To view this meeting, the livestream link is:

To make a public comment, the call in number is

(US)

Regular BOE Agenda
November 5, 2025

Reed Intermediate School Library
3 Trades Lane
Newtown, CT 06470
7:00 PM

As citizens of our community, we will conduct ourselves in accordance with Newtown's Core Character Attributes as displayed in our character tree. We will be responsible for our actions and show respect for each other. We will interact peacefully, productively, and politely. We will be trustworthy and honest and show compassion toward others. Newtown's continued success is contingent upon our ability to persevere, to follow through with our commitments, and to stay focused on the greater good.

AGENDA

1. PLEDGE OF ALLEGIANCE
2. CELEBRATION OF EXCELLENCE
   A. National Banner Special Olympics Unified Champion School
3. CONSENT AGENDA
   A. Newtown Middle School Trips to Spain and Greece
   B. Minutes of October 21, 2025
   C. Correspondence Report
4. **PUBLIC PARTICIPATION
5. REPORTS
   A. Chair Report
   B. Superintendent's Report
   C. Committee and Liaison Reports
   D. Student Representatives Report
6. PRESENTATIONS
   A. Newtown Middle School Strategic Goals
   B. Newtown High School Strategic Goals
   C. Director of Teaching and Learning Goals
7. OLD BUSINESS
   A. Second Read and Action on Policy 1090 Pesticide Application on School Property
   B. Second Read and Action on Policies

1. 4152.6/4252.6 Family and Medical Leave
2. 2260 Holds on Destruction of Records
3. 2270 Retention and Disposition of Records and Information

C. Items of Information

1. 5121.3R Administrative Regulations Regarding Academic Integrity and Acceptable Use of Artificial Intelligence (AI)
2. 1131R Administrative Regulations Regarding Political Activities in Schools
3. 1350R Administrative Regulations Regarding Senior Citizens Benefit

D. Second Read and Action on Policies to Rescind after Adoption of Replacement Policies

1. 3543.31 Office Services/Records and Reports
2. 3543.311 Office Services/Records and Reports - Electronic Communications Use and Retention
3. 4152.6/4252.6 Family and Medical Leave

E. Second Read and Action on Non-Mandated Policies to Rescind

1. 1120 Public Participation at Board of Ed Meetings
2. 1251 Loitering
3. 1300 Public Activities Involving Staff, Students or School Facilities
4. 1300.1 Community Engagement
5. 1311.1 Political Activities of School Employees
6. 1311.2 Political Activities in the Schools
7. 1312 Public Complaints
8. 1313 Gifts from Suppliers and/or Contractors
9. 1321 Public Performances by Students
10. 1321.1 Public Performances by School Musical Organizations
11. 1322 Contests for Students
12. 1326 Solicitations by Staff Members
13. 1350 Senior Citizens Benefits
14. 1360 Awards and Policies
15. 1411 Relations with Law Enforcement
16. 1430 State Federal Government
17. 1325 Advertising and Promotion

8. NEW BUSINESS

A. First Read of Anatomy and Physiology Curriculum

B. First Read of Writing Center Theory and Practice Curriculum

9. PUBLIC PARTICIPATION
10. ADJOURNMENT

***During the first Public Participation, the Board welcomes commentary regarding items on the agenda. After being recognized, please state your name and address for the record. Per Board Policy 9325, we request that speakers be respectful and limit comments to not more than three minutes, and we note that public complaints about employees are not permitted during meetings. All such concerns should instead be submitted to the Superintendent. During the second Public Participation, commentary may address the agenda or may introduce issues for the Board to consider in the future. The Board does not engage in dialogue during either public comment period. If you desire more information or answers to specific questions, please email the Board: NewtownBOE@newtown.k12.ct.us*

NMS Spring Break 2027 International Travel Form for BOE Approval

Tour Overview & Itinerary: *Middle School– Explore Spain*

Trip Title: Middle School- Explore Spain: A Journey Through History, Art, and Culture

Educational Goal: To provide students with an immersive, interdisciplinary learning experience that brings their classroom studies of Spanish language, World history, world geography, and art to life.

During this 10 day tour, students will visit Malaga, Seville, Cordoba, Madrid, and Barcelona, all with the expert guidance and support of EF Tours, an educational tour company which is both accredited and insured with a world-wide presence and reputation.

Type of trip: Cultural and Language Immersion, Spring Break 2027

Country: Spain

Dates of Trip:
10 days: Spring Break 2027 – departing on April 9, 2027 and returning on April 18.

Tentative number of students: 24-30

Students Tentative Itinerary: See below

Chaperones: Kimberly Pereira and other teachers from NMS (TBD–based on a ratio of students to teachers 6:1) with preference given to Spanish teacher(s)

Middle School- Explore Spain

Day	Location(s)	Itinerary Details
Day 1	Fly overnight to Spain	Fly overnight to Spain.
Day 2	Málaga • Seville	Malaga–the golden coast. Travel to Seville–experiencing the Spanish countryside and local towns on the way..
Day 3	Seville	Visit the **Royal Alcázar**. Take a guided tour of Seville and see the **Plaza de España**. Visit the **Seville Cathedral**. Participate in a **Tile painting workshop**.
Day 4	Seville	Visit an **olive oil farm**. Visit **Las Setas de Sevilla**, the largest wooden structure in the world. Take a **Flamenco dance lesson**. See a **Flamenco show**.
Day 5	Seville • Córdoba • Madrid	Travel via Córdoba to Madrid. Tour Córdoba with an expert local guide. Visit the **Mezquita**.
Day 6	Madrid	Take a tour of Madrid with an expert local guide. Visit the **Royal Palace**. Tour a **soccer stadium** and learn more about Spain's national sport, known as *fútbol*.
Day 7	Madrid • Toledo	Take an excursion to Toledo with an expert local guide. You will visit: **Toledo Cathedral** and **Church of Santo Tomé & Synagogue**. Ride a **zipline in Toledo**. Enjoy a tasting of **marzipan**, a sweet Toledo specialty.
Day 8	Madrid • Barcelona	Travel by train to Barcelona. Take a walking tour of **Las Ramblas**.
Day 9	Barcelona	Take a guided tour of Barcelona. With your expert local guide you will see: **La Sagrada Família**, **Park Güell**, and **La Pedrera or Casa Batlló**. Visit Park Güell. Take an interactive augmented reality (AR) journey through the life of Park Güell architect **Antoni Gaudí**. Ride the **Montjuïc cable car**. Explore **Montjuïc Castle** and take in its hilltop views.
Day 10	Home	Depart for home.

NMS Summer 2027 International Travel Form for BOE Approval

Tour Overview & Itinerary: *Athens and Argolida*

Trip Title: Athens and Argolida

Educational Goal: To provide students with an immersive, interdisciplinary learning experience that brings their classroom studies of Ancient History, World Mythology, Philosophy, and Classical Arts and culture to life.

During this 8 day tour, students will visit Athens, all with the expert guidance and support of EF Tours, an educational tour company which is both accredited and insured with a world-wide presence and reputation.

Type of trip: History & Cultural Immersion, Summer 2027

Country: Greece

Dates of Trip:
8 days: June 2027 – Requested departure June 19, 2027 and returning on June 27

Tentative number of students: 24-30

Students Tentative Itinerary: See below

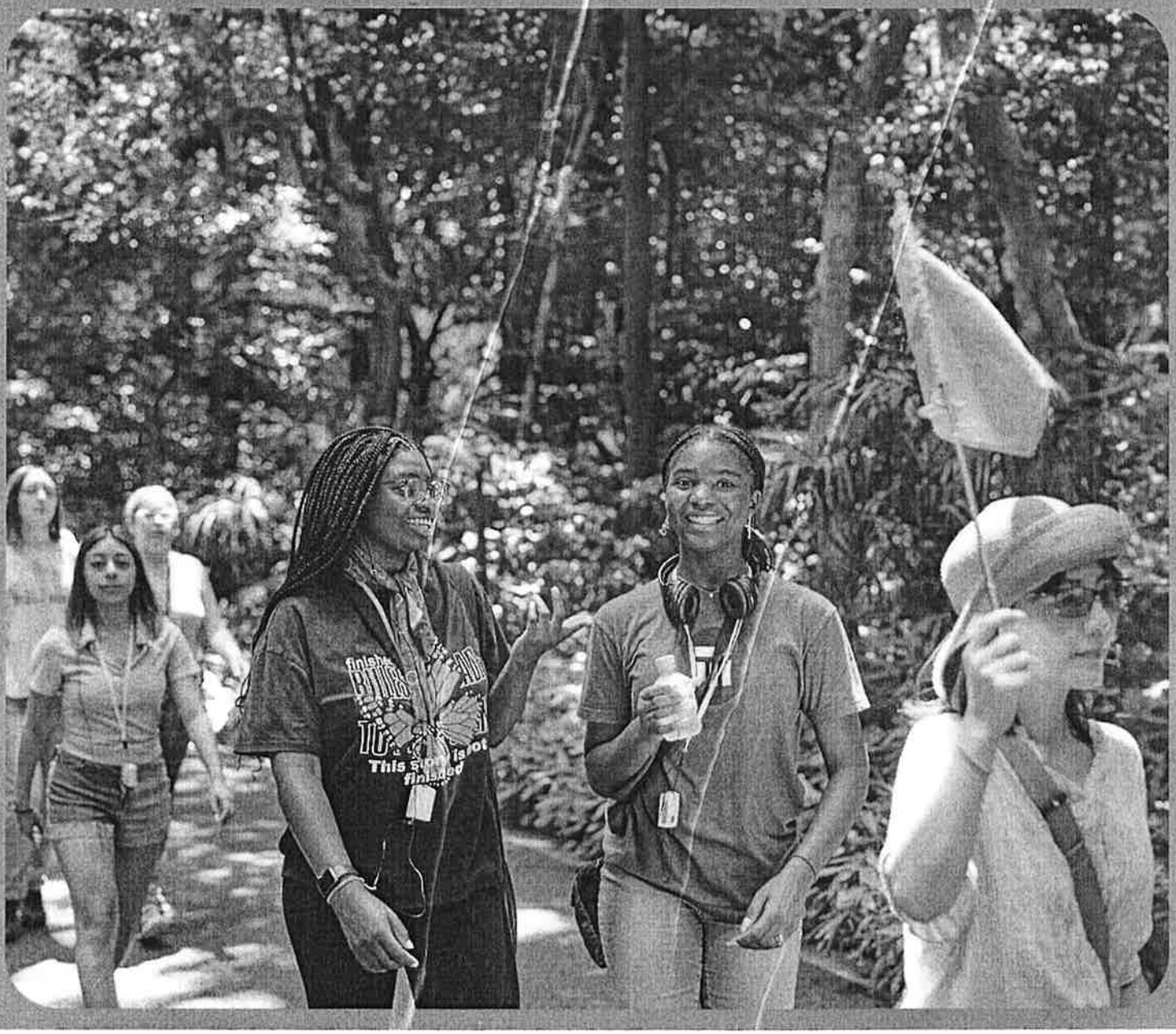
Chaperones: Kimberly Pereira and other teachers from NMS (TBD–based on a ratio of students to teachers 6:1)

Athens and Argolida

Day	Location(s)	Itinerary Details
Day 1	Fly overnight to Greece	Fly overnight to Greece.
Day 2	Athens	Meet your Tour Director at the airport. Take a walking tour of Athens. With your Tour Director you will see: Plaka district and the Athenian Trilogy.
Day 3	Athens	Take a guided tour of Athens. With your expert local guide you will see: Panathenaic Olympic Stadium, Academy of Athens, Syntagma Square and Parliament, Prison of Socrates, and Arios Pagos Hill. Visit the Acropolis (Parthenon, Temple of Athena Nike). Visit the Acropolis Museum, home to ancient ruins and prehistoric artifacts. **Cooking class:** Learn mouth-watering essentials of Greek cooking and enjoy your finished product.
Day 4	Athens (Saronic Islands)	**Saronic Islands cruise:** Set sail through the islands of the Saronic Gulf. Stops at: **Aegina** (home to the best pistachios), **Poros** (Historic Clock visible from town), and **Hydra** (red-tiled houses and stone-paved alleys). Cruise includes lunch, and you may have time for swimming before returning to port mid-evening.
Day 5	Athens • Corinth • Argolida region	Travel via Corinth to Argolida region. See the **Corinth Canal**. Tour the ruins of **Mycenae** with an expert local guide (learn about this ancient Bronze Age city dating to the 14th Century BCE). Learn about traditional clay techniques at a **Mycenaean pottery experience**.
Day 6	Argolida region • Athens	Visit the **Palamidi Fortress**. Enjoy a short boat ride through **Nafplio Bay** (weather permitting). Explore Nafplio on your own. Exploration time at the beach. Enjoy a **traditional Greek lunch** in Nafplio. Travel to Athens.
Day 7	Athens	Participate in a **role-playing workshop about democracy** in Athens during the classical period Then to finish the tour, we'll enjoy a traditional Greek dinner. Then, link arms for a night of music and dancing with the famous plate-smashing tradition and all. Whatever the night brings, you'll enjoy a lively celebration and experience the best of Greece's theatrical culture.
Day 8		Depart for Home.

EDUCATIONAL TOURS

Global Travel Program Proposal



Learning outcomes

Continued

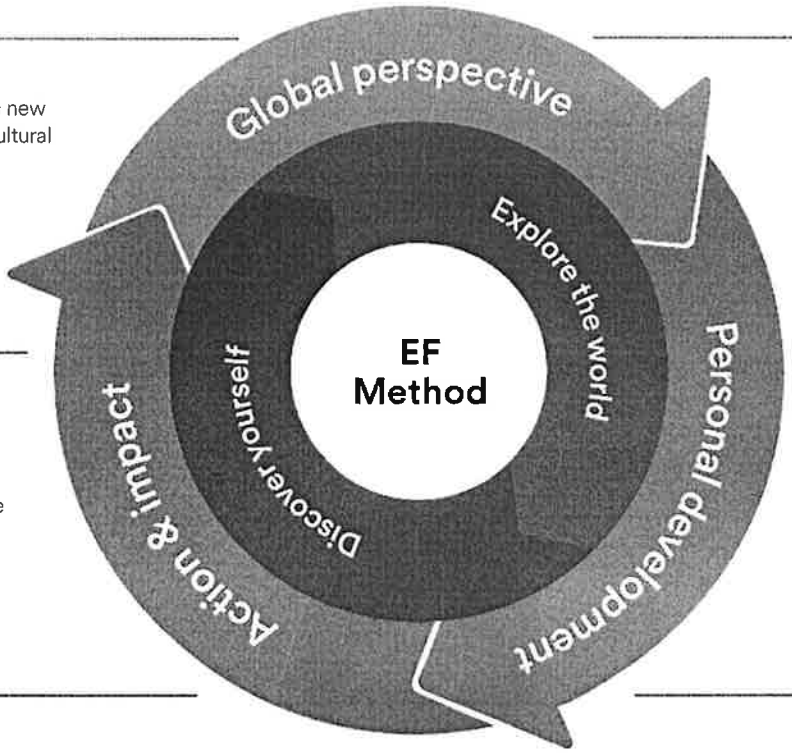
EF students build essential skills in these key growth areas:

Cultural awareness

Changing your context creates new experiences that build cross-cultural knowledge and skills

Growth mindset

Broadening your worldview helps you become more curious, open, and adaptable; you embrace becoming a lifelong learner



Collaboration

You develop the interpersonal skills to flourish in multicultural teams: to find new and better solutions, take action, and have real impact

Self-awareness

Connecting with others in meaningful ways reflects your own biases and beliefs back to you, leading to a change of mindset

Communication

You connect with others more deeply by listening, empathizing, and appreciating—then sharing your own point of view

Agency

Knowing yourself helps you decide who you want to be and the mark you want to make—and enables you to become a better advocate for your dreams

Managing cost & payments

We believe in the life-changing power of educational travel and want as many students as possible to be able to experience it. With flexible payment options, fundraising tools, and scholarships, we aim to make these transformative experiences more widely accessible.

Automatic Payment Plan

Our recommended payment plan allows travelers to break their tour fee into manageable installments. Since most tours are planned well in advance, travelers can enroll for only $95 and then spread the tour cost over an extended period—often up to 18 months or two years—with the final payment due 30 days before departure. Families make payments directly to EF, with no payments going through the school.

Fundraising pages

Each student receives their own unique and customizable fundraising page. This easy-to-share page makes it simple for friends and family to contribute directly to the tour cost, with no fees

Global Citizen Scholarship Fund

Every year, EF Educational Tours awards $100,000 in scholarships to students across the country. Any student can apply for the Global Citizen Scholarship, which is granted on both a merit and needs basis.

Risk-Free Enrollment Period

New travelers who enroll can cancel for any reason up to 7 days after enrollment for a full refund of 100% of the money paid to EF. Travelers must pay in full or enroll in our Automatic Payment Plan at the time of program enrollment and must remain either paid in full or enrolled in our Automatic Payment Plan and in good financial standing at the time of cancellation to remain eligible. To be eligible, the traveler must enroll on a tour at least 110 days prior to the scheduled departure date.

Safety

Our travelers' safety is our top priority. With an extensive global presence, industry-leading experience, and close relationships with U.S. and international authorities, that's a statement we can back up with confidence. We ensure that every situation is managed with the utmost care.

Worldwide presence

EF's global presence is truly unmatched. We have staff on the ground 365 days a year in over 50 countries around the world. And we don't just work in those countries—we call them home. Better yet, EF has team members in nearly every one of our tour destinations, providing local knowledge and ensuring the safety of our groups. This presence allows us to support travelers wherever and whenever they need us.

24/7 emergency support

In the event that anything on tour goes wrong, EF staff are always available to help. Your Tour Director serves as your group's constant companion and first point of contact in an emergency. Our fully trained support teams are also on call 24/7, ready to assist teachers with any issues and provide the necessary resources to get things back on track. Finally our Safety and Incident Response Team—comprised of industry experts, healthcare experts, and even former FBI personnel—is ready to spring into action 365 days a year.

Safety

Continued

Your school's team

These EF staff are fully committed to your school's travel program and the safety of every student.

OPERATIONS SAFETY & INCIDENT RESPONSE TEAM

This team is strategically based in our Boston, Panama, and Zurich offices to accommodate all time zones. Available 24 hours a day, every day of the year, they are trained to react quickly if travelers need help. The team uses a combination of extensive training, simulations, incident response planning, and experience to manage emergencies. They also facilitate additional support for groups on tour, solve operational issues, arrange assistance from outside specialists, and liaise with local and international authorities as needed.

EMERGENCY SERVICES & SUPPORT TEAM

Our support team is also available 24/7 to help resolve any issue, from a missed flight or a lost passport to more serious on-tour incidents. They're also the ones facilitating communication between travelers and families in the event of an emergency at home. The team is made up of highly trained and dedicated EF staff in our Boston and Denver offices who are equipped to solve problems and answer questions that may come up, even outside of regular business hours.

TOUR DIRECTOR

Tour Directors are assigned exclusively to each tour for the duration of the trip. They meet your group at the airport and stay with them until their departure home. All Tour Directors undergo a background check as permissible by local law every two years and are required to participate in ongoing EF safety trainings. They're the first point of contact in an emergency and provide safety information to the travelers in their group. Tour Directors assist Group Leaders with hotel check-ins, coordinate meals, facilitate excursions with local guides, and much more. They're culturally connected and expertly trained to support impactful learning experiences.

EF TRAVEL TEAM

This team—comprised of a Tour Consultant and an EF Experience Specialist—is your school's main point of contact at EF. The Tour Consultant serves as your itinerary expert and is devoted to making sure your students get the most out of their travel experience. They partner with your school on everything from finding the perfect tour and enrolling travelers to developing long-term programs for your district and community. The EF Experience Specialist handles the finer details that make your experience with EF seamless. They work directly with Group Leaders (your teachers) right up until the moment of departure, ensuring everything goes smoothly.

TRAVELER SUPPORT

Our team of Travel Support Specialists are readily available to walk families through insurance inquiries, payment plans, food allergy issues, and any other topics that arise.

CHAPERONES

For every six travelers who enroll on a school's tour, the group is eligible to bring along a chaperone for free (with the first spot reserved for the Group Leader). This creates a 6:1 student-to-chaperone ratio, and allows chaperones to assist Group Leaders in supervising students.

Protection for travelers, schools & districts

We understand that unpredictable situations can happen, whether on tour or before departure. That's why we offer a range of protections to make sure travelers, schools, and districts are covered no matter what. We do everything we can to make planning for the future as flexible as possible.

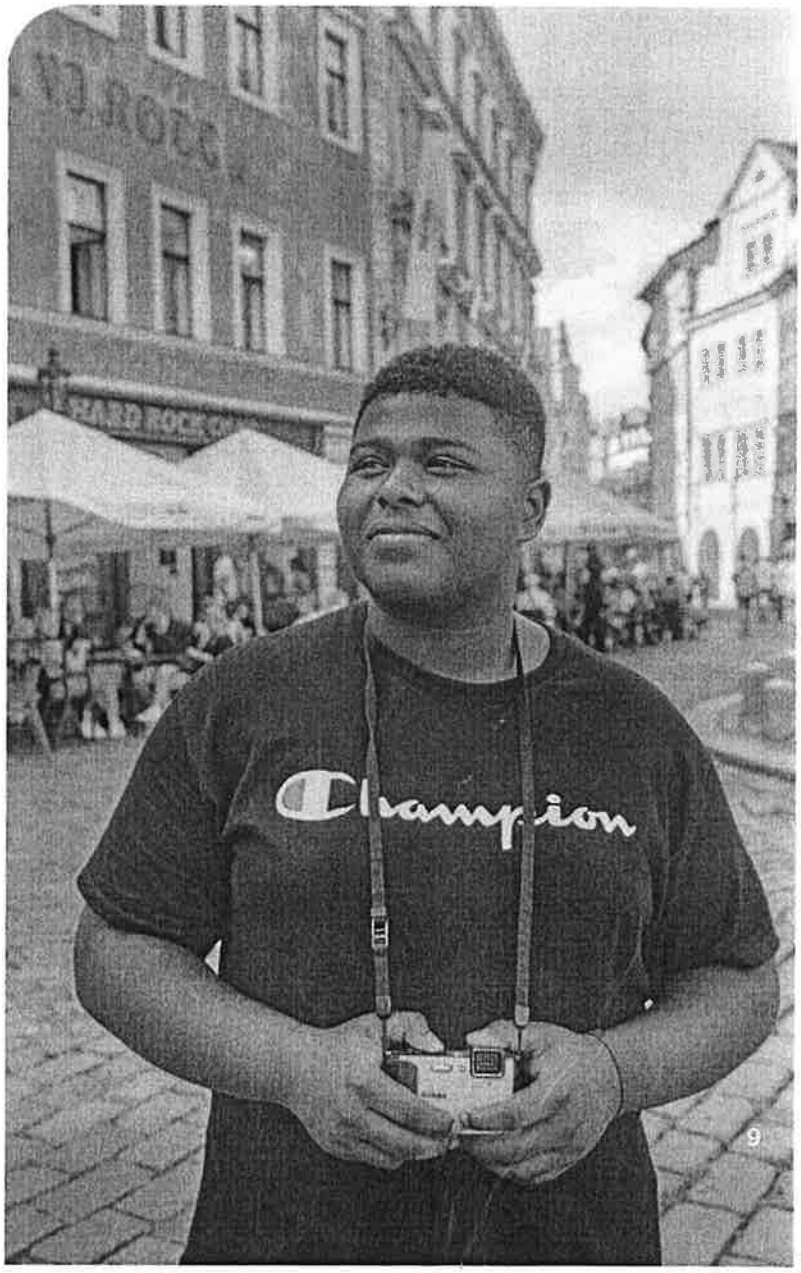
General liability insurance

All Group Leaders, schools, and districts who travel with EF are added as additional insureds under our **$50 million General Liability Policy**, whether or not the tour is considered a school event. EF's liability coverage is primary and non-contributory for covered third-party claims. The policy helps safeguard Group Leaders and their schools for covered third-party claims related to bodily injury or property damage, which includes providing a legal defense and covering legal costs for such claims. In addition, all travelers are required to sign EF's Release and Agreement which includes a release of liability of their Group Leader, school, and school board.

Peace of Mind Program

Provided to all groups

When your school decides to travel with EF, we want you to feel secure in that decision. This benefit, built into every EF program, gives groups the flexibility to change their tour dates or destination. It can be enacted up to 45 days prior to departure for any reason, including terrorism or other world events.



Travel logistics

Proposed tours from Kim Pereira

- **Middle School: Explore Spain in Spring 2027**
- **Athens and Argolida in Summer 2027**

Price of this tour

The tour program price covers a wide range of services that ensure students have an incredible travel experience. It includes all the planning and preparation that leads up to departure, travel and accommodations, and logistical support once the group reaches their destination. Students enrolling this fall are eligible for a $200 early enrollment discount.

Details on requested dates and the itinerary are linked here: Spain

STUDENT	ADULT
$4,639	$5,459
or $228/ 20 mos	or $269/ 20 mos

Program Price	$4,539
Single Departure Date Request	$100

For every 6 paying travelers, 1 chaperone travels free.

Details on requested dates and the itinerary are linked here: Greece

STUDENT	ADULT
$4,599	$5,239
or $215/ 21 mos	or $245/ 21 mos

Program Price	$3,929
1 Day Stay Behind Athens	$480
Athens Cooking Class	$70
Saronic Cruise	$120

For every 6 paying travelers, 1 chaperone travels free.

Travel logistics

Continued

Hotels

Every hotel we partner with must meet our strict standards for safety, quality, and cleanliness. Hotels are thoroughly vetted by our team and they're regularly inspected to ensure they continue to meet these standards. It's important to note that hotels abroad may have different amenities than travelers may be accustomed to in the United States. Accommodations meet the standard you'd expect from a typical European hotel, which means that rooms come with private bathrooms and feature multiple single or shared double beds. Rooms may also be on the smaller side without AC, and some hotels may not have elevator access.Below are expectations & examples of hotels travelers may encounter at your proposed destination:

Madrid, Spain

Groups stay an hour or so from the center of Madrid, near one of the airports or in areas such as Getafe, Torrejón de Ardoz, Guadalajara, and Collado Villalba. Some hotels are located in more business-centric districts, which means there may not be shops or amenities nearby.

Hostal Torrejón
https://www.grupohostal.com/hoteles-en-torrejon/hostal-torrejon/
Address: Av. de la Constitución, 173, 28850 Torrejón de Ardoz, Madrid, Spain

Athens, Greece

Groups stay 20 minutes to an hour outside the center of Athens in areas such as Calamos, Rafina, Elefsina, Anavyssos, Marousi, Piraeus, and Glyfada, or near the Isthmus of Corinth. Hotels that are further from the city often have the added advantage of being closer to the beach.

Ilissos Hotel
https://ilissos.gr/
Address: Kallirrois 72, Athina 117 41, Greece

Meals

Meals are chosen to provide a more immersive cultural experience, giving students the chance to sample traditional cuisine and experience local dining customs. Below are examples of dishes travelers may encounter at your proposed destination:

Spain: Sample Meals

Spanish tortilla, pork loin with potatoes and mushrooms, ice cream

Greece: Sample Meals

Spinach pie, moussaka, rice pudding. Greek salad, chicken with oven-baked pasta, walnut pie.

On tour, breakfast is typically simple and served at the hotel, either plated or buffet-style. Lunch usually gives travelers the opportunity to explore the local cuisine on their own. Dinners will be a mix of familiar dishes and local specialties, all served from a pre-set group menu.

Board of Education
Newtown, Connecticut

Minutes of the Board of Education Meeting held on October 21, 2025 at 7:00 p.m. in the Council Chambers, 3 Primrose Street, Newtown, CT.

A. Plante, Chair (virtual)	A. Uberti
J. Vouros, Vice Chair	F. Purcaro
D. Zukowski, Secretary	T. Gouveia
S. Tomai	8 Staff
C. Gilson	1 Public
D. Linnetz	1 Press
B. Leonardi	

Mr. Vouros called the meeting to order at 7:35 p.m.

Item 1 – Pledge of Allegiance
Item 2 – Consent Agenda
MOTION: Mrs. Linnetz moved that the Board of Education approve the consent agenda which includes the minutes of October 7, 2025, the donation to Middle Gate School, and the correspondence report. Ms. Zukowski seconded. Motion passes unanimously.

Item 3 – Public Participation
Item 4 – Reports
Chair Report: Mr. Vouros reported that tonight we will continue our district-wide goal-setting work by our elementary and Reed Intermediate School Principals. We expect to take action on the proposed Newtown Federation of Teachers contract tonight and thanked Mrs. Linnetz for being the BOE representative on the negotiations committee as well as Steve Goodridge from the Board of Finance and Jordana Bloom from the Legislative Council for representing their Boards. There are also policies for first read and the Board's review and input.

Superintendent's Report: Mrs. Uberti was pleased to present the teachers' contract this evening. We are in the process of negotiating contracts for our paraeducators, behavior therapists, and security guards and hope to reach agreements by the end of the calendar year. The 2026-2027 internal budget process is now underway. She, Ms. Gouveia and Mr. Barlow will be visiting schools starting this Friday to review facilities and furniture requests first hand and assess the needs directly so there is equity between the buildings. As Election Day approaches, we are working with the Registrar of Voters to get the schools ready for November 4. Because it falls on a Tuesday, our next meeting will be November 5 in the Reed Intermediate School. Tonight the elementary and Reed principals will share their school-based goals.

Committee and Liaison Reports;
Ms. Tomai reported on the CFF Subcommittee meeting held tonight and reviewed the financial report. Shannon reported on the CFF subcommittee tonight and reviewed the financial report for July through September. Also reviewed was the workload analysis for employees in the office and discussed the internal budget process and timeline. School lunch balances and facilities projects were also discussed.

Dr. Gilson reported on the Curriculum and Instruction Committee which met tonight. Presentations were on the revised high school anatomy and physiology curriculum by Tara Allegretto and Rick Lye, English teacher, presented the curriculum on the writing center course for students interested in tutoring. These will go to the full board at the next meeting and links for the slides are posted on line.

Student Representatives Report:
Mr. Hoag reported that students were preparing for the end of the first quarter. A small group of students sent a letter of concern to the Newtown Bee regarding the metal detector. Pink Out night is October 24 with students purchasing shirts to support the fight against breast cancer. Class Council organized Senior Sunrise where all seniors gathered at Blue and Gold Stadium at 6:15 a.m. on October 8th. They are also looking to develop measures to prevent senior stampede and currently the most popular idea is to have a field day which will keep seniors out of the building. He also reported on the fall sports beginning to come to and end.

Ms. DiNoto reported that the National Honor Society attended a designer bag bingo at the community center. Christine Wilford and other parents provided a breakfast for the National Honor Society's recent breakfast. Leo's club cleared a trail at Orchard Hill. She mentioned other honor societies which have been meeting on a regular basis. The senior class picture will be at the Blue and Gold Stadium on November 12. Seniors have been receiving help from the career center on the college application process and visits.

Mr. Vouros asked about the Smart Pass program.
Ms. DiNoto stated a lot of teachers said it hasn't been working well and they've had to use their own computers.
Mr. Hoag noted that it does the job when it works but a lot of people forget to log back in to class.

Financial Report and Transfers
MOTION: Mrs. Linnetz moved that the Board of Education approve the financial report and transfers for the month ending September 30, 2026. Ms. Tomai seconded.

Ms. Gouveia spoke about the financial report and some unexpected expenses for hiring two outside nursing agencies for additional help with two students and additional transportation costs. We also have a transfer for teacher re-assignments that occurred in September.

Ms. Tomai clarified the transfers are more for re-allocation for shared teachers.
Ms. Zukowski asked if unforeseen needs for more medical support would be reimbursed through the state.

Ms. Gouveia said we have one in district student which would not be reimbursed, but there an outplacement which may be partially reimbursed.
Motion passes unanimously.

<u>Item 5 – Presentations</u>
Elementary Principals Strategic Instructional Goals:
Tim Napolitano, Head O'Meadow Principal, began the presentation on instructional goals which are aligned with the district instructional goals. Our work emphasizes high quality instruction and feedback, data base decision making, targeted professional learning, positive school climate, inclusive communication, and strong family partnerships. He referred to Goal 1, Strategy 1 that will ensure that every student experiences rigorous and engaging curriculum and instruction.

Chris Moretti, Hawley Principal, spoke about looking at data and shared Goal 1, Strategy 2 to develop and implement a consistent and uniform process for analyzing and using data to make instructional decisions. Data tells us how students did and what they need to adjust our instructional practices. We look at classroom and grade level data after assessments are given

and help teachers identify students and write plans on how to address any deficits. We also set annual goals for the assessments. The assessments are given to students in grades K-3. Jenna Connors, Middle Gate Principal, spoke about professional development. Strategy 3 focuses on providing sustained professional development learning opportunities to all staff that are timely, engaging, and relevant. Investing in professional growth has a direct impact on the quality of instruction. Our goal is to create a comprehensive professional learning plan that focuses on increasing rigor and student engagement. By strengthening our instructional skills we are ensuring that every elementary classroom provides a rich and engaging learning experience for all students.

