drawings, and strategies that reflect an understanding of place value, the relationship between addition and subtraction, and the properties of operations. Relate the strategy to a written method and explain the reasoning used to solve.

1.N.5 Number and Algebraic Relationships: Students will understand and apply properties of operations and the relationship between addition and subtraction to solve problems.

1.N.5.a Use the meaning of the equal sign to determine if equations are true and give examples of equations that are true (e.g., 4 = 4, 6 = 7 – 1, 6 + 3 = 3 + 6, 7 + 2 = 5 + 4).

1.N.5.b Use the relationship of addition and subtraction to solve subtraction problems (e.g., find 12 – 9 = _____, using the addition fact 9 + 3 = 12).

1.N.5.c Determine the unknown whole number in an addition or subtraction equation (e.g., 7 + ? = 13).

1.N.5.d Use the commutative property of addition to develop addition strategies and compose/decompose numbers to develop addition and subtraction strategies. (See other flexible strategies in 1.N.4.a49).

1.N.5.e Solve problems that call for addition of three whole numbers whose sum is less than or equal to 20 using flexible strategies with objects, drawings, and/or equations.

1.N.5.f Solve authentic problems involving addition and subtraction within 20 in situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all parts of the addition or subtraction problem by using objects, drawings, and/or equations with a symbol for the unknown number to represent the problem.

1.N.5.g Create an authentic problem to represent a given equation involving addition and subtraction within 20.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

SEE NUMBER AND ALGEBRAIC RELATIONSHIPS IN NUMBER (1.N.5)

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

1.G.1 Shapes and Their Attributes: Students will represent and describe the attributes of two-dimensional shapes.

1.G.1.a Determine geometric attributes of two-dimensional shapes regardless of orientation or size for rhombi, trapezoids, and hexagons (e.g., a hexagon is closed with six sides).

1.G.1.b Determine geometric attributes of three-dimensional shapes including cones, cylinders, cubes, and rectangular prisms regardless of orientation or size.

1.G.1.c Describe lines and sides of shapes as parallel or non-parallel.

1.G.1.d Partition circles and rectangles into two and four equal parts using the language halves and fourths.

1.G.2 Measurement: Students will measure and compare lengths.

1.G.2.a Measure the length of an object as a whole number of same-size, non-standard units by placing them end to end.

1.G.2.b Order three objects by directly comparing their lengths or indirectly by using a third object.

1.G.3 Time and Money: Students will solve problems with coins and tell time to the half hour.

1.G.3.a Understand the value of dimes and pennies (e.g., a dime is equal to ten pennies) relating to tens and ones and solve problems involving dimes and pennies using the ¢ symbol appropriately.

1.G.3.b Count collections of like coins (penny, nickel, and dime) relating to patterns of counting by 1s, 5s, and 10s.

1.G.3.c Tell and write time to the half hour and hour using analog and digital clocks.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

1.D.1 Data Collection: Students will formulate questions to collect, organize, and represent data.

1.D.1.a Collect, organize, and represent a data set with up to three categories using a picture graph.

1.D.2 Analyze Data and Interpret Results: Students will analyze the data and interpret the results.

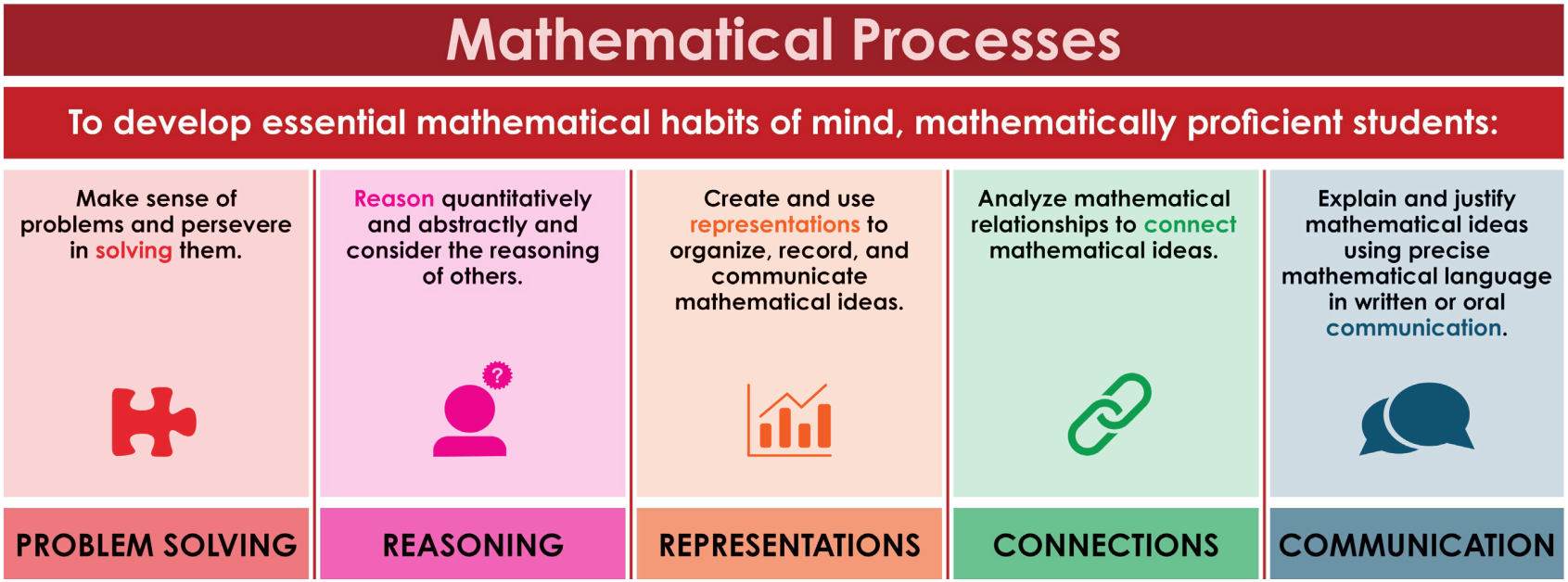
1.D.2.a Ask and answer questions about the total number of data points, how many in each category, and compare categories by identifying how many more or less are in a particular category using a picture graph.

Grade 2 Standards

Grade 2 Content Focus

During Grade 2, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Building on base-ten numeration system and place-value concepts to demonstrate understanding of multi-digit numbers.
- Applying properties of operations and the relationship between adding and subtracting.
- Developing quick recall of addition facts and related subtraction facts.
- Solving problems that involve time and/or money.
- Extending understanding of linear measurement by measuring and estimating lengths and relating length to addition and subtraction.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

2.N.1 Subitizing: Students will quantify briefly shown collections and verbally label the arrangements without counting.

2.N.1.a Without counting, recognize and verbally label structured arrangements for briefly shown collections using groups, multiplicative thinking, and place value (e.g.," I saw 48." "How did you know?" "I saw 4 groups of 10 and 2 groups of 4 is 8...4 tens and 8 ones...48").

2.N.2 Counting: Students will understand the relationship between numbers and quantities to extend the counting sequence.

2.N.2.a Count within 1,000, including skip counting by 5s, 10s, and 100s starting at a variety of multiples of 5, 10, or 100.

2.N.3 Base Ten: Students will represent and compare three-digit numbers to apply concepts of place value.

2.N.3.a Read and write numbers within the range of 0 to 1,000 using standard, word, and expanded forms.

2.N.3.b Understand 100 as a bundle, collection, or (more abstractly) composition of ten tens and that the three digits of a three-digit number represent a composition of some hundreds, some tens, and some ones.

2.N.3.c Compare two three-digit numbers by using symbols <, >, = and justify the comparison based on the value of the hundreds, tens, and ones.

2.N.4 Number and Operations: Students will compute using addition and subtraction.

2.N.4.a Fluently add and subtract within 20.

2.N.4.b Add and subtract within 100 strategies based on place value including properties of operations, relationships between addition and subtraction, and algorithms.

2.N.4.c Mentally add or subtract 10 or 100 to or from a given number 100 to 900.

2.N.4.d Add up to three two-digit numbers using strategies based on place value and understanding of properties.

2.N.4.e Add and subtract within 1,000 using concrete models, drawings, and strategies that reflect an understanding of place value and the properties of operations.

2.N.5 Number and Algebraic Relationships: Students will create and solve problems involving addition and subtraction and work with equal groups of objects to gain foundations for multiplication.

2.N.5.a Solve authentic problems involving addition and subtraction within 100 in situations of addition and subtraction, including adding to, subtracting from, joining and separating, and comparing situations with unknowns in all positions using objects, models, drawings, verbal explanations, expressions, and equations.

2.N.5.b Create authentic problems to represent one-step addition and subtraction within 100 with unknowns in all positions.

2.N.5.c Use repeated addition to find the total number of objects arranged in an array no larger than five rows and five columns and write an equation to express the total.

2.N.5.d Identify a group of objects from 0 to 20 as even or odd by counting by 2s or by showing even numbers as a sum of two equal parts.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

SEE NUMBER AND ALGEBRAIC RELATIONSHIPS IN NUMBER (2.N.5)

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

2.G.1 Shapes and Their Attributes: Students will recognize and represent the attributes of two-dimensional shapes and three-dimensional solids.

2.G.1.a Recognize and describe all faces of three-dimensional shapes as two-dimensional shapes. Identify and count attributes of solid shapes including the edges, faces, and vertices.

2.G.1.b Recognize and draw two-dimensional shapes having a specific number of sides, angles, and vertices including triangles, quadrilaterals, pentagons, and hexagons.

2.G.1.c Partition a rectangle into rows and columns of equal-sized squares and count to find the total.

2.G.1.d Divide circles and rectangles into two, three, or four equal parts and describe the parts using the language of halves, thirds, fourths, half of, a third of, and a fourth of.

2.G.1.e Recognize that equal shares of identical wholes need not have the same shape.

2.G.2 Describe Measurable Attributes: Students will measure, estimate, and compare lengths to build meaning of the measurement process.

2.G.2.a Measure the length of an object using two different length units and describe how the measurements relate to the size of the specific unit.

2.G.2.b Compare the difference in length of objects using inches and feet or centimeters and meters.

2.G.3 Measurement: Students will use tools to measure and estimate length using standard units.

2.G.3.a Identify and use appropriate tools for measuring length.

2.G.3.b Measure and estimate lengths using whole numbers with inches, feet, centimeters, and meters.

2.G.4 Relate Addition and Subtraction to Measurement: Students will add or subtract to solve length problems.

2.G.4.a Represent whole numbers as equally spaced lengths on a number line diagram. Use number lines to find sums and differences within 100.

2.G.4.b Use addition and subtraction within 100 to solve problems using the same standard-length units.

2.G.5 Time and Money: Students will solve problems with dollar bills and coins and tell time to the nearest five-minute interval.

2.G.5.a Solve problems involving dollar bills, quarters, dimes, nickels, and pennies using $ and ¢ symbols appropriately.

2.G.5.b Identify and write time to five-minute intervals using analog and digital clocks and both a.m. and p.m.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

2.D.1 Data Collection: Students will formulate questions to collect, organize, and represent data.

2.D.1.a Ask authentic questions to generate data and represent the data using scaled picture graphs with up to four categories.

2.D.1.b Ask authentic questions to generate data and represent the data using bar graphs with up to four categories.

2.D.1.c Create and represent a data set by making a line plot using whole numbers.

2.D.2 Analyze Data and Interpret Results: Students will analyze the data and interpret the results.

