To view this meeting, the livestream link is: https://vimeo.com/event/729428

To make a public comment the call in number is (US) 1-561-408-9187
The PIN is 813 708 576#

Board of Education
April 5, 2022

Council Chambers
7:00 p.m.

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.

A G E N D A

Item 1 PLEDGE OF ALLEGIANCE

Item 2 CONSENT AGENDA
- Donation to Newtown High School
- Correspondence Report

Item 3 **PUBLIC PARTICIPATION

Item 4 REPORTS
- Chair Report
- Superintendent's Report
- Committee Reports
- Student Representatives Report

Item 5 PRESENTATIONS
- iReady Data
- Proposed Changes to Math Pathways
- First Read of Integrated STEM Grade 5
- First Read of Integrated STEM Grade 6

Item 6 OLD BUSINESS
- Second Read and Possible Action on Computer Integration Curriculum Grade 7 and 8
- Second Read and Possible Action on Technology Education Curriculum Grade 7 and 8
- Second Read and Possible Action on Policies
  - 4111.1 / 4211.1 Equal Employment Opportunity (Affirmative Action)
  - 4111.3 / 4211.3 Plan for Minority Recruitment and Selection
  - 4118.239 / 4218.239 Required COVID-19 Vaccinations--to be rescinded

Item 7 NEW BUSINESS
- Hawley Update
- Discussion and Possible Action on Newtown Middle School Moving Up and Newtown High School Graduation Dates
- Discussion and Possible Action on Board of Education District Highlights
- Action on Minutes of March 15, 2022
- Action on Minutes of March 24, 2022

Item 8 **PUBLIC PARTICIPATION

Item 9 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. We request that speakers be respectful and limit comments to not more than three minutes. The Board of Education does not discuss personnel items or student matters in public. 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 BOE: NewtownBOE@newtown.k12.ct.us*

March 22, 2022

TO: Dr. Lorrie Rodrigue

FROM: Kimberly Longobucco

Please accept the donation of $12,000 from long time softball coach Lindell Hertberg for the construction of a press box behind the backstop at the softball field at NHS. This facility would serve as a storage facility along with a place for the announcer and scorekeepers from both teams to sit and work during the games.

Thank you.

Lindell Hertberg
61 Main Street
Newtown, CT 06470

TO: Lorrie Rodrigue, Superintendent
FROM: Suzanne D'Eramo, Director of Human Resources
RE: Superintendent's Report – Certified Staffing Update for MARCH 2022
DATE: March 30, 2022

MARCH 2022

CERTIFIED RETIREMENTS:
Nancy Cedor – RIS SPED teacher (eff. June 30, 2022)
Janet Filmer – NHS math teacher (eff. June 30, 2022)

CERTIFIED RESIGNATIONS:
None

CERTIFIED NEW HIRES:
None

CERTIFIED OPEN POSITIONS:
MGS SPED (PAL Program – 1 year position)
RIS/NMS School Psychologist

ADDITIONAL DISTRICT HIRING NOTES:

Here is a recap of all certified/non-certified staff who began working in March:
Building subs/LT subs = 3
Paraeducators = 1

Of the 4 newly hired employees, 1 indicated a diverse ethnicity or race other than white. This equates to a total of 25% broken down as follows:
Asian = 1