Dr. Kathy Gombos, Sandy Hook Principal, spoke about Goal 5, which is to cultivate strong, reciprocal partnerships with families and the community to support student learning and well-being. Along with setting goals in the area of curriculum instruction, there is also the important work of creating school climates that cultivate strong reciprocal partnership with our families, positive staff collaboration, and a sense of belonging for all students. Strategy 1 addresses creating school climate improvement goals. Restorative training for all staff is about responding in a developmentally responsive approach. We have help to make our schools welcoming and celebrate our differences. The final area is the communication goal so we will highlight our schools in the Superintendent's weekly newsletter.

Mr. Leonardi referred to Goal 1 Strategy 2 regarding database analysis and asked if the achievement percentages remained consistent over the years.

Mr. Moretti said we look at it fresh every year and look at our fall baseline to see how they would do in the spring. The next year we will have more information to see where they were and where we would like to see them. If a goal is not attained, we meet and look at what we did and the strategies and share with the student's previous team.

Dr. Gombos said we don't have a lot of data in the elementary schools but by third and fourth grade we can see which students we are talking about. We take the iReady test the first time in second grade but don't take the same test in third grade.

Dr. Gilson asked what the difference was or was new in each section presented.
Mr. Moretti said the district data team began mid-year last year. This year we started at the beginning of the year.
Dr. Gombos said because we have a 3-year plan we now have a district protocol for the schools and a plan for goals for school climate.
Mr. Napolitano said our elementary assistant principals have been key to help with the work we are doing.
Mrs. Connors said we have a plan that is very aligned with our educational plans.

Ms. Zukowski asked for information on whether we know what was achieved from the previous strategic plan.
Mrs. Uberti said we have the data by plan and the overview of the data. Her goal is to bring the data on the plan at the end of the year and will see what we were able to achieve, partially achieve, and which things we weren't able to achieve.

Mrs. Plante thanked them for being here and providing this presentation and agreed with Mrs. Uberti and Ms. Zukowski with closing the loop with this next iteration. She referred to the harmful language protocol and asked if it was required by the school climate legislation.

Mrs. Uberti said it was not required but we started talking about as a result of feedback from parents and students and public comments in our DEAI Subcommittee meetings regarding students experiences in our schools. We wanted to come up with a protocol that highlights the best approaches we have used and make them accessible to all of the team. It includes teaching students to be kind and also to help show them examples and non-examples that can be turned around.

Reed Intermediate School:
Dr. Matt Correia, Reed Intermediate School Principal, presented his strategic plan to prioritize goals and set in motion goals we feel are important. This is in alignment with the elementary goals also. Regarding Strategy 1, he and Carla Tischio will lead that goal regarding curriculum and instruction. Strategy 2 regarding data we will have a data team which will support the district data team. Regarding our district scores, we were pleased with ELA and math. We have some chronic absenteeism at Reed and are looking at each possible reason so we can use strategies to help achieve regular attendance. Strategy 3 will provide professional learning opportunities to support our staff. Goal 5 will ensure students have acceptable behavior and reactions.

Mrs. Linnetz referred to the absenteeism and how he collaborates with K-4 and middle school administrators.
Dr. Correa has a PLC with the elementary and middle school administrators and he works with Mr. Ross on the data, as well as absenteeism. Our counselors also work closely together.

Ms. Zukowski thanked the principals for their reports tonight and Mrs. Uberti for creating a structure for overall improvement. She asked help in letting the new Board members know how valuable this information is for the community.

Item 6 – Old Business
MOTION: Mrs. Linnetz moved that the Board of Education approve Policy 1090 Pesticide Application on School Property. Ms. Zukowski seconded.

Ms. Zukowski asked if there was a Policy meeting since the last Board meeting to which Mrs. Linnetz said there was not and she received no questions.

Ms. Zukowski said we would clear the buildings when pesticide was being applied and she was concerned about this in the regulation.

Mrs. Uberti would like to put together a comprehensive response to Ms. Zukowski's concerns and questions. Questions have been raised related to the use of emergency use of pesticides with a concern for people who may have allergies.

Ms. Tomai said Ms. Zukowski was sensitive to this topic and wants to address this in the regulation and she agrees we should address the health risk for everyone.

MOTION: Ms. Zukowski moved to amend the motion to postpone this until the next meeting. Ms. Tomai seconded. Motion passes unanimously.

Item 7 New Business
MOTION: Ms. Linnetz moved that the Board of Education approve the ratified contract between the Newtown Federation of Teachers and the Newtown Board of Education, covering the period

from July 1, 2026 through June 30, 2029, and MOVE FURTHER that the Board authorize the Board Chair to execute the contract on its behalf. Ms. Zukowski seconded.

Ms. Zukowski said we have been known as one of the lowest entry level districts for teachers and appreciates that this has been rectified.
Motion passes unanimously.

Policies for First Read:
Mrs. Linnetz asked the Board to email questions to her and Mrs. Plante. The next meeting is November 5.

Item 8 – Public Participation
MOTION: Ms. Tomai moved to adjourn. Ms. Zukowski seconded. Motion passes unanimously.

Item 9 – Adjournment
The meeting adjourned at 9:29 p.m.

Respectfully submitted:

_____
Deborra J. Zukowski
Secretary

Newtown Public School District

Newtown Board of Education

Correspondence Report
10/21/2025 – 11/04/2025

Date	Sender Name	Subject
10/21/2025	Deborra Zukowski	Correspondence Report: 10/21/2025
10/21/2025	Kathy June	Revised October 7 Minutes
10/22/2025	Kathy June	DEAI Minutes
10/22/2025	Nancy Propfe	What's Going On at CABE 10.22.25
10/24/2025	Anne Uberti	Friday Notes 10.24.25
10/24/2025	Janice Gabriel	Join the NHS Drama program for a Night of Mystery with Clue: High School Edition
10/25/2025	John Vouros	LEEANN BROWETT AGENDA ADDITION
10/25/2025	Alison Plante	Please respond: Residency hearing
10/27/2025	Anne Uberti	NPS Weekly Update 10.27.25
10/28/2025	Gail Heath	REMINDER - Legislative Discussions with Boards of Education
10/28/2025	Wilmarie D. Newton	CABE Webinar Invitation: Digital Wellbeing in the Age of Social Media and AI
10/28/2025	Nancy Propfe	2025 CABE New Board Member Orientation and Leadership Conference
10/29/2025	Nancy Propfe	What's Going On at CABE 10.29.25
10/31/2025	Shannon Hamilton	Policy Highlights 10/31/2025 [CABE]
10/31/2025	Kathy June	DEAI April 22, 2025 Minutes
10/31/2025	BoardBook	Meeting Notification: November 5, 2025 at 7:00 PM - Regular BOE Agenda
10/31/2025	Anne Uberti	Friday Notes 10.31.25
11/02/2025	Alison Plante	Week in Preview - November 2
11/03/2025	Nancy Propfe	CABE Journal November 2025
11/03/2025	Wilmarie D. Newton	CABE Webinar Invitation: Digital Wellbeing in the Age of Social Media and AI
11/03/2025	Anne Uberti	NPS Weekly Update 11.3.25
11/03/2025	Anne Uberti	Sad News
11/04/2025	Nancy Propfe	2025 CABE New Board Member Orientation and Leadership Conference

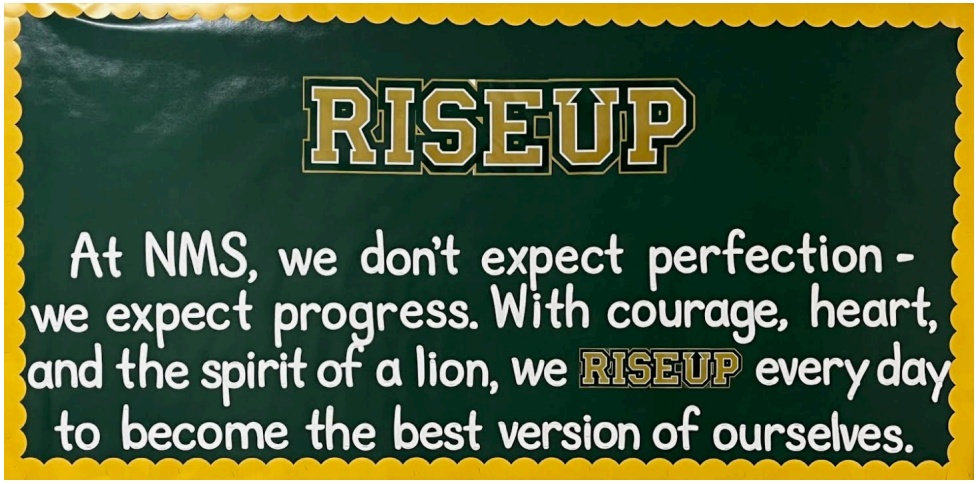
The Correspondence Report reflects a periodic summary of correspondence received by the Newtown Board of Education. In accordance with applicable privacy laws and Board policies, certain communications may be excluded from the Report from time to time.

Newtown Middle School
School Strategic Plan 2025 - 2026

Introduction

The mission of Newtown Public Schools, a partnership of students, families, educators, and community, is to inspire each student to excel in attaining and applying the knowledge, skills and attributes that lead to personal success while becoming a contributing member of a dynamic global community. We accomplish this by creating an unparalleled learning environment characterized by high expectations, quality instruction, continuous improvement, and civic responsibility.

At Newtown Middle School, we RISE UP. We are committed to continuous improvement in all that we do, guided by our unwavering focus on School Culture and Academic Excellence. These two pillars shape every aspect of our work and align with the vision outlined in our Portrait of the Graduate. Together, they drive our mission to empower every student to grow, thrive, and succeed.



District Strategic Plan Link

Goal 1. (Curriculum and Instruction) Cultivate a dynamic learning environment that consistently improves instruction, nurtures student creativity and innovation, and increases student engagement and academic achievement.				
Strategy 1. NMS will ensure that every student in the Newtown Public Schools experiences rigorous and engaging curriculum and instruction.				
Strategic Action(s)	**2025-26 Action Steps**	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Create systems to provide effective feedback to educators to ensure continuous growth in pedagogy	Rollout and implement Newtown Educator and Administrator Evaluation and Support Plan	Participation in rollout (9/22) Participation in meetings: ● Goal-setting ● Mid-year ● EOY Observation Feedback		Assistant Superintendent Director of T & L NMS Administrative Team NMS Staff
Integrate technology to enhance teaching, learning, and assessment, including the integration of AI	The **NMS AI Team** partners with EdAdvance consultants to lead AI training and support staff in using AI effectively.	Nov 4 Technology PD surveys/staff feedback NMS PD Plan - Staff Meetings		NMS AI Team
	Create an AI guidance document	AI Guidance Document		District AI Team
Reflect and enhance curriculum resources, instructional strategies, and assessments	Utilize **PLC**'s with specific purposes to continue to elevate instruction	NMS PLC Plan PLC & Department Meetings Master Schedule		NMS Administrative Team Department Coordinators NMS Staff
	Department release time	Agenda with intended outcomes (ex unpack units)		NMS Administrative Team Department Coordinators
Implement consistent grading practices that are research-based to make grading more accurate and meaningful for students, teachers, and families	Create Grading Beliefs Document	Grading Beliefs document		NMS Administrative Team
	Create and implement **department grading plans** that align with school beliefs	Department grading plans		NMS Administrative Team NMS Staff
	Create a communication plan for stakeholder explaining the *why* and *how* of the proposed changes	Administration Newsletters/Communication		NMS Administrative Team

Strategy 2. NMS will develop and implement a consistent and uniform process for analyzing and using data to make instructional decisions.				
Strategic Action(s)	**2025-26 Action Steps**	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Implement a system of district and building-based data teams	**NMS MTSS Leadership Team** to serve as school-wide data team	MTSS Leadership Team Agenda & Meeting Minutes		NMS Administrative Team School Coordinators Intervention Team
	Review school-wide data with **NMS Leadership Team**, staff, and departments on a regular basis	Staff Presentations PLC Meeting Minutes		NMS Administrative Team School Coordinators
	Participate in **district data team** meetings to review student performance data from the beginning, middle, and end of the year and create data commitments.	Data Commitments		NMS Administrative Team ELA Consultant Math Specialist Science Coordinator
	Provide more **PLC time** with specific purposes to continue to elevate instruction and utilize data to inform decisions	NMS PLC Plan PLC & Department Meetings Master Schedule		NMS Administrative Team School Coordinators NMS Staff
Create student achievement goals as measured by state assessments and Next Generation Accountability Results ELA i-Ready Projected Proficiency ● Typical Growth: 72% ● Stretch Growth: 93% Math i-Ready Projected Proficiency ● Typical Growth: 67% ● Stretch Growth: 80%	**Implement MTSS Plan**	MTSS Folder Goal Analysis: ● Student proficiency levels will increase by at least 5% in the the state assessments (Math, ELA, & NGSS) ● SBAC Baseline Results: ● 7th Grade Math: 65% ● 8th Grade Math: 68% ● 7th Grade ELA: 65% ● 8th Grade ELA: 69% ● 8th Grade NGSS: 73%		NMS Administrative Team MTSS Leadership Team NMS Staff
	Creation of ELA & math **Tier 1+ student lists** and housed in the Cluster MTSS Spreadsheets	MTSS Folder		NMS Administrative Team ELA Consultant Math Specialist

				Science Coordinator NMS Staff
	After School Math Program Summer ELA & Math Program	After School Program data Summer Enrichment Program data		NMS Administrative Team After School Staff Summer Enrichment Program Staff

Strategy 3. NMS will provide sustained and ongoing professional learning opportunities to all staff that are timely, engaging, and relevant.				
Strategic Action(s)	**2025-26 Action Steps**	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Create a comprehensive professional learning plan that focuses on increasing rigor and student engagement	Implement **District & Building Professional Development** Plans	NMS PD Plan		Assistant Superintendent Director of T & L NMS Administrative Team
	NMS ELA Consultant to partner with consultants from EdAdvance to support continued curriculum implementation and high quality literacy instruction and practices.	NMS PD Plan		NMS Administrative Team ELA Consultant ELA Staff Members
	NMS Math Specialist to partner with consultants from ACES to strengthen ability to lead staff in using Building Thinking Classroom strategies to support high quality math instruction and practices.	NMS PD Plan		NMS Administrative Team Math Specialist Math Staff Members
	NMS Science Coordinator to partner with EdAdvance to enhance science curriculum to embed more inquiry-based strategies and student discourse.	NMS PD Plan		NMS Administrative Team Science Coordinator Science Staff Members
	NMS Social Studies Coordinator to partner with EdAdvance to lead SS teachers in revising the social studies curriculum to embed even more inquiry-based strategies.	NMS PD Plan		NMS Administrative Team SS Coordinator SS Staff Members
	Staff engage in **instructional practices PD** along with **book clubs** utilizing the following resources:	NMS PD Plan Book Club Dates & Plan		NMS Administrative Team Department Coordinators NMS Staff

	• *The Fundamental 5: The Formula for Quality Instruction* • *Cognitive Behavioral Therapy in K-12 School Settings: A Practitioner's Workbook 2nd Edition* • *Purposeful Co-Teaching: Real Cases and Effective Strategies*			
Create Teacher networks, a structured process for educators to observe, reflect, and improve teaching and learning practices	Create a learning walk protocol with building and district look fors aligned to instructional best practices	District Learning Walk Plan NMS Learning Walk Plan		Assistant Superintendent Director of T & L NMS Administrative Team
	Engage in NMS building **Learning Walks** & Peer-to-peer observations	Peer-to-peer observation protocol and expectations		Department Coordinators NMS Staff
	Use PLC Meetings to share ideas and **recipe test** to define best practices	NMS PLC Plan		Department Coordinators NMS Staff

Goal 5. (Family and Community Relations) Cultivate strong, reciprocal partnerships with families and the community to support student learning and well-being.				
Strategy 1. District and School Climate Improvement				
Strategic Action(s)	**2025-26 Action Steps**	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Live school-wide identity/Montra	**Live RISE UP consistently** by implementing and adhering to the "RISE UP - The Plan to Live It"	RISE UP Plan Student Assemblies SCC Surveys		NMS Administrative Team NMS Staff
Implement the new Connecticut School Climate Policy	Participate in training on the new climate policy requirements.	Admin attendance on District PD Staff Meeting		NMS Administrative Team SCC Specialist NMS Staff
	NMS School Climate Committee will take on the following responsibilities: ● Help plan, schedule, and administer the annual school climate survey, and review the results. ● Use survey data to identify strengths and areas for improvement and update the School Climate Improvement Plan by December 31 each year. ● Ensure the school community receives the Challenging Behavior Reporting Form	SCC Agenda SCC Surveys Challenging Behavior Reporting Form Discipline Data		NMS Administrative Team SCC Specialist SCC Team
	Implement **Restorative Practices** professional learning for all staff	Restorative Practices Plan		NMS Administrative Team RP Trainer
Create a plan for student & staff team building to strengthen relationships	Student & Staff **Community Days** Implement **SCC Monthly Culture Playbook** Review **Developmental Relationships Framework**	Student Comm Day Schedule Staff Comm Day Schedule PL Staff Meetings Dev Relationships Framework		NMS Administrative Team SCC Student Council NMS Staff

Strategy 2. Inclusive and Welcoming Schools				
Strategic Action(s)	**2025-26 Action Steps**	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
School community focus on language that promotes kindness and inclusivity	Participate in district training on the *NPS Harmful Language Protocol* to learn how to recognize, report, and respond to hateful or harmful language	PD Attendance		NMS Administrative Team NMS Staff
	Promote the theme: "Words Matter: Lead with Kindness, Speak with Respect." to students and community members • WIN Lessons	WIN Lessons Digital Displays Family Newsletters Bulletin Boards		NMS Administrative Team NMS Equity Leaders NMS Staff
	Train equity leaders to support staff and address questions or concerns related to harmful language	PD Attendance PL Staff Meetings		Director of T & L NMS Administrative Team NMS Equity Leaders
Continue the growth and development of the district ELL programming	Building knowledge of ELL teaching strategies, language development, and cultural awareness including the usage of AI, with a focus on supporting content teachers who work with ELLs	Cluster/MTSS Meetings ELL Handbook Classroom Observations		Assistant Superintendent Director of T & L ESL Teacher
	Improve how the district shares important information by making it available in the home languages of ELL families	NMS Newsletters Emails		NMS Administrative Team Director of T & L
	Celebrate the culture and diversity of Newtown	NMS Culture Fair International Week Digital Displays		NMS Administrative Team WL Coordinator NMS Staff
Create attendance teams to partner with families of students with high rates of absenteeism	Implement **Attendance Plan**	Chronic Absenteeism Baseline: 10.17% Goal Decrease by 2%		NMS Administrative Team MTSS Leadership Team NMS Staff

Strategy 3. Enhance Communication to Community Stakeholders				
Strategic Action(s)	**2025-26 Action Steps**	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Enhance Review NPS website to ensure content is accurate, user-friendly, and visually representative of the district's identity	Update building-specific webpages with accurate information, timely announcements, and school-specific visuals	Updated Webpage		NMS Administrative Team NMS Webmaster
Send newsletters on a regular basis	Weekly Family **Newsletter** from Administration Monthly Family **Newsletter** from Cluster & UA	Newsletters		NMS Administrative Team NMS Staff

Newtown High School
Strategic Goals 2025-2026

Goal 1. (Curriculum and Instruction) Cultivate a dynamic learning environment that consistently improves instruction, nurtures student creativity and innovation, and increases student engagement and academic achievement.				
Strategy 1. The district will ensure that every student in the Newtown Public Schools experiences rigorous and engaging curriculum and instruction.				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Implement the Portrait of a Newtown Graduate at Newtown High School.	Rollout a revised NPOG to the HS staff and students.	**100% of NHS staff** receive professional learning and orientation on the revised NPOG by **October 2025**.		Assistant Superintendent Principal NHS Leadership Team NHS Certified Staff
	Create e-portfolios for students in grades 9-11 in Google Sites to store NPOG reflections. The goal is to have 6 reflections stored in the portfolio by May.	**100% of students** in grades 9–11 have active Google Site e-portfolios created by October 31, 2025.		
	Have students experience and reflect on the NPOG characteristics of Open Communicator, Critical Thinker and Empathizer in each of their classrooms.	**6 reflections per student** uploaded to the portfolio by May 30, 2026, with checkpoints at 2 (December) and 4 (March).		
	NPOG planned integration into the Senior Capstone Project.	Updated curriculum documents to connect NPOG to the current senior capstone project as the final NPOG reflection.		
Expand the NHS learning walk protocol.	Create learning walk groups including staff from different departments.	**100% of certified staff** will be placed in a learning walk group based on schedule availability.		Principal NHS Leadership Team NHS Certified Staff
	Schedule one learning walk for every certified staff before January.	**100% of certified staff** will participate in at least one learning walk outside of their department by January.		
	Use the schoolwide NPOG characteristic to guide the learning walk observation and discussion.	**60% of certified staff** will observe NPOG characteristics during learning walks and debrief based on what they saw.		

Streamline Math and Science course offerings.	Reduce the CPB level in math and science classes.	**100% of CPB courses** at NHS will phase out for the 26-27 school year.		Principal NHS Math and Science Department Chairs
	Revise course recommendation process, Math and Science.	Remove the connection between science recommendations and math grades.		
	Research and plan for the reduction of IPES.	Collection of science pathways of surrounding schools. Reduction in the number of students enrolled in IPES.		
Strategy 2. The district will develop and implement a consistent and uniform process for analyzing and using data to make instructional decisions.				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Set annual goals for increases in student achievement as measured by state assessments and Next Generation Accountability Results.	Creation of a SAT data team for ELA and Math to analyze PSAT results and identify instructional strategies to move students toward achieving growth for the percentage of students reaching benchmark on PSAT 10 and SAT.	**Goal PSAT 10 Fall 2025** Reading and Writing: 78% Math: 57% *Data used to inform:* PSAT 8/9 Fall 2024 (Same Cohort) ● Reading and Writing: 70% ● Math: 47% **Goal: SAT Spring 2026:** Reading and Writing: 86% Math: 62% *Data used to inform:* PSAT 10 Spring 2025 (Same Cohort) ● Reading and Writing: 81% ● Math: 57% SAT Spring 2025 (Different students, last year results) ● Reading and Writing: 78% ● Math: 47%		Assistant Superintendent Principal Assistant Principal NHS Math Assistance Team NHS ELA Assistance Team

	Creation of a Science focus group to analyze NGSS data and increase student performance.	**10% improved proficiency** rating on NGSS scores. **Goal: 64%** *Data used to inform:* ● NGSS Spring 2024: 55% ● NGSS Spring 2025: 54%		Principal Assistant Principals NHS Science Assistance Team
	Identify and address the low enrollment in arts classes.	**5% increased enrollment** in all classes classified under access to art on the Next Generation Accountability Results. **Goal: 33.5%** *Data used to inform*: ● 28.5% in 2024-25		Principal NHS Performance Arts Department
	Collaborate with PE teachers to improve student performance on the CT fitness test.	Goal: 8% increase in the students who pass the aerobic portion of the CT Fitness Test. **Aerobic Pacer Goal: 70%** 24-25 CT Physical fitness results: Curl Up: 94% Sit & Reach: 89% Push Up: 86% Aerobic/Pacer: 62%		Principal NHS Physical Education Department
Implement strategies to reduce the number of students considered chronically absent.	NHS's climate/MTSS committee analyzes baseline chronic absenteeism data from the previous academic year (2024-2025).	MTSS team members meet by the end of October to begin analysis of student data. Baseline data is mutually established to identify areas of concern.		Principal Assistant Principals Dean of Students MTSS Team

	Identify students who were classified as chronically absent the previous year and during the first month.	**100% of students** have an action plan in place to address their absence. Plans are communicated with the students/parents and monitored by the team.		
	Run absenteeism reports and incorporate this data into school-based climate/MTSS meetings; specific attention to those students near designated chronic absenteeism thresholds (e.g., 5% absent).	Monthly reduction of students who meet the threshold for chronic absenteeism, resulting in a 3% decrease in the number of students deemed chronically absent in the 2025-26 school year.		
	Implement Smart Pass management system to reduce the time that students spend outside of the classroom. Analyze the data provided.	Reduction in number of passes on a month to month comparison.		

Strategy 3. Newtown High School will provide sustained and ongoing professional learning opportunities to all staff that are timely, engaging, and relevant.				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Provide staff a comprehensive professional learning plan that focuses on increasing rigor and student engagement.	Utilizing professional trainers from the ACES RESC, NHS mathematics teachers will be provided embedded professional learning throughout the year on inquiry-based instructional strategies, i.e. Building Thinking Classrooms. Through training with professionals from the ACES RESC, NHS math department chair and building administration will build their capacity to lead staff in the development of inquiry-based instructional strategies, i.e. Building Thinking Classrooms.	At least 90% of NHS math teachers will report greater confidence with program implementation, including utilizing the suggestions from professional development trainers as measured by pre and post training and in-house surveys.		Principal Assistant Principal Math Department Chair NHS Math Teachers

	Contract with national consultant on vision/portrait of a graduate to provide professional learning opportunities and support the full roll out to all NHS staff.	100% of NHS staff will receive training on providing students with opportunities to reflect on their skills as a critical thinker, ethical and compassionate citizen and open and respectful communicator.		
Goal 5. (Family and Community Relations) Cultivate strong, reciprocal partnerships with families and the community to support student learning and well-being.				
Strategy 1. District and School Climate Improvement				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	***2025-26 Persons Responsible***
Implement the new Connecticut School Climate Policy in all schools throughout the district.	Provide training to all staff on requirements outlined in the new climate policy.	100% of certified staff will be trained on Connecticut's School Climate Policy.		Principal Assistant Principal
	Based upon the results of the annual school climate survey, each school climate coordinator develops and updates as necessary, a school climate improvement plan to the district climate coordinator by December 31st each year.	NHS School Climate Specialist will submit updated School Climate Goals to the district climate coordinator by the set deadline based on the analysis of the annual school climate survey results and in alignment with identified school-specific strengths and areas for growth.		Assistant Principal
	Administer a school climate survey to students and NHS Staff.	100% of students and certified staff will be offered an opportunity to complete the annual school climate survey in the spring of 2026.		Assistant Principal
	A written or electronic copy of the plan will be available to members of the school community and used in the prevention of, identification of and response to all challenging behavior.	A current written or electronic copy of the School Climate Goals will be made accessible to 100% of the school community, and evidence shows the plan is actively used.		Principal Assistant Principal
Strategy 2. Inclusive and Welcoming Schools				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Promote inclusive, respectful language and positive communication to foster a welcoming and supportive culture across all schools.	Attend districtwide training on the *NPS Harmful Language Protocol*, as an intervention and response tool, emphasizing responsibility to recognize, report, and address hateful or harmful language.	100% of building administrators, certified staff, and student support personnel complete initial training on the NPS Harmful Language Protocol by December 2025.		Principal Assistant Principal EquityTeam Leaders
	Facilitate the training of equity leaders to serve as a point person for staff questions or concerns and help support a shared responsibility for addressing	Designate 2-3 trained equity leaders by January 2026.		Principal

	harmful language.			
	Identify student voice structures at NHS that assist with messaging and peer awareness.	Include students in the school climate committee, focus groups and surveys.		Principal Assistant Principal EquityTeam Leaders
	Advisory lessons targeted at instruction that focus on the connections and impact of harmful language with others, explicitly teaching what constitutes harmful language.	At least 3 lessons will be revised and piloted in advisory.		NHS Teachers
	Launch building-wide visual messaging centered on the theme: "Words Matter: Lead with Kindness, Speak with Respect".	Visuals displayed in common areas and classrooms.		Principal Assistant Principal EquityTeam Leaders
	Share purpose and expectation of the "Words Matter" campaign with parents through school newsletters and messaging.	Communicate the purpose and expectations of the "Words Matter" campaign to families through at least one school-wide message with follow-up messaging shared at least once per semester to reinforce the campaign's goals.		Principal
	Support all staff in utilizing Restorative Practices as an intervention regarding student behavior.	Staff will utilize Restorative Practices in response to behavior incidents that occur. Administration will support the use of Restorative Circles, ensuring staff feel comfortable and confident supporting students in repairing peer relationships.		Principal Assistant Principal School Counselors Teachers Paraeducators
Strategy 3. Enhance Communication to Community Stakeholders				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	***Persons Responsible***
Enhance the NPS Weekly Update	Share pictures, description of events, and activities from Newtown High School to be included in the NPS Weekly Update	Descriptions and pictures shared and included in the NPS Weekly Update.		Principal Assistant Principal Athletic Director
Promote Newtown High School with ongoing, purposeful communication with all NHS Families	Administration will send periodic newsletters, in addition to timely emails regarding school pertinent information and events.	Share a principal's newsletter with all members of the NHS community		Principal Assistant Principal NHS Leadership Team

Director of Teaching & Learning
2025-2026 Strategic Goals

Goal 1. (Curriculum and Instruction) Cultivate a dynamic learning environment that consistently improves instruction, nurtures student creativity and innovation, and increases student engagement and academic achievement.				
Strategy 1. The district will ensure that every student in the Newtown Public Schools experiences rigorous and engaging curriculum and instruction.				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	**Persons Responsible**
Develop and formalize the systems, data protocols, and structures used for the identification and recommendation of Pre-K students to the PAL program.	Convene a team (including Pre-K teachers, PAL, related services, and SHS AP) to develop consistent eligibility indicators for PAL placement at least 3-4 times.	Team Meeting Agendas and Minutes **by January 2026**	.	Director of Teaching and Learning Director of Special Services SHS Assistant Principal
	Draft "PAL Recommendation Protocol" document that standardizes the information required for every student consideration.	Draft by **March 2026**		
	Share the draft protocol with all stakeholders, pilot the process to gather implementation feedback, deliver professional learning to ensure consistency, and fully implement the refined protocol districtwide.	Standardized identification and recommendation protocol completed Full implementation in the **2026-2027** school year.		

Establish a consistent process for Preschool and Kindergarten teams to collaborate and finalize student recommendations before PPT meetings.	Meet with the Director of Special Education and Assistant Principals to design and implement a consistent process/protocol for Preschool students transition to Kindergarten at least 3-4 times	Team meeting and Minutes by **February 2026**		Director of Teaching and Learning Director of Special Services Assistant Principals
	Share the draft protocol with all stakeholders, pilot the process to gather implementation feedback, deliver professional learning to ensure consistency, and fully implement the refined protocol districtwide.	Pre-K to Kindergarten transition protocol completed and ready to be implemented in the **2026-2027** school year.		
Create systems that provide timely feedback to Preschool staff to support continuous growth and high-quality instruction.	Align observation look-fors with the **Teaching Strategies Curriculum**, and CT Early Learning and Development Standards (ELDS).	Observation feedback Goal setting, MOY and EOY		Director of Teaching and Learning
	Develop a curriculum implementation tool that aligns with Teaching Strategies and ELDS.	By the end of **November**, facilitate a Preschool PLC focused on training teachers in the use of the curriculum implementation tool. Conduct at least 5-6 Implementation Walks and provide feedback to teachers beginning in **December.**		

	Implement a structured system for Preschool and Kindergarten teachers to engage in peer observations and cross-grade visits that build shared understanding of expectations, instructional practices, and transition readiness.	Work with Assistant Principals to plan and schedule cross-grade classroom visits between Preschool and Kindergarten teams in **February-March.**		
		By **June 2026**, Preschool teachers will demonstrate full implementation of the Teaching Strategies Curriculum aligned with the ELDS, as evidenced by observation data, feedback cycles, and implementation rubrics.		
Strategy 2. The district will develop and implement a consistent and uniform process for analyzing and using data to make instructional decisions.				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	**Persons Responsible**
Ensure consistent and equitable MTSS implementation across all elementary schools by aligning protocols, systems, and data practices in EduClimber. .	Build my knowledge of EduClimber through EduClimber 1:1 office hours and meetings with Bethanne.	Schedule 3–5 professional learning sessions aligned to the identified needs by **January 2026.**		Director of Teaching and Learning Assistant Principals Language Arts Consultants Math Specialists
	Incorporate EduClimber data reviews at the beginning of each LAC and Math Specialist meeting to drive	Team Meeting Agendas and Minutes LAC and Math Specialists		

	instructional decisions and provide timely PD	application of new learning		
	Deliver timely and relevant EduClimber training to K–8 administrators based on identified data and support needs.	Team Agendas and Minutes Application of new learning in MTSS meetings and Admin PLC		
	Develop a streamlined MTSS guide that defines meeting structures and includes protocols for reviewing academic, behavioral, attendance, intervention, and schoolwide data, along with standardized referral forms.	Completed MTSS guide by **May 2026**		
Strategy 3. The district will provide sustained and ongoing professional learning opportunities to all staff that are timely, engaging, and relevant.				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	**Persons Responsible**
Provide middle school social studies teachers with professional learning plans focused on curriculum revision and the integration of inquiry-based instructional strategies.	Collaborate with our EdAdvance consultant, Social Studies Coordinator and building admin to develop a curriculum revision and professional learning plan.	By **June 2026**, develop and finalize a viable, standards-aligned Social Studies curriculum ready for districtwide implementation.		Director of Teaching and Learning Assistant Superintendent
	Implement Learning Walks to monitor and support consistent, high-fidelity curriculum implementation across classrooms.			