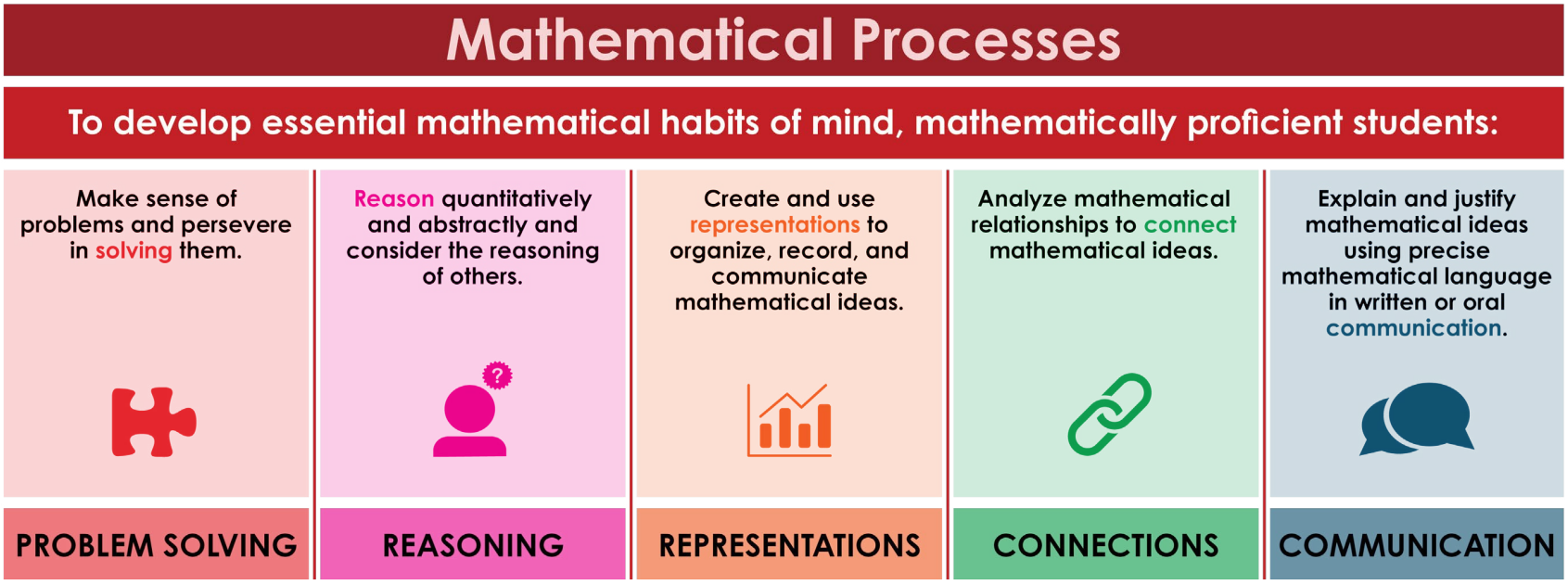
2.D.2.a Analyze data using scaled picture graphs or bar graphs with up to four categories. Solve problems including one-step comparison problems, using information from the graphs.

Grade 3 Standards

Grade 3 Content Focus

During Grade 3, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Building on additive reasoning to develop understanding of multiplication and division
- Exploring multiplication properties and strategies to multiply within 100 flexibly and efficiently
- Developing understanding of fractions as numbers by connecting prior work in partitioning shapes into equal areas to the relationship between numerator and denominator
- Solving problems using visual fraction models to compare and find equivalencies.
- Reasoning with shapes and their attributes.
- Recognizing area as an attribute of two-dimensional shapes and connecting understanding to multiplication.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

3.N.1 Numeric Relationships: Students will demonstrate and represent multi-digit numbers using place value understanding.

3.N.1.a Read, write, and demonstrate multiple equivalent representations for numbers up to 10,000 using objects or visual representations including standard form and expanded form.

3.N.1.b Represent and justify comparisons of whole numbers up to 10,000 using number lines and reasoning strategies.

3.N.2 Fractions: Students will develop understanding of fractions as numbers.

3.N.2.a Partition two-dimensional figures into equal areas and express the area of each part as a unit fraction of the whole.

3.N.2.b Find parts of a whole using visual fraction models.

3.N.2.c Represent and understand a fraction as a number on a number line.

3.N.2.d Show and identify equivalent fractions using visual representations including pictures, manipulatives, and number lines.

3.N.2.e Justify whole numbers as fractions and identify fractions that are equivalent to whole numbers.

3.N.2.f Compare and order fractions having the same numerators or denominators by reasoning about their size.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

3.A.1 Operations and Algebraic Thinking: Students will extend understanding of multiplication and apply operational properties to solve problems.

3.A.1.a Add and subtract up to four-digit whole numbers with or without regrouping using strategies based on place value and algorithms.

3.A.1.b Determine the reasonableness of whole number sums and differences using estimations and number sense.

3.A.1.c Solve and write one-step whole number equations to represent authentic problems using the four operations including equations with an unknown start, unknown change, or unknown result.

3.A.1.d Interpret and solve two-step authentic problems involving whole numbers and the four operations.

3.A.1.e Apply commutative, associative, distributive, identity, and zero properties as strategies to multiply and divide.

3.A.1.f Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to interpret and explain the meaning of multiplication and division and their relationship.

3.A.1.g Fluently multiply and divide within 100 using strategies based on understanding and properties of operations.

3.A.1.h Multiply one-digit whole numbers by multiples of 10 in the range of 10 to 90 using strategies based on place value and properties of operations.

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

3.G.1 Shapes and Their Attributes: Students will recognize and represent the attributes of two-dimensional shapes.

3.G.1.1 Sort quadrilaterals into categories according to their attributes.

3.G.2 Area and Perimeter: Students will recognize perimeter and area as attributes of plane figures and understand concepts of area measurement.

3.G.2.a Solve authentic problems involving perimeters of polygons when given the side lengths or when given the perimeter and unknown side length(s).

3.G.2.b Use concrete and pictorial models to measure areas in square units by counting square units.

3.G.2.c Find the area of a rectangle with whole-number side lengths by modeling with unit squares; show that area can be additive and is the same as would be found by multiplying the side lengths.

3.G.3 Measurement: Students will use tools to solve measurement problems.

3.G.3.a Identify and use the appropriate tools and units of measurement, both customary and metric, to solve authentic problems involving length, weight, mass, liquid volume, and capacity (within the same system and unit).

3.G.3.b Estimate and measure length to the nearest half inch, fourth inch, and centimeter.

3.G.4 Time: Students will tell time to the nearest minute and find elapsed time.

3.G.4.a Tell and write time to the minute using both analog and digital clocks.

3.G.4.b Solve authentic problems involving addition and subtraction of time intervals and find elapsed time.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

3.D.1 Data Collection: Students will formulate questions to collect, organize, and represent data.

3.D.1.a Create scaled picture graphs and scaled bar graphs to represent a data set with more than four categories, including data collected through observations, surveys, and experiments.

3.D.1.b Generate and represent data using line plots where the horizontal scale is marked off in halves and whole number units.

3.D.2 Analyze Data and Interpret Results: Students will analyze the data and interpret the results.

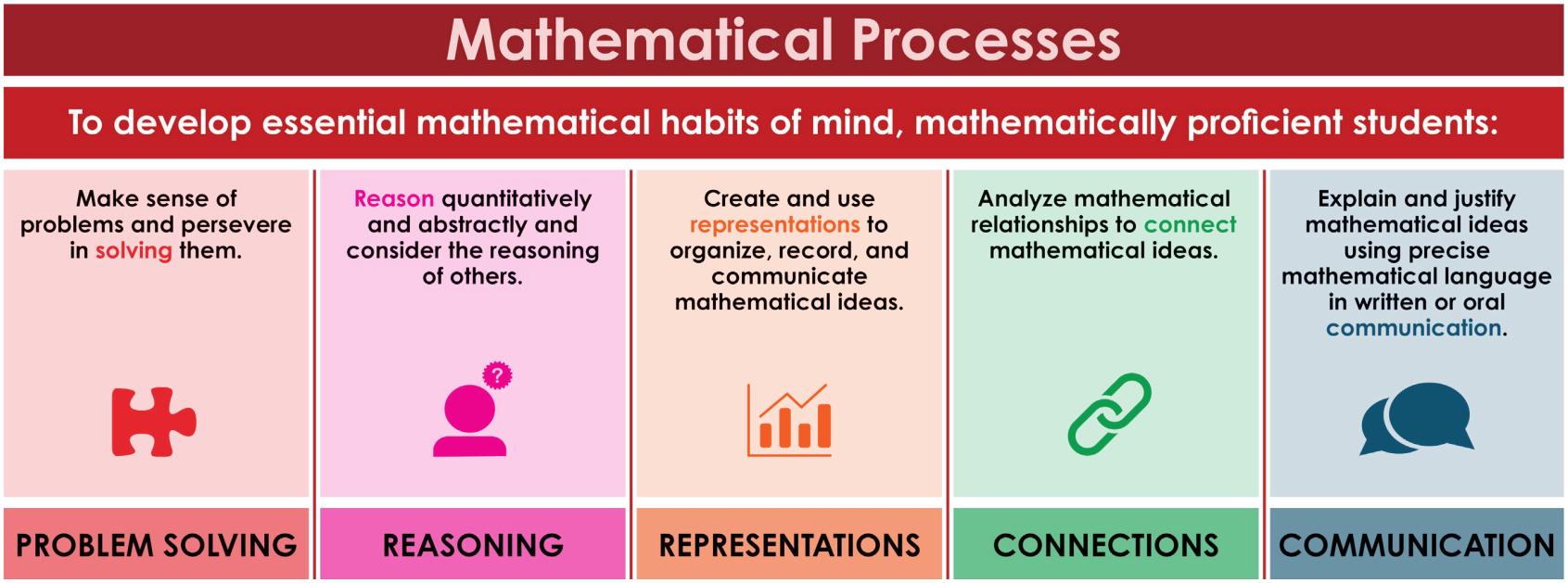
3.D.2.a Analyze data and make simple statements using information represented in picture graphs, line plots, and bar graphs.

Grade 4 Standards

Grade 4 Content Focus

During Grade 4, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Developing understanding and fluency with multi-digit multiplication through visual models and operational properties.
- Developing understanding of division involving multi-digit dividends using place value models.
- Extending understanding of fraction equivalence and operations with fractions by composing and decomposing, reasoning about relative size, and applying properties of operations.
- Classifying two-dimensional shapes according to their attributes such as the presence or absence of lines or angles.
- Developing understanding of an angle as a turn in a circle and justify the classification of angles as acute, obtuse, and right.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

4.N.1 Numeric Relationships: Students will demonstrate and represent multi-digit numbers using relationships with the base-ten number system.

4.N.1.a Read, write, and demonstrate multiple equivalent representations for whole numbers up to 1,000,000 and decimals to the hundredths using visual representations, standard form, and expanded form.

4.N.1.b Represent and justify comparisons of whole numbers up to 1,000,000 and decimals through the hundredths place using number lines and reasoning strategies.

4.N.1.c Recognize a digit in one place represents ten times what it represents in the place to its right.

4.N.1.d Use decimal notation for fractions with denominators of 10 or 100 (e.g., 43/100 = 0.43).

4.N.2 Fractions and Decimals: Students will extend understanding of fractions by equivalence and ordering and will develop an understanding of decimals.

4.N.2.a Explain and demonstrate how a mixed number is equivalent to a fraction greater than one and how a fraction greater than one is equivalent to a mixed number using visual fraction models and reasoning strategies.

4.N.2.b Explain and demonstrate how equivalent fractions are generated by multiplying by a fraction equivalent to 1 using visual fraction models and the Identity Property of Multiplication.

4.N.2.c Compare and order fractions having unlike numerators or denominators using number lines, benchmarks, reasoning strategies, and/or equivalence.

4.N.3 Operations with Fractions: Students will understand and demonstrate fractional computation.

4.N.3.a Decompose a fraction into a sum of fractions with the same denominator in more than one way and record each decomposition with an equation and a visual representation.

4.N.3.b Explain the meaning of addition and subtraction of fractions with like denominators using visual fraction models, properties of operations, and reasoning strategies.

4.N.3.c Add and subtract fractions and mixed numbers with like denominators.

4.N.3.d Solve authentic problems involving addition and subtraction of fractions and mixed numbers with like denominators.

4.N.3.e Multiply a fraction by a whole number using visual fraction models and properties of operations.

4.N.4 Factors and Multiples: Students will find factors and multiples and classify numbers as prime or composite.

4.N.4.a Determine whether a given whole number up to 100 is a multiple of a given one-digit number.

4.N.4.b Determine factors of any whole number up to 100 and classify a number up to 100 as prime or composite.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

4.A.1 Operations and Algebraic Thinking: Students will extend understanding of multiplication and division and apply operational properties to solve problems involving variables.

4.A.1.a Add and subtract multi-digit numbers using an algorithm.

4.A.1.b Multiply up to a four-digit whole number by a one-digit whole number and multiply a two-digit whole number by a two-digit whole number, using strategies based on place value, properties of operations, and algorithms.

4.A.1.c Divide up to a four-digit whole number by a one-digit divisor with and without a remainder using strategies based on place value.

4.A.1.d Determine the reasonableness of whole number products and quotients using estimations and number sense.

4.A.1.e Create a simple algebraic expression or equation using a variable for an unknown number to represent an authentic mathematical situation (e.g., 3 + n = 15, 81 ÷ n = 9).

4.A.1.f Solve one- and two-step authentic problems using the four operations including interpreting remainders and the use of a letter to represent the unknown quantity.

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

4.G.1 Shapes and Their Attributes: Students will draw and identify lines and angles and classify shapes by properties of their lines and angles.

4.G.1.a Identify, create, and describe points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines.

4.G.1.b Justify the classification of angles as acute, obtuse, or right.