2021-22 SPRING COACH ROSTER

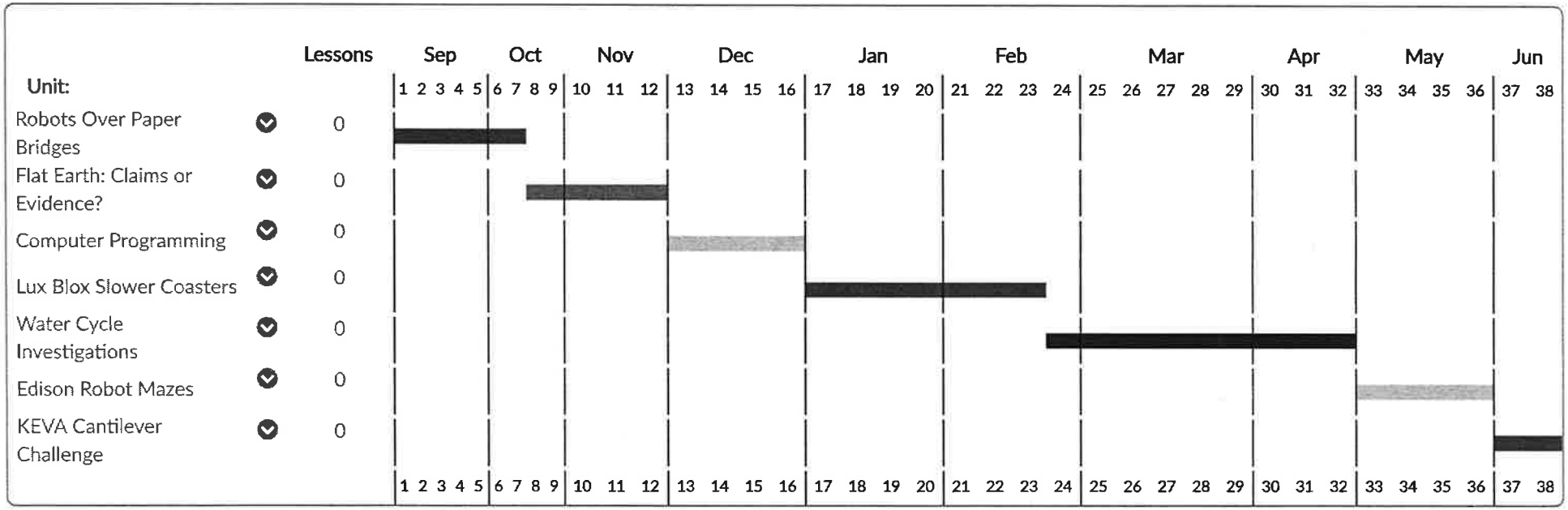
L Rodrigue

NAME	SPORT	STEP
JEREMY O'CONNELL	GIRLS GOLF	3
MAUREEN MAHER	GIRLS TENNIS	3
ANNA MALKIN	BOYS TENNIS	2
BECKY OSBORNE	OUTDOOR BOYS TRACK	3
BECKY BOURRET	OUTDOOR GIRLS TRACK	3
MEGAN GUARINO	ASSISTANT BOYS TRACK	3
LAURA MCLEAN	ASSISTANT GIRLS TRACK	3
KEVIN HOYT	ASSISTANT BOYS TRACK	3
RYAN EBERTS	ASSISTANT GIRLS TRACK	3
BARBARA SKIDMORE	ASSISTANT BOYS & GIRLS TRACK	3
JOANNA CLOSS	SOFTBALL	3
KERRY BEGIN	SOFTBALL - JV	3
CHRISTINE TISI	SOFTBALL - FRESHMAN	2
IAN THOESEN	BASEBALL	3
MATT PAOLA	BASEBALL - JV	3
MATT MENARD	BASEBALL - FRESHMAN	3
SCOTT BULKLEY	BOYS LACROSSE	3
NICK GROCCIA	BOYS LACROSSE - JV	2
SANDY DOSKI	BOYS VOLLEYBALL	3
TBD	BOYS VOLLEYBALL - JV	3
MAURA FLETCHER	GIRLS LACROSSE	3
LOU SANTOLI	GIRLS LACROSSE - JV	3
LARRY SALADIN	UNIFIED HEAD COACH	
REBECCA MILES	UNIFIED ASSISTANT COACH	
BOB PATTISON	WEIGHT ROOM SUPERVISOR	
JOHN LEARY	WEIGHT ROOM SUPERVISOR	
JOSEPH LIZZA	SEASONAL SITE SUPERVISOR	
MIDDLE SCHOOL		
ANDREW TAMMERO	SOFTBALL	
MICHELLE FONTAINE	ASSISTANT SOFTBALL	
GREGORY HORNE	BASEBALL	
COLLIN RUSSELL	ASSISTANT BASEBALL	
ANDREW TAMMERO	UNIFIED HEAD COACH TRACK/VOLLEYBALL	
KEN KANTOR	ASSISTANT UNIFIED COACH TRACK/VOLLEYBALL	
VOLUNTEERS		
CHRISTINA WOLF-GALLO	SOFTBALL	
LINN HERTBERG	SOFTBALL	
JOE CRIMI	BASEBALL	
JOSEPH LIZZA	BASEBALL	
MATT PAZ	BASEBALL	
NANCY ANDERSON	GIRLS TENNIS	
JEREMY DOSKI	BOYS VOLLEYBALL	
STEVEN GOCEIA	BOYS LACROSSE	
STEPHANIE SUHOZA	GIRLS LACROSSE	
MARK FELTCH	GIRLS LACROSSE	
CASEY REGAN	GIRLS GOLF	