	Facilitate structured feedback and revision sessions after Learning Walks to reflect on findings and strengthen instructional practices.			

Goal 5. (Family and Community Relations) Cultivate strong, reciprocal partnerships with families and the community to support student learning and well-being.				
Strategy 2. Inclusive and Welcoming Schools				
Strategic Action(s)	***2025-26***	**Key Performance Indicators (KPIs)**	**KPI Status**	**Persons Responsible**
Through the work of the District Wellness Committee, create a safe, healthy, and supportive district culture where every student and staff member feels respected, connected, and supported to grow and thrive physically, mentally, and emotionally.	Re-establish the purpose and role of the District Wellness Committee by strengthening its structure, clarifying its mission, and aligning its work with district goals for student and staff well-being.	Team Meetings and Agendas Meet at least 4 times a year		Director of Teaching and Learning Wellness Committee
	The committee will develop a three-year District Wellness Action Plan that outlines clear priorities, measurable goals, and implementation steps to advance physical, mental, and emotional wellness for all students and staff.	By the end of three years, the Wellness Committee will have a completed and fully implemented action plan.		

	Using the results from the 2025 WELLSAT, review and revise the NPS Wellness Policy/Regulation to be aligned with federal and state requirements.	Present the revised policy to the Policy Committee for approval to move forward to the full Board of Education by **June 2026.**		

Series 1000
1090 **Community/Board Operation**

POLICY REGARDING PESTICIDE APPLICATION ON SCHOOL PROPERTY

It is the policy of the Newtown Board of Education to implement an integrated pest management plan to reduce the amounts of pesticides applied in any building, or the grounds of any Newtown Public School, by using all available pest control techniques including judicious use of pesticides, when warranted, to maintain a pest population at or below an acceptable level, while decreasing the use of pesticides.

The decision to apply pesticide in any building, or the grounds of any Newtown Public School is dependent on results of periodic monitoring for pest populations to determine if a pest problem exists that exceeds acceptable threshold levels.

No application of pesticide shall be made in any building, or the grounds of any Newtown Public School during regular school hours or during planned activities at any school, except as provided by Connecticut statute or regulation.

Parents or guardians of children in any school and/or staff members in any school may register for prior notice of pesticide application at their school. Each school shall maintain a registry of persons requesting such notice, and shall provide notice to registered individuals in accordance with applicable Connecticut statutory and regulatory provisions.

The Superintendent may direct that an emergency application of a lawn care pesticide be made without prior notice to parents or guardians of children in any school and/or staff members in the event of a threat to human health, subject to applicable Connecticut statutory and regulatory provisions.

The Superintendent may direct that an emergency application of a pesticide be made during regular school hours or during planned activities at school without prior notice to parents or guardians of children and/or staff members in any school in the event of an immediate threat to human health, subject to applicable Connecticut statutory and regulatory provisions.

There shall be no application of any lawn care pesticide on the grounds of any school with students in grade eight (8) or lower, except on an emergency basis, subject to applicable Connecticut statutory and regulatory provisions.

Legal References:

Connecticut General Statutes:
§10-231a
§10-231b

§10-231d

ADOPTED:_____
REVISED:_____

8/3/16

Series 1000

Community/Board Operation

ADMINISTRATIVE REGULATIONS REGARDING PESTICIDE APPLICATION ON SCHOOL PROPERTY

A. Definitions:

1. **Pesticide**: means a fungicide used on plants, an insecticide, a herbicide or a rodenticide, but does not mean a sanitizer, disinfectant, antimicrobial agent or a pesticide bait.

2. **Lawn Care Pesticide**: means a pesticide registered by the United States Environmental Protection Agency and labeled pursuant to the federal Insecticide, Fungicide and Rodenticide Act for use in lawn, garden and ornamental sites or areas. "Lawn care pesticide" does not include (A) a microbial pesticide or biochemical pesticide that is registered with the United States Environmental Protection Agency, (B) a horticultural soap or oil that is registered with the United States Environmental Protection Agency and does not contain any synthetic pesticide or synergist, or (C) a pesticide classified by the United States Environmental Protection Agency as an exempt material pursuant to 40 C.F.R. § 152.25, as amended from time to time.

3. **Integrated Pest Management**: means use of all available pest control techniques including judicious use of pesticides, when warranted, to maintain a pest population at or below an acceptable level, while decreasing the use of pesticides.

4. **Restricted Use Pesticide**: means any pesticide or pesticide use classified as restricted by the administrator of the United States Environmental Protection Agency or by the Connecticut Commissioner of Environmental Protection.

5. **Microbial Pesticide**: means a pesticide that consists of a microorganism as the active ingredient.

6. **Biochemical Pesticide**: means a naturally occurring substance that controls pests by nontoxic mechanisms.

B. Integrated Pest Management Plan:

1. The district's integrated pest management plan shall be consistent with the model pest control management plan developed by the Connecticut Commissioner of Environmental Protection pursuant to Section 22a-66l of the Connecticut General Statutes.

2. At the beginning of each school year, the district shall provide the staff of each school with written guidelines on how the integrated pest management plan is to be implemented and shall provide the parents or guardians of each child enrolled in each school with a statement that shall include a summary of the integrated pest management plan for the school. Such statement shall be provided to the parents or guardian of any child who transfers to a school during the school year. Such statement shall (1) indicate that the staff, parents or guardians may register for notice of pesticide applications at the school, and (2) describe the emergency notification procedures provided for in this section. Notice of any modification to the integrated pest management plan shall be sent to any person who registers for notice under this section.

C. Notice of Pesticide Application to Those Who Request Such Notice:

1. Parents or guardians of children in any school and/or staff members in any school may register for prior notice of pesticide application at their school.

2. Each school shall maintain a registry of persons requesting such notice.

3. Parents or guardians of children in any school and/or staff members in any school who register for prior notice of pesticide application at their school shall be provided notice, by any means practicable, of each scheduled pesticide application at their school on or before the day that any application of pesticide is to take place.

4. The notice shall include the following information:

a. The name of the active ingredient of the pesticide being applied;

b. The target pest;

c. The location of the application on school property;

d. The date of the application; and

e. The name of the school administrator, or designee, who may be contacted for further information.

D. Notice of Pesticide Application by Electronic Means:

1. Prior to providing for any application of pesticide within any building or on the grounds of any school, in addition to the notice requirements in Section C, above, the district shall provide for notice of such application not less than twenty-four (24) hours prior to such application by posting the notice required in Section C, above, either on or through: (a) The home page of the Internet web

site for the school where such application will occur, or, if the school does not have a web site, on the home page of the district's Internet web site, and (b) the primary social media account of such school or the district. For purposes of these administrative regulations and Section 10-231d of the Connecticut General Statutes, "social media" means an electronic medium where users may create and view user-generated content, such as uploaded or downloaded videos or still photographs, blogs, video blogs, podcasts or instant messages.

2. The district shall indicate on its home page how parents may register for prior notice of pesticide applications, as described in Section C, above.

3. Not later than March 15 of each year, each school or the district shall send through its e-mail notification or alert system or service the notice required by Section C, above, for applications made since January 1 of that year and a listing of such notices for applications made during the March 15 through December 31 timeframe from the preceding calendar year.

4. The district shall additionally print such e-mail notification required by this section in the applicable parent handbook or manual, although the reprinting of such handbook or manual shall not be required to provide such notification.

5. Nothing in these administrative regulations shall require the development or use of an Internet web site, social media account or e-mail notification or alert system by a school or the district that is not already in use or existence prior to October 1, 2015.

E. Emergency Pesticide Application:

1. In the event of a threat to human health, the Superintendent may direct that an emergency application of a lawn care pesticide be made without prior notice to parents or guardians of children in any school and/or staff members.

2. In the event of an immediate threat to human health, the Superintendent may direct that an emergency application of a pesticide be made, during regular school hours or during planned activities at school, without prior notice to parents or guardians of children in any school and/or staff members. Such application may only be made if (a) it is necessary to make the application during such period, and (b) such emergency application does not involve a restricted use pesticide.

3. In the event of such emergency application, no child may enter the area of such application until it is safe to do so according to the provisions on the pesticide label.

4. In the event of such emergency application, the provision set forth below in Section G regarding authorized pesticide applicators shall not apply if the

Superintendent determines that it is impractical to obtain the services of any such applicator, provided that the application does not involve a restricted use pesticide.

F. Record of Pesticide Application:

1. A copy of the record of each pesticide application at a school shall be maintained at the school for a period of five (5) years, which record shall include the information required by Section 22a-66a of the Connecticut General Statutes, as it may be amended from time to time.

G. Authorized Pesticide Applicator:

1. No person, other than a pesticide applicator with supervisory certification under Section 22a-54 of the Connecticut General Statutes or a pesticide applicator with operational certification under Section 22a-54 under the direct supervision of a supervisory pesticide applicator, may apply pesticide within any building or on the grounds of any school within the district. ***[Other than a regional vocational agriculture center].***

H. Prohibition on Use of Lawn Care Pesticides at District Schools with Students through Grade 8:

There shall be no application of any lawn care pesticide on the grounds of any school with students in grade eight (8) or lower, except on an emergency basis, subject to applicable Connecticut statutory and regulatory provisions and the conditions set forth above.

Legal References:
Connecticut General Statutes:

§ 10-231a
§ 10-231b
§ 10-231d
§ 22a-47
§ 22a-54
§ 22a-66a
§ 22a-66l

United States Code:

Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. § 136 et seq.

Code of Federal Regulations:

40 C.F.R. § 152.25

ADOPTED:_____
REVISED:_____

NOTE: Among other changes, effective October 1, 2025, employees working for boards of education in positions that do not require professional certification under Chapter 166 of the Connecticut General Statutes will be eligible for leave in accordance with the Connecticut Family and Medical Leave Act. This policy has been developed for implementation on and after October 1, 2025.

Series 4000 **P4152.6/4252.6**
Personnel

FAMILY AND MEDICAL LEAVE

PURPOSE

The purpose of this policy is to apprise employees of their rights and establish guidelines for leaves taken by employees of the Newtown Board of Education (the "Board"), under the federal Family and Medical Leave Act of 1993 ("Federal FMLA") and/or the Connecticut Family and Medical Leave Act ("CT FMLA") and applicable Connecticut state law. This policy is not intended to, and does not, recite every provision of applicable law and regulations.

ELIGIBILITY

An employee who has been employed by the Board for at least twelve (12) months, and who has worked at least 1,250 actual work hours during the twelve (12) months immediately preceding the start of a leave, is eligible for unpaid leave under the Federal FMLA. A full-time instructional employee meets the 1,250 hours of service requirement unless the Board can demonstrate that such employee did not meet the 1,250 hours of service requirement in the 12-month period prior to the start of leave.

An employee working for the Board in a position that does not require a professional certification under Chapter 166 of the Connecticut General Statutes (*i.e.,* a "noncertified employee") is eligible for unpaid leave under the CT FMLA if such employee has been employed by the Board for at least three (3) months in the twelve (12) months immediately preceding the start of such leave.

DEFINITIONS

Genetic information: For purposes of this policy, "genetic information" includes an individual's family medical history, an individual's or family member's genetic tests, and/or the fact that an individual or an individual's family member sought or received genetic services or participated in clinical research which includes genetic services.

"Genetic information" includes genetic information of a fetus carried by an individual or an individual's family member or an embryo lawfully held by an individual or family member utilizing assistive reproductive technology.

Instructional employee: For purposes of this policy, an "instructional employee" is defined as a teacher or other employee of the Board who is employed principally in an instructional capacity and whose principal function is to teach and instruct students in a class, a small group, or an individual setting, and includes athletic coaches, driving instructors, and special education assistants such as signers for the hearing impaired. The term does not include teacher assistants or aides who do not have as their principal function actual teaching or instructing, nor auxiliary personnel such as counselors, psychologists, curriculum specialists, cafeteria workers, maintenance workers, bus drivers, or other primarily non-instructional employees.

Noncertified employee: For purposes of this policy, "noncertified employee" means an employee employed by the Board in a position that does not require a professional certification under Chapter 166 of the Connecticut General Statutes.

REASONS FOR LEAVE

(a) Federal FMLA

Leaves under the Federal FMLA may be taken for the following reasons:

incapacity due to pregnancy, prenatal medical care, or child birth;
to care for the employee's newborn child;
the placement of a child with the employee by adoption or for foster care;
to care for the employee's spouse, child, or parent who has a serious health condition;
to care for the employee's own serious health condition that renders the employee unable to perform the functions of the employee's position;
to care for a covered injured or ill servicemember (see below – Length of Leave – for further information); or
to address a qualifying exigency arising out of an employee's spouse, child, or parent's military service, including one or more of the following reasons (note – more detailed information on the following categories is available from the Human Resources Department):

- short-notice deployment;
- military events and related activities;
- childcare and school activities;
- financial and legal arrangements;
- counseling;
- rest and recuperation;

post-deployment activities;
parental care leave for military member's parent who is incapable of self-care and care is necessitated by the military member's covered active duty; and/or
additional activities that arise out of the active duty or call to active duty status of a covered military member, provided that the Board and the employee agree that such leave qualifies as an exigency, and agree to both the timing and the duration of such leave.

(b) CT FMLA

Leaves under the CT FMLA may be taken for the following reasons:

upon the birth of the employee's newborn child, and to care for the newborn child;
upon the placement of a child with the employee for adoption or foster care, and to care for the newly placed child;
to care for the employee's family member, if such family member has a serious health condition;
because of the employee's own serious health condition, including any period of incapacity due to pregnancy or for prenatal care, that renders the employee unable to perform the functions of the employee's position;
in order to serve as an organ or bone marrow donor;
to care for an injured or ill servicemember who is the employee's spouse, parent, child or next of kin (see below – Length of Leave – for further information); or
to address a qualifying exigency arising out of the fact that the spouse, child, or parent of the employee is on active duty, or has been notified of an impending call or order to active duty, in the armed forces.

For purposes of determining whether an employee has a qualifying reason for leave under the CT FMLA, "family member" is defined as a spouse, sibling, child, grandparent, grandchild or parent, or an individual related to the employee by blood or affinity whose close association the employee shows to be the equivalent of those family relationships.

LENGTH OF LEAVE

(a) Basic FMLA Leave Entitlement

(1) Leaves under the Federal FMLA: If a leave is requested for a Federal FMLA-qualifying reason, an employee may take up to a total of twelve (12) weeks unpaid family or medical leave in the 12-month entitlement period.

(2) Leaves under CT FMLA: If a leave is requested for a CT FMLA-qualifying reason, an eligible employee may take up to a total of twelve (12) weeks unpaid family or medical leave in the 12-month entitlement period, except that the employee may take up to two (2) additional workweeks of leave during such twelve (12)-month period for a serious health condition resulting in incapacitation that occurs during pregnancy. These additional two (2) weeks are only available during pregnancy.

The 12-month entitlement period for family or medical leave is measured on the basis of a "rolling" 12-month period measured backward from the date an employee uses any FMLA leave.

An employee may be entitled to leave under the Federal FMLA and/or CT FMLA. To the extent an employee is eligible for and qualifies for leave under both laws, the employee's Federal FMLA and CT FMLA leave will run concurrently.

(b) Leave to Care for an Injured or Ill Servicemember

In addition to the reasons for leave listed above, an eligible employee may take up to twenty-six (26) workweeks of Federal FMLA and/or CT FMLA leave during a 12-month period to care for a covered servicemember and/or covered veteran who is the employee's spouse, parent, child or next of kin, and who incurred a serious injury or illness in the line of duty and while on active duty in the Armed Forces or had a preexisting injury or illness prior to beginning active duty that was aggravated by service in the line of duty in the Armed Forces.

When combined with any other type of Federal FMLA or CT FMLA-qualifying leave, total leave time may not exceed twenty-six (26) weeks in a single twelve (12) month period. Standard leave procedures described below apply to all requests for and designation of leave for this purpose. *However*, in the case of leave to care for a servicemember with a serious injury or illness, the 12-month period begins on the day such leave actually commences.

TYPES OF LEAVE AND CONDITIONS

(a) Full-Time, Intermittent and Reduced Schedule Leave

Full-time leave excuses the employee from work for a continuous period of time. Full-time unpaid leave may be taken for any of the reasons permitted by the Federal FMLA and/or CT FMLA.

Intermittent leave means leave taken due to a single qualifying reason in separate periods of time rather than for one continuous period of time. Examples of

intermittent leave include: leave taken one day per week over a period of a few months or leave taken on an occasional/as-needed basis for medical appointments.

Reduced schedule leave is leave that reduces the employee's usual number of work hours per day for some period of time. For example, an employee may request half-time work for a number of weeks so the employee can assist in the care of a seriously ill parent.

Intermittent or reduced schedule Federal FMLA and/or CT FMLA leave may be taken (a) when medically necessary for an employee's or covered family member's serious health condition, or for a covered servicemember's serious illness or injury, and (b) the need for leave can be best accommodated through an intermittent or reduced schedule leave. In addition, Federal FMLA and/or CT FMLA leave may be taken intermittently or on a reduced schedule basis (1) due to a qualifying exigency, or (2) to effectuate the placement of a child for adoption or foster care before the placement of the child in the home.

If foreseeable intermittent or reduced schedule leave is medically required based upon planned medical treatment of the employee or a covered family member or a covered servicemember, including during a period of recovery from an employee's or covered family member's serious health condition or a serious injury or illness of a covered servicemember, the Board may, in its sole discretion, temporarily transfer the employee to another job with equivalent pay and benefits that better accommodates the type of leave requested.

Under the Federal FMLA, special arrangements may be required of an instructional employee who needs to take intermittent or reduced-schedule leave which will involve absence for more than twenty (20) percent of the work days in the period over which the leave will extend (for example, more than five days over a five-week period), if the leave is to care for a covered family member with a serious health condition, to care for a covered servicemember with a serious injury or illness, or for the employee's own serious health condition, which is foreseeable based on planned medical treatment. In such situations, the Board may require the instructional employee to transfer temporarily to another job or take leave for a particular duration, not to exceed the duration of the planned medical treatment.

(b) Both Spouses Working for the Same Employer

If both spouses are eligible employees of the Board and request Federal FMLA and/or CT FMLA leave for the birth, placement of a child by adoption or for foster care, or to care for a parent (or family member, for purposes of CT FMLA leave) with a serious health condition, they only will be entitled to a maximum combined total leave equal to twelve (12) weeks in the 12-month entitlement period. If either spouse (or both) uses a portion of the total 12-week entitlement for one of the purposes in the preceding sentence, each is entitled to the difference between the amount the employee

has taken individually and the 12 weeks for Federal and/or CT FMLA leave for other qualifying reasons in the 12-month entitlement period.

(c) Leave Taken by Instructional Employees Near the End of an Academic Term

If Federal FMLA leave taken by an instructional employee for any reason begins more than five (5) weeks before the end of an academic term, the Board may require that instructional employee to continue the leave until the end of the term if the leave will last at least three (3) weeks and the instructional employee would return to work during the three-week period before the end of the term.

If the instructional employee begins Federal FMLA leave during the five-week period preceding the end of an academic term for a reason other than the instructional employee's own serious health condition, the Board may require the instructional employee to continue taking leave until the end of the term if the leave will last more than two (2) weeks and the instructional employee would return to work during the two-week period before the end of the term.

If the instructional employee begins Federal FMLA leave during the three-week period preceding the end of an academic term for a reason other than the instructional employee's own serious health condition, the Board may require the instructional employee to continue taking leave until the end of the term if the leave will last more than five (5) working days.

REQUESTS FOR LEAVE

(a) Foreseeable Leave

An employee must notify the Human Resources Department of the need for a family or medical leave at least thirty (30) days before the leave is to begin if the need for the leave is foreseeable based on the expected birth of the employee's child, placement of a child with the employee for adoption or foster care, planned medical treatment for the employee's or a covered family member's serious health condition, or the planned medical treatment for a serious injury or illness of a covered servicemember. If 30 days-notice is not practicable, then the employee must provide notice as soon as practicable under the circumstances, usually the same day or the next business day after the employee becomes aware of the need for Federal FMLA and/or CT FMLA leave.

(b) Unforeseeable Leave

When the employee's need for leave is not foreseeable, an employee must provide notice as practicable under the circumstances.

SCHEDULING PLANNED MEDICAL TREATMENT

When planning medical treatment for foreseeable Federal FMLA and/or CT FMLA leave, an employee must consult with the Human Resources Department and make a reasonable effort to schedule the treatment so as not to disrupt unduly the Board's operations, subject to the approval of the health care provider. Similarly, if an employee needs leave intermittently or on a reduced leave schedule for planned medical treatment, the employee must make a reasonable effort to schedule the treatment so as not to disrupt unduly the Board's operations. Ordinarily, the employee should consult with the Human Resources Department prior to scheduling the treatment in order to work out a treatment schedule that best suits the needs of the Board and the employee. The Board and the employee shall attempt to work out a schedule for leave that meets the employee's needs without unduly disrupting the Board's operations, subject to the approval of the health care provider as to any modification of the treatment schedule.

REQUIRED CERTIFICATIONS/DOCUMENTATION

For leaves taken for any Federal FMLA or CT FMLA-qualifying reason, an employee must submit completed certification form(s) supporting the need for leave. The appropriate form(s) will be provided to the employee. The employee must submit a complete and sufficient certification form(s) as required within fifteen (15) calendar days of receiving the request for the completed certification. If it is not practicable for the employee to provide the completed form by the due date despite the employee's diligent, good faith efforts, the employee must inform the Human Resources Department of the reason(s) for delay and what efforts the employee undertook to obtain the required certification. Federal FMLA- and/or CT FMLA-protected leave may be delayed or denied, in accordance with applicable law, if the employee does not provide a complete and sufficient certification as required. Depending on the reason for leave, an employee may be required to submit medical certification from the employee's health care provider, medical certification the employee's family member's health care provider, and/or other documentation (e.g., to establish a family relationship, military active duty orders, etc.). In certain circumstances and under certain conditions, employees may also be required to obtain second or third medical opinions and/or recertifications, in accordance with applicable law.

If an employee takes leave for the employee's own serious health condition (except on an intermittent or reduced-schedule basis), prior to returning to work the employee must provide a medical fitness-for-duty certification that the employee is able to resume work and the health condition that created the need for the leave no longer renders the employee unable to perform the essential functions of the job. This

certification must be submitted to the Human Resources Department. If the employee is unable to perform one or more of the essential functions of the employee's position, the Board will determine whether the employee is eligible for additional Federal FMLA and/or CT FMLA leave (if the eligible for such leave and such leave has not been exhausted) or whether an accommodation is appropriate, in accordance with the Americans with Disabilities Act.

In connection with the Board's request for medical information, employees must be aware that the Genetic Information Nondiscrimination Act of 2008 ("GINA") prohibits employers and other entities covered by Title II of GINA from requesting or requiring genetic information of an individual or family member of the individual, except as specifically allowed by this law. To comply with this law, the Board requests that employees not provide any genetic information when responding to a request for medical information.

USE OF PAID LEAVE

Paid leave, which has been accrued in accordance with applicable law, the relevant collective bargaining agreement (if any), and/or Board policy ("PTO") will be substituted for any unpaid portions of family or medical leave taken for any reason that is also a qualifying reason for using such accrued paid leave. In such instance, the employee's accrued paid leave and Federal FMLA and/or CT FMLA-qualifying leave will run concurrently. The employee must satisfy any procedural requirements applicable to the use of paid leave, but only in connection with the receipt of such payment. An employee who is approved for CT FMLA leave may retain up to two weeks of their accrued paid time off that would otherwise be required to run concurrently with CT FMLA leave.

Where a noncertified employee's accrued paid leave is not substituted for the entire period of unpaid leave for a qualifying reason under the CT FMLA and/or Connecticut law regarding leave for victims of family violence and sexual assault, the employee may apply for and be provided with compensation through the Paid Family and Medical Leave Insurance Program ("CT Paid Leave") for all or part of any unpaid leave, provided the employee qualifies for payments under the program. Noncertified employees may apply to the Connecticut Paid Medical and Family Leave Insurance Authority ("Authority') for partial income replacement benefits when they need leave for (1) any of the reasons that qualify for CT FMLA; and/or (2) if an employee is a victim of family violence or sexual assault, to seek medical care or psychological or other counseling for physical or psychological injury or disability for the victim; to obtain services from a victim services organization on behalf of the victim; to relocate due to such family violence or sexual assault; or to participate in any civil or criminal proceeding related to or resulting from such family violence or sexual assault. Eligible employees shall apply directly to the Authority, which is responsible for determining an employee's eligibility for CT Paid Leave benefits and the amount of such benefit. The

Board will provide the Authority with all requested information regarding an employee's application for CT Paid Leave, in accordance with applicable law.

The Board shall require employees to use applicable PTO concurrently with their CT FMLA leave, subject to their right to retain up to two weeks of accrued PTO. If, after exhausting other applicable PTO, an employee does not wish to retain two weeks of accrued PTO while on approved CT FMLA leave, the Board shall permit the employee to receive these accrued PTO benefits concurrently with their CT Paid Leave benefits, if any, provided the total compensation of such covered employee during such period of leave shall not exceed such covered employee's regular rate of compensation.

In addition, in cases involving absences due to a Workers' Compensation injury that also qualifies as an FMLA serious health condition, and if the employee (and the employee's collective bargaining agent, if applicable) and the Board agree to do so, the Board will apply the employee's available accrued paid leave in increments as a supplement to the Workers' Compensation weekly benefit in an appropriate amount so that the employee can maintain the employee's regular weekly income level.

MEDICAL INSURANCE AND OTHER BENEFITS

During family or medical leaves approved in accordance with the Federal FMLA, the Board will continue to pay its portion of medical insurance premiums for the period of unpaid Federal FMLA. The employee must continue to pay the employee's share of the premium, and failure to do so may result in loss of coverage. If the employee does not return to work after expiration of the leave, the employee will be required to reimburse the Board for payment of medical insurance premiums during the family or medical leave, unless the employee does not return because of a serious health condition or circumstances beyond the employee's control.

During a Federal FMLA and/or CT FMLA leave, an employee shall not accrue benefits such as seniority, pension benefits, sick or vacation leave**,** unless otherwise required by any applicable collective bargaining agreement or Board policy. However, unused employment benefits accrued by the employee up to the day on which the leave begins will not be lost upon return to work. Leave taken under this policy does not constitute an absence under the Board's attendance policy, if any.

REINSTATEMENT

Except for circumstances unrelated to the taking of a family or medical leave pursuant to this policy, and unless an exception applies, an employee who returns to work following the expiration of a family or medical leave is entitled to return to the job such employee held prior to the leave or to an equivalent position with equivalent pay and benefits.

COMPLAINTS

The Federal FMLA and CT FMLA prohibit employers from interfering with, restraining, or denying any rights provided by the respective laws. The Federal FMLA and CT FMLA also prohibit employers from terminating or discriminating against any individual for opposing any unlawful practice or being involved in any proceeding related to the Federal FMLA or CT FMLA, respectively. The CT FMLA also prohibits employers from interfering with, restraining, or denying any rights provided by CT Paid Leave and/or terminating or discriminating against an employee for applying for CT Paid Leave benefits.

An employee alleging a violation of the Federal FMLA may file a complaint with the U.S. Department of Labor, Wage and Hour Division. Such complaint should be filed within a reasonable time of when the employee discovers that the employee's Federal FMLA rights have been violated. In no event may a complaint be filed more than two (2) years after the action which is alleged to be a violation of the Federal FMLA occurred, or three years in the case of a willful violation. An employee may also be able to bring a private civil action for violations.

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An employee alleging a violation of the CT FMLA may file a complaint with the Connecticut Department of Labor within one hundred eighty (180) calendar days of the employer action that prompted the complaint, unless good cause exists for the late filing. Upon receipt of any such complaint, the Connecticut Department of Labor Commissioner, or the Commissioner's designee, shall conduct an investigation and make a finding regarding jurisdiction and whether a violation of the CT FMLA has occurred. An employee alleging a violation of the CT FMLA may also bring a civil action in a court of competent jurisdiction against the employer within one hundred eighty (180) calendar days of the employer action alleged to be in violation of the CT FMLA. Such action may be brought by an employee without first filing an administrative complaint.

ADDITIONAL INFORMATION

Questions regarding family or medical leave may be directed to the Director of Human Resources. Federal FMLA and CT FMLA do not affect any federal or state law prohibiting discrimination or supersede any state or local law or collective bargaining agreement that provides greater family or medical leave rights.

Legal References:

Connecticut:

Conn. Gen. Stat. § 31-51kk et seq.

Conn. Gen. Stat. § 31-49e et seq.

Regs. Conn. State Agencies 31-51qq, et seq.

Public Act 25-174, "An Act Authorizing and Adjusting Bonds of the State and Concerning Grant Programs, State Grant Commitments for School Building Projects, Revisions to the School Building Projects Statutes and Various Provisions Revising and Implementing the Budget for the Biennium Ending June 30, 2027"

Federal:

Family and Medical Leave Act of 1993, 29 U.S.C. Section 2601 et seq., as amended

29 CFR Part 825.100 et seq.

Title II of the Genetic Information Nondiscrimination Act of 2008, 42 USC 2000ff et seq.

29 CFR 1635.1 et seq.

ADOPTED: _____
REVISED: _____

POLICY REGARDING HOLDS ON THE DESTRUCTION OF ELECTRONIC INFORMATION AND PAPER RECORDS

The Board of Education (the "Board") complies with all state and federal regulations regarding the retention, storage and destruction of electronic information and paper records. The Superintendent or his/her designee shall be responsible for implementing administrative regulations concerning the placing of a "hold" on electronic information and paper records that may reasonably be anticipated to be subject to discovery in the course of litigation.

All school officials and employees have a duty to preserve all paper records and electronic information, including records and electronic information that might otherwise be deleted or destroyed, that relate to any matter that is currently in litigation or may be anticipated to involve future litigation.

The Superintendent or his/her designee shall be responsible for developing and implementing administrative regulations to preserve records, including e-mails and electronically stored information, that could potentially be related to any matter that is currently in litigation or may be anticipated to result in future litigation. Such regulations shall identify those individuals responsible for identifying those matters for which records must be preserved as well as developing procedures, with the help of technical staff, for the preservation of electronically stored information.

Legal References:

Rules 34 and 45 of the Federal Rules of Civil Procedure
General Letter 2009-2 of the Public Records Administrator Record Retention Schedules Towns, Municipalities and Boards of Education

ADOPTED:_____
REVISED:_____

ADMINISTRATIVE REGULATIONS REGARDING HOLDS ON THE DESTRUCTION OF ELECTRONIC INFORMATION AND PAPER RECORDS

I. RECORDS CUSTODIAN

These regulations are designed to assist in implementation of Board Policy 2260 regarding holds on the destruction of electronic information and paper records. The Superintendent of Schools shall designate a Records Custodian who will be responsible for implementation of District policies and regulations for the preservation of paper records and electronically stored information, including e-mails.

II. HOLDS ON THE DESTRUCTION OF ELECTRONIC INFORMATION AND PAPER RECORDS

Upon receipt of notice that the District is involved in litigation as a party to a lawsuit, the District is issued a subpoena by a party to a lawsuit in which it is not a party, or if the District receives information that would lead a reasonable person to anticipate the possibility of litigation, the Records Custodian is to immediately take steps to ensure that any paper records and electronically stored information that could be related to the litigation or potential litigation are preserved from deletion or destruction. Actions to preserve records and electronically stored information shall include, but are not limited to, the postponing or canceling of any automatic deletion of electronically stored information until relevant information and documents can be identified and stored, notification to employees of a "litigation hold" to prevent the deletion and destruction of documents that might be related to the litigation or potential litigation, and the identification of documents and information that are subject to preservation. This litigation hold triggers the duty to preserve documents, such as transitory messages, that otherwise could be deleted under the district's record retention policy.

The Records Custodian shall issue a "litigation hold" memorandum that specifically describes the types of documents and information that must be preserved and describes how those materials are to be identified, maintained and stored. The memorandum shall specifically state that the duty of preservation is ongoing and that it is the responsibility of employees to continue to identify and preserve relevant documents until notified via a subsequent memorandum that the litigation hold is no longer in effect. All employees who are sent a "litigation hold" memorandum are to acknowledge receipt and understanding of the memorandum in writing, which may be in the form of an e-mail response. A copy of any "litigation hold" memorandum shall be sent to the District IT department.