4.G.1.c Justify the classification of two-dimensional shapes based on the presence or absence of parallel and perpendicular lines or the presence or absence of specific angles.

4.G.1.d Recognize, draw, and justify lines of symmetry in two-dimensional shapes.

4.G.2 Measurement: Students will generate simple conversions from a larger unit to a smaller unit to solve authentic problems and measure angles.

4.G.2.a Identify and use the appropriate tools, operations, and units of measurement, both customary and metric, to solve authentic problems involving time, length, weight, mass, and capacity.

4G.2.b Determine the reasonableness of measurements involving time, length, weight, mass, capacity, and angles.

4G.2.c Generate simple conversions from a larger unit to a smaller unit within the customary and metric systems of measurement.

4.G.2.d Measure angles in whole number degrees using a protractor and relate benchmark angle measurements to their rotation through a circle (e.g., 180º = 1/2 of a circle).

4.G.2.e Recognize angle measures as additive and solve problems involving addition and subtraction to find unknown angles on a diagram.

4.G.3 Area and Perimeter: Students will apply perimeter and area formulas for rectangles.

4.G.3.a Apply perimeter and area formulas for rectangles to solve authentic problems.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

4.D.1 Data Collection: Students will formulate questions to collect, organize, and represent data.

4.D.1.a Generate and represent data using line plots where the horizontal scale is marked off in appropriate units—whole numbers, halves, fourths, or eighths.

4.D.2 Analyze Data and Interpret Results: Students will analyze the data and interpret the results.

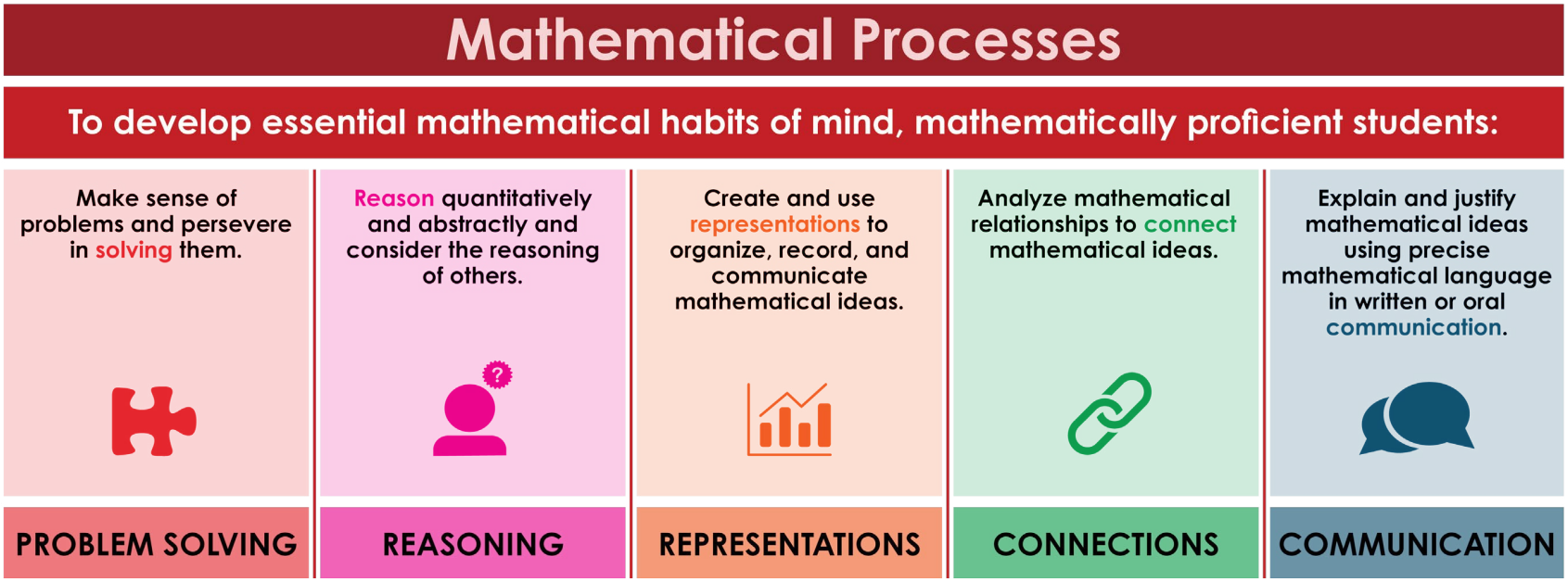
4.D.2.a Solve authentic problems and analyze data involving addition or subtraction of fractions presented in line plots.

Grade 5 Standards

Grade 5 Content Focus

During Grade 5, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Extending previous understandings of multiplication and division to multiply and divide fractions and decimals.
- Performing operations with multi-digit whole numbers and decimals to the hundredths in order to solve authentic problems following the order of operations.
- Categorizing shapes using knowledge of their attributes.
- Developing concepts of volume and relating volume to multiplication and addition.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

5.N.1 Numeric Relationships: Students will understand the place value system.

5.N.1.a Read, write, and demonstrate multiple equivalent representations for multi-digit whole numbers and decimals through the thousandths place using standard form and expanded form.

5.N.1.b Recognize a digit in one place represents 1/10 of what it represents in the place to its left.

5.N.1.c Use whole number exponents to denote powers of 10.

5.N.2 Fractions and Decimals: Students will extend understanding of fraction and decimal equivalence and ordering.

5.N.2.a Generate equivalent forms of commonly used fractions and decimals (e.g., halves, fourths, fifths, tenths).

5.N.2.b Represent and justify comparisons of whole numbers, fractions, mixed numbers, and decimals through the thousandths place using number lines, reasoning strategies, and/or equivalence.

5.N.3 Operations with Fractions and Decimals: Students will apply and extend previous understandings of whole number operations to add, subtract, multiply and divide fractions and decimals.

5.N.3.a Interpret a fraction as division of the numerator by the denominator.

5.N.3.b Multiply a whole number by a fraction or a fraction by a fraction, including mixed numbers, using visual fraction models and properties of operations.

5.N.3.c Divide a unit fraction by a whole number and a whole number by a unit fraction using visual fraction models and properties of operations.

5.N.3.d Solve authentic problems involving addition, subtraction, and multiplication of fractions and mixed numbers with like and unlike denominators.

5.N.3.e Add and subtract fractions and mixed numbers with unlike denominators without simplifying.

5.N.3.f Solve authentic problems involving division of fractions by whole numbers and division of whole numbers by unit fractions.

5.N.3.g Add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or algorithms.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

5.A.1 Operations and Algebraic Thinking: Students will extend understanding of division and apply operational properties to solve problems involving order of operations.

5.A.1.a Multiply multi-digit whole numbers using an algorithm.

5.A.1.b Divide four-digit whole numbers by a two-digit divisor, with and without remainders, using strategies based on place value.

5.A.1.c Justify the reasonableness of computations involving whole numbers, fractions, and decimals.

5.A.1.d Simplify authentic numerical or algebraic expressions using order of operations (excluding exponents).

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

5.G.1 Shapes and Their Attributes: Students will classify two-dimensional figures into categories based on their properties.

5.G.1.a Identify and describe faces, edges, and vertices of rectangular prisms.

5.G.1.b Recognize volume as an attribute of solid figures that is measured in cubic units.

5.G.1.c Justify the classification of two-dimensional figures in a hierarchy based on their properties.

5.G.2 Coordinate Geometry: Graph points on the coordinate plane to solve authentic problems.

5.G.2.a Identify the origin, x axis, and y axis of the coordinate plane.

5.G.2.b Graph and name points in the first quadrant of the coordinate plane using ordered pairs of whole numbers.

5.G.2.c Form ordered pairs from authentic problems involving rules or patterns, graph the ordered pairs in the first quadrant on a coordinate plane, and interpret coordinate values in the context of the situation.

5.G.3 Measurement: Generate conversions within the customary and metric systems of measurement to solve authentic problems.

5.G.3.a Generate conversions in authentic mathematical situations from larger units to smaller units and smaller units to larger units, within the customary and metric systems of measurement.

5.G.4 Area and Volume: Students will extend area problems for rectangles to include fractions and build meaning for measuring volume.

5.G.4.a Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the fraction side lengths and show that the area is the same as would be found by multiplying the side lengths.

5.G.4.b Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas.

5.G.4.c Use concrete models to measure the volume of rectangular prisms by counting cubic units.

5.G.4.d Find the volume of a rectangular prism with whole-number side lengths by modeling with unit cubes and show that the volume can be additive and is the same as would be found by multiplying the area of the base times height.

5.G.4.e Solve authentic problems by applying the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of rectangular prisms with whole number edge lengths.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

5.D.1 Data Collection: Students will formulate questions to collect, organize, and represent data.

No additional indicators at this level.

5.D.2 Analyze Data and Interpret Results: Students will analyze the data and interpret the results.

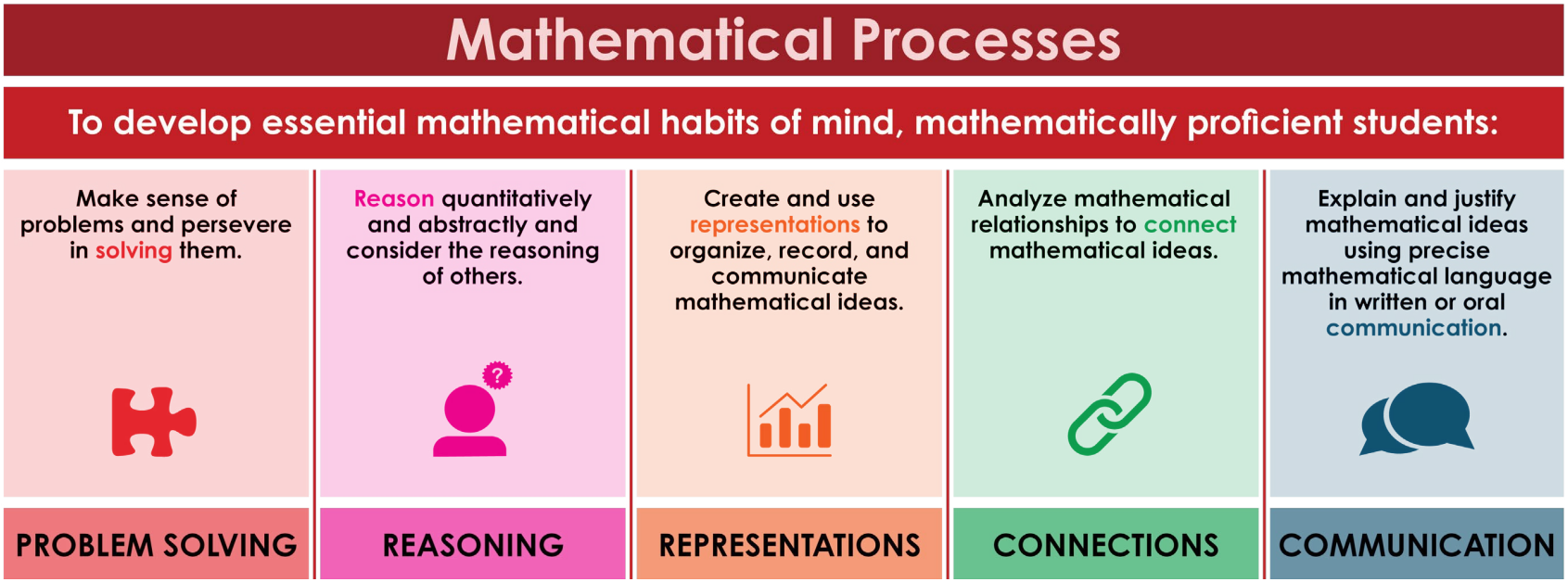
5.D.2.a Represent, analyze, and solve authentic problems using information presented in one or more tables or line plots including whole numbers and fractions.

Grade 6 Standards

Grade 6 Content Focus

During Grade 6, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems.
- Completing computational understanding with the division of fractions and moving towards efficiency by using the algorithm for each operation.
- Extending understanding of the number line to include the entire system of rational numbers, which now includes negative numbers.
- Writing and using expressions and equations
- Representing data in multiple ways in order to analyze and interpret the results.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

6.N.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions, decimals, percents, and integers within the base-ten number system.

6.N.1.a Determine common factors and common multiples.

6.N.1.b Determine prime factorization of numbers with and without exponents.

6.N.1.c Model integers using drawings, words, number lines, models, and symbols.

6.N.1.d Determine absolute value of rational numbers.

6.N.1.e Compare and order numbers including non-negative fractions and decimals, integers, and absolute values and locate them on the number line.

6.N.2 Operations: Students will compute with fractions and decimals accurately.