Newtown Public Schools

Integrated STEM Gr. 6

3 Curriculum Developers



Previous Year

Unit Planner: Robots Over Paper Bridges
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:21AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 1 - Week 7

Last Updated: Wednesday, March 23, 2022 by Peter Bernson

Robots Over Paper Bridges

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Structure and Function

Concepts: properties, materials, structure, suitability, solutions, engineering design

G

Generalizations / Enduring Understandings

1. Properties of materials determine the suitability for designing solutions to problems.
2. Alteration of a material's structure changes the effectiveness of the material's application.
3. Design solutions can be compared and improved to solve engineering problems.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Properties of materials determine the suitability for designing solutions to problems.

- What material properties does paper have? (F)
- Which properties of paper are advantageous for bridge building? (C)
- Why is paper not used in real-world bridge construction? (C)
- Is there a single best material for bridge building? (P)

2. Alteration of a material's structure changes the effectiveness of its application

- Can the properties of paper be manipulated to improve its ability to support a load? (C)

3. Design solutions can be compared and improved to solve engineering problems.

- What are the typical structural components of a bridge? (F)
- What is a static load? (F)
- What is a dynamic load? (F)
- How are the structural considerations different for a bridge carrying a dynamic load compared to a static load? (C)
- What determines when enough testing has been done to ensure the safety or effectiveness of a structure (P)?

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

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

Asking questions and defining problems in 6–8 builds on K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models.

Define a design problem that can be solved through the development of an object, tool, process or system and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions.

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

Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.

Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints.

NGSS: Crosscutting Concepts

NGSS: 6-8

Crosscutting Statements

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

Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- work effectively in a collaborative group.
- engage in the Engineering Design Process.
- manipulate the structure of paper to effectively build a bridge made of paper that can support a robot driving over it.
- program a remote control using barcodes that can control the drive motors of an Edison robot.

Core Learning Activities

See linked document for unit plan and activities.

6th - Robots Over Paper Bridges Unit Plan

6th - Paper Bridges instructions

Assessments

Collaborative Rubric - Edison Bridges

Summative: Group Project

Collaborative Rubric - Edison Bridges

Resources

Professional & Student

See linked folder for all unit resources.

(6th) - Robots Over Paper Bridges

Edison Bar Codes Resource Page

Student Learning Expectation & 21st Century Skills

Information Literacy

Critical Thinking

Spoken Communication

Written Performance

Interdisciplinary Connections

Unit Planner: Flat Earth: Claims or Evidence?
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:23AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 8 - Week 12

Last Updated: Wednesday, March 23, 2022 by Peter Bernson

Flat Earth: Claims or Evidence?

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Scientific Argumentation

Concepts: claims, evidence, reasoning, evaluation, gravity, astronomical patterns

G

Generalizations / Enduring Understandings

1. Observation of the Earth and sky provides evidence for claims about the nature of the planet.
2. Critical evaluation of evidence determines the validity of claims.
3. Scientific laws provide reasonable explanations for observable phenomena.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Observation of the Earth and sky provides evidence for claims about the nature of the planet.

- What is gravity? (F)
- What shape is the Earth? (F)
- What direction is down? (C)
- What constitutes evidence to support claims about the Earth's shape? (C)
- Are there evidence based claims to support the belief that the Earth is flat? (P)

2. Critical evaluation of evidence determines the validity of claims.

- What is a scientific claim? (F)
- What process leads to an informed decision? (C)
- How can evidence be used to evaluate a scientific claim? (C)
- Is it important to distinguish between scientific claims and nonscientific claims? (P)
- Is it important to acknowledge the weaknesses of your argument? (P)
- Are some claims more valid than others? (P)

3. Scientific laws provide reasonable explanations for observable phenomena.

- What is gravity? (F)
- How do scientists respond to different perspectives? (C)
- How does science change over time? (C)
- Which direction is down? (P)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

Practice 4. Analyzing and interpreting data

Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.