The Records Custodian shall be responsible for the collection and coordination of the retention of documents that are subject to the litigation hold, including electronically

stored information. He/she shall work with the District's IT personnel to ensure compliance with the litigation hold. Specifically, the Records Custodian shall determine the types of electronically stored information that exist and where that information is maintained, identify where both identified paper documents and electronically stored information will be stored, and implement procedures to ensure that District employees are complying with the litigation hold. No system wide process for automatic deletion of electronic information will be implemented while a litigation hold is in effect without prior notice to the Records Custodian and verification by the Records Custodian that the deletion process will not destroy documents or information that is subject to a litigation hold. The Records Custodian may need to periodically reissue the "litigation hold" memorandum and will ensure that the "litigation hold" memorandum is provided to new employees who may have access to relevant information. Finally, the Records Custodian shall ensure that all steps taken by the District to identify and preserve relevant information are documented.

Legal References:

General Letters 96-2, 2001-1, 2009-2 of the Public Records Administrator
Record Retention Schedules Towns, Municipalities and Boards of Education
Rules 34 and 45 of the Federal Rules of Civil Procedure
Silvestri v. General Motors Corp., 271 F.3d 583 (4th Cir. 2001)

ADOPTED:_____
REVISED:_____

NOTICE REGARDING A LITIGATION HOLD CONCERNING ELECTRONIC INFORMATION AND PAPER DOCUMENTS

This memorandum places a "litigation hold" on all documents, both paper and electronically stored information, concerning **[identify the matter that is subject to the litigation hold].** Materials that fall under this litigation hold include, but are not limited to, e-mail, word processing documents, spreadsheets, databases, calendars, voice mail, internet usage files and network access information **[the school district can be more specific in the identification of documents if that information is available]**. All District employees are to immediately suspend any and all document destruction, including any scheduled document destruction or electronic information deletion programs, for any materials that might fall within the parameters of this memorandum. If you have questions as to what materials are subject to the litigation hold, you are to contact the Records Custodian **[insert name and contract information]**.

If you are in possession of materials subject to this litigation hold, you shall take steps to preserve and store these materials. Paper documents are to be copied and

segregated in a separate hard copy file. Electronic information is to be stored in computer folders and saved on the network drive and/or saved to a removable disk which is to be clearly marked and stored in a safe and appropriate location **[the school district can develop its own set of storage guidelines for identified materials]**. Under no circumstances are you to destroy or delete materials, documents or electronic information that might be subject to this litigation hold without the written permission of the Records Custodian.

You must give prompt attention to the issues addressed in this memorandum, specifically the responsibility to identify and preserve documents and electronic information concerning **[the matter that is subject to the litigation hold].** Serious consequences may result from the failure of District employees to take immediate and reasonable precautions to properly preserve information. Therefore, you must acknowledge your receipt and understanding of this memorandum in writing or via e-mail.

The restrictions put into place by this memorandum are ongoing until you receive notice in a memorandum from the Records Custodian that the litigation hold is no longer in effect. You are encouraged to direct any questions concerning this memorandum to the Records Custodian.

Note: This is a required policy that has been updated to Shipman Policy which reflects updated General Letters and other guidance from OPRA.

Series 2000 **P2270**
Administration

RETENTION AND DISPOSITION OF RECORDS AND INFORMATION

I. INTRODUCTION

The Newtown Board of Education (the "Board") complies with all state and federal laws and regulations regarding the retention, storage, and disposition of records. The Superintendent or designee shall be responsible for developing and implementing administrative regulations concerning the retention, storage, and disposition of records and the dissemination of such administrative regulations to all school officials, employees, and individuals granted access to the computer systems and/or networks of the Newtown Public Schools (the "District") and/or who send electronic messages as part of their work for the District. Collectively, all individuals granted access to the District's computer systems are referred to as the "Users".

II. RETENTION OF RECORDS

The District shall comply with all minimum standards set forth in the Municipal Records Retention Schedules for public records, as issued by the Office of the Public Records Administrator for the State of Connecticut ("OPRA"). Retention requirements apply to the official record copy of a public record and are based on the content and function of the public record, not the media type. As such, the same record retention period that applies to paper records applies to electronically stored information. Therefore, like paper records, the content and function of an electronic record, including electronic messages, determine the retention period for that document.

If records are kept in both electronic and hard copy format, the District shall designate which record is the official record copy. The designated official copy shall be the legally recognized copy maintained for record retention purposes.

In addition to the retention guidelines established by the Board and used by District officials and employees, all District officials and employees have a duty to preserve all records and electronic information, including records and electronic information that might otherwise be deleted or destroyed, that relate to any matter that is currently in litigation or may be anticipated to involve future litigation. Record preservation under such circumstances shall only be required after receipt of formal written notice of such requirement by the Superintendent or designee.

III. USE OF ELECTRONIC MESSAGES AND ELECTRONIC COMMUNICATIONS

The Board has installed computers and a computer network(s), including Internet access and electronic messaging systems, on Board premises and may provide other electronic devices that can access the network(s) and/or have the ability to send and receive messages with an operating system or network communication framework. Devices include but are not limited to personal computing devices, cellular phones, Smartphones, network access devices, radios, personal cassette players, CD players, tablets, walkie-talkies, personal gaming systems, Bluetooth speakers, personal data assistants, and other electronic signaling devices. Electronic messaging systems include mobile, chat, and instant message; cloud collaboration platforms, including internal chat, peer-to-peer messaging systems, and draft email message transfer; and products that have the ability to create duration-based or subjective removal of content (such as Snapchat), and security focused platforms (such as Signal). The Board's computers, computer networks, electronic devices, Internet access and electronic messaging systems are referred to collectively as "the computer systems" and are provided in order to enhance both the educational opportunities for our students and the business operations of the District.

Electronic messages sent by Users as part of their work and/or by using the District's computer systems and/or network(s) are not private communications and are potentially subject to disclosure, regardless of whether the messages are sent using personal devices or the District's computer systems. Users must understand that the Board has reserved the right to conduct monitoring of the District's computer systems and may do so *despite* the assignment to individual Users of passwords for system security. Any password systems implemented by the District are designed solely to provide system security from unauthorized users, not to provide privacy to the individual system User.

The computer systems' security aspects, message delete function and personal passwords may be bypassed for monitoring purposes. Therefore, *Users must be aware that they should not have any expectation of personal privacy in the use of these computer systems*. This provision applies to any and all uses of the District's computer systems, including any incidental personal use permitted in accordance with the Board's policy and regulations regarding computer use by Users.

Any retained messages may be retrieved for a variety of purposes, including but not limited to as part of routine monitoring by the District, an employee investigation, a search for documents pursuant to a Freedom of Information Act request, a formal discovery process as part of litigation, or other legal processes such as a response to a subpoena. Users should bear in mind that electronic messages may be retained at different locations within the computer systems and/or devices and that these messages are subject to retrieval, regardless of whether the User has deleted such messages from the User's or the District's accounts. Consequently, Users should use discretion when

using computers or other electronic technology to send, record or retain electronic messages and information.

IV. DISPOSITION OF RECORDS

The disposition of records, or the destruction or transfer of records to the custody of another entity, shall only occur in accordance with relevant state and federal laws and guidelines established by the OPRA. The District shall also follow the OPRA's specific protocols for the disposition of permanent, historical and archival records. If a record does not appear on a records retention schedule, the District shall contact the OPRA for further guidance before disposing of any such record.

Legal References:

Conn. Gen. Stat. §§ 1-200(5); 1-211; 1-213(b)(3)
Conn. Gen. Stat. § 7-109
Conn. Gen. Stat. § 11-8 et seq.

General Letters 96-2 and 2009-2 of the Office of the Public Records Administrator ("OPRA")

OPRA, Public Records Policy 04, *Electronic Records Management* (Dec. 2022)
OPRA, Public Records Policy 04-1, *Electronic Records* (Dec. 2022)
OPRA, Public Records Policy 04-2, *Digital Imaging* (Dec. 2022)
OPRA, Public Records Policy 05, *Disposition of Public Records* (Nov. 2011)
OPRA, *Public Records Memorandum 101*: *Disposition of Original Paper Records After Scanning* (June 2024)

Connecticut State Library, State Archives ("State Archives"), State Archives Policy 01: *Transfer of Historical Records to the State Archives of Other Approved Archival Repository* (October 15, 2019)

Record Retention Schedules Towns, Municipalities and Boards of Education

OPRA, Records Disposition Authorization, Form RC-075 (revised 12/2021)

OPRA, Authorization for Disposal of Original Non-Permanent Records Stored as Digital Images, Form RC-040 (revised 5/2024)

OPRA, Annual Certification for Disposal of Original Non-Permanent Paper Records Stored as Digital Images, Form RC-045 (revised 5/2024)

OPRA, Certification for Disposition of Original Permanent/Life of Structure Records Stored as Digital Images, Form RC-245 (revised 5/2024)

Frequently Asked Questions about E-mail, CT Public Records Administrator, *available at* https://ctstatelibrary.org/wp-content/uploads/2015/05/EmailGuidelines.pdf .

ADOPTED:_____
REVISED:_____

ADMINISTRATIVE REGULATIONS REGARDING THE RETENTION AND DISPOSITION OF RECORDS AND INFORMATION

I. INTRODUCTION

The Newtown Board of Education (the "Board") complies with all state and federal laws and regulations regarding the retention, storage and disposition of records.
These administrative regulations are designed to assist in implementation of the Board's policy regarding the retention, storage, and disposition of public records. These regulations shall be disseminated and/or made available to all school officials, employees, and individuals granted access to the computer systems and/or networks of the Newtown Public Schools (the "District") and/or who send electronic messages as part of their work for the District. Collectively, all individuals granted access to the District's computer systems are referred to as the "Users."

These regulations supplement and do not replace District policy relating to education records.

II. DEFINITIONS

A. Archival record means a public record, which, regardless of format, possesses enduring value if it documents or contains information on one or more of the following: 1) the evolution of the Board, the District, or their policies and practices; 2) claims or petitions against the Board or the District and the disposition of those claims or petitions; 3) obligations and claims made on citizens by the Board or the District and their disposition; 4) the legal and legislative history of the Board or the District; and/or 5) topics of research value beyond the specific administrative, legal or fiscal reasons the records were originally created.

B. Computer systems mean the Board's computers, computer networks, electronic devices, Internet access and electronic messaging systems, which are provided in order to enhance both the educational opportunities for students and the business operations of the District.

C. Digital imaging means the process of converting original records on paper or film into electronic images. The process typically requires a document scanner or digital camera, a computer and software to capture the image, and indexing of the digitized images.

D. Digitized record means an electronic record created by converting paper or other media formats to a digital form that is of sufficient authenticity, reliability, usability, and integrity to serve in place of the original source record.

E. Disposition means a final administrative action taken with regard to records, including destruction, transfer to another entity, or permanent preservation.

F. Electronic messages mean e-mail, fax, instant messaging, text messaging, and Web-based messaging services. Electronic messages may be transmitted by a variety of mediums, including computers and mobile computing devices. In addition to the body of the message, electronic messages also contain metadata, such as transactional information (*e.g.,* date and time sent, sender/receiver) and may contain attachments such as calendars, directories, distribution lists, sound recordings, photographs, images, word-processing documents, spreadsheets, and other electronic documents.

G. Electronic messaging systems mean mobile, chat, and instant message; cloud collaboration platforms, including internal chat, peer-to-peer messaging systems, and draft email message transfer; and products that have the ability to create duration-based or subjective removal of content (such as Snapchat), and security focused platforms (such as Signal).

H. Electronically stored information means information that is fixed in a tangible form and is stored in a medium from which it can be retrieved and examined. It can consist of writings, drawings, graphs, charts, photographs, sound recordings, images, and other data or data compilations stored in any medium from which information can be obtained into useable form.

I. Historical record means a public record that has been determined to possess value in documenting the history of an organization and is thus worthy of permanent preservation.

J. Official record copy means the specific copy of a public record, as provided in C.G.S. § 1-200(5), designated by the public agency as the legally recognized copy that must be maintained for records retention, preservation, and authentication.

K. Non-records mean items that are not usually included within the scope of official records. Examples of non-records are extra (duplicate) copies kept only for convenience, reference materials, blank forms, and spam and unsolicited advertisements.

L. Permanent records mean records that have been determined to have sufficient historical, administrative, legal, fiscal, or other value to warrant continuing preservation.

M. Public records mean any recorded data or information relating to the conduct of the public's business prepared, owned, used, or received by a public agency, whether such data or information is handwritten, typed, tape-recorded, videotaped, printed, photostated, photographed or recorded by any method.

N. Routine correspondence means any communication that is part of or relates to commonplace tasks or duties within an office and is done at regular or specified intervals.

O. Source record/original source record means the record from which a digitized version or digitized record is created.

P. Transitory correspondence consists of communication that does not relate to an individual's job responsibilities or has a short-term administrative value.

III. RECORDS CUSTODIAN

The Superintendent of Schools shall designate a Records Custodian who will be responsible for the implementation of District policies and regulations for the retention of records, including electronic messages and electronically stored information.

The District's Record Custodian is:

Joanne Morris
Business Office Assistant
Newtown Public Schools
3 Primrose Street
Newtown, CT 06470
203-426-7618
morrisj@newtown.k12.ct.us

IV. RETENTION OF RECORDS

The District shall comply with the minimum standards set forth in the Municipal Records Retention Schedules for public records, as issued by the Office of the Public Records Administrator for the State of Connecticut ("OPRA"). Retention requirements apply to

the official record copy of a public record and are based on the content and function of the public record, not the media type.

If records are kept in both electronic and hard copy format, the District shall designate which record is the official record copy. The designated official record copy shall be the legally recognized copy maintained for records retention. When District officials or employees are unsure which copy serves as the official record copy, they should contact the Record Custodian for clarification.

In addition to the retention guidelines established by the Board and used by District officials and employees, all District officials and employees have a duty to preserve all records and electronic information, including records and electronic information that might otherwise be deleted or destroyed, that relate to any matter that is currently in litigation or may be anticipated to involve future litigation. Record preservation under such circumstances shall only be required after receipt of formal written notice of such requirement by the Superintendent or designee.

V. CLASSIFICATION OF ELECTRONIC MESSAGES

The same record retention policy that applies to paper records applies to electronically stored information, including electronic messages. Therefore, like paper records, the content and function of an electronic record, including electronic messages, determine the retention period for that document.

District officials and employees shall use the following steps in determining whether to maintain electronic messages and, if so, for how long:

Step 1: Determine whether the message is a public record or a non-record.

Step 2: If the message is a non-record, destroy at will (e.g., spam and unsolicited advertisements).

Step 3: If the message is a record, determine which records series the message belongs to, for example:

1. If the message is Transitory Correspondence, delete at will.

2. If the message is Routine Correspondence, retain for 2 years.

3. If the message is All Other Correspondence, retain for the equivalent records series.

Step 4: Maintain the messages for the required retention period under the equivalent records series.

VI. DIGITAL IMAGING OF PAPER/HARD COPY RECORDS

Paper records may be digitized and maintained as electronic records; however, in doing so, the District must ensure the authenticity, reliability, integrity and usability of the reformatted records. If the District uses a vendor for digital imaging services, the District remains responsible for ensuring compliance with this policy.

In its use of digital imaging, the District shall:

1. Establish and maintain a quality assurance process designed to ensure the creation of accurate and authentic digital images and accurate indexes and production metadata.

2. Create and maintain accurate and authentic digital images in accordance with accepted standards and best practices.

3. Create and maintain accurate indexes and production metadata designed to properly identify and retrieve digital images.

4. Store and protect digital images against file corruption, alteration, or deletion throughout the designated retention period.

5. Perform periodic backups of all digital images, associated indices, and production metadata and maintain a geographically remote offsite backup copy designed to enable recovery and access in the event of a wide-spread disaster or emergency.

6. Perform and certify annual tests of backup media designed to ensure all files have been backed up and are readable.

7. Migrate digital images, associated indexes, and production metadata to a newer media platform or file format as needed in a manner designed to ensure the content remains accessible.

8. Define and document the normal operations and use of the imaging technology and electronic content management system in a manner designed to ensure system trustworthiness.

9. Comply with Public Records Policy 04: Electronic Records Management, Public Records Standards 04-1: Electronic Records, and the digital imaging standards established by the OPRA in Public Records Standards 04-2: Digital Imaging.

VII. RETENTION OF ELECTRONIC RECORDS

Electronic messages and electronically stored information will be archived by the District for their required retention period using method(s) approved by the Records Custodian, which may include the following:

1. Print message or record and store in appropriate hard copy file.
2. Place in computer folders and save on hard drive.
3. Save to a removable disk which is then stored in an appropriate location.
4. Transfer to an automated records management software application.
5. Manage at the server by an automated classification system.

The Records Custodian will be responsible for working with the District Systems Administrator to implement a schedule and system for reviewing electronically stored information. This review shall occur at least annually. No system-wide process for automatic deletion of electronic information will be implemented without notice to any individual who may have such information and each such individual will verify that they have reviewed and archived information that must be retained. Following this review, all electronic messages and/or electronically stored information that have not been archived according to District policies and procedures shall be designated for deletion or archiving, and the affected Users will be notified about the procedures to be followed to implement this process. The Records Custodian or designee shall follow up with notified Users to promote compliance.

Additionally, the Records Custodian, working with the District Systems Administrator, shall establish processes designed to ensure that any process for automatic deletion of electronic information from the system will not delete information stored in folders and/or system locations that have been designated as appropriate for archiving electronically stored information.

VIII. DISPOSITION OF PUBLIC RECORDS

The disposition of public records shall only occur in accordance with relevant state and federal statutes and guidelines established by the OPRA. The District shall also follow the OPRA's specific protocols for the disposition of permanent, historical and archival records. If a record does not appear on a records retention schedule, the District shall contact the OPRA for further guidance before disposing of any such record.

The OPRA provides for two separates processes for (1) the disposition of official record copies and (2) the disposition of original source records, where such records have been appropriately digitized. If the District uses a vendor for disposition of records, the District remains responsible for ensuring compliance with these regulations.

A. Disposition of Official Record Copies

If a record is the official record copy, the District may not dispose of such record until the applicable retention period has been met and the District has received signed

authorization from the OPRA or State Archives. The District shall adhere to the following steps in determining whether to dispose of official record copies:

Step 1: Ensure the proper records retention schedule has been met for the document(s) at issue. All records proposed for disposition must be on an approved records retention schedule. *If a record is not on a schedule, the record cannot be disposed, and the OPRA must be contacted for further direction. For permanent, historical, and/or archival records, contact the State Archives for further instruction.*

Step 2: Submit the Records Disposition Authorization Form RC-075 ("RC-075 Form) to request authorization to dispose of the official record copy, in accordance with Public Records Policy 05: Disposition of Public Records (PRP 05) and at least thirty (30) days prior to the proposed date of destruction.

Step 3: Receive signed authorization indicating approval from the OPRA before disposing of any official record copy.

Step 4: Follow the OPRA guidance regarding the method of disposal. If records are being destroyed, follow OPRA guidance based on the format of the record to be destroyed (e.g., whether hard copy or electronic media).

Step 5: Document that the original source records were destroyed lawfully. The District shall follow a destruction process by which content is systematically deleted with an audit trail that is legally admissible in court.

Step 6: Record the actual date of destruction on RC-075 Form and attach any supporting documentation.

Step 7: Retain the RC-075 Form and any supporting documentation for the retention period for Records Disposition Authorization records.

B. Disposition of Original Source Records After Scanning

If paper public records have been converted to digitized records and/or if the District seeks to digitize and dispose of such records on an ongoing basis, the District shall retain and/or dispose of original source records pursuant to the following guidelines.

Less-than-Permanent Records:

Step 1: **For less-than-permanent records that have already been digitized,** the Records Custodian must complete and submit the Authorization for Disposal of Original Non-Permanent Paper Records Stored as Digital Images Form RC-040 ("RC-040 Form") to request approval for disposal of original non-permanent records that have been reformatted as digital images.

a. The RC-040 Form must be signed by the Records Custodian and the Superintendent and completed in accordance with the instructions on the form.

b. The District must receive signed authorization indicating approval from the State Archivist and the Public Records Administrator before disposing of original source records.

For less-than-permanent records that will be digitized and disposed on an ongoing basis, the Records Custodian must complete and submit the Annual Certification for Disposal of Original Non-Permanent Paper Records Stored as Digital Images, Form RC-045 ("RC-045 Form") to request pre-authorization to dispose of original non-permanent source records stored as digital images.

a. The RC-045 Form must be signed by the Records Custodian and the Superintendent and completed in accordance with the instructions on the form.

b. The District must receive signed authorization indicating approval from the State Archivist and the Public Records Administrator before disposing of non-permanent original source records on an ongoing basis. The RC-045 Form certifies that records will be digitized on an ongoing basis as part of standard business practices. This authorization only applies to the original non-permanent records within the series approved on the RC-045 Form.

c. The Records Custodian, in consultation with the Superintendent, *must renew certification annually* by submitting a completed RC-045 Form. *Certification does not extend beyond the 12-month period.*

Step 2: Once digitized, and upon approved destruction of the paper records, the Records Custodian must designate the digitized record as the official record copy. All digitized records will be properly maintained and will remain accessible for the full retention period.

Step 3: The District must document that the original source records were destroyed lawfully and document the actual date of disposition on the respective form, the RC-040 Form or the RC-045 Form. The District shall follow a destruction process by which content is systematically deleted with an audit trail that is legally admissible in court.

Step 4: The District shall record the actual date of disposition on the RC-040 or RC-045 Form, as applicable, and retain such form and any supporting documentation for the retention period for Records Disposal Authorization records.

Permanent, Historical, Archival, or Life of Structure Records:

Step 1: **For permanent, historical, archival, or life of structure records**, the Records Custodian must complete the Certification for Disposal of Original Permanent/Life of Structure Records Stored as Digital Images Form RC-245 ("RC-245 Form") in accordance with the instructions on the form. The RC-245 Form permits the District to request pre-authorization to dispose of original paper permanent, historical, archival or life of structure records stored as digital images. The Records Custodian must ensure that the digital records are accessible for the full retention period. The Records Custodian and Superintendent of Schools must also certify that all other requirements set forth in the RC-245 Form are met.

a. The District shall follow specific requirements for digitizing permanent, archival, historical or life structure records as outlined in the Public Records Policy 04: Electronic Records Management, Public Records Standards 04-1: Electronic Records, and Public Records Standards 04-2: Digital Imaging.

b. The District must evaluate, update, and resubmit this certification for approval every 5 years **or** under the following conditions, whichever comes first:

    i. To reflect changes in information systems, scanning procedures, storage methods, or any other systems or workflows that could affect the quality, accessibility, or preservation of digital images produced under this certification;

ii. Upon updates to retention periods or public records and digital preservation guidance;

iii. When seeking approval for scanning and disposing of additional permanent record series, date groups, or sets other than those previously approved; or

iv. When decommissioning a legacy system used to create or store any digitized permanent records.

c. The District must notify the State Archives prior to destroying permanent paper records and receive signed authorization indicating approval from the State Archivist and the Public Records Administrator before disposing of an original source record. Records may not be disposed until the District has received this signed authorization.

d. Upon approval of the RC-245 Form, the State Archivist may request transfer of paper records or a scheduled transfer of the digitized records to the State Archives.

Step 2: Once digitized, and upon approved disposition or destruction of the paper records, the Records Custodian must designate the digitized record as the official record copy. All digitized records will be properly maintained and will remain accessible for the full retention period.

Step 3: The District must document that the original source records were disposed of lawfully and document the actual date of disposition on the RC-245 Form.

Step 4: Following disposal of the original source records, the Records Custodian must forward the signed original Form (and any supporting documentation) to the Office of the Town Clerk for retention and may keep a duplicate copy.

Step 5: The District shall retain duplicates of the RC-245 Form and any supporting documentation for the retention period for Records Disposal Authorization records.

Legal References:

Conn. Gen. Stat. §§ 1-200(5); 1-211; 1-213(b)(3)
Conn. Gen. Stat. § 7-109
Conn. Gen. Stat. § 11-8 et seq.

General Letters 96-2 and 2009-2 of the Office of the Public Records Administrator

OPRA, Public Records Policy 04, *Electronic Records Management* (Dec. 2022)
OPRA, Public Records Policy 04-1, *Electronic Records* (Dec. 2022)
OPRA, Public Records Policy 04-2, *Digital Imaging* (Dec. 2022)
OPRA, Public Records Policy 05, *Disposition of Public Records* (Nov. 2011)
OPRA, *Public Records Memorandum 101*: *Disposition of Original Paper Records After Scanning* (June 2024)
OPRA, *Records Management Terms* (July 2015)

Connecticut State Library, State Archives ("State Archives"), State Archives Policy 01: *Transfer of Historical Records to the State Archives of Other Approved Archival Repository (October 15, 2019)*

Record Retention Schedules Towns, Municipalities and Boards of Education

OPRA, Records Disposition Authorization, Form RC-075 (revised 12/2021)

OPRA, Authorization for Disposal of Original Non-Permanent Records Stored as Digital Images, Form RC-040 (revised 5/2024)

OPRA, Annual Certification for Disposal of Original Non-Permanent Paper Records Stored as Digital Images, Form RC-045 (revised 5/2024)

OPRA, Certification for Disposition of Original Permanent/Life of Structure Records Stored as Digital Images, Form RC-245 (revised 5/2024)

Frequently Asked Questions about E-mail, CT Public Records Administrator, *available at* https://ctstatelibrary.org/wp-content/uploads/2015/05/EmailGuidelines.pdf.

ADOPTED:_____
REVISED:_____

11/26/2024

Administrative Regulations on Academic Integrity and Acceptable Use of Artificial Intelligence (AI)

The Newtown Public Schools are dedicated to nurturing an academic community founded on integrity, honesty, and respect. As an academic community, the District will not tolerate academic dishonesty. Any activity of this nature is in opposition to the goals of the District as a place of learning and is contrary to the values of the schools of the District and the community. Dishonesty is not merely a private matter between the teacher and student but is a concern to the entire school community.

Cheating, defined as copying another student's work and claiming it as your own and plagiarism, defined as the use of another person's original ideas or writing without giving credit to the true author, are both prohibited practices. Materials taken from electronic sources are covered by these Regulations.

A student who engages in any form of academic dishonesty will be subject to the loss of credit for the work in question, as well as other disciplinary measures. "Due process" must be provided to students accused of cheating.

Each school level (Elementary, Middle, High) will develop guidelines that address violations and procedures. Guidelines will be published in all student/parent handbooks and on the District/school website.

The Newtown Public Schools aim to empower students to responsibly utilize AI to deepen their learning, all while upholding academic integrity and strengthening critical thinking skills. The following guidelines outline the appropriate and ethical student use of Artificial Intelligence (AI) tools:

A. Guidelines for Student Use of Artificial Intelligence (AI) Tools

AI tools can be powerful resources for learning and creativity when used responsibly. These guidelines outline the expectations for their use in all academic work in the Newton Public Schools.

1. Adherence to Guidelines & Teacher Instructions: Students are expected to always follow this policy, school rules and specific teacher instructions regarding AI use for each assignment. If AI is prohibited, students should not use it.

2. Safety & Privacy: Students are expected to use AI tools responsibly. Students should never share personal identifying information (PII) of themselves or others, and should be mindful that data input into AI models may not be private.

3. Learning Enhancement & Originality: Students are expected to be the primary thinkers and creators; AI is an assistant. Students should never present AI-generated content as their own unaided work. All submissions must reflect their understanding and effort. AI is a tool to support and deepen students' learning, not to bypass thinking or avoid required work.

4. Transparency & Disclosure: Students must always disclose when and how they have used AI in academic work. Teachers will provide specific disclosure requirements for each assignment.

5. Attribution: Students must properly cite and attribute any content, ideas, or significant influence

from AI.

6. Ethical Considerations: Students should develop a fundamental understanding of AI's capabilities, limitations, and societal impact, as well as appropriate versus inappropriate AI use. Students should be aware that AI is subject to potential biases and inaccuracies such as fabricated or misleading information, hallucinations or even copyrighted material.

7. Misleading Information: Student generation of false or misleading information using AI tools and presenting it as factual including but not limited to the generation of Deepfakes in video, text, audio, or images is not allowed.

B. Appropriate Use Examples:

1. Brainstorming: "Using an AI to generate a list of possible research topics for an essay."
2. Outlining: "Asking an AI to help structure an argument for a debate."
3. Drafting: "Using an AI to correct grammar and spelling in a first draft of a paper."

C. Inappropriate Use Examples:

1. Plagiarism: "Copying and pasting an entire essay generated by an AI and submitting it as your own."
2. Cheating: "Using an AI to solve a math problem on a test where calculators are not allowed."
3. Dishonesty: "Not disclosing that you used an AI tool to help write a poem for an assignment where original, unaided work was required.

D. Responsibilities:

1. Student Responsibilities: To maintain and support the academic integrity of the school community by completing all assigned work, activities and tests honestly and fairly without engaging in cheating or plagiarism, including adhering to the guidelines for AI use as outlined in Sections A-C.
2. Teacher Responsibilities: To clearly communicate expectations for AI use on all assignments, including modeling the ethical and appropriate use of AI to students.

E. Procedure and Disciplinary Action for Inappropriate Use:

1. Definition: The inappropriate use of AI tools in academic work, as outlined in Section A, is considered a form of academic dishonesty and falls under the definitions of cheating and/or plagiarism.
2. Action: Any student who engages in any form of academic dishonesty, including the inappropriate use of AI will be subject to the loss of credit for the work in question in addition to other suitable disciplinary measures.

Political Activities in the Schools

A. **Purpose:** To provide guidelines to candidates, candidate representatives, Board employees and students related to the conduct of political activities as it may involve District schools and school activities.

B. **Access to School System Information:** Any candidate or other Connecticut citizen may have access to school records and information pursuant to the provisions of the Connecticut Freedom of Information Act.

   Requests for information from candidates or their representatives related to political campaigns and issues regarding the District should be directed to the Office of the Superintendent. To ensure impartial cooperation with candidates in elections for the Board of Education, responses to campaign requests will be shared with all announced candidates.

C. **Display and Distribution of Political Literature:** Display and distribution of political materials in the schools during school hours shall be restricted to those of an educational nature and as part of the educational program. Teachers, who elect to use such materials for instructional purposes, shall present them in an impartial and objective manner that is relevant to the course content and appropriate to the knowledge and maturity of the students. Existing District procedures permit the distribution in schools of materials related to parks and recreation, scouting and other non-profit or service organizations. Consistent with these procedures, political campaign materials or materials that support or oppose political candidates, parties or issues shall not be sent home from school with students. Also such literature shall not be distributed during school hours or on a school bus by students, Board employees or others. Campaign-related posters or signs may not be displayed at or within schools.

   Candidates, or their representatives, desiring to distribute campaign or political materials to those attending school-related activities occurring after school hours must do so outside the building or other school facility. The distribution of political literature at events or meetings that are not school-related may be subject to the conditions governing Community Use of School Facilities. Candidates or their representatives, who do not comply with these limits on the distribution of campaign or political materials after being so informed, will be requested by a building administrator to leave school property. If the candidate or their representative does not comply with this request to leave, the building administrator will warn the individual(s) that they are trespassing and will notify the police. Schools will not accept political advertisements in co-curricular publications (example: school newspaper as part of Journalism class). As with other advertisements, paid political advertisements may be placed in school publications unrelated to the curriculum, subject to the review and approval of the Principal (example: programs for athletic events).During the times that polls are open and schools are serving as polling locations, Connecticut election laws will govern any associated political activity, including the distribution of political literature or posting of political signs.

D. **Employee Political Activities:** Employees are encouraged to exercise their constitutional rights as citizens, but they shall not involve their schools in political activities. Employees shall not participate in campaign activities during hours of official employment; however, employees may participate in political activity after hours of official employment. Employees shall not poll students on the political opinions of their parents and shall not attempt to indoctrinate students or other employees with their personal political views. Student mock elections are permitted when conducted as part of the educational program.No employee shall be expected or required to participate in any campaign or to support any candidate as a condition of employment.

E. **Participation by Student Groups:** School-sponsored student groups shall not participate in partisan political activities.

F. **Use of School Facilities for Political Activities:** When space is available, candidates may use school facilities during non-school hours subject to Board policy pertaining to Community Use of School Facilities and the associated regulations.

G. **Use of Other District Resources:** Any use of the District's website for political activities is prohibited. Use of any other resources for political activities, including but not limited to copiers, computers or facsimile machines, is prohibited.