6.N.2.a Divide multi-digit whole numbers and decimals using an algorithm.

6.N.2.b Divide non-negative fractions and mixed numbers.

6.N.2.c Evaluate numerical expressions including absolute value and/or positive exponents with respect to order of operations.

RATIOS AND PROPORTIONS: Students will understand ratio concepts and use ratio reasoning to solve problems.[2]

6.R.1 Ratios and Rates: Students will understand the concept of ratios and unit rates, use language to describe the relationship between two quantities, and use ratios and unit rates to solve authentic situations.

6.R.1.a Determine ratios from concrete models, drawings, and/or words.

6.R.1.b Explain and determine unit rates.

6.R.1.c Find a percent of a quantity as a rate per 100 and solve problems involving finding the whole, given a part and the percent.

6.R.1.d Convert among fractions, decimals, and percents using multiple representations.

6.R.1.e Solve authentic problems using ratios, unit rates, and percents.

6.R.1.f Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

[2] Ratios and Proportions is a new content strand found only in Grades 6 and 7.

6.R.2 Represent: Students will represent ratios and rates on the coordinate plane.

6.R.2.a Identify the ordered pair of a given point in the coordinate plane.

6.R.2.b Plot the location of an ordered pair in the coordinate plane.

6.R.2.c Identify the location of a given point in the coordinate plane (e.g., axis, origin, quadrant).

6.R.2.d Make tables of equivalent ratios relating quantities with whole number measurements.

6.R.2.e Use the constant of proportionality to find the missing value in ratio tables.

6.R.2.f Plot the pair of values from a ratio table on the coordinate plane.

6.R.2.g Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

6.A.1 Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations and inequalities.

6.A.1.a Recognize and generate equivalent algebraic expressions involving the distributive property and combining like terms.

6.A.1.b Given the value of the variable, evaluate algebraic expressions with non-negative rational numbers with respect to order of operations, which may include absolute value.

6.A.1.c Use substitution to determine if a given value for a variable makes an equation or inequality true.

6.A.1.d Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication, and division.

6.A.1.e Solve one-step inequalities with whole numbers using addition, subtraction, multiplication, and division and represent solutions on a number line (e.g., graph $3x > 3$).

6.A.2 Applications: Students will solve authentic problems with algebraic expressions, equations, and inequalities.

6.A.2.a Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases.

6.A.2.b Write equations (e.g., one operation, one variable) to represent authentic situations involving non- negative rational numbers.

6.A.2.c Write inequalities (e.g., one operation, one variable) to represent authentic situations involving whole numbers.

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

6.G.1 Attributes: Students will identify and describe geometric attributes of two- dimensional shapes.

6.G.1.a Identify and create nets to represent two-dimensional drawings of prisms and pyramids.

6.G.2 Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.

SEE WORK WITH COORDINATE PLANES IN RATIOS AND PROPORTIONS (6.R.2)

6.G.3 Measurement: Students identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume.

6.G.3.a Determine the area of quadrilaterals and triangles by composition and decomposition of these shapes, as well as applications of properties and formulas. Quadrilaterals include parallelograms and trapezoids.

6.G.3.b Determine the surface area of rectangular prisms and triangular prisms using nets as well as application of formulas.

6.G.3.c Apply volume formulas for triangular prisms.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

6.D.1 Data Collection and Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data.

No additional indicators at this level.

6.D.2 Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.

6.D.2.a Represent data using dot plots, box-and-whisker plots, and histograms.

6.D.2.b Solve problems using information presented in dot plots, box-and-whisker plots, histograms, and circle graphs.

6.D.2.c Find and interpret the mean, median, mode, and range for a set of data.

6.D.2.d Compare the mean, median, mode, and range from two sets of data.

6.D.2.e Compare and interpret data sets based upon their measures of central tendency and graphical representations (e.g., center, spread, shape).

6.D.3 Probability: Students will interpret and apply concepts of probability.

6.D.3.a Identify a list of possible outcomes for a simple event.

6.D.3.b Describe the theoretical and experimental probability of an event using a fraction, percentage, and decimal.

6.D.3.c Express the degree of likelihood (possible, impossible, certain, more likely, equally likely, or less likely) of simple events.

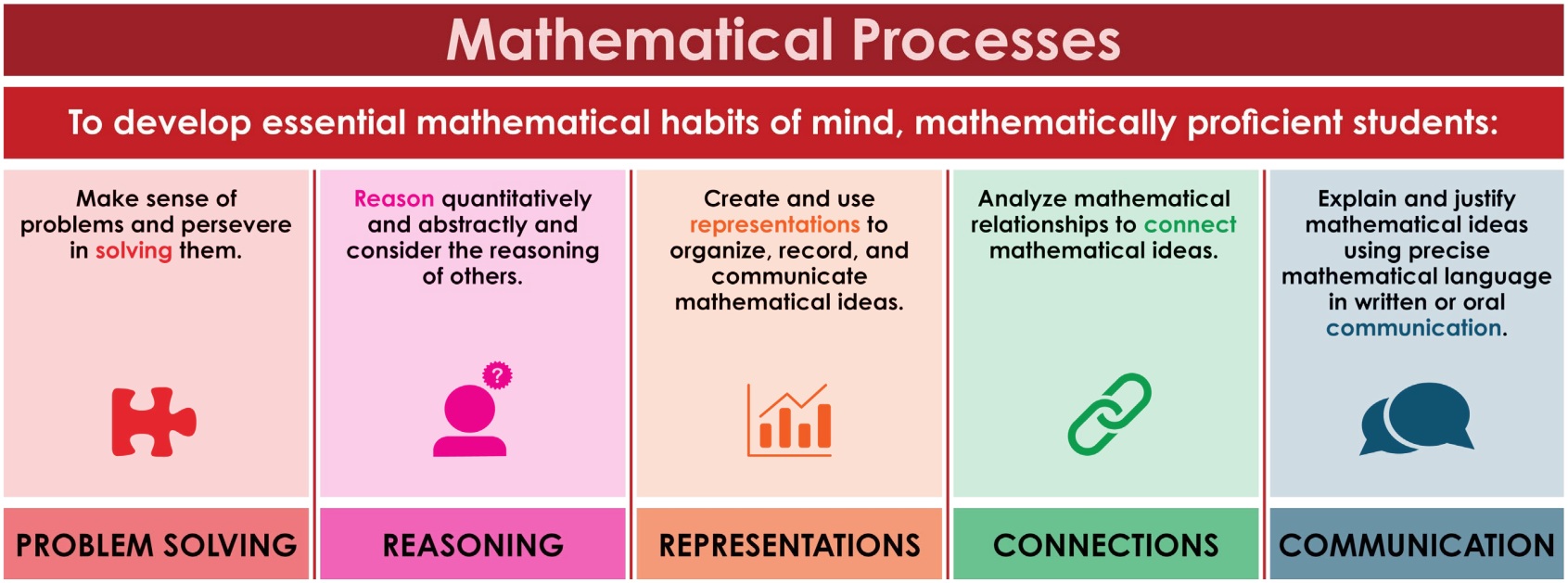
6.D.3.d Compare and contrast theoretical and experimental probabilities.

Grade 7 Standards

Grade 7 Content Focus

During Grade 7, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Developing an understanding of proportional relationships.
- Understanding operations with rational numbers.
- Using expressions and linear equations to represent and solve problems.
- Solving problems involving perimeter and area of two-dimensional figures as well as surface area and volume of three-dimensional figures.
- Investigating probability concepts.



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

7.N.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system.

No additional indicator(s) at this level.

7.N.2 Operations: Students will compute with rational numbers accurately.

7.N.2.a Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers).

7.N.2.b Apply properties of operations (commutative, associative, distributive, identity, inverse, zero) as strategies for problem solving with rational numbers.

[3]RATIOS AND PROPORTIONS: Students will understand ratio concepts and use ratio reasoning to solve problems.

7.R.1 Proportional Relationships: Students will understand the concept of proportions, use language to describe the relationship between two quantities, and use proportions to solve authentic situations.

7.R.1.a Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table).

7.R.1.b Represent and solve authentic problems with proportions.

7.R.1.c Use proportional relationships to solve authentic percent problems (e.g., percent change, sales tax, mark-up, discount, tip).

7.R.1.d Solve authentic problems involving scale drawings.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

7.A.1 Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.

7.A.1.a Use factoring and properties of operations to create equivalent algebraic expressions (e.g., 2x + 6 = 2(x + 3)).

[3] Ratios and Proportions is a new content strand found only in Grades 6 and 7.

7.A.1.b Given the value of the variable(s), evaluate algebraic expressions, which may include absolute value.

7.A.1.c Solve one- and two-step equations involving rational numbers.

7.A.1.d Solve equations using the distributive property and combining like terms.

7.A.1.e Solve one- and two-step inequalities involving integers and represent solutions on a number line.

7.A.2 Applications: Students will solve authentic problems with algebraic expressions, equations, and inequalities.

7.A.2.a Write one- and two-step equations involving rational numbers from words, tables, and authentic situations.

7.A.2.b Write one- and two-step inequalities to represent authentic situations involving integers.

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

7.G.1 Attributes: Students will identify angle relationships and apply properties to determine angle measures.

7.G.1.a Apply properties of adjacent, complementary, supplementary, linear pair, and vertical angles to find missing angle measures.

7.G.2 Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.

7.G.2.a Draw polygons in the coordinate plane given coordinates for the vertices.

7.G.2.b Calculate vertical and horizontal distances in the coordinate plane to find perimeter and area of rectangles.

7.G.3 Measurement: Students will identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume.

7.G.3.a Solve authentic problems involving perimeter and area of composite shapes made from triangles and quadrilaterals.

7.G.3.b Determine surface area and volume of composite rectangular and triangular prisms.

7.G.3.c Determine the area and circumference of circles both on and off the coordinate plane using 3.14 for the value of Pi.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

7.D.1 Data Collection and Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data.

7.D.1.a Create an investigative question and collect data.

7.D.1.b Generate conclusions about a population based on a random sample.

7.D.1.c Identify and critique biases in various data representations.

7.D.2 Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.

No additional indicator(s) at this level.

7.D.3 Probability: Students will interpret and apply concepts of probability.

7.D.3.a Find theoretical and experimental probabilities for compound independent and dependent events.

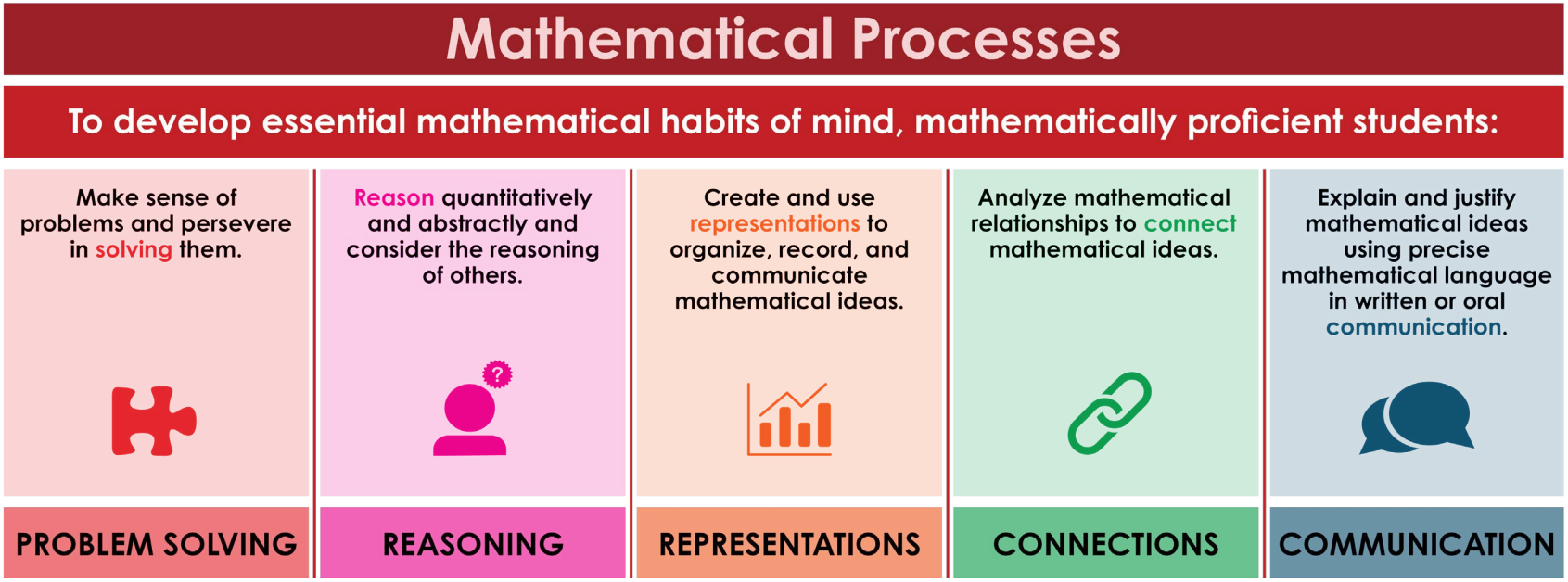
7.D.3.b Identify complementary events and calculate their probabilities.