H. **Conduct of Candidates:** Candidates for election, or their representatives, shall not use District resources, District personnel (except those employees who may voluntarily participate during non-duty hours), District events at which they are official participants, District stationery, or the District logo in support of their campaigns. Candidates, or their representatives, may not access students or employees during school hours for campaign purposes. With the prior review and approval of the Principal, candidates may be invited to address specific classes or groups on specific topics related to the curriculum and educational program. The Principal's review shall ensure all candidates are treated impartially and objectively.

(cf. 1140 – Distribution of Materials by Students)
(cf. 1311.1 – Political Activities of School Employees)
(cf. 1330/3515 – Community Use of School Facilities)
(cf. 3543.13 – Mail and Delivery)
(cf. 4118.21 – Academic Freedom)
(cf. 6144 – Controversial Issues)
(cf. 6153.2 – Student Participation in Election Process)

Legal Reference: Connecticut General Statutes
7 421 Political activities of classified municipal employees
7 421b Limitation on restriction of political rights of municipal employees
9 369b Explanatory text relating to local questions
10 156e Employees of boards of education permitted to serve as elected officials; exception
10-239 Use of school facilities for other purposes

Legal Reference: Connecticut General Statutes (continued)
31-51q Liability of employer for discipline or discharge of employee on account of employee's exercise of certain constitutional rights
Keyishian v. Board of Regents 395 U.S. 589, 603 (1967)
Academic Freedom Policy (adopted by Connecticut State Board of Education, 9/9/81)
Equal Access Act, 20 U.S.C. ss 4071-4

Senior Citizen's Benefit

Newtown Public School District ("the District") recognizes the contribution senior citizens have made to the support of education and wishes to encourage their continued support and participation in school sponsored events.

A free ticket to all school events shall be available to senior citizens who are town residents and 65 years of age or over.

The District also encourages booster organizations and parent groups which sponsor school events to offer free admission to senior citizens whenever possible

Newtown Public Schools

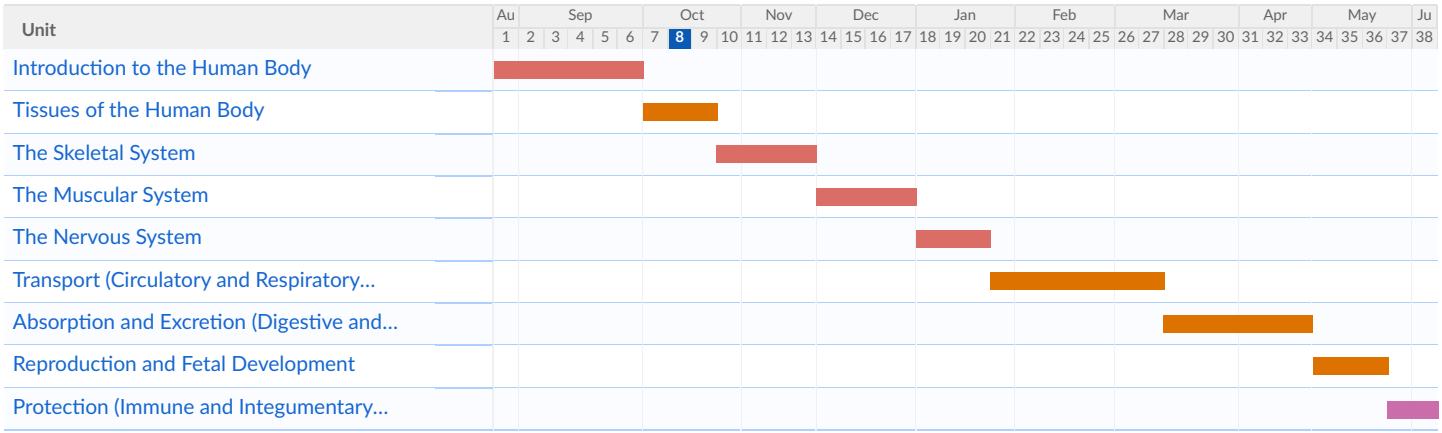
Atlas

Anatomy and Phsyiology: CP (Under Review/Revision)

Newtown High School / High School / Science

4 Curriculum Developers | Last Updated: Thursday, Jun 12, 2025 by Allegretto, Tara

Unit Calendar by Year



9 Units found

Newtown Public Schools

Atlas

Unit Plan

Introduction to the Human Body

Newtown High School / High School / Science

Week 1 - Week 6 | 4 Curriculum Developers | Last Updated: Jun 12, 2025 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is to review important biological concepts relevant to anatomy and physiology and to introduce essential anatomical terms and concepts that spiral throughout the course.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Biological Concepts / Language
Concepts:
Anatomy
Structure
Function
Complementarity
Hierarchy/Emergent properties
Properties
Homeostasis
Metabolism
Maintenance of life
Cavities
Membranes
Organization
Relative position
Vocabulary
Regions
Identification
Cells
Organelles
Transport
Signaling
Feedback
Coordination

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. Structure dictates function (complementarity) on the molecular and macroscopic level for optimal maintenance of life.
2. Using universal vocabulary facilitates clear identification of structure, regions, and relative position.
3. As the anatomical hierarchy evolves, emergent properties expand their functions.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. How is the human body organized to accomplish all of life's processes, all while maintaining homeostasis at the level of the organ, all the way down to a cellular level? C
1b. What is meant by structure determines function? C

4. Metabolism maintains an organism's homeostasis.
5. Errors in metabolism contribute to failure to maintain homeostasis and disease.
6. Dividing the body into membrane-lined cavities separates each entity allowing for organization.
7. Organelles work together to carry out cellular functions, which contributes to the maintenance of homeostasis within the organism.
8. The transport of molecules within and between cells allow for signaling communication and coordination of various cell types.

1c. What are microscopic and macroscopic level examples that demonstrate complementarity? C

2a. Is universal vocabulary really essential? P
2b. What are the body regions and where are they located? F
2c. What are the 9 abdominopelvic regions and where are they located? F
2d. What are the 4 abdominopelvic quadrants and where are they located? F
2e. What anatomical vocabulary and regional terminology is appropriate to use when describing the location of various body parts in relation to others? F
2f. What terms are used to describe the plane at which a cross section is cut along? F
2g. What is the difference between gross and microanatomy? F

3a. What are the characteristics of life that all humans share? F
3b. What are the 5 requirements for maintaining life and how does each contribute to survival in humans? F
3c. What are the levels of organization within the body, from smallest to largest? F

4a. What is homeostasis? F
4b. What are examples of feedback loops that are essential for keeping the body homeostatic? F
4c. What is the relationship between response to stimuli and maintaining homeostasis? C
4d. How do feedback mechanisms maintain homeostasis? C

5a. What leads to errors in metabolism? F
5b. What are the consequences of errors in metabolism? C

6a. Which membranes line the Thoracic, Abdominal, Cranial, Pericardial, Plural, Pelvic cavities? F
6b. Where are the Thoracic, Abdominal, Cranial, Pericardial, Plural, Pelvic cavities located? F
6c. Which organs are housed in each body cavity? F
6d. How does the presence of membranes and cavities aid in organization and efficiency within the body? C
6e. What is the difference between a visceral and a parietal membrane? F

7a. What are the organelles of the cell and what is the function of each? F
7b. How do multiple organelles work together to carry out a common task? What would be the consequence of “losing” a given organelle? C

8a. What types of signals can initiate a signal transduction pathway? F
8b. What defines passive transport/diffusion?/Active transport? F
8c. What is the importance of specificity in receptor proteins. Include the difference

between intracellular and membrane receptors and the types of ligands they would bind to? C
8d. What is the importance of a second messenger in certain signal transduction pathways? C
8e. What types of cellular responses can be initiated by cell signaling? C
8f. How does cellular transport play a role in maintaining homeostasis? C
8g. How can a solution be classified (hyper, hypo, or isotonic) based on information given about its water and solute concentrations? C

Content Knowledge

*Critical facts and information that students are expected to **KNOW** at the end of the unit.*

Student will Know
the characteristics of life that all humans share.
the requirements for human life and the role each plays in survival.
the role of each organelle within the cell.
the levels of organization in order from least to most complex.
the definition of complementarity and examples at the macro and microscopic levels.
the way transport and feedback impact homeostasis.
the types of transport (Passive- Diffusion, Osmosis, Facilitated Diffusion v. Active- Endo/Exocytosis, movement against the gradient).
the importance of a second messenger in certain signal transduction pathways.
the several types of responses that can be triggered by a transduction pathway.
the name and location of each body region.
the name of and location of each body cavity.
the name and location of the membranes surrounding the organs and body cavities.
the name and location of each region and quadrant of the abdominopelvic cavity.

Critical Skills

Critical skills that students are expected to be able to **DO** at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 3. Communicate information clearly and effectively using a variety of tools/media in varied contexts for a variety of purposes.
- 7. Other.

Notes

Determine the most essential organelles needed in the cell to carry out that specific function, given the description of a cell's function,.

Identify an organelle based on a diagram or description of its structure.

Describe the relationship between response to stimuli and homeostasis.

Draw an example of a feedback loop, clearly labeling all parts.

Determine whether a solution is hypertonic or hypotonic or isotonic based on its description.

Explain the importance of cell signaling and communication in maintaining homeostasis.

Provide examples of a real-world example of a breakdown in cell communication and how that impacted homeostasis in the organism.

Analyze data to determine the effect of a feedback mechanism on homeostasis.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Science Performance Expectations
NGSS: HS Life Sciences
HS.Structure and Function
Performance Expectations Show Details

- [x] HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. Show Details

- [x] HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. Show Details

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- [x] Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

2. Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- [x] Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- [x] Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.

- [x] The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

- [x] Much of science deals with constructing explanations of how things change and how they remain stable.

- [x] Feedback (negative or positive) can stabilize or destabilize a system.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- [x] Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)

- [x] All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells. (HS-LS1-1)(secondary to HS-LS3-1)

- [x] Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)

- [x] Feedback mechanisms maintain a living system's internal conditions withincertain limits and mediate behaviors, allowing it to remain alive andfunctional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) ordiscourage (negative feedback) what is going on inside the living system.(HS-LS1-3)

LS1.B: Growth and Development ofOrganisms

- [x] In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complexorganism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (HS-LS1-4)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Unit 1: Introduction to Anatomy Notes HS-LS1- 1, 2, 3, 4
What is Life Activity HS- LS1- 2
Lab 1: Body Organization and Terminology and "Mini-Me" Labeling (see assessments) HS-LS1-2

Portrait of the Newtown Graduate

Lab 2: Dissection of Sheep Brain (see assessments) HS-LS1-2
Plate 1: Unit 1 (see assessments) HS- LS1A
Inquiry Feedback Activity HS-LS!-3

Inquiry Activity_ Feedback.pdf
What is life?
Copy of Fun with Terminology (Intro).pptx
Newtown Concept 2 Notes - Homeostasis and Regulation.pptx
Newtown Concept 3 Notes - Anatomy Basics.pptx

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Resources

Teacher and student resources used to support the learning.

Body Region Flashcards
Task Cards
"Types of Cells" Assignment HS-LS1
Directional Terms Coloring Assignment
Anatomical Terms Digital Interactive Notebook Activity
Mr./Mrs. Potato Head- Directional Terminology Practice

Videos:
Crash Course: Intro to Anatomy and Physiology
Amoeba Sisters: A Tour of the Cell
Amoeba Sisters: Homeostasis ad Negative/Positive Feedback
Bozeman: Positive and Negative Feedback Loops
Corporis: The Easiest Way to Learn Directional Terms
Corporis: The Easiest Way to Learn Anatomical Regions

Videos, Text, Websites, Optional Activities

Intro coloring 1.pdf
Copy of Anatomical Terms Activity - Student (TA)
Research and Report - Human Cells.pptx
Task Cards - Biology Review.pdf
Card Sort - Regional Terms.pdf
Terminology - Potato Head.docx.pdf

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Lab 2: Dissection of Sheep Brain | Formative | Lab Assignment

Dissection of the Sheep Brain.pdf
Lab 2_ Brain Dissection Grade Slip - Sheet1.pdf

No Standards Assessed

Body Region Quiz | Formative | Written Test

Body Region Quiz

No Standards Assessed

Lab 1: Body Organization and Terminology and "Mini-Me" Labeling | Formative | Lab Assignment

Lab 1: Body Organization and Terminology Lab Grade Sheet | _Mini-Me_ Labeling Activity.pdf

No Standards Assessed

Unit 1 Plate | Formative | Visual Arts Project

Unit 1 plate is an illustration of an important image to the unit that serves not only as a way to learn the correct anatomy of specific relevant structures, but also allows students to demonstrate their ability to put care and effort into their work.

Plate Drawing Grading Criteria.docx | Plate drawing grading criteria

No Standards Assessed

Introduction to the Human Body Exam | Summative | Written Test

Biology Review : Quiz 1 CP 2023A | Biology Review : Quiz 1 CP 2023B

No Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

Tissues of the Human Body

Newtown High School / High School / Science

Week 7 - Week 9 | 4 Curriculum Developers | Last Updated: Jun 26, 2024 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is to introduce the types of body tissues that can be found throughout the body and to make connections between the structures of each of the tissue types, and their functions.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Structure and Function
Concepts:
Structure
Function
Complementarity
Properties
Identification
Cells
Coordination
Tissues
Stem Cells
Differentiation
Protection
Absorption
Lubrication
Movement
Stability
Flexibility

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. The **structure** of cells correlates to their **function**, which is an example of **complementarity**.
2. **Stem cells** go through **differentiation** to become various types of cells with a variety of **functions**.
3. **Coordination** between **cells** allows for multiple cells to act as a single functioning unit, known as **tissue**.
4. The **properties** of **tissues** are their basis for **identification** and determine their **functions,** which include **protection, absorption, lubrication, movement, stability, and flexibility.**

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. Where are the apical, basal, and lateral surfaces on epithelial cells? F
1b. What is a goblet cell? F
1c. What are the functions of each of the following cell types (adipocyte, osteocyte, chondrocyte, lymphocyte, erythrocyte, leukocyte, thrombocyte) F
1d. How does the shape of the apical surface of epithelial cells correspond with the function of its specific tissue type? C
1e. How does the shape of a cell influence function and location of a given type of epithelial tissue? C

1f. How does the type of secretions a goblet cell produces influence their location? C

2a. What is a stem cell? F
2b. What is the significance of the mesenchymal stem cell? F
2c. How do stem cells generate other types of cells? C

3a. What is the definition of tissue? F
3b. What are the classifications of tissue in the human body? F
3d. How do cell communicate to allow for coordination between cells? C

4a. What are the various functions of the different types of epithelial tissues? F
4b. What are the various functions of the different types of connective tissues? F
4c. What are the functions of blood, bone, and cartilage? F
4d. What is the function of nervous tissue? F
4e. What are the similarities and differences between skeletal, cardiac, and smooth muscle tissue in terms of the structure and function? C
4f. What is the difference between exocrine and endocrine glands? F
4g. How does the structure of nervous tissue contribute to its function? C
4h. How does the structure of the various types of epithelial tissue contribute to their functions? C
4i. How does the structure of the various types of connective tissue contribute to their functions? C
4j. How does the structure of bone, blood, and cartilage contribute to their function location in the body? C
4k. How does the number of cell layers influence function and location of a given type of epithelial tissue? C
4l. Why do most cancers arise in epithelial tissue? C
4m. How does the characteristics of the given fibers and ground substance, along with their abundance in a given type of. tissue, contribute to the function of that tissue? C
4n. Would a break or a sprain be a more “desirable” injury ? P

Content Knowledge

Critical facts and information that students are expected to KNOW at the end of the unit.

The students will know

- the various cell surfaces and how the structure of the apical surface relates to the function of the cell type.
- the function of goblet cells and where they can be found within the body.
- the function of stem cells, specifically mesenchymal stem cells in the production of connective tissue.
- the definition of “tissue” and the various classifications of tissues throughout the human body.
- how intercellular junctions play a role in the communication and coordination of cells.
- the functions of various epithelial and connective tissue types.
- how the structure of each is related to its function and where it is located.

Critical Skills

Critical skills that students are expected to be able to DO at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 3. Communicate information clearly and effectively using a variety of tools/media in varied contexts for a variety of purposes.
- 7. Other.

Notes

Identify types of epithelial tissue when given slide samples of each, based on their structural makeup and defining characteristics.

Identify types of connective tissue when given slide samples of each, based on their structural makeup and defining characteristics.

Identify types of muscle tissue when given slide samples of each, based on their structural makeup and defining characteristics.

- the function of all types of cartilage, blood, and bone and how the structure of each is related to its function and where it is located.

Identify nervous tissue cells when given a slide sample, based on its structural makeup and defining characteristics.

Identify the various surfaces of an epithelial cell on a tissue sample slide.

Propose a function of a sample tissue by observing the characteristics of the cells found in that tissue.

Follow the digestive system from start to finish and identify the types of epithelial tissue found in each part and explain why that tissue type is appropriate based on the function of that part.

Follow the respiratory system from start to finish and identify the types of epithelial tissue found in each part and explain why that tissue type is appropriate based on the function of that part.

Make connections between tissue injury/abnormalities and disease.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Science Performance Expectations
NGSS: HS Life Sciences
HS.Inheritance and Variation of Traits
Performance Expectations Show Details

- [x] HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. Show Details

NGSS: Crosscutting Concepts
NGSS: 9-12
Crosscutting Statements
1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- [x] Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

NGSS: Disciplinary Core Ideas
NGSS: 9-12
LS1: From Molecules to Organisms: Structures and Processes
LS1.A: Structure and Function

- [x] Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- [x] Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)

LS1.B: Growth and Development ofOrganisms

- [x] In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complexorganism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (HS-LS1-4)

Interactive version of NGSS
NGSS Resources

Portrait of the Newtown Graduate

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Students listen to and record "Tissues" Notes during a series of interactive lectures. HS-LS1A, HS-LS1B.
Complete Zombie "Tissue Box" HS- LS1A, HS-LS1B
Complete Tissue Plate Drawing HS- LS1A
Complete Pig Foot Dissection HS-LS1-2, CCC- Patterns/Structure and Function

Tissues (CP)

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

tissue
organ
epithelial tissue
connective tissue
skeletal muscle
smooth muscle
cardiac muscle
neuron
squamous
cuboidal
columnar
apical
cilia
microvilli
simple
stratified
exocrine gland
endocrine gland
goblet cells

Resources

Teacher and student resources used to support the learning.

Intro to Epithelial Tissue (CP)
Epithelial Tissue Review
CT, MT, NT Review
Butterfly Children Article and Video
Digestive System- Tissue Identification
COVID Article- "The Spector of Endothelial Injury..."
Review Game- Spoons

Videos
Crash Course: ET https://www.youtube.com/watch?v=lUe_RI_m-Vg
Crash Course: CT https://www.youtube.com/watch?v=D-SzmURNBH0
Crash Course: Types of CT https://www.youtube.com/watch?v=Jvtb0a2RXaY
What is Epi Tissue https://www.youtube.com/watch?v=0NEV-Rd7QgA
Corporis- Epi Tissues for Beginners https://www.youtube.com/watch?v=kHBjEQGrSw4
Corporis- CT for Beginners https://www.youtube.com/watch?v=MYgtO1w4nC0
Professor Dave Explains CT: https://www.youtube.com/watch?v=ec0PT0UQ_zo
Professor Dave Explains ET: https://www.youtube.com/watch?v=oe-Z9t0KBfU

Digestive System- Tissues.pdf
The Spector of Endothelial Injury in COVID-19.pdf
Copy of Histology Review Game - Spoons.pdf
Science
Copy of Into to ET for CP
Copy of Copy of CT, MT and NT Worksheet
Copy of CT, NT, MT worksheet Key.pdf
Copy of Copy of Tissues of the Human Body: Shape/Function Connections

Copy of Copy of Epithelial Tissue Review CP

Copy of Copy of Copy of (Article) Gene Therapy for the "Butterfly Children"

EB Video- Explained

EB- Video Example

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Tissues of the Body= Plate Drawing | Formative | Visual Arts Project

Plate 1- Tissue of the Human Body (CP)

2 Standards Assessed

Zombie Tissue Box | Formative | Visual Arts Project

Copy of Zombie Tissue Box Template

Copy of Copy of Zombie Histology Box 2022 CP

Copy of Zombie Tissue Box Project Score Slip

3 Standards Assessed

Pig Foot Dissection | Formative | Lab Assignment

Copy of CP Pig Foot Dissection- Notebook Requirements

Copy of Lab 3: Pig Foot Dissection Score Sheet

4 Standards Assessed

Tissue Summative Test | Summative | Written Test

Copy of Unit 2: Tissues of the Body Test (CP) 2022

4 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

The Skeletal System

Newtown High School / High School / Science

Week 10 - Week 13 | 4 Curriculum Developers | Last Updated: Jun 28, 2024 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is to discuss how the structure of the skeletal system, both at the microscopic and macroscopic level, allows it to carry out its many functions. This unit also addresses types of movements the skeletal system allows and how joint structure determines the types of movements allowed.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Structure and Function
Concepts:
Structure
Function
Strength
Process
Interaction
Movement
Joint
Bone
Fracture
Cells
Homeostasis
Health
Diet
Exercise
Hormones
Organization

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. The microscopic **structures** within **bone** tissue contribute to **strength** and **function.**
2. The overall **structure** and **organization** of **bones** allow for them to carry out specific **functions.**
3. **Interactions** between various **bone cells** work to build up and break down **bone** to maintain **bone health** and maintain **homeostasis.**
4. **Diet, exercise, and hormones** correlate to the quality of **bone growth, health**, and **strength.**
5. The **process** of repairing **bone fractures** involves multiple **bone cell** types.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. What is the function of red bone marrow and where is it located within the bone? F
1b. What is the function of yellow bone marrow and where is it located within the long bone? F
1c. What are the main differences between compact and spongy bone, in terms of structure and location? F
1d. What structures make up the microscopic anatomy of compact bone? F
1e. How does the structure of the osteon contribute to the strength of bone? C
1f. Why are bones living organs? C

6. Structure and types of movements determine a joint's classification.

2a. What are the functions of the skeletal system? F
2b. Which bones are considered part of the axial skeleton/appendicular skeleton? F
2c. What are distinguishing characteristics of long, short, irregular, flat, and sesamoid bones? F
2d. What and where are the bones of the human body? F
2e. How does the shape of the different bone types contribute to their functions? C

3a How do osteoblasts and osteoclasts contribute to bone formation, healing, and maintenance? C

4a. What hormones influence bone growth and what role does each play? F
4b. What is the significance of the epiphyseal plate? C
4c. What nutritional factors impact bone health? C
4d. How does exercise impact bone health? C
4e. How much of one's bone health results from personal choice versus genetics? P

5a. What are the various types of bone fractures? F
5b. How does a bone fracture heal? C

6a. What are examples of gliding, pivot, hinge, ball and socket, condylar, and saddle joints? F
6b. What types of movements are possible at gliding, pivot, hinge, ball and socket, condylar, and saddle joints? F
6c. What motions are indicated by the terms abduction, adduction, circumduction, flexion, extension, dorsiflexion, plantar flexion, elevation, depression, rotation, supination, pronation, inversion, and eversion? F
6d. How are joints classified based on their structure? C
6e. How are joints classified based on their function? C
6f. How does the structure of a joint determine the type of movement allowed at that joint? C

Content Knowledge

Critical facts and information that students are expected to KNOW at the end of the unit.

Students will know

- the functions of the skeletal system.
- the distinguishing characteristics of long, short, irregular, flat, and sesamoid bones.
- how the shape of the different bone types contributes to their functions.
- the function and location of red bone marrow.
- the function and location of yellow bone marrow.
- the main differences between compact and spongy bone, in terms of structure and location.
- how the structure of the osteon contributes to the strength of bone.
- how osteoblasts and osteoclasts contribute to bone formation, healing, and maintenance.
- the significance of the epiphyseal plate.
- the nutritional factors that impact bone health.
- the hormones that influence bone growth and the role each plays.

Critical Skills

Critical skills that students are expected to be able to DO at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 3. Communicate information clearly and effectively using a variety of tools/media in varied contexts for a variety of purposes.
- 7. Other.

Notes

label select structures that make up the microscopic anatomy of compact bone and describe the function of each.

defend why bone is considered a living organ.

identify whether bones are considered part of the axial skeleton/appendicular skeleton.

identify whether a bone is classified as a long, short, irregular, flat, or sesamoid bones based on appearance and/or description of function.

label the bones of the human body.

- the impact of exercise on bone health
- the difference between hypertrophy and atrophy and how each occurs.
- the steps of healing a bone fracture.
- the types of joints.
- how joints are classified based on structure and function.
- the types of movements possible at each joint type

explain how hormones influence bone cells in order to maintain homeostasis.

classify joints based on their function.

classify joints based on their structure.

describe and demonstrate the types of movements are possible at gliding, pivot, hinge, ball and socket, condylar, and saddle joints.

identify joints as gliding, pivot, hinge, ball and socket, condylar, and saddle joints based on description of movement at that joint, and location in the body.

identify the type of bone fracture based on description and/or image.

describe and demonstrate the following motions: abduction, adduction, circumduction, flexion, extension, dorsiflexion, plantar flexion, elevation, depression, rotation, supination, pronation, inversion, and eversion.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- [x] Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

2. Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- [x] Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- [x] Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.
- [x] The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

- [x] Much of science deals with constructing explanations of how things change and how they remain stable.
- [x] Feedback (negative or positive) can stabilize or destabilize a system.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- [x] Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- [x] Feedback mechanisms maintain a living system's internal conditions withincertain limits and mediate behaviors, allowing it to remain alive andfunctional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) ordiscourage (negative feedback) what is going on inside the living system.(HS-LS1-3)

LS1.B: Growth and Development ofOrganisms

In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complexorganism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (HS-LS1-4)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Students will
listen to and record "Skeletal System Notes" during a series of interactive lectures. HS-LS1A, HS-LS1B, CCC- 1, 2, 6, 7
listen to and record "Movement Notes" during a series of interactive lectures. HS-LS1A, HS-LS1B, CCC- 1, 2, 6, 7
complete Yoga Joint Analysis Activity CCC 1, 2, 6 HS-LS1A
complete Skeletal System Plate Drawing (*Microscopic Anatomy of Compact Bone)* HS- LS1A
complete Skeletal System Discovery Stations (Includes pdf of Questions, pdf of station slides, BBD to label) HS-LS1A, HS-LS1B, CCC- 1, 2, 6, 7
complete Movement Video Project HS-LS1A, CCC- 1, 2, 6
complete Bone Classification Sort HS-LS1A

Copy of Bone Classification Sort (Student)
Copy of Skeletal System Discovery Station.pdf
Copy of Copy of 8 Yoga Joint Analysis
Copy of Skeletal system Coloring Blank.pdf
BBD POSTERS to Print.pdf
Discovery Stations - Skeletal System (1).pdf
Concept 1 Notes - Skeletal System
Concept 2 Notes - Movement
Copy of Plate 2: Compact Bone Anatomy

Portrait of the Newtown Graduate

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Hematopoiesis
Cartilage
Ligament
Tendon
Joint (articulation)
Osteon
Lamella
Central (Haversian) canal

Resources

Teacher and student resources used to support the learning.

Skeletal System Coloring Worksheets
Whack-a-Bone Labeling Game

Videos Linked Below

Trabeculae
Lacunae
Osteocyte
Osteoblast
Osteoclast
Ossification
Fracture
Synarthrosis
Amphiarthrosis
Diarthrosis
Gliding joint
Hinge joint
Ball and Socket joint
Pivot joint
Condylar joint
Flexion/Extension
Hyperextension
Rotation
Supination/Pronation
Abduction/Adduction
Circumduction
Elevation/Depression
Dorsiflexion/Plantar flexion
Inversion/Eversion

Copy of Skeletal system Coloring Blank.pdf
Whack-a-Bone Labeling Game
Crash Course Video- JOINTS
Types of Bones Video
Crash Course Video- Skeletal System
Types of Movement Video

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Skeletal System Quizzes | Formative | Written Test

Review Quiz
Labeling Quiz

Copy of CP Quiz - Skeletal System.docx
Copy of Copy of Skeleton Labeling Practice

1 Standard Assessed

Skeletal System Plate Drawings (2) | Summative | Visual Arts Project

Microscopic Anatomy of Compact Bone

Copy of Copy of Plate Drawing Grading Criteria.docx
Copy of Plate 2: Compact Bone Anatomy

3 Standards Assessed

Skeletal System Test | Summative | Written Test

Copy of Skeletal System/Movement Exam CP 2023

9 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

The Muscular System

Newtown High School / High School / Science

Week 14 - Week 17 | 4 Curriculum Developers | Last Updated: Jun 27, 2024 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is to demonstrate how the structure of muscle allows for it to carry out its many roles in the body and to review the physiology of muscle contraction.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Structure and Function
Concepts
Muscles
Movement
Support
Structure
Function
Muscle fibers
Sarcomere
Contraction
Relaxation
Energy
Adenosine Triphosphate (ATP)
Organization
Location
Interaction
Identification
Tissue
Heat
Force

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. **Support** from skeletal **muscles** allows for **movement** and generation of **heat** for the body.
2. **Muscle fibers** are specialized cells and their **structure** allows for their specialized **function.**
3. **Interactions** between the components of a **sarcomere,** the contractile unit of skeletal muscle, allow for muscle **contraction** and **relaxation**.
4. The **organization** of **muscle tissue** contributes to its function.
5. The body converts chemical **energy** to usable **energy** in the form of **ATP**, which powers **muscle contraction.**

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. What are the functions of the muscular system? F
1b. What is the difference between isometric and isotonic contractions? F
1c. How do the structural characteristics of muscles enable their function in the body? C

2a. What are the features of a muscle cell? F
2b. How does the unique structural makeup of a muscle fiber allow for it to carry out its specialized function? C

6. **Identification** of specific **muscles** is based on their **structure** and **location** in the body.
7. **Muscles** apply a **force** that allow bones, which act as **levers,** to move at a joint, leading to body **movement.**

2c. How is a muscle cell unique compared to other body cells? C

3a. What is a sarcomere? F
3b. What is the sliding filament theory? F
3c. What is the role of acetylcholine in a muscle contraction? F
3d. How do the structures of actin and myosin and their interaction allow them to carry out their functions? C
3e. How does the nervous system interact with the muscular system to allow for a muscle contraction? C
3f. How does contracting and releasing of a muscle lead to movement? C

4b. What is the classification of a muscle based on its level of involvement in specific movements? F
4c. How are cells and tissues organized to make up a muscle? C
4d. Why are muscles considered organs? C

5a. What is the formula for cellular respiration? F
5b. Where does cellular respiration occur within a cell? F
5c. What is muscle fatigue and what leads to it? F
5d. How is cellular respiration linked to muscle contraction? C

6a. What are the locations of the main upper limb muscles? (biceps brachii, brachialis, brachioradialis, and triceps brachii) F
6b. What are the locations of the main lower limb muscles? (sartorius, adductors, quadriceps femoris, hamstrings, calf muscles, and tibialis anterior) F
6c. What are the locations of the main posterior muscles? (trapezius, latissimus dorsi, erector spinae, and gluteal muscles) F
6d. What are the locations of the main head and neck muscles? (epicranius, masseter, temporalis, buccinators, and trapezius) F
6e. Where in the body can skeletal muscle, cardiac muscle, and smooth muscle be found? F
6f.What are the distinguishing characteristics of skeletal muscle, cardiac muscle, and smooth muscle? C
6g. Is one muscle or one type of muscle more important than another? P

7a. What is a lever? F
7b. What is a fulcrum? F
7c. Where does the muscle apply effort in relation to the load in a first class lever? F
7d. Where does the muscle apply effort in relation to the load in a second class lever? F
7e. Where does the muscle apply effort in relation to the load in a third class lever? F
7f. What is an example of a first/second/third class lever within the body? F
7g. How do bones act as levers and joints act as fulcrums within the body? C

Content Knowledge

*Critical facts and information that students are expected to **KNOW** at the end of the unit.*

Students will know

- the overall function of the muscular system.
- the difference between skeletal, smooth, and cardiac muscle in terms of location, structure, and function.

Critical Skills

Critical skills that students are expected to be able to **DO** at the end of the unit.

- 7. Other.