Grade 8 Standards

Grade 8 Content Focus

During Grade 8, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the grade-level content. Instruction should focus on these critical areas:

- Using linear equations to represent, analyze, and solve a variety of problems.
- Developing an understanding of irrational numbers and integer exponents.
- Analyzing two-dimensional figures and solving problems using understanding of distance, angle, similarity, and congruence.
- Understanding and applying the Pythagorean Theorem.
- Determining and describing rate of change and y-intercept for given situations.



Approved by the Nebraska State Board of Education on September 2, 2022

NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

8.N.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among real numbers within the base-ten number system.

8.N.1.a Determine subsets of numbers as natural, whole, integer, rational, irrational, or real based on the definitions of these sets of numbers.

8.N.1.b Represent numbers with positive and negative exponents and in scientific notation.

8.N.1.c Describe the difference between a rational and irrational number.

8.N.1.d Approximate, compare, and order real numbers, both rational and irrational, and locate them on the number line.

8.N.2 Operations: Students will compute with exponents and roots.

8.N.2.a Evaluate the square roots of perfect squares less than or equal to 400 and cube roots of perfect cubes less than or equal to 125.

8.N.2.b Simplify numerical expressions involving integer exponents, square roots, and cube roots (e.g., 4^{-2} is the same as 1/16).

8.N.2.c Evaluate numerical expressions involving absolute value.

8.N.2.d Multiply and divide numbers using scientific notation.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

8.A.1 Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.

8.A.1.a Describe single variable equations as having one solution, no solution, or infinitely many solutions.

8.A.1.b Solve multi-step equations involving rational numbers with the same variable appearing on both sides of the equation.

8.A.1.c Solve equations of the form $x^2 = k (k <= 400)$ and $x^3 = k (k <= 125)$, where k is a positive rational number, using square root and cube root symbols.

8.A.2 Applications: Students will solve authentic problems involving multi-step equations.

8.A.2.a Write multi-step single variable equations from words, tables, and authentic situations.

8.A.2.b Determine and describe the rate of change for given situations through the use of tables and graphs.

8.A.2.c Graph proportional relationships and interpret the rate of change.

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

8.G.1 Attributes: Students will apply properties of angle relationships in triangles and with lines to determine angle measures.

8.G.1.a Determine and use the relationships of the interior angles of a triangle to solve for missing measures.

8.G.1.b Identify and apply geometric properties of parallel lines cut by a transversal and the resulting corresponding same side interior, alternate interior, and alternate exterior angles to find missing measures.

8.G.2 Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.

8.G.2.a Perform and describe positions and orientations of shapes under single transformations including rotations in multiples of 90 degrees about the origin, translations, reflections, and dilations on and off the coordinate plane.

8.G.2.b Determine if two-dimensional figures are congruent or similar.

8.G.2.c Perform and describe positions and orientations of shapes under a sequence of transformations on and off the coordinate plane.

8.G.3 Measurement: Students will reason with formulas and context to determine and compare length, area, and volume.

8.G.3.a Explain a model of the Pythagorean Theorem.

8.G.3.b Apply the Pythagorean Theorem to find side lengths of triangles and to solve authentic problems.

8.G.3.c Find the distance between any two points on the coordinate plane using the Pythagorean Theorem.

8.G.3.d Determine the volume of cones, cylinders, and spheres and solve authentic problems using volumes.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

8.D.1 Data Collection and Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data.

No additional indicator(s) at this level.

8.D.2 Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.

8.D.2.a Represent and interpret bivariate data (e.g., ordered pairs) using scatter plots.

8.D.2.b Describe patterns such as positive or negative association, linear or nonlinear association, clustering, and outliers when bivariate data is represented on a coordinate plane.

8.D.2.c Draw an informal line of best fit based on the closeness of the data points to the line.

8.D.2.d Use a linear model to make predictions and interpret the rate of change and y-intercept in context.

8.D.3 Probability: Students will interpret and apply concepts of probability.

No additional indicator(s) at this level.

High School Standards

High School Content Focus

During high school, instruction should emphasize the development of the mathematical processes as the vehicle for mastering the content standards. The content standards are designed to be accessible to each and every high school student prior to graduation whereas the Advanced Topics reflect the mathematical content leading to certain career interests. Schools have the flexibility to organize the standards into integrated or strand-focused courses.

NUMBER: Instruction in Number should focus on these critical areas:

- Working in authentic contexts, solutions involve quantities, numbers with units.
- Using units, approximations, and estimations to check the reasonableness of their work.
- Understanding how forms of approximation can accumulate errors when problem solving.
- Understanding the four operations on real numbers applies to complex numbers.

ALGEBRA: Instruction in Algebra should focus on these critical areas:

- Solving many authentic problems to best understand patterns, expressions, relations, and functions.
- Using algebraic symbols and mathematical models to represent and demonstrate an understanding of quantitative relationships.
- Analyzing change as it arises in various contexts such as physical and social as supported by algebraic reasoning and the concept of function.
- Interpreting the functions in multiple representations, using their points of interest, and connecting across multiple representations to understand their mathematical equivalence instead of rote steps or procedures.

GEOMETRY: Instruction in Geometry should focus on these critical areas:

- Using mathematics to define the spatial attributes of the world around us.
- Exploring transformations (translations, reflections, rotations, and dilations) to build a foundation to understand congruence, similarity, and symmetry.
- Formalizing geometric concepts using planar geometry, parallelism, congruence, similarity, and symmetry.
- Connecting algebra and geometry via coordinate geometry, planar transformations, and trigonometry.
- Developing skills of argumentation and proof by proving congruence, similarity, symmetry, and other concepts of plane geometry.

DATA: Instruction in Data should focus on these critical areas:

- Using numbers in context (data) with the mathematical processes can result in better predictions and informed decisions.
- Using tools to apply statistical methods to describe patterns and trends.
- Understanding randomness, variability, and causality through data collection, data analysis, and interpretation of results.
- Describing data using probability and sampling distributions to judge whether a result is unsurprising or rare.

Mathematical Processes

To develop essential mathematical habits of mind, mathematically proficient students:

PROBLEM SOLVING	REASONING	REPRESENTATIONS	CONNECTIONS	COMMUNICATION
Make sense of problems and persevere in solving them.	Reason quantitatively and abstractly and consider the reasoning of others.	Create and use representations to organize, record, and communicate mathematical ideas.	Analyze mathematical relationships to connect mathematical ideas.	Explain and justify mathematical ideas using precise mathematical language in written or oral communication.

NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.N.1 Estimation and Technology: Students will use estimation strategies and technology to reason, to solve problems, and to make connections within mathematics and across disciplines.

HS.N.1.a Select, apply, and explain the method of computation when problem solving using real numbers (e.g., models, mental computation, paper-pencil, technology).

HS.N.1.b Determine if the context of a problem calls for an approximation or an exact value.

HS.N.1.c Determine the rounding convention to be used based on the context of a problem.

HS.N.1.d Estimate a value using the concept of betweenness by bounding above and below (e.g., since log(10) = 1 and log(1,000) = 3 we know log(500) is between 1 and 3).

HS. N.1.e Determine the tolerance interval and percent of error in measurement.

HS.N.1.f Convert equivalent rates (e.g., miles per hour to feet per second).

HS.N.1.g Determine whether extremely large or extremely small quantities can be reasonably represented by a calculator or graphing utility.

HS.N.1.h Use scientific notation to appropriately represent large and small quantities.

HS.N.2 Sets and Operations: Students will use number sets and operations to reason and to solve problems.

HS.N.2.a Extend the properties of exponents to rational numbers.

HS.N.2.b Use properties of rational and irrational numbers.

HS.N.2.c Demonstrate, represent, and show relationships among the subsets of real numbers and the complex number system.

HS.N.2.d Compute with subsets of the complex number system including imaginary, rational, irrational, integers, whole, and natural numbers.

HS.N.3 Interpretation and Sense Making: Students will reason abstractly and quantitatively using units to solve problems and interpret results in context.

HS.N.3.a Understand roundoff error and why roundoff error accumulates when rounding occurs prior to the last step in a computation.

HS.N.3.b Use estimation methods to check the reasonableness of real number computations and decide if the problem calls for an approximation (including appropriate rounding) or an exact number.

HS.N.3.c Use units to assess the validity of an answer in the context of a problem.

HS.N.3.d Communicate the meaning of an answer in the context of a problem.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.A.1 Algebraic Relationships: Students will demonstrate and represent relationships with functions.

HS.A.1.a Demonstrate that functions are a well mapped subdomain of relations.

HS.A.1.b Analyze a relation to determine if it is a function given mapping diagrams, function notation (e.g., $f(x)=x^2$), a table, or a graph.

HS.A.1.c Classify a function given its mapping diagram, function notation, table, or graph as a linear, quadratic, absolute value, exponential, or other function.

HS.A.1.d Analyze a function's domain and range to determine if it is one-to-one and has an inverse function both algebraically and graphically.

HS.A.1.e Define, interpret, and analyze linear, quadratic, absolute value, and exponential functions using the points of interest of the functions and graphing technology.

HS.A.1.f Identify, analyze, and apply transformations of existing functions (including translation and dilation).

HS.A.1.g Interpret logarithmic equations as exponential equations.

HS.A.1.h Describe arithmetic sequences using tables of values and functions in explicit and recursive forms.

HS.A.1.i Describe geometric sequences using tables of values and functions in explicit and recursive forms.

HS.A.2 Algebraic Processes: Students will apply the operational properties when evaluating rational expressions and solving linear and quadratic equations, and inequalities.

HS.A.2.a Analyze and explain the properties used in solving equations, inequalities, systems of linear equations, systems of linear inequalities, and literal equations.

HS.A.2.b Generate expressions in equivalent forms by using algebraic properties to make different characteristics or features visible.

HS.A.2.c Analyze equations and inequalities to determine and apply efficient methods to solve and use appropriate technology as needed.

HS.A.2.d Calculate the slope (rate of change) of a line given coordinate points, a graph, or a table of values.

HS.A.2.e Write and graph equations of functions (linear, absolute value, quadratic, and exponential) using the points of interest of the function.

HS.A.2.f Given a line, write the equation of a line that is parallel or perpendicular to it.

HS.A.2.g Perform and explain operations such as addition, subtraction, multiplication, division, and factoring on polynomials.

HS.A.2.h Explain the connection between the factors of a polynomial and the zeros of a polynomial.

HS.A.2.i Combine functions by composition and perform operations on functions.

HS.A.3 Applications: Students will solve authentic problems using nonlinear functions.

HS.A.3.a Analyze and model authentic situations using various representations and appropriate technology.

HS.A.3.b Identify, interpret, relate, and graph the factors, x-intercepts, roots, and zeros of polynomial functions using algebraic and graphing methods.

HS.A.3.c Identify and predict appropriate solutions to equations given context and domain/range (e.g., extraneous solutions, imaginary solutions, no solution, infinitely many solutions).

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

TOOLS: Students will sketch, draw, and construct appropriate representations using a variety of tools and methods which may include ruler/straight edge, protractor, compass, reflective devices, paper folding, or dynamic geometric software.

HS.G.1 Attributes: Students will identify and describe geometric attributes, apply properties and theorems, and create two- dimensional shapes.

HS.G.1.a Demonstrate that two figures are similar or congruent by using a sequence of rigid motions and dilations that map a figure onto the other in problems both with and without coordinates.

HS.G.1.b Describe symmetries of a figure in terms of rigid motions that map a figure onto itself and make inferences about symmetric figures (e.g., unknown side lengths or angle measures) in problems both with and without coordinates.

HS.G.1.c Explain how the criteria for triangle congruence and similarity (ASA, SAS, AAS, and SSS congruence; AA similarity criterion) follow from the definition of congruence and similarity in terms of corresponding parts.

HS.G.1.d Identify and apply right triangle relationships including converse of the Pythagorean Theorem.

HS.G.1.e Apply side and angle relationships of special right triangles (30 degree-60 degree-90 degree and 45 degree-45 degree-90 degree) to solve geometric problems.

HS.G.1.f Identify and apply right triangle relationships including sine, cosine, and tangent.

HS.G.1.g Apply interior and exterior angle formulas for n-gons and apply to authentic situations.

HS.G.1.h Compare/contrast the properties of quadrilaterals: parallelograms, rectangles, rhombi, squares, kites, trapezoids, and isosceles trapezoids.

HS.G1.i Use slope and the distance formula to determine the type of quadrilateral.

HS.G.1.j Identify, describe, apply, and reason through properties of central angles, inscribed angles, angles formed by intersecting chords, secants, and/or tangents to find the measures of angles related to the circle, arc lengths, and areas of sectors.

HS.G.2 Attributes: Students will identify and describe geometric attributes, apply properties and theorems and create three-dimensional shapes.

HS.G.2.a Convert between various units of volume (e.g., cubic feet to cubic yards).

HS.G.2.b Apply the effect of a scale factor to determine the volume of similar three-dimensional shapes and solids.

HS.G.2.c Determine surface area and volume of pyramids, as well as solids that are composites of pyramids, prisms, spheres, cylinders, and cones, using formulas and appropriate units.

HS.G.3 Coordinate Geometry and Transformations: Students will demonstrate and represent location, orientation, and relationships on the coordinate plane.

HS.G.3.a Derive the midpoint formula using the concept of average and apply the midpoint formula to find coordinates.

HS.G.3.b Find the images and preimages of transformations of a point, shape, or a relation on the coordinate plane. Transformations include the following and their compositions: reflections across horizontal and vertical lines and the lines y=x and y=-x, rotations about the origin of 90 degrees, dilations about the origin by any positive scale factor, and any translation.

HS.G.3.c Find the equation of a circle given the radius and the center.

HS.G.4 Logic and Proof: Students will use geometric definitions and theorems to reason abstractly and quantitatively.

HS.G.4.a Know and use definitions to make deductions in mathematical argumentation (e.g., syllogism, detachment).

HS.G.4.b Evaluate the validity of conditional statements, including biconditional statements (e.g., conditional, converse, contrapositive, inverse).

HS.G.4.c Evaluate the validity of an argument communicated in different ways (e.g., a flow format, two- column, paragraph format).

HS.G.4.d Use coordinate geometry to prove triangles are right, acute, obtuse, isosceles, equilateral, or scalene.

HS.G.4.e Prove and apply geometric properties and theorems regarding triangles, congruence, and similarity using deductive reasoning.

HS.G.4.f Prove and apply geometric theorems about quadrilaterals using deductive reasoning.

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.D.1 Data Collection and Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data.

HS.D.1.a Formulate multi-variable statistical investigative questions and determine how data can be collected and analyzed to provide an answer.

HS.D.1.b Apply an appropriate data collection plan when collecting primary data for the statistical investigative question of interest.

HS.D.1.c Use appropriate technology, including spreadsheet-based logic, to organize data for analysis.

HS.D.1.d Distinguish between surveys, observational studies, and experiments.

HS.D.1.e Understand what constitutes good practice in designing a sample survey, an experiment, and an observational study.

HS.D.1.f Understand issues of bias and confounding variables in a study and their implications for interpretation.

HS.D.2 Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.

HS.D.2.a Identify appropriate ways to summarize and then represent the distribution of univariate data and bivariate data through the construction of histograms, dot plots, stem plots, box plots, cumulative relative frequency graphs, time plots, circle graphs, stacked bar graphs, and mosaic bar graphs by hand or with technology.

HS.D.2.b Describe the shape, identify any outliers, and determine the spread of a data set.

HS.D.2.c Select and determine the appropriate measure of center based on the shape of a distribution and/or the presence of outliers.

HS.D.2.d Recognize when a data set can be reasonably said to be normally distributed and draw conclusions about the data from the associated normal distribution.

HS.D.2.e Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data and recognize possible associations and trends in the data.

HS.D.2.f Represent data on two quantitative variables on a scatter plot and describe how the variables are related.

HS.D.2.g Use technology to develop regression models for linear and non-linear data to predict unobserved outcomes. Interpret slope and y-intercept in the context of the problem.

HS.D.2.h Measure the strength of association using correlation coefficients for regression curves and interpret their meanings for the model.

HS.D.2.i Use residuals and residual plots to judge the quality of a regression model.

HS.D.2.j Recognize and explain when arguments based on data confuse correlation with causation.

HS.D.2.k Understand what constitutes statistical significance. Interpret statistical significance in the context of a situation and answer investigative questions appropriately.

HS.D.2.l Use probability as a tool for assessing risk and for informed decision making by interpreting P-values.

HS.D.3 Probability: Students will interpret and apply concepts of probability.

HS.D.3.a Describe events as subsets of a sample space using characteristics of the outcomes or as unions, intersections, or complements of other events.

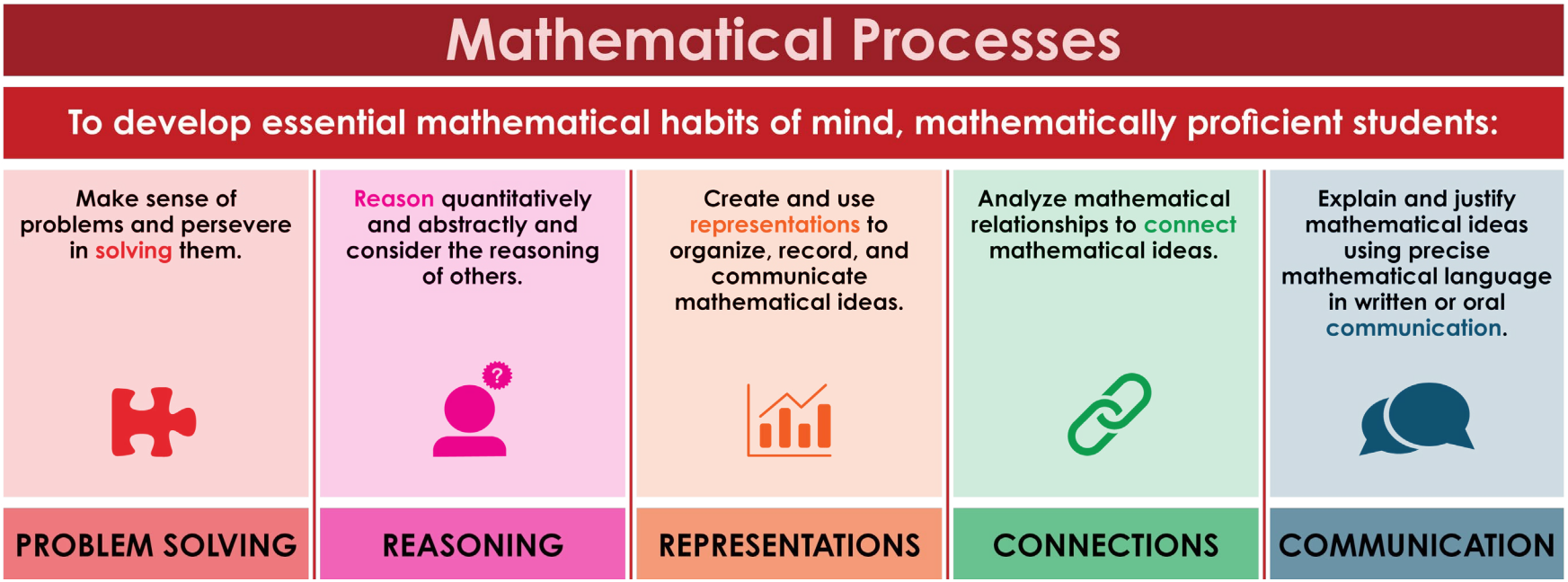
HS.D.3.b Explain independent versus dependent probability of an event.

HS.D.3.c Determine when order in counting matters and use permutations and combinations to compute probabilities of events accordingly.

HS.D.3.d Determine whether or not events are mutually exclusive (disjoint) and calculate their probabilities in either case.

HS.D.3.e Recognize and explain the concepts of conditional probability in everyday language and everyday situations.

High School Advanced Topics Standards



NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

AT.N.1 Estimation and Technology: Students will use estimation strategies and technology to reason, to solve problems, and to make connections within mathematics and across disciplines.

AT.N.1.a Use domain and range restrictions to apply an appropriate viewing window while using graphing technology.

AT.N.1.b Compare and contrast radians and degrees as measures of angles and the reason graphing utilities tend to use radians as the default setting.

AT.N.2 Sets and Operations: Students will compare and contrast subsets and perform operations with subsets of the complex number system to reason and to solve problems.

AT.N.2.a Perform arithmetic operations with complex numbers.

AT.N.2.b Represent complex numbers and their operations in the complex plane.

AT.N.2.c Use complex numbers in polynomial identities and equations.

AT.N.2.d Represent quantities using bases other than decimal such as binary (base 2) or hexadecimal (base 16) and convert numbers to and from base 10.

AT.N.2.e Explain modular arithmetic and its role in computer programming.

AT.N.2.f Represent and model vector quantities.

AT.N.2.g Perform operations on vectors.

AT.N.2.h Perform operations on matrices and use matrices in applications.

AT.N.3 Interpretation and Sense Making: Students will reason abstractly and quantitatively using units to solve problems and interpret results in context.

AT.N.3.a Use vectors to communicate the geometric relationships between complex numbers in the complex plane.

ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

AT.A.1 Algebraic Relationships: Students will demonstrate and represent relationships with functions.

AT.A.1.a Analyze and graph nonlinear functions (trigonometric, rational, higher-order polynomials, logarithmic, and piecewise) and relations (conic sections) using their points of interest and graphing technology.

AT.A.1.b Use the unit circle to define the trigonometric functions on multiples of known angles (positive and negative multiples of 30 and 45 degrees or pi/6 and pi/4).

AT.A.1.c Given a function, list the sequence of algebraic transformations that changes a parent function to the given function.

AT.A.1.d Define the radian unit of measure and its relationship with degrees.

AT.A.2 Algebraic Processes: Students will apply the operational properties when evaluating nonlinear expressions and solving nonlinear equations and inequalities.

AT.A.2.a Explain symmetry of functions and determine whether a function is odd, even, or neither.

AT.A.2.b Represent, interpret, and analyze inverses of functions algebraically and graphically using domain restrictions when necessary.

AT.A.2.c Write equations of nonlinear functions (trigonometric, rational, higher-order polynomials, logarithmic and piecewise) using points of interest of the function.

AT.A.2.d Convert between radian and degree measures of an angle.

AT.A.2.e Use limits to describe the behavior of a function near its asymptotes and removable discontinuities.

AT.A.3 Applications: Students will solve authentic problems using nonlinear functions and relations.

AT.A.3.a Analyze and model authentic situations using various non-linear representations and relations with appropriate technology.

AT.A.3.b Analyze and model authentic application situations using various non-linear representations and relations with appropriate technology.

GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

TOOLS: Students will sketch, draw, and construct appropriate representations using a variety of tools and methods which may include ruler/straight edge, protractor, compass, reflective devices, paper folding, or dynamic geometric software.

AT.G.1 Attributes: Students will identify and describe geometric attributes, apply properties and theorems, and create two- dimensional shapes.

AT.G.1.a Apply the Law of Sines and the Law of Cosines to find unknown measures in triangles.

AT.G.2 Attributes: Students will identify and describe geometric attributes, apply properties and theorems, and create three-dimensional shapes.

AT.G.2.a Determine the three-dimensional object created by rotating or revolving a two-dimensional object about an axis.

AT.G.2.b Determine the shape of a two-dimensional cross-section of a three-dimensional object.

AT.G.2.c Use Cavalieri's Principle to determine volume of three-dimensional figures.

AT.G.3 Coordinate Geometry and Transformations: Students will demonstrate and represent location, orientation, and relationships on the coordinate plane.

AT.G.3.a Identify symmetry properties of a function (e.g., axis of symmetry of a parabola) and know the connection between its symmetry properties and specific transformations.

AT.G.3.b Recognize that translations can be described in terms of vectors.

AT.G.3.c Find the images and preimages of transformations of a point, shape, or relation on the coordinate plane, where transformations include the following compositions: reflections about lines of any rational slope passing through the origins, delations about the origin by any positive scale factor, and translations.

AT.G.3.d Explain the focus-directrix construction of a parabola and derive the equation of a parabola from focus and directrix for a parabola whose axis of symmetry is a coordinate axis.

AT.G.4 Logic and Proof: Students will use geometric definitions and theorems to reason abstractly and quantitatively.

AT.G.4.a Use known definitions and results in informal argumentation to construct logical arguments.

AT.G.4.b Distinguish between empirical reasoning, examples, and deductive reasoning, as well as informal and formal reasoning.

AT.G.4.c Evaluate the deductive consequences of alternative definitions of known objects (e.g., whether a trapezoid is defined as a quadrilateral with exactly one pair of parallel sides or defined as at least one pair of parallel sides).