Notes

- the unique structures within a muscle fiber and the role each plays in the muscles cells ability to do its job.
- how actin and myosin work together to allow for muscle contraction and relaxation.
- how the nervous system interacts with the muscular system to initiate muscle contraction.
- the role of acetylcholine in muscle contraction.
- the difference between isometric and isotonic muscle contractions.
- the formula for cellular respiration and where in the cell it occurs.
- the contributing factors to muscle fatigue.
- the relationship between a lever and a fulcrum.
- examples of first/second/third class levers in the body.
- how bones act as levers and joints act as fulcrums within the body.

defend the claim that a muscle is considered an organ.

identify the specified muscles of the upper limbs, lower limbs, posterior side, head, and neck.

sketch and label a diagram of the structure of skeletal muscle.

label the components of a muscle cell.

classify muscles based on their level of involvement in a specific motion.

explain the connection between cellular respiration and muscle contraction.

identify types of levers found at various joints based on where the muscle applies force in relation to the load.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 1. Asking questions (for science) and defining problems (for engineering)

Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

- ☑ Ask questions to determine relationships, including quantitative relationships, between independent and dependent variables.
- ☑ Evaluate a question to determine if it is testable and relevant.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

- ☑ Select appropriate tools to collect, record, analyze, and evaluate data.
- ☑ Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.
- ☑ Manipulate variables and collect data about a complex model of a proposed process or system to identify failure points or improve performance relative to criteria for success or other variables.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

- ☑ Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

- ☑ Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.
- ☑ Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
- ☑ Apply scientific ideas, principles, and/or evidence to provide an explanation of phenomena and solve design problems, taking into account possible unanticipated effects.
- ☑ Apply scientific reasoning, theory, and/or models to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.

Practice 7. Engaging in argument from evidence

Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science.

- Construct, use, and/or present an oral and written argument or counter-arguments based on data and evidence.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

2. Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.

5. Energy and Matter: Flows, Cycles, and Conservation – Tracking energy and matter flows, into, out of, and within systems helps one understand their system's behavior.

- Energy cannot be created or destroyed—only moves between one place and another place, between objects and/or fields, or between systems.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.
- The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells. (HS-LS1-1)(secondary to HS-LS3-1)
- Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)

LS1.C: Organization for Matter and Energy Flow in Organisms

- As a result of these chemical reactions, energy is transferred from one system of interacting molecules to another and release energy to the surrounding environment and to maintain body temperature. Cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and new compounds are formed that can transport energy to muscles. (HS-LS1-7)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Students listen to and record Unit 5 Notes during a series of interactive lectures. LS1.A 1 LS1.A2, LS1.C, CCC 1, 2, 5, 6,
Complete "Structure of a Skeletal Muscle" Plate Drawing LS1.A- 2
Complete Movement Video Project HS-LS1A, CCC- 1, 2, 6
Muscle Fatigue Lab -LS1.C, CCC 1, 2, 5, 6, EP 1, 3, 4, 6, 7

Copy of Fatigue Lab.docx
Copy of Copy of Muscle Anatomy and Contractions Handout.docx
Concept 3 Notes - Muscular System- 2023

Portrait of the Newtown Graduate

Plate 3: Skeletal Muscle Structure

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Insertion
Origin
Primer mover (agonist)
Antagonist
Synergist
Fixator
Myofibrils
Myofilaments
Sarcomeres
Muscle fibers
Sarcoplasmic reticulum
Mitochondria
Cellular respiration
T-tubules
Myosin
Actin
Troponin
Tropomyosin
Adenosine Triphosphate (ATP)
Fascicles
Epimysium
Perimysium
Endomysium
Resting membrane potential
Action potential
Neuromuscular junction
Motor neuron
Contraction
Relaxation
Muscle fatigue
Fast twitch
Slow twitch

Resources

Teacher and student resources used to support the learning.

Muscle Anatomy and Contractions Handout
Sliding Filament Theory Flow Chart
Internal Muscle Structure DIN (Digital Interactive Notebook)
Muscles and Physics (Types of Levers) Worksheet
Poke a Muscle (Labeling Game)

Videos Linked Below

Copy of Copy of Internal Muscle Structure DIN Slides
Copy of Answers- Internal Muscle Structure DIN Slides
Copy of Copy of Muscle Anatomy and Contractions Handout.docx
Copy of Copy of Sliding Filament Flowchart - master copy - shared on FB
Poke a Muscle Game
Copy of Muscles and Physics (Types of Levers)

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Structure of Skeletal Muscle Plate Drawing | Summative | Visual Arts Project

Copy of Copy of Plate Drawing Grading Criteria.docx
Plate 3: Skeletal Muscle Structure

2 Standards Assessed

Muscle Fatigue Lab | Formative | Lab Assignment

16 Standards Assessed

Muscular System Test | Summative | Written Test

Copy of Copy of Muscular System Test CP

9 Standards Assessed

Movement Video Assignment | Summative | Other Visual Assessments

Assesses connections between the Skeletal and Muscular Systems.
Has been used as the midterm assignment.

Copy of CP Anatomy and Physiology Midterm Project 2023-24

3 Standards Assessed

Muscular System Quiz | Formative | Written Test

Labeling Quiz

Copy of Muscle Quizzes 2023

1 Standard Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

The Nervous System

Newtown High School / High School / Science

Week 18 - Week 20 | 4 Curriculum Developers | Last Updated: Jun 12, 2025 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of the unit is to show how the parts of the nervous system work together to manage the functions of the body.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: **Structure and Function**
Concepts
Structure
Function
Classification
Transmission
Action Potential
Voltage
Sodium Potassium Pump
Neurotransmitters
Receptors
Protein Channels
Stimuli
Integration
Response
Brain
Neuron
Central Nervous System
Peripheral Nervous System
Senses

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. The **Central Nervous System** and the **Peripheral Nervous System** work together to receive **stimuli** from the external environment, **integrate** that information, and generate a **response.**

2. The **structure** of a **neuron** determines its **function** and **classification.**

3. Neurotransmitters bind to **receptors** on **neurons** and muscles to allow for the **transmission** of an **action potential.**

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. What are the functions of the nervous system? F
1b. What structures make up the central nervous system (CNS)? F
1c. What structures make up the peripheral nervous system (PNS)? F
1d. What is the function of the motor division of the PNS? F
1e. What is the function of the sensory division of the PNS? F
1f. What is the function of the somatic division of the motor nervous system? F
1g. What is the function of the autonomic division of the motor nervous system? F

4. Protein channels open to allow for change in voltage across the membrane of a neuron, which allows for the transmission of a nerve impulse. The sodium potassium pump resets the voltage.

5. The brain is segmented and each segment has its own designated function.

6. Senses detect stimuli from the internal and external environment and the brain interprets that information by the process of integration.

7. Reflexes allow for quick integration and response to stimuli.

1h. What is the function of sympathetic division of the autonomic nervous system? F
1i. What is the function of the parasympathetic division of the autonomic nervous system? F
1j. How do the various divisions of the nervous system allow the body to adapt to changes in the external and internal environment? C
1k. How do the sympathetic and parasympathetic divisions of the autonomic nervous system work in opposition to one another? C
1l. Is the nervous system the most important system? P

2a. What types of cell make up nervous tissue? F
2b. What are the parts of neuron? F
2c. How can a neuron be classified based on its structure and function? C

3a. What is a neurotransmitter? F
3b. How does the shape of a neurotransmitter determine its function? C
3c. How is a signal transmitted from one neuron to another? C

4a. What are the three ways protein channels can be gated? F
4b. What types of protein channels are involved in the conduction of an impulse? F
4c. What voltage changes occur across the cell membrane during an action potential? F
4d. What are the steps of an action potential? F
4e. How does the sodium potassium pump maintain resting potential? C
4f. How does depolarization and repolarization of the membrane contribute to the transmission of a nerve impulse? C
4g. Is it important for a neuron to reset to resting potential after an action potential is complete? P

5a. What are the three main parts of the brain and where are they located? F
5b. What are the general functions of each of the three main parts of the brain? F
5c. What are the 4 lobes of the cerebral cortex? F
5d. What types of activities are under the control of each of the 4 lobes of the cerebral cortex? F
5e. What is the function of the meninges? F

6a. What are the 6 senses the body uses to receive information from the environment and respond? F
6b. Which senses are general senses and which are special senses? F
6c. What type of receptors receive electromagnetic stimuli? F
6d. What types of receptors receive chemical stimuli? F
6e. What types of receptors receive stimuli in the form of sound waves? F
6f. What are the main sense organs associated with seeing, hearing, smelling, tasting, touching, and balance? F
6g. What types of sensations can be sensed by touch receptors? F
6h. What type of energy conversion occurs for each sense as the signal gets transmitted? F
6i. Is there one sense more important than the others in regard to helping to maintain homeostasis? P

7a. What are the steps of the reflex arc? F

7b. What is the benefit of having certain neural pathways organized as a reflex arcs? C
7c. Does out survival depend on out reflexes? P

Content Knowledge

*Critical facts and information that students are expected to **KNOW** at the end of the unit.*

Students will know

- the functions of the nervous system.
- the structures make up the central nervous system (CNS).
- the structures make up the peripheral nervous system (PNS).
- the function of the motor division of the PNS.
- the function of the sensory division of the PNS.
- the function of the somatic division of the motor nervous system.
- the function of the autonomic division of the motor nervous system.
- the function of sympathetic division of the autonomic nervous system.
- the function of the parasympathetic division of the autonomic nervous system.
- how the various divisions of the nervous system allow the body to adapt to changes in the external and internal environment.
- how the sympathetic and parasympathetic divisions of the autonomic nervous system work in opposition to one another.
- the types of cells that make up nervous tissue.
- the general function of neurotransmitters.
- how the shape of a neurotransmitter determines its function.
- how excitatory and inhibitory neurotransmitters function differently.
- how a signal is transmitted from one neuron to another.
- the three ways protein channels can be gated.
- the types of protein channels are involved in the conduction of an impulse.
- what voltage changes occur across the cell membrane during an action potential.
- how the sodium potassium pump maintain resting potential.
- the importance of resting potential.
- how depolarization and repolarization of the membrane contribute to the transmission of a nerve impulse.
- the general functions of each of the three main parts of the brain.
- which activities are under the control of each of the 4 lobes of the cerebral cortex.
- the function and location of the thalamus.
- the function and location of the hypothalamus.
- the function of the meninges.
- how grey and white matter differ in structure and function.
- the 6 senses the body uses to receive information from the environment and respond.
- which senses are general senses and which are special senses.
- the type of receptors that receive electromagnetic stimuli
- the types of receptors that receive chemical stimuli

Critical Skills

Critical skills that students are expected to be able to **DO** at the end of the unit.

- 7. Other.

Notes

Students will be able to

identify the parts of a neuron
classify a neuron based on its structure and function
list the steps of an action potential
label the main parts of the brain (cerebrum, cerebellum, and medulla oblongata)
label the 4 lobes of the cerebral cortex

- the types of receptors that receive stimuli in form of sound waves
- the main sense organs associated with seeing, hearing, smelling, tasting, touching, and balance.
- the types of sensations that can be sensed by touch receptors.
- the type of energy conversion that occurs for each sense as the signal gets transmitted.
- how the information received by receptors in the eye is integrated to allow for vision.
- how the chemical information received by receptors in the nose is integrated to allow for smell.
- how the chemical information received by receptors in the mouth is integrated to allow for smell.
- how the information received by hair cells in the ear is integrated to allow for hearing.
- how the mechanical information received by receptors on the skin is integrated to allow for touch sensing.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Science and Engineering Practices

NGSS: 9-12

Connections to the Nature of Science: Most Closely Associated with Practices

Scientific Investigations Use a Variety of Methods

- [x] Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- [x] Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.
- [x] Empirical evidence is needed to identify patterns.

2. Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- [x] Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.
- [x] Systems can be designed to cause a desired effect.
- [x] Changes in systems may have various causes that may not have equal effects.

3. Scale, Proportion, and Quantity – In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.

- [x] The significance of a phenomenon is dependent on the scale, proportion, and quantity at which it occurs.

4. Systems and System Models – A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.

- [x] Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- [x] Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.
- [x] The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

- [x] Much of science deals with constructing explanations of how things change and how they remain stable.
- [x] Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- [x] Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- [x] Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Students will
listen to and record Nervous System Notes during a series of interactive lectures. LS1. A, All CCC Listed Above
complete Inquiry Activity- Action Potential (See Video Links Below that are helpful to show as students approach each section of the activity) S&E
complete Action Potential Card Sort (Instruction doc and cards (slideshow form) included LS1.A
complete Senses Lab Activity LS1.A , CCC: Cause and Effect, Mechanism and Prediction
read and answer "Stress Article" Questions LS1.A
complete Neuron Plate LS1.A , CCC: Patterns

Copy of Action potential card sort.pptx
Copy of Copy of Senses Lab Updated
Copy of Inquiry Activity-Action Potential.pdf
Copy of Stress Article.pdf
Copy of Stress Article
Copy of Neuron Plate.pdf
Copy of Action Potential Card Sort Activity
Sodium Potassium Pump - Amoeba Sisters
The Neuron
Action Potentials
Synapses
Concept 1 Notes Mod - Nervous System
Concept 2 Notes Mod - Senses.pptx

Portrait of the Newtown Graduate

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Resources

Teacher and student resources used to support the learning.

soma (cell body)
dendrites
axon
nerve
axon terminal
myelin sheath
nodes of Ranvier
sensory neurons
motor neurons
interneurons
resting membrane potential
threshold
action potential
nerve impulse
depolarization
repolarization
hyperpolarization
synapse
meninges
cerebrum
cerebellum
brain stem (medulla oblongata)
neurotransmitter
mechanoreceptor
thermoreceptor
photoreceptor
chemoreceptor
reflex
olfactory
gustatory
hair cells

Crash Course: Action Potential Worksheet to go with Video
Inside Out Video Worksheet
Nervous System Review Sheet

Videos Linked Below

Copy of Copy of Action Potential Crash Course.docx
Copy of Copy of Action Potential Crash Course Key.docx
Copy of Copy of Inside Out - Emotions, Memory, and the Brain - COPY FOR SHARING
Copy of Unit 7: Nervous System Review

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Senses Lab Activity | Formative | Other written assessments

This activity allows students to experience their senses and to make observations. There are no right or wrong answers when it comes to this lab, there fore there is no rubric. Students are given a score based on their completion of their observations and their participation in the lab.

Copy of Copy of Senses Lab Updated

3 Standards Assessed

Neuron Plate Drawing | Summative | Visual Arts Project

Copy of Copy of Plate Drawing Grading Criteria.docx
Copy of Neuron Plate.pdf

1 Standard Assessed

Nervous System Test | Summative | Written Test

13 Standards Assessed

Copy of Unit 7: Nervous System Test (CP)

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

Transport (Circulatory and Respiratory Systems)

Newtown High School / High School / Science

Week 21 - Week 27 | 4 Curriculum Developers | Last Updated: Jun 12, 2025 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is for students to understand the pathway of oxygen and carbon dioxide flow through the respiratory and circulatory systems, as well as how the heart functions to pump blood to deliver oxygen to tissues and remove carbon dioxide from the body.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Structure and Function
Concepts:
Structure
Function
Circulation
Blood
Cells
Oxygen
Carbon Dioxide
Tissues
Agglutinogens
Antibodies
Blood type
Blood Vessels
Heart
Lungs
Transport
Pathway
Cardiac Cycle

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. The **structure** of the **heart** correlates to the **function** of each of its components.
2. The **structure** of **blood vessels** dictate their **function** within the **pathway** of **circulation.**
3. **Agglutinogens** on red **blood cells** determine **blood type** and which **antibodies** are present within the **blood.**
4. The **cardiac cycle** is controlled by **intrinsic** and **extrinsic factors.**
5. The **structure** of the **lungs** correlates to the **function** of each of its components.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. What types of molecules are transported by the circulatory system? F
1b. Where is the heart located within the body? F
1c. What are the four chambers that make up the heart and where are they located? F
1d What are the 4 valves within the heart and where are they located? F
1e What are the major blood vessels that bring blood to and from the heart and where are they located? F

6. **Lungs** provide a reciprocal **function** that constitutes breathing.
7. **Circulation** of **blood** allows for the **transport** of **oxygen** from the **lungs** to the **tissues** of the body, and **carbon dioxide** from the **tissues** of the body to the **lungs.**

1f. What is the function of the circulatory system? C
1g. What is the purpose of valves within the heart? C
1h. How are the heart, blood vessels, and blood used to accomplish the functions of the circulatory system? C

2a. What are examples of diseases of the blood vessels and what causes these diseases? F
2b. What instrument can be used to measure blood pressure? F
2c. How is blood pressure measured? F
2d. What is the function of arteries? C
2e. What is the function of veins? C
2f. What is the function of capillaries? C
2g. What is the significance of the two numbers that make up a blood pressure reading? C
2h. How does the structure of arteries allow them to carry out their function? C
2i. How does the structure of veins allow them to carry out their function? C
2j. How does the structure of capillaries allow them to carry our their function? C

3a. What components make up blood? F
3b. What factors contribute to blood type? F
3c. How does blood play a critical role in maintaining homeostasis? C
3d. Can a person in need of a blood transfusion receive blood from anyone? C
3e. Should donating blood be mandatory/more encouraged? P

4a. What instrument is used to measure the cardiac cycle? F
4b. What extrinsic control contribute to the regulation of the cardiac cycle? F
4c. What instrument can be used to hear a heart beat? F
4d. What sounds are detected by a stethoscope? F
4e. What is an arrhythmia and what are some specific examples? F
4f. How does the intrinsic cardiac conduction system work? C

5a. What is the function of the respiratory system F
5b. Which structures within the respiratory system are considered part of the conducting zone? F
5c. What is the job of the conducting zone? F
5d. Which structures within the respiratory system are considered part of the respiratory zone? F
5e. What is the job of the respiratory zone? F
5f. What is the structural organization of the lungs? F
5g. What is the pathway of oxygen within the respiratory system? F
5h. What is the pathway of carbon dioxide within the respiratory system? F
5i. How does gas exchange occur in the lungs and in our tissues? C
5j. How does the type of epithelial tissue lining each structure within the respiratory system correlate to the function of that structure? C
5k. How does the respiratory system and the circulatory system work together to accomplish the function of the respiratory system? C

6a. What is the role of the diaphragm in breathing? F
6b. What is the relationship between volume, pressure, and air flow? F
6c. How does inspiration and expiration work together to allow for breathing? C

6d. How does the nervous system play a role in the process of breathing? C
6e. How does the muscular system play a role in the process of breathing? C
6f. Why is breathing required to maintain homeostasis at the cellular level? C
6g. Is someone who relies on machines to assist in critical life functions, such as breathing and circulation considered "alive"? P

7a. What pathway does oxygen take from the lungs to body tissues? F
7b. What pathway does carbon dioxide take from body tissues to the lungs? F
7c. What is the difference between pulmonary, systemic, and coronary circulation? C

Content Knowledge

Critical facts and information that students are expected to KNOW at the end of the unit.

Students will know:

- the function of the circulatory system.
- the types of molecules that are transported by the circulatory system.
- where the heart located within the body.
- the four chambers that make up the heart and where are they located.
- the 4 valves within the heart and where are they located.
- the major blood vessels that bring blood to and from the heart and where are they located.
- the purpose of valves within the heart.
- how the heart, blood vessels, and blood used to accomplish the functions of the circulatory system.
- the function of arteries and how the structure of arteries allow them to carry out their function.
- the function of veins and how the structure of veins allow them to carry out their function.
- the function of capillaries and how the structure of capillaries allow them to carry out their function.
- examples of diseases of the blood vessels and what causes these diseases.
- what instrument is used to measure blood pressure.
- how blood pressure is measured.
- the significance of the two numbers that make up a blood pressure reading.
- which components make up blood.
- the factors that contribute to blood type.
- how blood plays a critical role in maintaining homeostasis.

Critical Skills

Critical skills that students are expected to be able to DO at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 3. Communicate information clearly and effectively using a variety of tools/media in varied contexts for a variety of purposes.
- 5. Effectively apply the analysis, syntheses, and evaluative processes that enable productive problem solving.

- which blood types can be donated/received by individuals with each of the four blood types.
- which instrument is used to measure the cardiac cycle.
- which extrinsic control contribute to the regulation of the cardiac cycle.
- which instrument can be used to hear a heart beat.
- the heart sounds are detected by a stethoscope.
- examples of arrhythmias and their potential causes.
- how the intrinsic cardiac conduction system work.
- the function of the respiratory system.
- which structures within the respiratory system are considered part of the conducting zone.
- the job of the conducting zone.
- which structures within the respiratory system are considered part of the respiratory zone.
- the job of the respiratory zone.
- the structural organization of the lungs.
- the pathway of oxygen within the respiratory system.
- the pathway of carbon dioxide within the respiratory system.
- how gas exchange occurs in the lungs and in our tissues.
- the type of epithelial tissue lining each structure within the respiratory system and how it correlates to the function of that structure.
- how the respiratory system and the circulatory system work together to accomplish the function of the respiratory system.
- the role of the diaphragm in breathing.
- the relationship between volume, pressure, and air flow.
- how inspiration and expiration work together to allow for breathing.
- how the nervous system play a role in the process of breathing.
- how the muscular system play a role in the process of breathing.
- why breathing is required to maintain homeostasis at the cellular level.
- the pathway does oxygen take from the lungs to body tissues.
- the pathway does carbon dioxide take from body tissues to the lungs.
- the difference between pulmonary, systemic, and coronary circulation.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 1. Asking questions (for science) and defining problems (for engineering)

Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

- ☑ Ask questions that arise from careful observation of phenomena, or unexpected results, to clarify and/or seek additional information.
- ☑ Ask questions that arise from examining models or a theory, to clarify and/or seek additional information and relationships.
- ☑ Ask questions that can be investigated within the scope of the school laboratory, research facilities, or field (e.g., outdoor environment) with available resources and, when appropriate, frame a hypothesis based on a model or theory.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

- [x] Plan an investigation or test a design individually and collaboratively to produce data to serve as the basis for evidence as part of building and revising models, supporting explanations for phenomena, or testing solutions to problems. Consider possible confounding variables or effects and evaluate the investigation's design to ensure variables are controlled.
- [x] Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.
- [x] Select appropriate tools to collect, record, analyze, and evaluate data.
- [x] Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

- [x] Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.
- [x] Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.
- [x] Analyze data to identify design features or characteristics of the components of a proposed process or system to optimize it relative to criteria for success.

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

- [x] Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.
- [x] Apply scientific ideas, principles, and/or evidence to provide an explanation of phenomena and solve design problems, taking into account possible unanticipated effects.
- [x] Apply scientific reasoning, theory, and/or models to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.

Practice 7. Engaging in argument from evidence

Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science.

- [x] Construct, use, and/or present an oral and written argument or counter-arguments based on data and evidence.
- [x] Make and defend a claim based on evidence about the natural world or the effectiveness of a design solution that reflects scientific knowledge and student-generated evidence.

Connections to the Nature of Science: Most Closely Associated with Practices

Scientific Investigations Use a Variety of Methods

- [x] Science investigations use diverse methods and do not always use the same set of procedures to obtain data.

Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena

- [x] Models, mechanisms, and explanations collectively serve as tools in the development of a scientific theory.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- [x] Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.
- [x] Mathematical representations are needed to identify some patterns.

2. Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- [x] Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.
- [x] Changes in systems may have various causes that may not have equal effects.

3. Scale, Proportion, and Quantity – In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.

- [x] The significance of a phenomenon is dependent on the scale, proportion, and quantity at which it occurs.

4. Systems and System Models – A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.

- Systems can be designed to do specific tasks.
- Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.
- Models can be used to predict the behavior of a system, but these predictions have limited precision and reliability due to the assumptions and approximations inherent in models.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.
- The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

- Much of science deals with constructing explanations of how things change and how they remain stable.
- Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.
- Feedback (negative or positive) can stabilize or destabilize a system.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells. (HS-LS1-1)(secondary to HS-LS3-1)
- Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)
- Feedback mechanisms maintain a living system's internal conditions withincertain limits and mediate behaviors, allowing it to remain alive andfunctional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) ordiscourage (negative feedback) what is going on inside the living system.(HS-LS1-3)

LS1.B: Growth and Development ofOrganisms

- In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complexorganism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (HS-LS1-4)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Students will
listen to and record Unit 7a Notes during a series of interactive lectures. LS1. A, LS1. B, All CCC Listed Above
listen to and record Unit b Notes during a series of interactive lectures. LS1. A, LS1. B, All CCC Listed Above
complete Pig Heart Dissection CCC: Patterns
complete Real World Reading: Blood Transfusions LS1. A
complete Plate Drawing: The Heart CCC: Patterns
complete Plate Drawing: The Respiratory Zone CCC: Patterns

Portrait of the Newtown Graduate

complete Discover Stations: Cardiovascular System (optional review) LS1. A, LS1. B
complete Heart Table Graffiti (option, but great review and students enjoy it!) CCC: Patterns
complete Blood Typing Practice Activity LS1. A,
complete "Gas Exchange Between the Heart and Lungs" Worksheet LS1. A,
complete Lung Capacity Lab , All Engineering Practices Listed Above

Copy of Heart Table Graffiti
Conclusion for Lung Capacity Lab
Copy of Plate: The Respiratory Zone
Copy of Lung Capacity Lab.pdf
Copy of Conclusion for Lung Capacity Lab
Copy of 2023 Pig HEART DISSECTION
Copy of Copy of Blood Typing
Copy of Copy of Big Body Diagram - Cardiovascular System TO LABEL.pptx
Copy of Discovery Stations- Cardiovascular System.pdf
Copy of Plate- Heart.pdf
Copy of Real World Reading-Blood Transfusions.pdf
Copy of Copy of Gas Exchange Between the Heart and Lungs
Concept 3 Notes - Respiratory System.pptx
Concept 2 Notes - Cardiovascular System
Concept 1 Notes - Blood.pptx

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Blood
Plasma
Leukocytes
Thrombocytes
Erythrocytes
Hemoglobin
Hematopoiesis
Erythropoietin
Hemostasis
Antigens
Antibodies
Agglutinogens
Rh factor
Blood Flow
Blood Pressure
Blood vessels
Arterioles
Arteries
Capillaries
Veins
Venules

Resources

Teacher and student resources used to support the learning.

Professor Dave Explains- Respiratory- Video with Questions (good review or intro)
Respiratory System Worksheet (Kids Health) - (good review or intro)
Cardio Review Sheets
Blood Typing Game- Good review activity for blood types

Copy of Professor Dave Explains Respiratory Worksheet (TA)
Copy of Respiratory System Worksheet Kids Health (TA)
Copy of Cardiovascular System- Review.docx
Copy of Copy of Blood Typing Game
Copy of Heart, Circulation, and Blood Quiz Review
Copy of Copy of Respiratory System Review

Valve
Contractile
Cardiac muscles cells
Pacemaker cells
heartbeat
systole
diastole
pulse
electrocardiogram
bronchioles
gas exchange
cellular respiration
diffusion
bulk flow
lung capacity

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Plate: The Respiratory Zone | Summative | Visual Arts Project

Copy of Copy of Plate Drawing Grading Criteria.docx | Copy of Plate: The Respiratory Zone

3 Standards Assessed

Plate: The Human Heart | Summative | Visual Arts Project

Copy of Copy of Plate Drawing Grading Criteria.docx | Copy of Plate- Heart.pdf

2 Standards Assessed

Lung Capacity Lab | Formative | Lab Assignment

Copy of Lung Capacity Lab.pdf | Copy of Conclusion for Lung Capacity Lab | Copy of Lung Capacity Lab Score Sheet

20 Standards Assessed

Pig Heart Dissection | Formative | Lab Assignment

Copy of 2023 Pig HEART DISSECTION | Copy of Lab 5: Heart Dissection Score Slip

6 Standards Assessed

Transport Test | Summative | Written Test

Copy of Copy of Respiratory System Test -CP | Copy of Unit 5: Cardiovascular System Test (CP) 2023

18 Standards Assessed

Cardiovascular System Quiz/Respiratory System Quiz | Formative | Written Test

One quick check midway Through the Cardio Section as a formative check in.

Copy of Heart Anatomy and Blood Flow Quiz (CP)

9 Standards Assessed

Respiratory Disease Presentation | Formative | Oral Report

Copy of Copy of Respiratory System Disorder Project.docx | Copy of Copy of Respiratory System Disorders Sign Up Sheet.docx

6 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

Absorption and Excretion (Digestive and Urinary Systems)

Newtown High School / High School / Science

Week 28 - Week 33 | 4 Curriculum Developers | Last Updated: Jun 12, 2025 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is for students to develop an understanding of how the body effectively and efficiently absorbs nutrients and excretes wastes from the foods they eat to acquire necessary raw materials for maintaining homeostasis.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Structure and Function
Concepts:
Structure
Function
Digestion
Excretion
Macromolecules
Enzymes
Filtration
Body systems
Organs
Homeostasis

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. Body systems work together to achieve the common goal of maintaining homeostasis.
2. The structure and arrangement of each of the organs within the digestive systems allows for the efficient function of that body system.
3. Mechanical digestion and chemical digestion, by acids and enzymes, break down macromolecules into products that will be absorbed and used to help the body maintain homeostasis.
4. The urinary system allows for filtration of waste from the blood and for the excretion of that waste from the body.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. How does the digestive system work with the circulatory system to accomplish its main function? C
1b. How does the digestive system work with the nervous system to accomplish its main function? C
1c. How does the digestive system work with the muscular system to accomplish its main function? C
1d. How does the urinary system work with the digestive system to complete its functions? C
1e. How does the urinary system work with the nervous system to complete its functions? C
1f. How does the urinary system work with the circulatory system to complete its functions? C

2a. What is the function of the mouth and the structures within it? F
2b. What is the function of the esophagus? F
2c. What is the function of the stomach? F

2d. What is the function of the gallbladder? F
2e. What is the function of the liver? F
2f. What is the function of the pancreas? F
2g. What are the three segments of the small intestine and what processes occur in each section? F
2h. What are the three segments of the large intestine? F
2i. What is the main function of the large intestine? F
2j. Where are the organs of the alimentary canal (mouth, esophagus, stomach, small intestine, large intestine, rectum, anus) located in the body? F
2k. Where are the accessory organs (salivary glands, teeth, gallbladder, liver, pancreas) located in the body? F
2l. What is the significance of sphincters within the digestive system? F
2m. What is the function of the digestive system? C
2n. How does the structure of the small intestine allow for maximum absorption of nutrients? C
2o. How does the types of epithelial tissue lining each organ within the alimentary canal correlate to the type of action that occurs in that organ? C
2p.How does the body show that homeostasis is not maintained within the digestive system? C
2q. Are bacteria of the digestive system more helpful or harmful? P

3a. What are the four major macromolecules broken down by the digestive system? F
3b. What are the monomers that results from the breakdown of each of the macromolecule types? F
3c. What are the products of digestion of each of the macromolecules types used for in the body? F
3d. What are the steps of the digestive process and in which organ does each step occur? F
3e. Which enzymes are responsible for the breakdown of carbohydrates and where does digestion of carbohydrates occur? F
3f. Which enzymes are responsible for the breakdown of lipids and where does digestion of lipids occur? F
3g. Which enzymes are responsible for the breakdown of proteins and where does digestion of proteins occur? F
3h. Which organs are responsible for chemical digestion? F
3i. Which organs are responsible for mechanical digestion? F
3j. Why must macromolecules be broken down by the digestive system? C
3k. What is the difference between chemical and mechanical digestion? C

4a. What are the functions of the renal arteries and the renal veins? F
4b. What is the role of the nephron? F
4c. What are the structures within the nephron and what is the role of each? F
4d. What are the roles of the ureters, bladder, and urethra in the urinary system? F
4e. Where are the kidneys, ureters, bladder, and urethra located in the body? F
4f. What are the major functions of the urinary system? C
4g. How do nephrons filter blood to make urine? C
4h. *How does the structure of the ureter, bladder, and urethra impact function and efficiency? C*
4i. What can indicators within a urinalysis test indicate about an individual's health? C
4j. Are the kidneys the most critical organ in the urinary system? P

4k. What is the most important organ/organ system in the human body? P

Content Knowledge

Critical facts and information that students are expected to KNOW at the end of the unit.

Students will know:

- how the digestive system works with the circulatory system to accomplish its main function.
- how the digestive system works with the nervous system to accomplish its main function.
- how the digestive system works with the muscular system to accomplish its main function.
- how the urinary system works with the digestive system to complete its functions.
- how the urinary system works with the nervous system to complete its functions.
- how the urinary system works with the circulatory system to complete its functions.
- the function of the mouth and the structures within it.
- the function of the esophagus.
- the function of the stomach.
- the function of the gallbladder.
- the function of the liver.
- the function of the pancreas.
- the three segments of the small intestine and what processes occur in each section.
- the three segments of the large intestine.
- the main function of the large intestine.
- which organs are part of the alimentary canal and where they are located in the body.
- which structures are accessory structures and where they are located in the body.
- the significance of sphincters within the digestive system.
- the function of the digestive system.
- how the structure of the small intestine allows for maximum absorption of nutrients.
- how the types of epithelial tissue lining each organ within the alimentary canal correlate to the type of action that occurs in that organ.
- how the body shows that homeostasis is not maintained within the digestive system, by identifying various diseases of the digestive system.
- how bacteria of the digestive system *is* helpful or harmful.
- the four major macromolecules broken down by the digestive system.
- the monomers that results from the breakdown of each of the macromolecule types.
- the products of digestion of each of the macromolecules types used for in the body.
- the steps of the digestive process and in which organ each step occurs.
- which enzymes are responsible for the breakdown of carbohydrates and where digestion of carbohydrates occurs.
- which enzymes are responsible for the breakdown of lipids and where digestion of lipids occurs.
- which enzymes are responsible for the breakdown of proteins and where digestion of proteins occurs.

Critical Skills

Critical skills that students are expected to be able to DO at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 4. Demonstrate innovation, flexibility and adaptability in thinking patterns, work habits, and working/learning conditions.
- 5. Effectively apply the analysis, syntheses, and evaluative processes that enable productive problem solving.

- which organs are responsible for chemical digestion.
- which organs are responsible for mechanical digestion.
- why macromolecules *are* broken down by the digestive system.
- the difference between chemical and mechanical digestion.
- the functions of the renal arteries and the renal veins.
- the role of the nephron.
- the structures within the nephron and what is the role of each.
- the roles of the ureters, bladder, and urethra in the urinary system.
- the location of the kidneys, ureters, bladder, and urethra in the body.
- the major functions of the urinary system.
- how nephrons filter blood to make urine.
- how the structure of the ureter, the bladder, and the urethra allow them to carry out their functions.
- what indicators within a urinalysis test indicate about an individual's health.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

- ☑ Select appropriate tools to collect, record, analyze, and evaluate data.

Practice 8. Obtaining, evaluating, and communicating information

Obtaining, evaluating, and communicating information in 9–12 builds on K–8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs.

- ☑ Gather, read, and evaluate scientific and/or technical information from multiple authoritative sources, assessing the evidence and usefulness of each source.

Connections to the Nature of Science: Most Closely Associated with Practices

Scientific Investigations Use a Variety of Methods

- ☑ Science investigations use diverse methods and do not always use the same set of procedures to obtain data.

Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena

- ☑ Models, mechanisms, and explanations collectively serve as tools in the development of a scientific theory.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- ☑ Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

2. Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- ☑ Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.
- ☑ Systems can be designed to cause a desired effect.
- ☑ Changes in systems may have various causes that may not have equal effects.

3. Scale, Proportion, and Quantity – In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.

- [x] The significance of a phenomenon is dependent on the scale, proportion, and quantity at which it occurs.

5. Energy and Matter: Flows, Cycles, and Conservation – Tracking energy and matter flows, into, out of, and within systems helps one understand their system's behavior.

- [x] Energy cannot be created or destroyed—only moves between one place and another place, between objects and/or fields, or between systems.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- [x] Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.
- [x] The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

- [x] Much of science deals with constructing explanations of how things change and how they remain stable.
- [x] Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.
- [x] Feedback (negative or positive) can stabilize or destabilize a system.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- [x] Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- [x] Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)
- [x] Feedback mechanisms maintain a living system's internal conditions withincertain limits and mediate behaviors, allowing it to remain alive andfunctional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) ordiscourage (negative feedback) what is going on inside the living system.(HS-LS1-3)

LS1.B: Growth and Development ofOrganisms

- [x] In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complexorganism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (HS-LS1-4)

LS1.C: Organization for Matter and Energy Flow in Organisms

- [x] As a result of these chemical reactions, energy is transferred from one system of interacting molecules to another and release energy to the surrounding environment and to maintain body temperature. Cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and new compounds are formed that can transport energy to muscles. (HS-LS1-7)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Students will:
listen to and record Unit 8a Notes during a series of interactive lectures. LS1.A, LS1.B, LS1C, All CCC listen above
listen to and record Unit 8b Notes during a series of interactive lectures. LS1.A, LS1.B, LS1C, All CCC listen above
complete "Poop Scoop" assignment CCC 1 and 2
complete Digestive System Discovery Stations LS1.A, LS1.B, LS1C
Fetal Pig Dissection- Culminating activity where students can view major components of all body systems discussed throughout the year) CCC 1 and 6, LS1.A, SEP 3 and 8

Portrait of the Newtown Graduate

Kidney Lab Stations LS1.A, LS1.B, LS1C

Copy of Discovery Stations: Digestive System.pdf
Copy of Poop Scoop.docx (TA)
Discovery Stations - Digestive System.pdf
Copy of Dissection - Fetal Pig
Prelab Fetal Pig Dissection Video 1
Prelab Fetal Pig Dissection Video 2
Copy of Concept 1 Notes - Digestive System.pptx
Copy of Concept 2 Notes - Nutrition and Metabolism.pptx
colitis_sup.pptx
colitis_notes- teacher notes.pdf
colitis case study 2025 - STUDENT.pdf
Copy of Concept 3 Notes - Urinary System (H).pptx
Lab Stations - Kidneys.pdf

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

alimentary canal
ingestion
propulsion
bolus
peristalsis
salivary glands
epiglottis
gastric juices
chyme
bile
enteric nervous system
chemical digestion
mechanical digestion
sphincter
excretion
defication
metabolism
urination
urinalysis

Resources

Teacher and student resources used to support the learning.

What your Poop Says About you article (can be used in conjunction with "Poop Scoop Assignment")
Digestive System Coloring Assignment
Digestive System Review

Copy of Poop Scoop.docx (TA)
Copy of Digestive System Coloring.pdf
Copy of Digestive System Review

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Fetal Pig Dissection | Summative | Lab Assignment

Fetal Pig Dissection (Newtown) 2025

No Standards Assessed

Digestive System Test | Summative | Written Test

Generally the last full summative, unit specific exam.

Copy of 2024-Test A - Digestive System (CP).docx

No Standards Assessed

Fetal Pig Dissection Practical | Summative | Written Test

Copy of Fetal Pig Lab Practical

12 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

Reproduction and Fetal Development

Newtown High School / High School / Science

Week 34 - Week 36 | 4 Curriculum Developers | Last Updated: Jun 12, 2025 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is for students to follow fetal development, from conception to birth, and to explore how and what kinds of complications could potentially impact mother and baby.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Growth and Development
Concepts:
Fertilization
Development
Growth
Organ Systems
Tissues
Organs
Cells
Meiosis
Mitosis
Differentiation
Labor
Birth
Process
Errors
Complications
Male
Female
Hormones
Menstrual Cycle
Cesarean Section
Fetus
Lactation

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. The **structure** of the **organs** within the **male** and **female** reproductive **systems** contribute to the overall **function** of those **systems.**

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. What are the functions of the male reproductive system? F
1b. What are the functions of the female reproductive system? F

2. Hormones are involved in regulating puberty in both males and females, and lactation and the menstrual cycle in females.
3. Meiosis results in sex cells which come together during fertilization to conceive a new life.
4. Mitosis is the replication of cells which results in growth, while differentiation of those cells results in the development of various tissues, organs, and organ systems.
5. The process of labor results in the birth of a baby.
6. Errors at any stage of development or during labor can lead to complications for the developing embryo/fetus and/or the mother.

1c. What are the primary sex organs of the female reproductive system? F
1d. What are the roles of the primary sex organs of the female reproductive system? F
1e. What are the primary sex organs of the male reproductive system? F
1f. What are the roles of the primary sex organs of the male reproductive system? F
1g. Where are sperm made? F
1h. What is the pathway taken by sperm to leave the body? F
1iy.What is the significance of the different accessory gland secretions to the sperm in semen? F
1j. What are the different erectile tissues of the penis? F
1k. What are the three layers of the uterine wall? F
1l. What are the roles of the layers of the uterine wall? F
1m. What is the path of the oocyte from ovulation to implantation? F
1n. How do each of the erectile tissues allow the penis to function as the male copulatory organ? C
1o. How does the structure of the fallopian tube assist in its function? C

2a. What leads to milk production in females? F
2b. Where is milk made in lactating females? F
2c. What are the main events of the ovarian cycle, along with timing? F
2d. What are the main events of the uterine cycle, along with timing? F
2e. What is the hypothalamic-pituitary-gonadal (HPG) axis? F
2f. How does the HPG axis regulate puberty? C
2g. How is puberty different between male and females? C
2h. How do gonadotropins and female sex hormones regulate the ovarian and uterine cycles? C

3a. What are the phases of the female menstrual cycle? F
3b. What is fertilization and what is the result? F
3c. How do hormones regulate the menstrual cycle? C
3d. How does meiosis result in sperm and egg cells? C

4a. What developmental milestones are reached by the end of each month of development? F
4b. What is differentiation? F
4c. How does mitosis lead to growth of an organism? C
4d. How does pregnancy impact the mother physically and mentally during each stage? C
4e How does the developing fetus receive nutrients? C
4f. How do a mother's choices impact the developing fetus (i.e. nutrition or otherwise)? P

5a. What factors can impact a mother's pregnancy, labor, and delivery experience? F
5b. What are some examples of complications that can occur during labor and delivery? F
5c. How do specific labor and delivery complications impact the baby and the mother? C
5d. Do all families have equal access to proper prenatal and postnatal care? C
5e. Is postnatal care for the mother more important than prenatal care? P

6a. What are some examples of congenital abnormalities that could result from errors during meiosis, mitosis, and development? F

6b. What are some examples of pregnancy complications that could result from errors during meiosis, mitosis, and development? F
6c. How do specific congenital abnormalities impact the baby? C
6d. How do specific pregnancy complications impact that baby and the mother? C

Content Knowledge

*Critical facts and information that students are expected to **KNOW** at the end of the unit.*

Students will know:

- the functions of the male reproductive system.
- the functions of the female reproductive system.
- the primary sex organs of the female reproductive system.
- the roles of the primary sex organs of the female reproductive system.
- the primary sex organs of the male reproductive system.
- the roles of the primary sex organs of the male reproductive system.
- where sperm are made.
- the pathway taken by sperm to leave the body.
- the significance of the different accessory gland secretions to the sperm in semen.
- the different erectile tissues of the penis.
- how each of the erectile tissues allow the penis to function as the male copulatory organ.
- the path of the oocyte from ovulation to implantation.
- what causes females to lactate?
- the structure of the fallopian tube assists in its function.
- the three layers of the uterine wall.
- the roles of the layers of the uterine wall.
- where the milk is made in lactating females.
- what the hypothalamic-pituitary-gonadal (HPG) axis is.
- how the HPG axis regulates puberty.
- how puberty is different between male and females.
- what the main events of the ovarian cycle are, along with timing.
- what the main events of the uterine cycle are, along with timing.
- how gonadotropins and female sex hormones regulate the ovarian and uterine cycles.
- the phases of the female menstrual cycle.
- what fertilization is and the result.
- how hormones regulate the menstrual cycle.
- how meiosis results in sperm and egg cells.
- developmental milestones reached by the end of each month of development.
- the term differentiation.
- how mitosis leads to growth of an organism.
- how pregnancy impacts the mother physically and mentally during each stage.
- how the developing fetus receives nutrients.
- factors *that* can impact a mother's pregnancy, labor, and delivery experience.
- examples of complications that can occur during labor and delivery.
- how specific labor and delivery complications impact the baby and the mother.

Critical Skills

Critical skills that students are expected to be able to **DO** at the end of the unit.

- the importance of prenatal and postnatal care for mother and baby.
- examples of congenital abnormalities that could result from errors during meiosis, mitosis, and development.
- examples of pregnancy complications that could result from errors during meiosis, mitosis, and development.
- how specific congenital abnormalities impact the baby.
- how specific pregnancy complications impact the baby and the mother.

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- ☑ Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- ☑ The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

- ☑ Feedback (negative or positive) can stabilize or destabilize a system.

Connections to the Nature of Science: Most Closely Associated with Crosscutting Concepts

Science is a Human Endeavor

- ☑ Technological advances have influenced the progress of science and science has influenced advances in technology.

Science Addresses Questions About the Natural and Material World.

- ☑ Science and technology may raise ethical issues for which science, by itself, does not provide answers and solutions.
- ☑ Many decisions are not made using science alone, but rely on social and cultural contexts to resolve issues.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- ☑ Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- ☑ All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells. (HS-LS1-1)(secondary to HS-LS3-1)
- ☑ Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)
- ☑ Feedback mechanisms maintain a living system's internal conditions withincertain limits and mediate behaviors, allowing it to remain alive andfunctional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) ordiscourage (negative feedback) what is going on inside the living system.(HS-LS1-3)

LS1.B: Growth and Development ofOrganisms

- ☑ In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complexorganism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (HS-LS1-4)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

This is a different format- I think you had verbs for the other units
Notes on fertilization and pregnancy/development. LS1, LS2
Pregnancy Development Complications Assignment LS1.A, LS1B, CCC 1 and 6
Delivery Day! (Labor and Delivery Nurse comes to give a presentation on the process of labor and delivery and answer student's questions about the process and nursing in general. LS1.A, Connections to nature of Science

Copy of Pregnancy/Developmental Complications Assignment
Copy of Concept 2 Notes - Fertilization.pptx
Copy of Concept 3 Notes - Pregnancy and Development.pptx
Copy of Concept 1 Notes - Reproductive System.pptx

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Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

mitosis
meiosis
differentiation
fertilization
growth
development
mutation
congenital
positive feedback
menstruation
ovulation

Resources

Teacher and student resources used to support the learning.

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Pregnancy/Developmental Complications Assignment | Summative | Oral Report

Research and Present

Copy of Pregnancy/Developmental Complications Assignment

6 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

Protection (Immune and Integumentary Systems)

Newtown High School / High School / Science

Week 37 - Week 38 | 4 Curriculum Developers | Last Updated: Jun 12, 2025 by Allegretto, Tara

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

The purpose of this unit is to show how the various components of skin, the immune system, and the lymphatic system work together to protect that body from disease.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Protection
Concepts:
Structure
Function
Homeostasis
Glands
Protection
Lymph
Tissues
Immunity
Vaccination
Antibiotics
Skin
Tissue
Hair
Cure
Bacteria
Viruses
Disease
Cells

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. The **structure** of the **tissues** and the accessory **organs** found within the **skin** contribute to the **function** of the integumentary system.
2. The structures within the **skin,** such as **glands, hair,** and **nails** contribute to the maintenance of **homeostasis**.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. What are the functions of the integumentary system? F
1b. What is the role of the dermis? F
1c. What is the role of the epidermis? F
1d. What are the 4 types of epidermal cells and what are their roles? F
1e. What is the hypodermis and what is its function? F

3. **Lymph,** along with the structures of the lymphatic system **function** to help fight **disease** and maintain **homeostasis.**
4. Various **cell** types contribute to fighting **disease** and establishing **immunity.**
5. **Immunity** can be established naturally or through **vaccination**.
6. **Antibiotics cure disease** caused by **bacteria.**

1f. How does the integumentary system aid in maintaining homeostasis? C
1g. How does the integumentary system work together with other body systems to maintain homeostasis? C
1h. How do the types of epithelial and connective tissue found within the skin contribute to the ability of skin to do it's function? C

2a. What is the structure and function of hair? F
2b. What is the structure and function of the nail? F
2c. Where are eccrine sweat glands located and what is their function? F
2d. Where are apocrine sweat glands located and what is their function? F
2e. Where are sebaceous glands located and what is their function? F
2f. What types of sensory receptors are found in the skin? F
2g. What sensations do each of the types of touch receptors in the skin perceive? F

3a. What is the function of the lymphatic system? F
3b. How does the lymphatic system work together with cardiovascular system and the immune system? F
3c. Where is lymph made? F
3e. Where does lymph collect? F
3f. What are the types of lymphatic ducts? F
3g. What types of cells make up lymphoid tissues and organs? F
3h. What are the functional roles of primary lymphoid tissues? F
3i. What are the structures that carry out the function of primary lymphoid tissues? F
3j. What are the functional roles of secondary lymphoid tissues? F
3k. What are the structures that carry out the function of secondary lymphoid tissues? F
3l. What is the significance of lymph nodes? F
3m. What are the roles of the thymus, the spleen, the tonsils, Peyer's patcher, and the appendix in the lymphatic/immune system? F
3n. How is lymph transported throughout the body? C

4a. What is the function of the immune system? F
4b. What cells, tissues, and organs work together to make up the immune system? F
4c. What various methods can immune cells use to destroy pathogens? F
4d. What is the role of B cells and T cells in immunity? F
4e. What are the steps of the inflammatory response?
4f. How do antigen presenting cells aid in the immune response? C

5a. What is the difference between innate and adaptive defense? F
5b. What are the two lines of innate defense? F
5c. What is the difference between active and passive immunity? F
5d. How are humoral and cellular immunity different? F
5e. How are humoral and cellular immunity similar? F
5f. How can active immunity be acquired both naturally and artificially? C
5g. How can passive immunity be acquired both naturally and artificially? C
5h. How can the immune system fail? C

6a. What is antibiotic resistance? F
6b. What contributes to antibiotic resistance? F
6c. What will happen if antibiotics no longer work? F
6d. What could serve as an alternative to antibiotics? F

6e. How is antibiotic resistance an example of evolution? C
6f. Should we stop producing new antibiotics and explore other options? P

Content Knowledge

Critical facts and information that students are expected to KNOW at the end of the unit.

Students will know

- *Integumentary*
  the functions of the integumentary system.
  how the integumentary system aids in maintaining homeostasis.
  how the integumentary system works together with other body systems to maintain homeostasis.
  the role of the dermis.
  the role of the epidermis.
  the 4 types of epidermal cells and their roles.
  what the hypodermis is and what its function is.
  the structure and function of hair.
  the structure and function of the nail.
  where eccrine sweat glands are located and what function is.
  where apocrine sweat glands are located and what their function is.
  where sebaceous glands are located and what their function is.
  the types of sensory receptors found in the skin.
  the sensations that each of the types of touch receptors in the skin perceive.
  Lymphatic
  the function of the lymphatic system
  how the lymphatic system works together with the cardiovascular system and the immune system
  where lymph is made
  how lymph is transported throughout the body
  where lymph collects
  the types of lymphatic ducts there are
  the types of cells that make up lymphoid tissues and organs
  the functional roles of primary lymphoid tissues
  the structures that carry out the function of primary lymphoid tissues
  the functional roles of secondary lymphoid tissues
  the structures that carry out the function of secondary lymphoid tissues
  the significance of lymph nodes
  the roles of the thymus, the spleen, the tonsils, Peyer's patcher, and the appendix in the lymphatic/immune system
  Immune
  the function of the immune system
  the cells, tissues, and organs work together to make up the immune system
  the difference between innate and adaptive defense
  the two lines of innate defense
  the various methods immune cells use to destroy pathogens
  the steps of the inflammatory response
  how the humoral and cellular immunity are different
  how are humoral and cellular immunity are similar
  the difference between active and passive immunity

Critical Skills

Critical skills that students are expected to be able to DO at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 3. Communicate information clearly and effectively using a variety of tools/media in varied contexts for a variety of purposes.
- 5. Effectively apply the analysis, syntheses, and evaluative processes that enable productive problem solving.

how active immunity can be acquired both naturally and artificially
how passive immunity can be acquired both naturally and artificially
the role of B cells and T cells in immunity
how antigen presenting cells aid in the immune response
how the immune system can fail
what is antibiotic resistance
what contributes to antibiotic resistance
how antibiotic resistance is an example of evolution
what will happen if antibiotics no longer work
what could serve as an alternative to antibiotics
potential alternatives to antibiotics to cure bacterial disease

Standards

The content standards that are taught and/or assessed in this unit.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

- [x] Select appropriate tools to collect, record, analyze, and evaluate data.
- [x] Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.
- [x] Manipulate variables and collect data about a complex model of a proposed process or system to identify failure points or improve performance relative to criteria for success or other variables.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

- [x] Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.
- [x] Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

- [x] Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.
- [x] Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
- [x] Apply scientific ideas, principles, and/or evidence to provide an explanation of phenomena and solve design problems, taking into account possible unanticipated effects.
- [x] Apply scientific reasoning, theory, and/or models to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.

Practice 7. Engaging in argument from evidence

Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science.

- [x] Construct, use, and/or present an oral and written argument or counter-arguments based on data and evidence.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

- Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

2. Cause and Effect: Mechanism and Prediction – Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

- Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.

5. Energy and Matter: Flows, Cycles, and Conservation – Tracking energy and matter flows, into, out of, and within systems helps one understand their system's behavior.

- Energy cannot be created or destroyed—only moves between one place and another place, between objects and/or fields, or between systems.

6. Structure and Function – The way an object is shaped or structured determines many of its properties and functions.

- Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.
- The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

- Much of science deals with constructing explanations of how things change and how they remain stable.
- Feedback (negative or positive) can stabilize or destabilize a system.

NGSS: Disciplinary Core Ideas

NGSS: 9-12

LS1: From Molecules to Organisms: Structures and Processes

LS1.A: Structure and Function

- Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself acomponent of the next level. (HS-LS1-2)
- Feedback mechanisms maintain a living system's internal conditions withincertain limits and mediate behaviors, allowing it to remain alive andfunctional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) ordiscourage (negative feedback) what is going on inside the living system.(HS-LS1-3)

LS4: Biological Evolution: Unity and Diversity

LS4.B: NaturalSelection

- Natural selection occurs only if there is both (1) variation in the genetic information between organisms in a population and (2) variation in the expression of that genetic information—that is, trait variation—that leads to differences in performance among individuals. (HS-LS4-2),(HS-LS4-3)
- The traits that positively affect survival are more likely to be reproduced,and thus are more common in the population. (HS-LS4-3)

LS4.C: Adaptation

- Natural selection leads to adaptation, that is, to a population dominated by organisms that are anatomically, behaviorally, and physiologically well suited to survive and reproduce in a specific environment. That is, thedifferential survival and reproduction of organisms in a population thathave an advantageous heritable trait leads to an increase in the proportion of individuals in future generations that have the trait and to a decrease in the proportion of individuals that do not. (HS-LS4-3),(HS-LS4-4)
- Adaptation also means that the distribution of traits in a population can change when conditions change. (HS-LS4-3)

Interactive version of NGSS
NGSS Resources

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Students will
listen to and record Unit 3 Notes during a series of interactive lectures. HS-LS1A, HS-LS4B, HS-LS4C, CCC- 1, 2, 5, 6, 7
complete UV Radiation Investigation Inquiry Lab Science and Engineering Practices 1, 2, 5, 6, 7, HS-LS1A

Portrait of the Newtown Graduate

complete Integumentary System Plate Drawing (This image is the same image as the "Skin Coloring" assignment.) HS- LS1A
complete "Tattoo You" Reading and Questions HS-LS1A
watch and Discuss "The Biology of Skin Color" HS-LS4B, HS-LS4C

Copy of Unit 3: Integumentary System
Copy of Skin Coloring.pdf
Copy of Tattoo You.docx
Copy of Tattoo Reading Questions
Copy of Honors Pig Foot Dissection- Notebook Requirements
HHMI: The Biology of Skin Color
Copy of Copy of Copy of UV Radiation Investigation
bad_burn_key TEACHER.pdf
bad_burn Case study 2025.pdf
bad_burn_notes TEACHER.pdf
typical_cold_key TEACHER.pdf
typical_cold_notes TEACHER.pdf
typical_cold Case Study 2025.pdf

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Keratin
Melanocytes
Melanin
Dendritic
Langerhans Cells
Tactile epithelial
Merkel cells
Hair
Hair follicles
Arrector pili
Eccrine sweat glands
Apocrine sweat glands
Macrophages
Lymphatic vessels
Lymph
Lymph nodes
Lacteals
T cells
B cells
Immunity
Pathogen
Antigens
Antibodies
Phagocytes
Inflammation
Vaccination
Antigen-presenting cells
Vaccination

Resources

Teacher and student resources used to support the learning.

Skin Coloring Assignment

Video Links Below

Copy of Skin Coloring.pdf
TedEd: The Science of Skin
Amoeba Sisters: Integumentary System
Crash Course: Skin Deep
Crash Course: Skin Deeper

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Integumentary System Test | Summative | Written Test

14 Standards Assessed

Integumentary System Quiz | Formative | Written Test

Check in on first half of notes.

5 Standards Assessed

Integumentary System Plate Drawing | Summative | Visual Arts Project

Create an Exact Replica of the drawing provided, to scale, with proper labeling, following any instructions given by the teacher.

Image on second page of attached document.

Copy of Skin Coloring.pdf | Copy of Copy of Plate Drawing Grading Criteria.docx

2 Standards Assessed

Sunscreen Lab | Formative | Lab Assignment

Copy of Copy of Copy of UV Radiation Investigation | Copy of Sunscreen Inquiry Lab- Score Sheet

9 Standards Assessed

Pig Foot Dissection | Formative | Lab Assignment

Copy of Honors Pig Foot Dissection- Notebook Requirements | Copy of Lab 3: Pig Foot Dissection Score Sheet

4 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

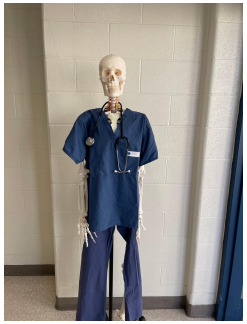
Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Anatomy and Physiology

Facilitator- Tara Allegretto

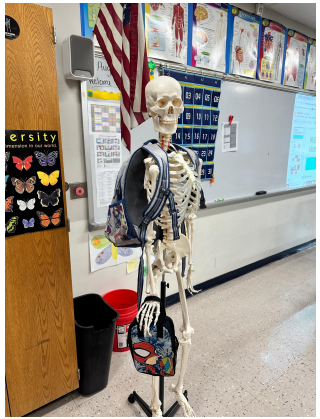
Anatomy and Physiology



Goals:

- Understand the basic organization of the human body and major body systems.
- Identify key structures and describe general functions of organs and tissues.
- Recognize the importance of homeostasis and its role in health.
- Apply learned concepts to everyday examples of human health and wellness.
- Conduct guided and inquiry based labs to explore anatomical models and basic dissections.
- Work cooperatively in lab groups and communicate findings clearly.
- Collaborate as scientific peers, present detailed analyses, and support claims with evidence from research or experimentation.
- Employ self-directed learning strategies, manage rigorous content independently, and reflect critically on study effectiveness.

CP Level vs. Honors Level



-The body systems covered and the general content is the same.

-Honors has a lab section which affords more time to dive deeper into the chemistry related to the “physiology”. The honors section has “success in honors chemistry” as a prerequisite, which allows them to incorporate more of their chemistry background knowledge.

-Students taking the honors section generally have goals to pursue upper level science courses in college and careers in the medical field, therefore assessments at that level resemble college level exam expectations.

-CP level is still considered rigorous. Students pursuing nursing leave well prepared for what to expect at the next level.

-Both Honors and CP do the same labs. Non-lab sections have those labs divided up over multiple days when necessary.

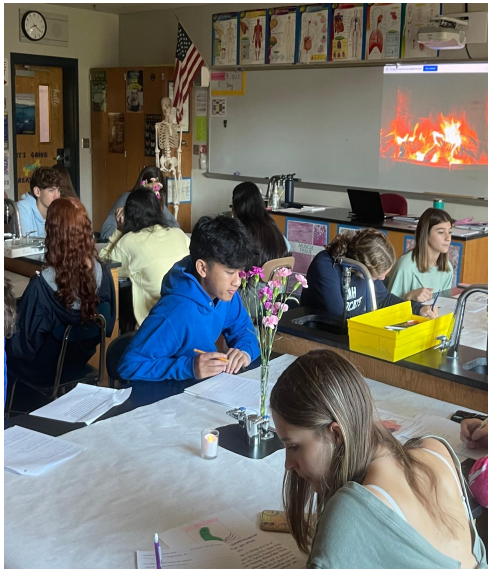
Introduction to the Human Body

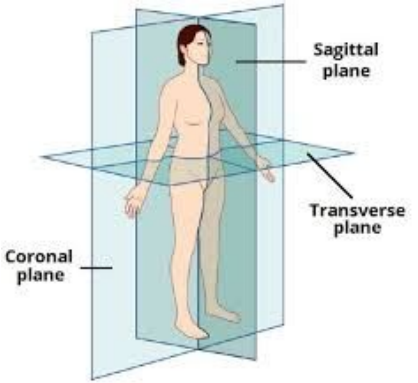
Purpose: The purpose of this unit is to review important biological concepts relevant to anatomy and physiology and to introduce essential anatomical terms and concepts that spiral throughout the course.

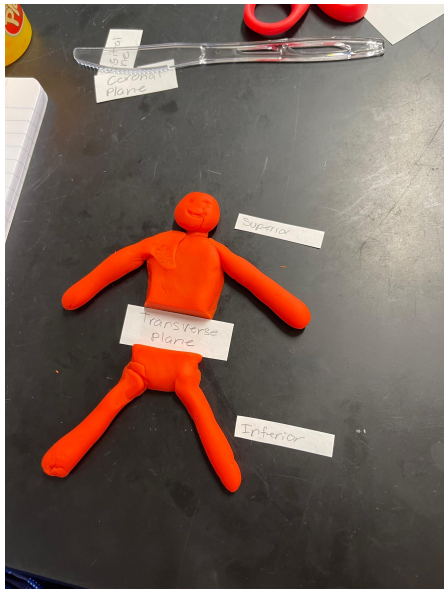
Lens: **Structure and Function**

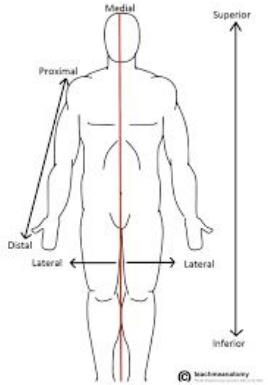
Concepts: Homeostasis, Hierarchy, Organization, Position, Regions, Complementarity.

Activities: Sheep Brain Dissection (Directional Terms and Body Planes), “Mini-me” Model Activity (Body Cavities), Organelle Speed Dating









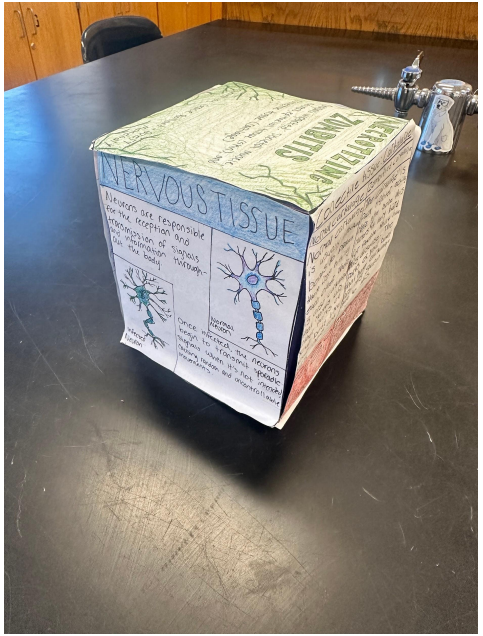
Tissues of the Human Body

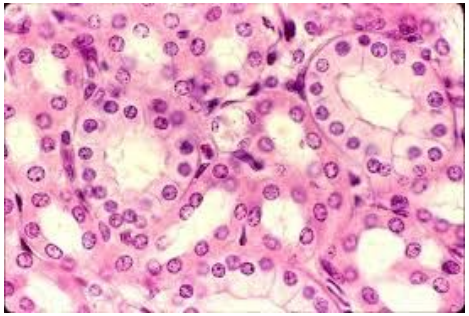
Purpose: The purpose of this unit is to introduce the types of epithelial and connective tissue that can be found throughout the body and to make connections between the structures of each of the tissue types, and their functions.

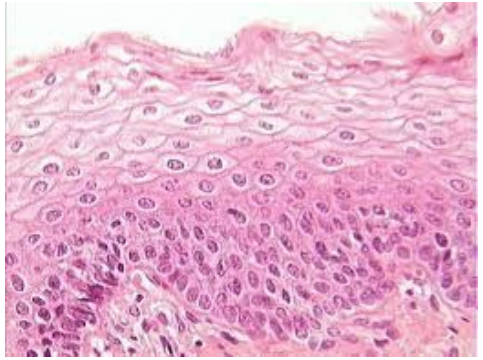
Lens: **Structure and Function**

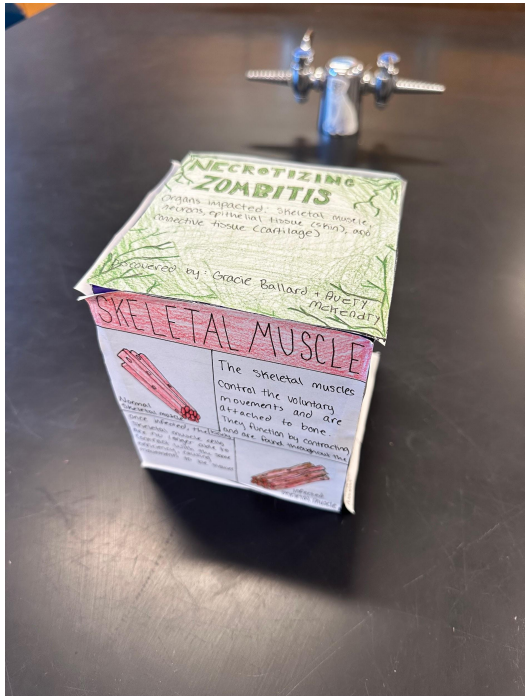
Concepts: Complementarity of Structure and Function, Identification, Coordination

Activities: Plate Drawings, Digital Microscope Lab, Zombie “Tissue Box”, Biopsy Application









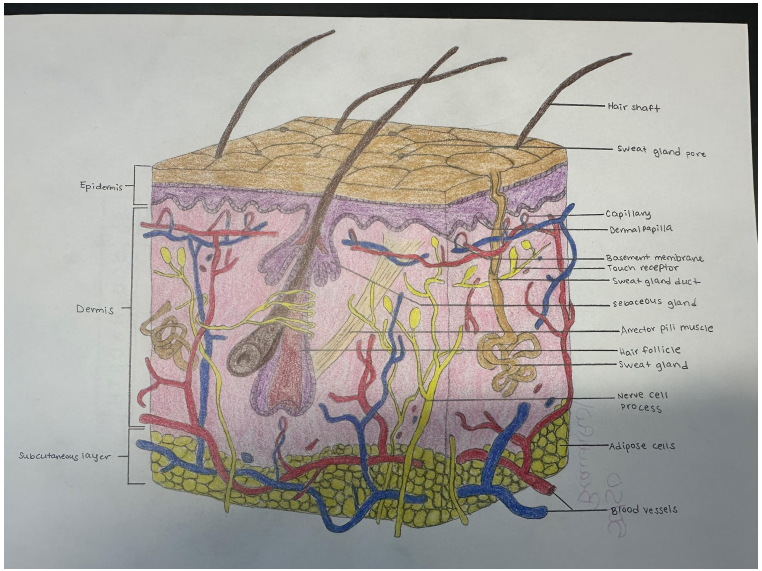
Integumentary System

Purpose: The purpose of this unit is to show how the various components of skin work to allow skin to carry out its many functions.