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

AT.D.1 Data Collection and Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data.

AT.D.1.a Explain what constitutes good practice in designing a sample survey, an experiment, and an observational study.

AT.D.1.b Explain the use of randomization to reduce the influence of confounding or lurking variables.

AT.D.1.c Explain issues of bias and confounding variables in a study and their implications for interpretation.

AT.D.1.d Demonstrate knowledge of the role sampling distributions play in the estimation of an unknown population parameter through the use of appropriate sampling techniques.

AT.D.2 Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.

AT.D.2.a Determine when a data set can be reasonably said to be normally distributed and draw conclusions about the data from the associated normal distribution.

AT.D.2.b Use technology to develop regression models for linear and non-linear data to predict unobserved

outcomes. Apply algebraic transformations to non-linear data to generate a linearized data set and employ linear regression techniques to analyze the non-linear data set.

AT.D.3 Probability: Students will interpret and apply concepts of probability.

AT.D.3.a Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. Interpret the expected value as the mean of a probability distribution.

AT.D.3.b Communicate what constitutes statistical significance. Interpret statistical significance in the context of a situation and answer investigative questions appropriately.

AT.D.3.c Use data to compare two groups, describe sample variability, and decide if differences between parameters are significant based on the statistics.

AT.D.3.d Use probability as a tool for assessing risk and for informed decision making by computing and interpreting P-values.

AT.D.3.e Use confidence intervals to estimate an unknown population parameter.

CIA Department

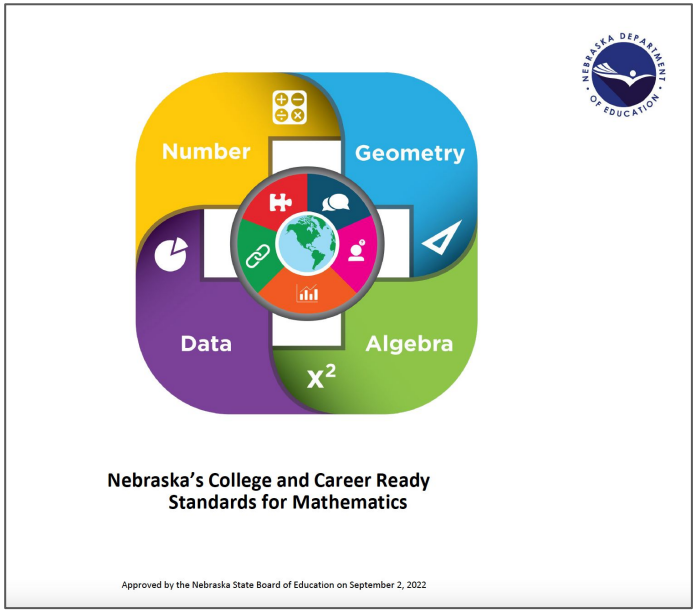
October 17, 2022

2022-23 CIA/EL Department Goals

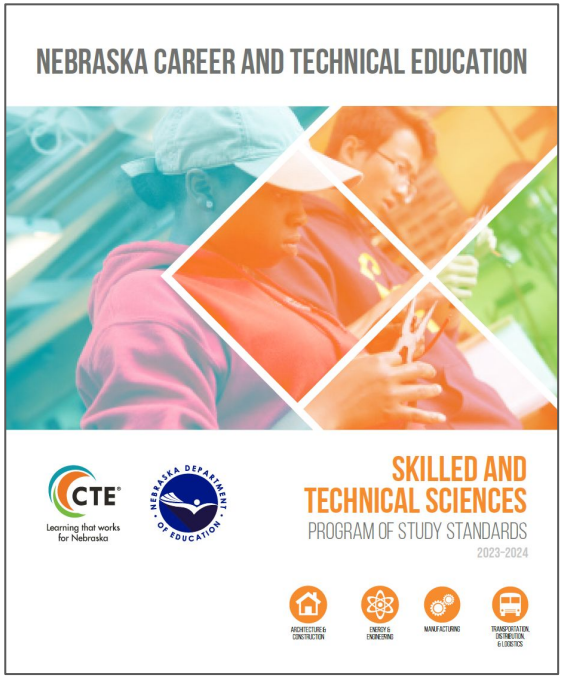
- Communication - succinct, honest, solution-based
- Curriculum in Action - Support teachers and have a presence in buildings & classrooms
- Instructional Leadership - Support principals and grow their instructional leadership
- Effectiveness & Accountability - Track our supports
- Positive Culture & Teacher Retainment

Standards Approval Request

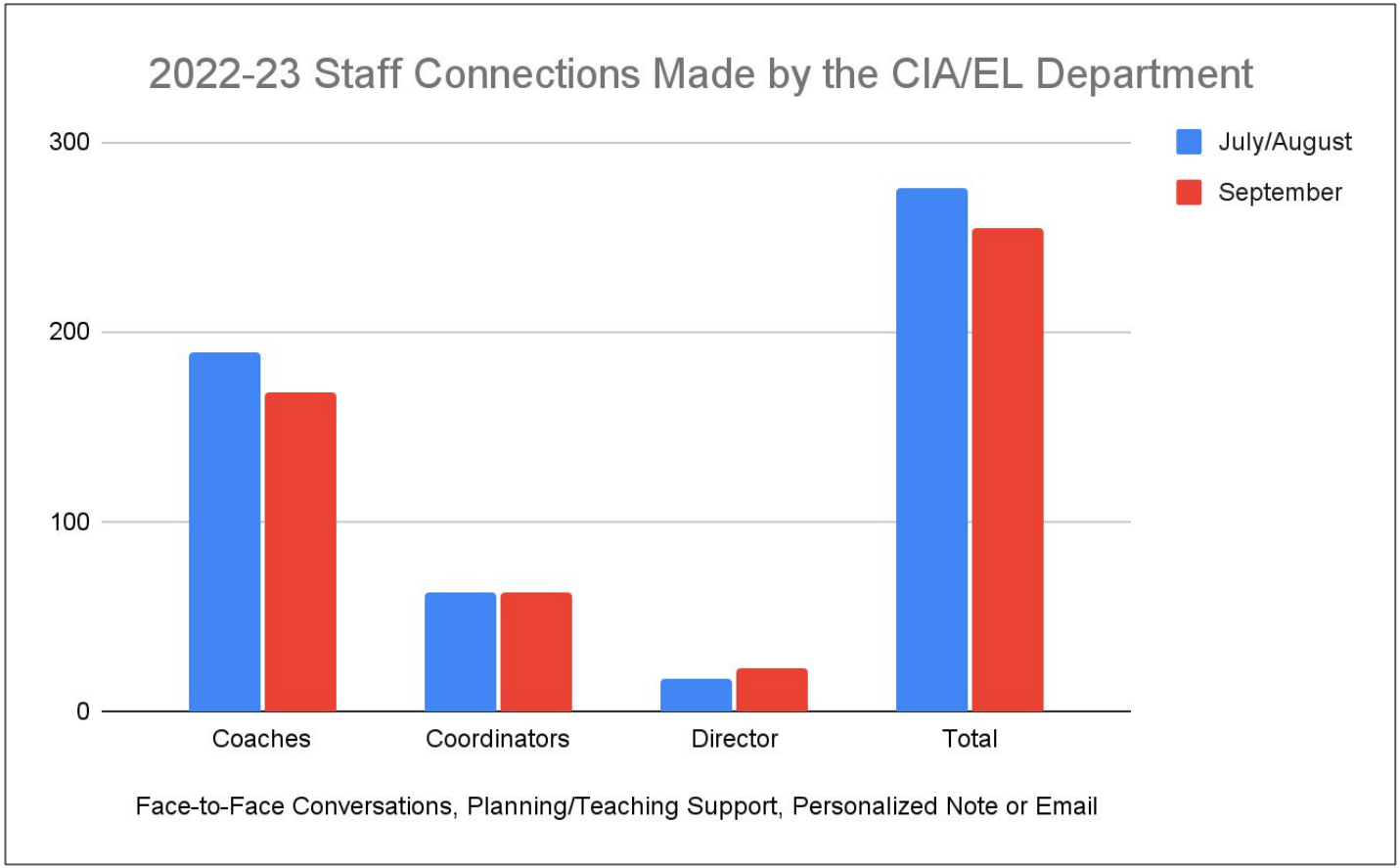
2022 Math College & Career Ready Standards



Nebraska Career & Technical Education



Staff Connections



Elementary On Site PD Support

Centennial - August 29 & 30
Emerson - September 12
North Park - October 3 & 4
Lost Creek - October 12
West Park - October 19

Process

- Survey teachers for greatest need of support
- Organize & prepare for sessions based on survey responses
- Provide sub coverage for the principal and teachers

Overarching Themes

- SEL Supports/Strategies
- Pacing of Data Points in Synergy
- Entering scores into Synergy
- Engagement Strategies
- EL Strategies
- Curriculum Questions
- Instructional Resource Questions

K-12 Select-a-Session PD

December 9th & January 20th
8:00 - 11:00

Process

- Gathering input on topics
- Determine who will provide PD for each topic
- Set up logistics of PD locations and times
- Send out sign up sheet

**Individualized PD accepted if related to content and/or instructional practices

EL Family Liaison Position

Rosa Ramirez

•Years of experience interpreting for the Department of Corrections
•October 19th Starting Date

K-4 Proficiency Reporting Supports

•Email sent 10/13 to share helpful hints to decrease stress as the quarter ends

•Eric Edzards . . .

-Offers support by assigning himself to elementary buildings throughout first quarter

-Meets individual or with teams when he receives a request

-Fix some errors on the backside of Synergy

-Attends all Elementary On-Site Support PD Sessions

-Will lead all elementary teachers through the finalizing Quarter 1 Proficiency Reporting at Lost Creek on October 21st

-Meet with all elementary leaders on October 27th to update Quarter 1 data points for the 2023-34 School Year

(Will do this at the end of each quarter.)

-Creating a simplified naming convention of the data points for next year's upload into Synergy

5-12 Remaining with Traditional Grading using Proficiency Scales & Common Assessments

Mentor/Mentee Updates

September Surveys

Overarching Mentee Themes:

- Curriculum pacing/documents needs to be easier to find in Google Drive
- Overwhelming support for the July New Teacher Days
- Wished they could have gotten into their Synergy Account during the July New Teacher Day PD

Overarching Mentor Themes:

- Request a checklist to go over items on the August New Teacher half-day they spend with their mentees

All, but one of the partnerships have found time to meet on a weekly basis

Cognia Accreditation

April 3rd & 4th On-Site Visit - Mark your calendars

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** Paula Lawrence

Fund Raising Company (if applicable): Godfathers

What is your school/group's money-earning plan?
Students will collect the Fedora Hats off Godfathers Pizza Boxes. These will be turned into the office and we will turn those into Godfathers at the end of the school year for money.

Approximately how much does your school/group expect to earn from this project?
$75

How will this money be used?
This money will be deposited into the West Park Activity Fund and go towards special school activities

What are the proposed dates? The 2022-2023 School Year

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither
(If you selected product, please specify the product that you are selling.) cookie dough and frozen food items, candles, wrapping paper

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

_____

_____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** Paula Lawrence

Fund Raising Company (if applicable): N/A

What is your school/group's money-earning plan?
We will host a family night at a local restaurant once a month. The restaurant will donate a portion of the profit to our building

Approximately how much does your school/group expect to earn from this project?
$900

How will this money be used?
This money will be used to finance West Park PTO activities

What are the proposed dates? PTO is working on setting dates with local restaurants

Is this a recurring activity? ☒ Yes ☐ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.) I will send the exact dates once we have the restaurants booked

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither
(If you selected product, please specify the product that you are selling.)

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☒ Yes ☐ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** WP PTO

Fund Raising Company (if applicable): Club's Choice

What is your school/group's money-earning plan?
We will be selling food items and candles from Club's Choice Fundraising Company

Approximately how much does your school/group expect to earn from this project?
$5,000

How will this money be used?
This money will be used to finance West Park PTO activities and update playground equipment

What are the proposed dates? January 23rd -February 7th

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☒ Product ☐ Neither
(If you selected product, please specify the product that you are selling.) T-Shirts

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** WP PTO

Fund Raising Company (if applicable):

What is your school/group's money-earning plan?
We will be selling West Park T-Shirts to students and staff

Approximately how much does your school/group expect to earn from this project?
$300

How will this money be used?
This money will be used to finance West Park PTO activities and update playground equipment

What are the proposed dates? September

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☒ Product ☐ Neither
(If you selected product, please specify the product that you are selling.) T-Shirts

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary

Name: Paula Lawrence - PTO

Fund Raising Company (if applicable):

What is your school/group's money-earning plan?
Parents will purchase candy canes for their child. A special note from the parent will be attached to the candy cane. The candy canes will be delivered to students by an elf the week of December 19th.

Approximately how much does your school/group expect to earn from this project?
$200-$300

How will this money be used?
The funds raised will go towards Equipment for a Sensory Hallway or Sensory Room.

What are the proposed dates? December 15th – 22nd

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☒ Product ☐ Neither
(If you selected product, please specify the product that you are selling.) Candy Canes

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☒ Yes ☐ No **If yes, by whom?** Paula Lawrence

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** Paula Lawrence

Fund Raising Company (if applicable): N/A

What is your school/group's money-earning plan?
A grade level will sell popcorn or healthy snacks at the end of the day.

Approximately how much does your school/group expect to earn from this project?
$200-$500

How will this money be used?
Money will be donated to the Red Cross for Disaster Relief

What are the proposed dates? During the 2022-2023 School Year. Disaster Relief fund raisers occur when there is a serious Natural Disaster.

Is this a recurring activity? ☒ Yes ☐ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.) A classroom may choose to raise funds at different times when a Natural Disaster occurs. Examples would be Hurricane Relief, Tornados or Earthquakes.

Are you selling tickets or a product? ☐ Tickets ☒ Product ☐ Neither
(If you selected product, please specify the product that you are selling.) Popcorn or other healthy snacks

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 8-26-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** Faith Simon

Fund Raising Company (if applicable): Jump Rope for Heart

What is your school/group's money-earning plan?
Students will collect donations from family and friends for Jump Rope for Heart

Approximately how much does your school/group expect to earn from this project?
$800

How will this money be used?
Money will be donated to the Heart Association

What are the proposed dates? Second Semester 2022-23 School Year

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither
(If you selected product, please specify the product that you are selling.)

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** Paula Lawrence

Fund Raising Company (if applicable): N/A

What is your school/group's money-earning plan?
Pennies for Patients

Approximately how much does your school/group expect to earn from this project?
$500

How will this money be used?
We will donate this money to United Way for their Change Drive

What are the proposed dates? First Semester

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither
(If you selected product, please specify the product that you are selling.)

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☒ Yes ☐ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary

Name: Sandi Seckel & Crystal Halvorsen

Fund Raising Company (if applicable):
The Second Grade class will decorate and sell cookies to students

What is your school/group's money-earning plan?
The second grade will purchase and decorate cookies. These will be sold on a Friday afternoon to West Park student for 25¢ a cookie.

Approximately how much does your school/group expect to earn from this project?
$175

How will this money be used?
The class will purchase items for children on the Holiday Spirit Coop list

What are the proposed dates? First week of December, 2021

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☐ Product ☐ Neither
(If you selected product, please specify the product that you are selling.)

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☒ Yes ☐ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** Wendi Petersen

Fund Raising Company (if applicable): N/A

WP Student Council, submits the following plans for collecting food donations for the Columbus Food Pantry

What is your school/group's money-earning plan?
Food Drive

Approximately how much does your school/group expect to earn from this project?
N/A

How will this money be used?
Food will be donated to the Food Pantry

What are the proposed dates? We will collect food either before Thanksgiving or Christmas for first semester

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither
(If you selected product, please specify the product that you are selling.)

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary

Name: WP Student Council

Fund Raising Company (if applicable): N/A

What is your school/group's money-earning plan?
Student Council will sell scented pencils twice a month throughout the school year.

Approximately how much does your school/group expect to earn from this project?
$1000

How will this money be used?
Money is used for activities in school to support our students. We donate to places in our community that students feel have a need.

What are the proposed dates? Twice a month throughout the year

Is this a recurring activity? ☒ Yes ☐ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☒ Product ☐ Neither
(If you selected product, please specify the product that you are selling.) T-Shirts

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 9-27-22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: West Park Elementary **Name:** Wendi Petersen

Fund Raising Company (if applicable): N/A

What is your school/group's money-earning plan?
Holiday Treat Sales—Student Council will sell treats before the West Park Christmas Movie

Approximately how much does your school/group expect to earn from this project?
$100-$200

How will this money be used?
To fund Student Council activities

What are the proposed dates? Week of December 20th

Is this a recurring activity? ☐ Yes ☒ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither
(If you selected product, please specify the product that you are selling.)

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature Paula Lawrence **Date** 9-27-22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools **Date**:

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: Columbus Public Schools Elementaries
Name: Andy Luebbe, Bob Hausmann, John Holys, Paula Lawrence, Angie Luebbe

Fund Raising Company (if applicable):

CPS Elementaries, submits the following plans for a money-earning project, and requests permission to carry them out.

What is your school/group's money-earning plan?
The 2022 Penny Campaign will be held Tuesday, October 25 through Tuesday, November 8. The United Way will provide a container for each classroom, and a flyer for each student to take home to inform their parents of this project. (A digital flyer will be provided if your school prefers to post in place of using paper)

Approximately how much does your school/group expect to earn from this project? We are unsure as the money is donated and we are not selling an item.

How will this money be used?
This year's donations to the Penny Campaign will help fund the Dolly Parton Imagination Library program in our local area. Imagination Library is funded by the United Way and provides free books to children birth through their 5th birthday.

What are the proposed dates? Tuesday, October 25 through Tuesday, November 8.

Is this a recurring activity? ☒ Yes ☐ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.) Tuesday, October 25 through Tuesday, November 8-Possibly

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither
(If you selected product, please specify the product that you are selling.) Deli International Food Items & Home Goods

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☒ Yes ☐ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?** Between Emerson and Club Choice

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☒ Yes ☐ No

Principal's Signature _____ **Date** _____

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

_____

_____

GUIDES TO SCHOOL/GROUP FUND RAISING PROJECTS

A school/group's money-earning methods should reflect basic values. Whenever your school or group is planning a money-earning project, this checklist should serve as your guide. If you answer "Yes" to all the questions that follow, it is likely the project conforms to district standards and will be approved.

1. **Do you really need a fund raising project?**
   There should be a real need for raising money based on your school's programs. Groups should not engage in money-earning projects merely because someone has offered an attractive plan. Remember that individual students are expected to earn their own way. The need should be beyond normal budget items covered by building budgets.

2. **If any contracts are to be signed, will they be signed by an individual without reference to the Columbus Public Schools or the Board of Education?**
   Before any person in your school/group signs a contract, he/she must make sure the venture is legitimate and worthy. If a contract is signed, he/she is responsible. He/she may not sign on behalf of Columbus Public Schools nor may he bind the Board of Education without its written authorization. If you are not sure, check with the Director of Business.

3. **Will your fund raiser prevent promoters from trading on the name and goodwill of Columbus Public Schools?**
   Because of the district's good reputation, customers rarely question the quality or price of products we sell.

4. **Will the fund raising activity uphold the good name of Columbus Public Schools? Does it comply with the district's policy on games of chance and gambling?**
   All items sold or awarded in connection with a fund raising activity must not detract from the ideals and principles of Columbus Public Schools and its Board of Education. Holding a lottery with gross proceeds in excess of $1,000, a raffle with gross proceeds in excess of $5,000, or other games of chance is a considered a violation of the district's policy on gambling. If you are not sure, check with the Director of Business/Human Relations.

5. **If a commercial product is to be sold, will it be sold on its own merits and without reference to the needs of Columbus Public Schools?**
   All commercial products must sell on their own merits, not the benefit received by the school/group. The principle of value received is critical in choosing what to sell.

6. **If a commercial product is to be sold, will the fund raising activity comply with the intentions communicated by the fundraiser?**
   Students must identify themselves by which group or school they represent and for what cause they are raising the money.

7. **Will the fund raising project avoid soliciting money or gifts?**
   Columbus Public Schools students shall not be permitted to serve as solicitors of money for the Board of Education or district. No adults and students shall be permitted to serve as solicitors of money in support of personal gain.

8. **Does the fund raising activity avoid competition with other schools and other organizations such as the United Way?**
   Check to make sure you are not in direct conflict with fund raising efforts of other schools or local agencies.

Cross Reference: 506.07 Fund Raising Activities
506.50 School-Supporting Organizations

Exhibit
Approved: 09-17-12

Columbus Public Schools
Columbus, Nebraska

Columbus Public Schools

Date: 10/13/2022

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: COLUMBUS HIGH SCHOOL **Name:** SEAN MCDONALD

Fund Raising Company (if applicable):

CHS MUSICAL

~~(School/Group Name)~~, *submits the following plans for its money-earning project, and requests permission to carry them out.*

What is your school/group's money-earning plan? THE CHS MUSICAL WISHES TO MAINTAIN ITS LONGSTANDING AND GLORIOUS TRADITION OF SELLING BAKED GOODS AND BOTTLED WATER AT INTERMISSION OF THE MUSICAL.

Approximately how much does your school/group expect to earn from this project?

$200-$300

How will this money be used?

THE MONEY WILL BE USED TO PRODUCE FUTURE THEATRICAL PRODUCTIONS.

What are the proposed dates? 11/4-11/5

Is this a recurring activity? ☒ Yes ☐ No

(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.) WE PLAN TO DO THIS AGAIN IN 2023

Are you selling tickets or a product? ☐ Tickets ☒ Product ☐ Neither

(If you selected product, please specify the product that you are selling.)

BAKED GOODS AND BOTTLED WATER

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☐ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☐ Yes ☐ No

Principal's Signature _____ **Date** _____

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date: 10/13/22

School Fundraising Application

Please submit this application to the building principal **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: CHS **Name:** SEAN MCDONALD

Fund Raising Company (if applicable):

(School/Group Name), submits the following plans for its money-earning project, and requests permission to carry them out.

What is your school/group's money-earning plan? THE CHS MUSICAL SEEKS TO OFFER SPONSORSHIP TO THIS YEAR'S PRODUCTION. SPONSORS WILL BE RECOGNIZED IN THE SHOW'S PLAYBILL. WE WOULD LIKE TO HOST THIS FUNDRAISER ON THE FOUNDATION'S WEBSITE SO AS TO SHARE INFORMATION VIA SOCIAL MEDIA.

Approximately how much does your school/group expect to earn from this project? IN THE PAST, WE HAVE MADE AS MUCH AS $2400 WITH A SIMILAR FUNDRAISER.

How will this money be used? THIS MONEY WILL BE USED TO PRODUCE FUTURE SHOWS.

What are the proposed dates? ASAP - 11/1/2022

Is this a recurring activity? ☒ Yes ☐ No

(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.) WE WOULD PLAN TO DO THIS AGAIN IN 2023.

Are you selling tickets or a product? ☐ Tickets ☐ Product ☒ Neither

(If you selected product, please specify the product that you are selling.)

→ WE'RE SELLING RECOGNITION IN THE SHOW'S PLAYBILL.

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☒ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☒ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☒ No

Are any contracts to be signed? ☐ Yes ☒ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☐ Yes ☒ No

Does the building principal give full approval for this plan? ☐ Yes ☐ No

Principal's Signature _____ **Date** _____

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

Columbus Public Schools

Date:

School Fund Raising Application

Please submit this application to the building principal or the office of the Executive Director of Business/Human Relations **at least two weeks in advance** of the proposed date of your money-raising project. Please read the eight guides on page two. They will help you in answering the questions below.

School: [Select One] **Fund Raising Company (if applicable):** Columbus High School, Close Up Krispy Kreme

(School/Group Name), submits the following plans for its money-earning project, and requests permission to carry them out.

What is your school/group's money-earning plan?
To sell Krispy Kreme Doughnuts to raise funds for Close Up

Approximately how much does your school/group expect to earn from this project?
Students earn 50% of each dozen they sell

How will this money be used?
Funds will be applied to the cost of student trip

What are the proposed dates? 10/28/22 - 11/13/22

Is this a recurring activity? ☐ Yes ☑ No
(If you selected yes, please specify the dates on which the activity will occur during the next twelve months.)

Are you selling tickets or a product? ☐ Tickets ☑ Product ☐ Neither
(If you selected product, please specify the product that you are selling.) - Krispy Kreme Doughnuts

Will members be identified by t-shirts, etc. while carrying out this project? ☐ Yes ☑ No

Have you checked with other schools to avoid any overlapping while working? ☐ Yes ☑ No

Is your product/service in direct conflict with that offered by local merchants? ☐ Yes ☐ No

Are any contracts to be signed? ☐ Yes ☐ No **If yes, by whom?**

Has your school/group devised a budget plan to expend earnings? ☑ Yes ☐ No

Does the building principal give full approval for this plan? ☐ Yes ☐ No

Principal's Signature _____ **Date** 10/5/22

(for district use only)

Approved by _____ Date _____

Approved subject to the following conditions _____

_____

_____