Lens: **Structure and Function**

Concepts: Complementarity of Structure and Function, Identification, Protection, Homeostasis, Wounds and Burns

Activities: Plate Drawings, The Biology of Skin Color Activity, Sunscreen Inquiry Lab, Pig Foot Dissection



Skeletal System

Purpose: The purpose of this unit is to discuss how the structure of the skeletal system, both at the microscopic and macroscopic level, allows it to carry out its many functions. This unit also addresses types of movements the skeletal system allows and the joint structure determines the types of movements allowed.

Lens: **Structure and Function**

Concepts: Complementarity of Structure and Function, Homeostasis, Movement, Organization, Hormones, Fracture, Healing, Identification

Activities: Yoga Joint Analysis, Movement Video Project, Plate Drawings, Bone Classification Activity, Bone Labeling Relay Race Review

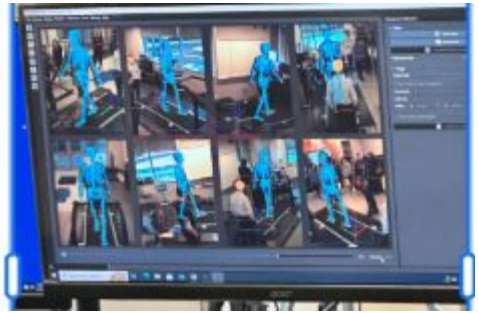
Muscular System

Purpose: The purpose of this unit is to demonstrate how the structure of muscle allows for it to carry out its many roles in the body and to review the physiology of muscle contraction.

Lens: **Structure and Function**

Concepts: Complementarity of Structure and Function, Homeostasis, Movement, Organization, Contraction, Identification

Activities: Muscle Fatigue Lab, Plate Drawings, Rigor Mortis Assignment, Field Trip to CHAMP Center at SCSU



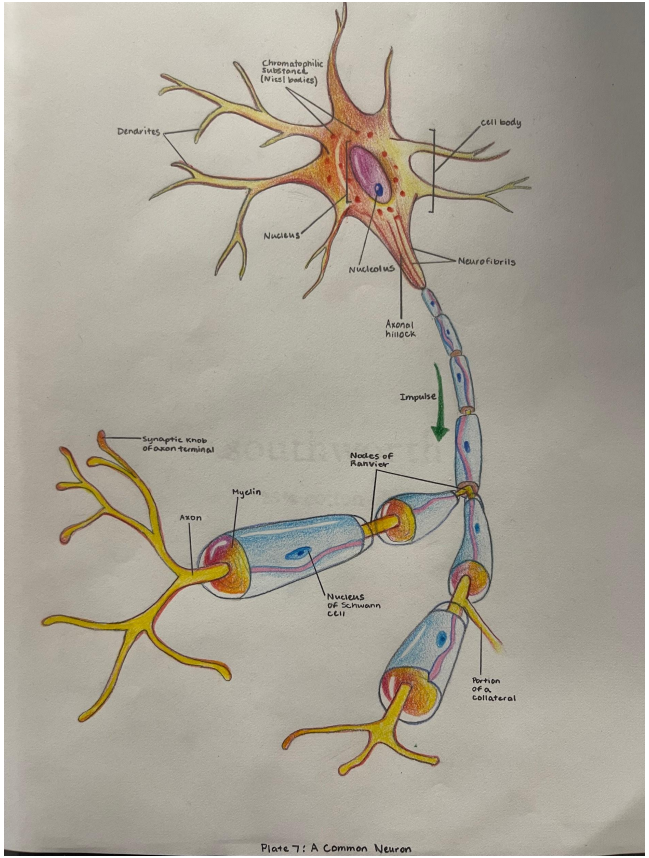
The Nervous System

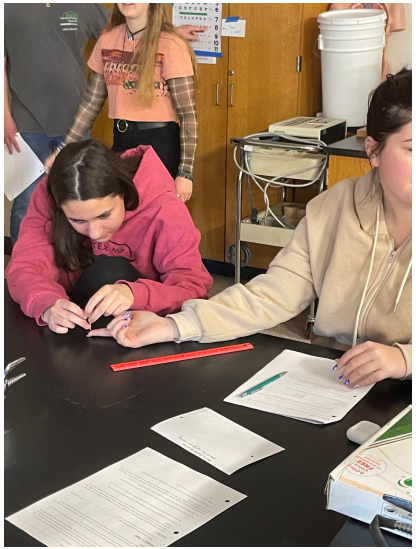
Purpose: The purpose of the unit is to show how the parts of the nervous system work together to manage the functions of the body.

Lens: **Structure and Function**

Concepts: Complementarity of Structure and Function, Homeostasis, Stimulus Response, Transmission, Classification, Interdependence

Activities: Action Potential Inquiry Activity, Senses Lab





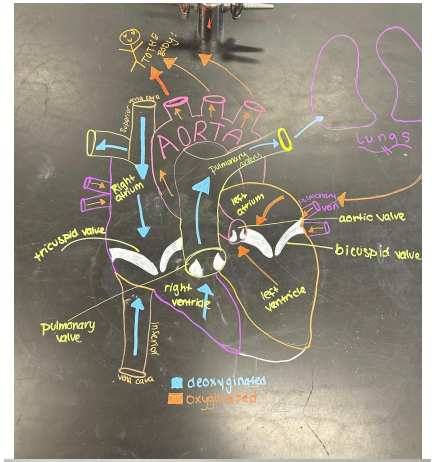
Transport- Cardiovascular and Respiratory System

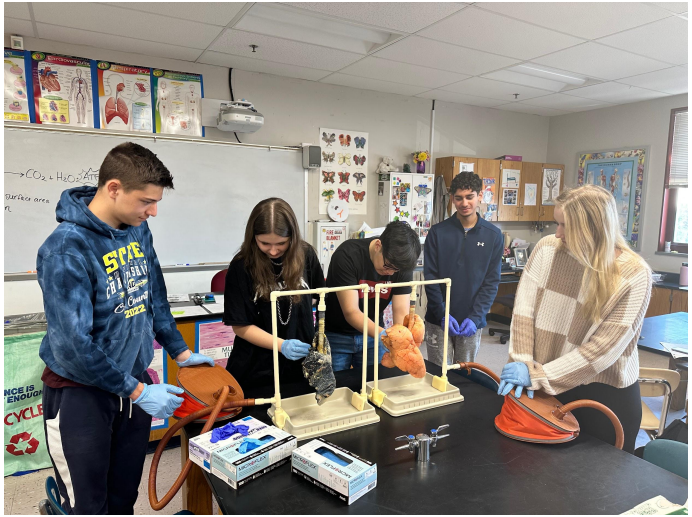
Purpose: The purpose of this unit is for students to understand the respiratory and circulatory systems. This includes the pathway of oxygen and carbon dioxide flow through the respiratory and circulatory systems. It also includes how the heart functions to pump blood to deliver oxygen to tissues and remove carbon dioxide from the body.

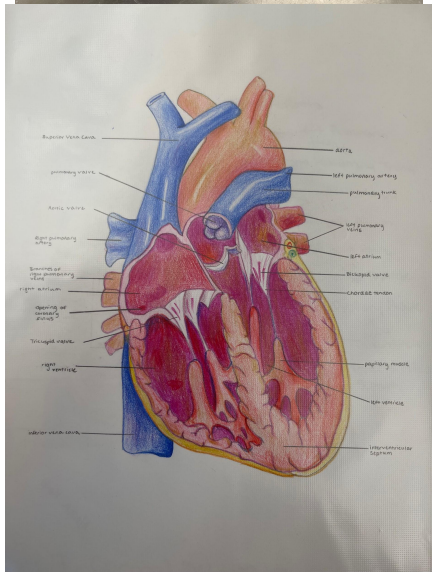
Lens: Structure and Function

Concepts: Complementarity of Structure and Function, Homeostasis, Transport, Interdependence

Activities: Plate Drawings and Table Graffitti, Lung Capacity Lab, Heart Dissection, Healthy v. Smokers Lung Demo







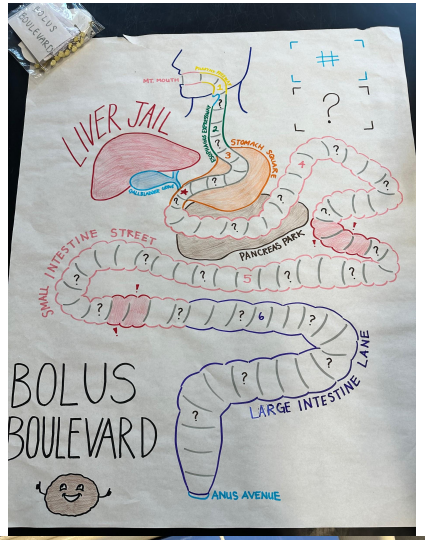
Absorption and Excretion (Digestive and Urinary Systems)

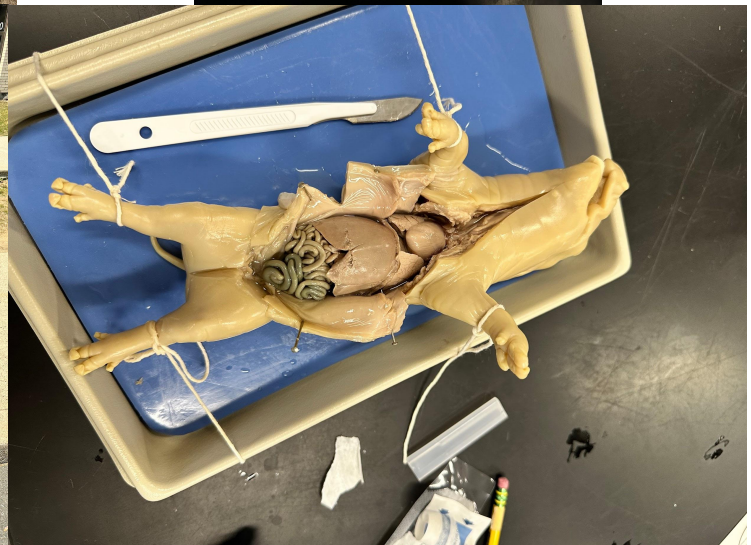
Purpose: The purpose of this unit is for students to develop an understanding of how the body effectively and efficiently absorbs nutrients and excretes wastes from the foods they eat to acquire necessary raw materials for maintaining homeostasis.

Lens: **Structure and Function**

Concepts: Complementarity of Structure and Function, Homeostasis, Digestion, Excretion, Filtration, Interdependence

Activities: Plate Drawings and Chalk Models, The “Poop Scoop”, Fetal Pig Dissection, Digestive System Board Games





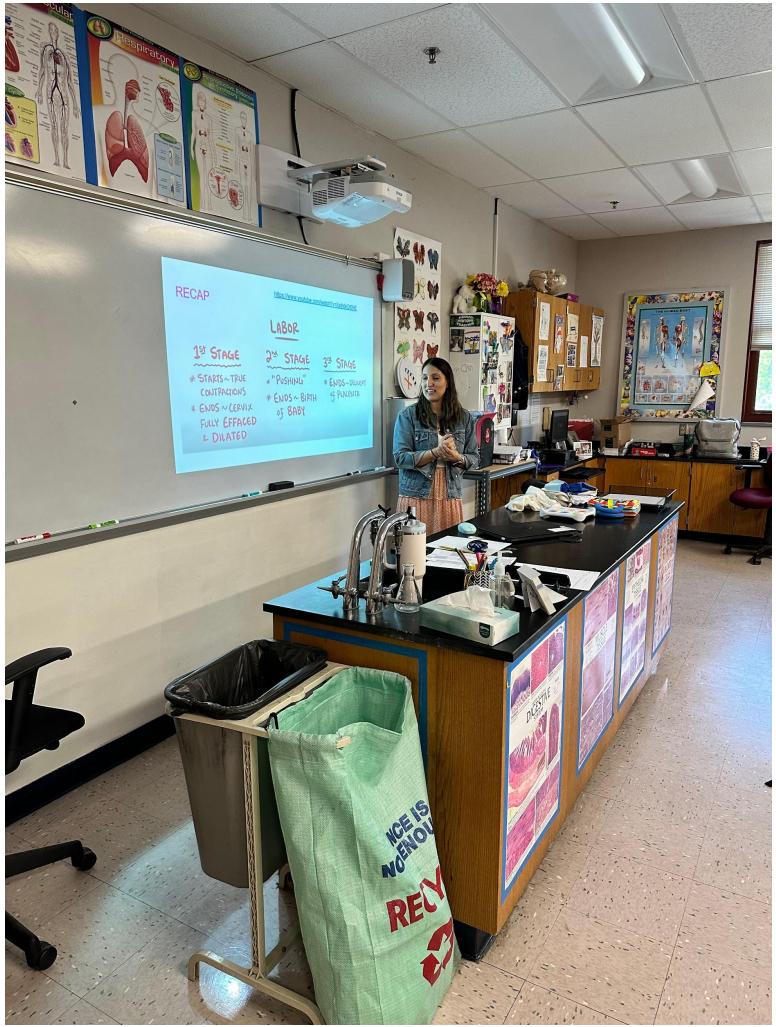
Reproduction and Fetal Development

Purpose: The purpose of this unit is for students to follow fetal development, from conception to birth, and to explore how and what kinds of complications could potentially impact mother and baby.

Lens: **Growth and Development**

Concepts: Complementarity of Structure and Function, Fertilization, Cell Division, Differentiation, Labor, Complications

Activities: Pregnancy and Developmental Complications Assignment, DELIVERY DAY!



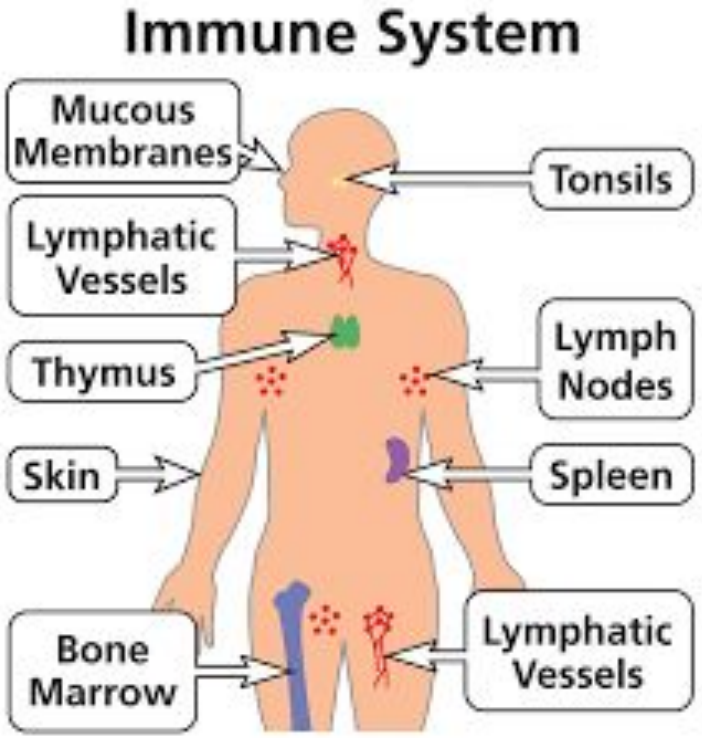
The Immune and Lymphatic Systems

Purpose: The goal of this unit is for allow students to understand how various tissues and cell types are involved in protection and the maintenance of homeostasis.

Lens: **Protection**

Concepts: Complementarity of Structure and Function, Homeostasis, Immunity, Disease, Vaccination

Activities: Case Studies (**A Bad Cold** and **A Bad Burn**)

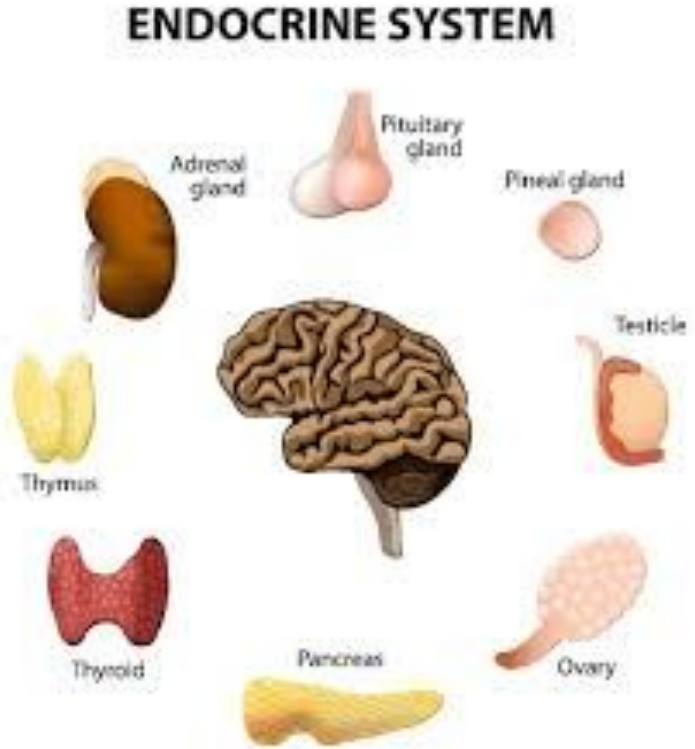


The Endocrine System

Purpose: The goal of this unit is for students to gain an understanding of how structure of hormone dictates their function and how every body system depends on hormonal regulation.

Lens: **Structure and Function/Interdependence**

Concepts: Complementarity of Structure and Function, Homeostasis, Stimulus and Response, Hormones



Newtown Public Schools

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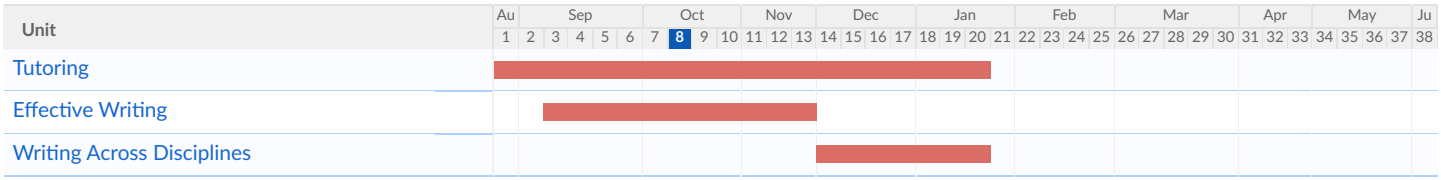
Writing Center Theory and Practice (Due for Review/Revision)

Newtown High School / High School / English Language Arts

3 Curriculum Developers | Last Updated: Tuesday, Jun 10, 2025 by Lye Jr, Victor

Unit Calendar by Year



3 Units found

Newtown Public Schools

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Unit Plan

Tutoring

Newtown High School / High School / English Language Arts

Week 1 - Week 20 | 3 Curriculum Developers | Last Updated: Jun 10, 2025 by Lye Jr, Victor

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

To create an understanding of the tutoring process and sessions and the role of a writing center tutor.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Tutoring
Concepts: Writing, conversations, anticipation, needs, reflection, sessions, tutor, writer

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. Effective tutors meet the needs of the writer without judgment.
2. Tutoring requires conversations about writing rather than editing someone's work.
3. Tutors anticipate writers' needs and adjust their sessions as necessary.
4. Tutoring makes better writers, not better papers.
5. Constant reflection on writing and tutoring creates a well-rounded tutor.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. How does a rubric direct a tutoring session? (F)
1b. How do tutors meet the writer where they are? (C)
1c. Can a tutor conduct a session without relying on judgment? (P)

2a. How does the tutor start a conversation with a writer? (F)
2b. How does a tutor establish credibility with a writer? (C)
2c. Can a tutor establish rapport with a writer in a short period of time? (C)

3a. What questions does a tutor ask to understand what a writer needs? (F)
3b. How does a tutor know what a writer needs? (C)
3c. What adjustments are necessary for a successful tutoring session? (C)

4a. Why is it necessary for a writer to read their work aloud? (F)
4b. How can a tutoring session make someone a better writer? (C)
4c. How does a tutor know if a session was successful? (P)

5a. How does a tutoring session benefit the tutor? (F)
5b. How does written reflection on the tutoring experience allow for a better understanding of the process? (C)
5c. How do tutors adapt and adjust to meet their needs and the needs of the writer? (P)
5d. What makes a good tutor? (P)

Content Knowledge

*Critical facts and information that students are expected to **KNOW** at the end of the unit.*

Students will:

- independently conduct a tutoring session with another student while delivering helpful and insightful guidance.
- react to the needs of a writer in a session
- demonstrate the maturity and understanding to meet a writer where they are
- have a greater understanding of the writing process and the writing center's role in it.
- effectively demonstrate the skills to successfully pass a UCONN class.

Critical Skills

Critical skills that students are expected to be able to **DO** at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 6. Value and demonstrate personal responsibility, character, cultural understanding, and ethical behavior.

Standards

The content standards that are taught and/or assessed in this unit.

CCSS: English Language Arts 6-12
CCSS: Grades 11-12
Capacities of the Literate Individual
Students Who are College and Career Ready in Reading, Writing, Speaking, Listening, & Language

- [x] They build strong content knowledge. Show Details
- [x] They respond to the varying demands of audience, task, purpose, and discipline. Show Details
- [x] They come to understand other perspectives and cultures. Show Details

Writing

Production and Distribution of Writing 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

- [x] W.11-12.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

- [x] W.11-12.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

- [x] W.11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Language

Knowledge of Language 3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

- [x] L.11-12.3a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
- [x] L.11-12.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

- conduct tutoring sessions with students across disciplines and levels
- conduct tutoring sessions with reluctant writers
- constantly reflect on practice and ways to improve

Portrait of the Newtown Graduate

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Resources

Teacher and student resources used to support the learning.

- *Everything is an Argument* by Andrea Lunsford and John Ruszkiewicz
- *They Say/I Say* by Gerald Graff
- OWL at Purdue
- Secondary School Writing Center Assocation website/conference
- University of Connecticut Writing Center
- University of Connecticut libary and resources

https://www.youtube.com/watch?v=k2JZViSNgPg

https://www.jstor.org/stable/377047

Secondary School Writing Center Association tool kit

SSWCA resources

Richard Kent on Writing Centers

Creating Student Leaders in the Writing Center

The Writing Center Revolution

How to build on your writing center experience

Second School Writing Center Association

UCONN Writing Center

UCONN resources

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Reading Journal | Summative | Narrative Writing Assignment

Expository Essay

As part of the UCONN credit for this class, students will maintain a reading journal for the readings that are required for this class.

3 Standards Assessed

Tutoring sessions | Summative | Other oral assessments

Other oral assessments

students will be assessed on the tutoring sessions conducted throughout the semester.

5 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

Effective Writing

Newtown High School / High School / English Language Arts

Week 3 - Week 13 | 3 Curriculum Developers | Last Updated: Jun 10, 2025 by Lye Jr, Victor

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Writing,
Concepts: tutors, rubric, college essay, argument, thesis, feedback

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. A strong rubric contributes to good writing
2. College essays require constant revisions in order to obtain perfection.
3. All good writing is an argument.
4. Establishing a strong thesis is essential for a competent argument.
5. Feedback is essential in any creative piece to clarify the purpose of the story.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. What does a rubric tell the writer about what the teacher is looking for? (F)
1b. How does a tutor use a rubric to conduct a tutoring session? (C)
1c. Are rubrics subjective? (P)

2a. What is necessary for a good college essay? (F)
2b. How does an author decide what the reader should know about them? (C)
2c. What is voice? (F)
2d. How does an author establish their voice? (C)

3a. How does a writer construct an argument? (C)
3b. How does evidence support an argument? (C)
3c. What's the difference between argument and opinion? (P)

4a. What is necessary for a solid thesis statement? (F)
4b. How does a thesis establish an argument? (F)
4c. How does a strong thesis create the paper? (C)

5a. What is the difference between feedback and opinion? (P)
5b. What makes good creative writing? (C)
5c. How does a reader establish trust with an author? (C)
5d. How does a tutor give feedback on a creative piece? (F)

Content Knowledge

*Critical facts and information that students are expected to **KNOW** at the end of the unit.*

Critical Skills

Critical skills that students are expected to be able to **DO** at the end of the unit.

Students Will:

- understand what is necessary for a good college essay
- create their own college essay
- deconstruct a writing rubric to understand what teachers are looking for
- establish what makes a good creative piece
- write their own short story.

- 2. Work independently and collaboratively to solve problems and accomplish goals.
- 4. Demonstrate innovation, flexibility and adaptability in thinking patterns, work habits, and working/learning conditions.
- 5. Effectively apply the analysis, syntheses, and evaluative processes that enable productive problem solving.

Notes

Writing Centers

Standards

The content standards that are taught and/or assessed in this unit.

CCSS: English Language Arts 6-12

CCSS: Grades 11-12

Capacities of the Literate Individual

Students Who are College and Career Ready in Reading, Writing, Speaking, Listening, & Language

- ☑ They demonstrate independence. Show Details
- ☑ They build strong content knowledge. Show Details
- ☑ They comprehend as well as critique. Show Details

Writing

Text Types and Purposes 1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

- ☑ W.11-12.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

- ☑ W.11-12.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

Production and Distribution of Writing 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

- ☑ W.11-12.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

- ☑ W.11-12.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Speaking & Listening

Comprehension and Collaboration 1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

- ☑ SL.11-12.1b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
- ☑ SL.11-12.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Language

Knowledge of Language 3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

- ☑ L.11-12.3a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
- ☑ L.11-12.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Portrait of the Newtown Graduate

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

- peer-to-peer tutoring sessions within the classroom
- modelling effective peer-tutoring sessions
- research assignments on effective writing and tutoring centers
- visit writing center as a student
- develop tutorials based on the needs of the students who visit the writing center.

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Resources

Teacher and student resources used to support the learning.

- *The Bedford Guide for Writing Tutors by* Leigh Ryan and Lisa Zimmerelli
- *The Longman Guide to Peer Tutoring*
- Selected Essays on peer tutoring, writing, and writing center theory
- University of Connecticut Writing Center
- University of Connecticut Library and Resources

https://www.youtube.com/watch?v=k2JZViSNgPg
https://www.youtube.com/watch?v=pX6FLd3UHJY
https://www.youtube.com/watch?v=akNaYTeHVDU
https://owl.english.purdue.edu/owl/
Writing Rubric
UCONN Library

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

College Essay | Summative | Extended Essay

Expository Essay

College Essay Rubric.pdf

9 Standards Assessed

Short Story | Summative | Expository Essay

Extended Essay

Story Story Rubric.doc

5 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

Newtown Public Schools

Atlas

Unit Plan

Writing Across Disciplines

Newtown High School / High School / English Language Arts

Week 14 - Week 20 | 3 Curriculum Developers | Last Updated: Jun 10, 2025 by Lye Jr, Victor

Concept-Based Curriculum Unit Template

Purpose of the Unit

The overarching goal(s) of the unit.

Conceptual Lens/Concepts

Concepts are the "big ideas" of the unit. The conceptual lens is a particular concept that focuses the thinking of the unit.

Lens: Interdisciplinary Writing
Concepts: students, disciplines, tutoring, college, reflection

Generalizations

*Critical conceptual relationships that students are expected to **UNDERSTAND** at the end of the unit.*

1. Writing is important in all disciplines
2. Students need to learn to reflect and edit all writing.
3. Tutoring across disciplines requires the same skill set.
4. In college, one must understand that all classes examine a student's ability to write.

Guiding Questions

A combination of Factual (F), Conceptual (C) and Provocative/Debatable (P) questions that lead to the generalizations. Label each question (F), (C) or (P).

1a. How are writing rubrics different across disciplines? (F)
1b. What are teachers in non-English classes looking for in writing (C)
1c. How do tutors approach writing from non-English classes? (C)

2a. How do students approach writing outside of English Class? (C)
2b Do students take the same care with writing assignments outside of English classes? (P)
2c. What structural changes should take place to make writing across disciplines more important? (P)

3a. What services can the writing center offer for other disciplines? (F)
3b. What skills do tutors need to tutor other disciplines? (C)
3c. Should teachers across disciplines send their students to the writing center? (P)

4a. What skills do writers need at the next level? (F)
4b. How can tutors transfer their skills to college? (C)

Content Knowledge

*Critical facts and information that students are expected to **KNOW** at the end of the unit.*

Students will:

- analyze writing across disciplines
- work to promote the writing center for non-English writing

Critical Skills

Critical skills that students are expected to be able to **DO** at the end of the unit.

- 2. Work independently and collaboratively to solve problems and accomplish goals.

- discuss writing across disciplines with teachers
- present their findings on writing to the class

- 3. Communicate information clearly and effectively using a variety of tools/media in varied contexts for a variety of purposes.

Standards

The content standards that are taught and/or assessed in this unit.

CCSS: English Language Arts 6-12
CCSS: Grades 11-12
Capacities of the Literate Individual
Students Who are College and Career Ready in Reading, Writing, Speaking, Listening, & Language

- They build strong content knowledge. Show Details
- They value evidence. Show Details
- They use technology and digital media strategically and capably. Show Details

Writing
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

- W.11-12.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Core Learning Activities

The learning activities that support the acquisition of content knowledge, attainment of critical skills and lead to the generalizations of the unit. Activities should be clearly articulated, include teacher instructions and identify optional vs. assured experiences.

Portrait of the Newtown Graduate

Vocabulary

Academic and content-specific vocabulary needed to support knowledge, understanding and/or skills.

Resources

Teacher and student resources used to support the learning.

students will have to interview teachers across disciplines to discuss their approach to writing

Assessments

The means by which students will demonstrate what they know (content knowledge), what they can do (critical skills), and what they understand (generalizations) as a result of their learning from the unit.

Writing Center Theory and Practice Final | Summative | Oral Report

Other oral assessments

WCTP Final Project

4 Standards Assessed

Differentiation

Core learning activities, resources and assessments that meet the needs of all learners.

Test Prep Connections

As appropriate, include activities that build skills for standardized testing, such as IABs.

UCONN Writing Center Theory and Practice

C & I Subcommittee- Oct. 21- Rick Lye

Writing Center Background

- Newtown High School has had a writing center since 2010
- Over the last 15+ years, it has grown into the largest student-centered secondary school writing center in the state.
- On average, we conduct more than 1,000 conferences per year

Writing Center Theory and Practice Background

- We started the class over a decade ago to train our writing center tutors.
- It is a class in two parts:
  - The training
  - The tutoring
- It was initially based on the class taught at UCONN
- Last year, it became an ECE class at Newtown High School

Curriculum Work Goals

- Better align our curriculum with the work and expectations at the University of Connecticut Writing Center
- Incorporate current scholarship on high school writing centers nationwide
- Create a framework that allowed us to work with the types of writing we see vs. the types of writing a college-based center would see

Unit 1- Tutoring

Conceptual Lens: Tutoring

Concepts: Writing, conversations, anticipation, needs, reflection, sessions, tutor, writer

Summative Assessment: Tutoring sessions with outside classes

Unit 2- Effective Writing

Conceptual Lens: Writing

Concepts: Tutors, rubrics, college essay, argument, feedback, thesis

Summative Assessment: College Essay

Unit 3- Writing Across Disciplines

Conceptual Lens: Interdisciplinary Writing

Concepts: Students, disciplines, tutoring, college

Summative Assessment: Final Project on Writing Across Disciplines