Analyze and interpret data to provide evidence for phenomena.

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

Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.

Construct an explanation using models or representations.

Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) 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 construct, revise and/or use an explanation for real-world phenomena, examples, or events.

Apply scientific reasoning to show why the data or evidence is adequate for the explanation or conclusion.

Practice 7. Engaging in argument from evidence

Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).

Compare and critique two arguments on the same topic and analyze whether they emphasize similar or different evidence and/or interpretations of facts.

Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail.

Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

Practice 8. Obtaining, evaluating, and communicating information

Obtaining, evaluating, and communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods.

Evaluate data, hypotheses, and/or conclusions in scientific and technical texts in light of competing information or accounts.

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

Scientific Knowledge is Based on Empirical Evidence

Science knowledge is based upon logical and conceptual connections between evidence and explanations.

Scientific Knowledge is Open to Revision in Light of New Evidence

Scientific explanations are subject to revision and improvement in light of new evidence.

NGSS: Disciplinary Core Ideas

NGSS: Grade 5

PS2: Motion and Stability: Forces and Interactions

PS2.B: Types of Interactions

The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)

NGSS: 6-8

PS2: Motion and Stability: Forces and Interactions

PS2.B: Types of Interactions

Gravitational forces are always attractive. There is a gravitational force between any two masses, but it is very small except when one or both of the objects have large mass—e.g., Earth and the sun. (MS-PS2-4)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- understand that massive objects like Earth exert a gravitational force toward their center of gravity.
- compare relative sizes and proportions of the elements of an Earth model.
- critically evaluate claims based on evidence and reasoning.
- determine the relative validity of different sources of scientific information.
- navigate and complete an activity on the Edpuzzle platform.

Core Learning Activities

See linked unit plan below.

Unit 2 (6th) - Flat Earth Claims/Evidence Unit Plan

Is the Earth Really Round?

Wonderings About the Flat Earth Model (by class)

Assessments

Looking Through the Earth
Formative: Other written assessments
Students select an answer and explain why it best describes what they think they would see if they could look straight through to the other side of the Earth.

Looking Through the Earth (probe)

Flat Earth: Claims, or Evidence?
Formative: Other written assessments
Video-based quiz requiring analysis of Flat Earth claims.

Resources

Professional & Student

See linked folder for all unit resources.

6th - Flat Earth Claims/Evidence

Where Do People Live? Probe Data

The Earth Is Curved - Ask a Spaceman video

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

STEM connections to the regular classroom:

- Science - supports instruction for following Performance Expectations: 5-PS2-1; MS-PS2-4

Unit Planner: Computer Programming
Integrated STEM Gr. 6

Monday, March 28, 2022, 10:10AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 13 - Week 16

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Computer Programming

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Human/Machine Interaction

Concepts: block-based programming, language-based programming, translation

G

Generalizations / Enduring Understandings

1. Computer programming languages translate instructions into a language computers understand to effect a desired outcome.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. People control computers by translating commands into programming languages.

- What is block-based programming? (F)
- What is language-based programming? (F)
- How does language-based programming differ from block-based programming? (C)
- How do programming languages compare to spoken languages? (C)
- Is it more effective to work on computer programming as part of a team or individually? (P)

Standard(s)

Connecticut Core Standards / Content Standards

CSTA: Computer Science Standards (2017)

CSTA: 6–8

Practices

Practice 2. Collaborating Around Computing
By the end of Grade 12, students should be able to:

3. Solicit and incorporate feedback from, and provide constructive feedback to, team members and other stakeholders.

Practice 5. Creating Computational Artifacts
By the end of Grade 12, students should be able to:

1. Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.

2. Create a computational artifact for practical intent, personal expression, or to address a societal issue.

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- use block-based programming to create a game or story using the code.org platform.
- share completed game/story with others by link or text message.
- understand the difference between block-based and text-based programming languages.
- follow detailed tutorial directions independently in order to learn basic JavaScript syntax and commands.
- apply JavaScript programming to create their own meme based on BrainPOP characters.
- take a screenshot of a selected area of their Chromebook screen.
- access saved files on their Chromebook and upload to an online space to share (Padlet).
- provide peer feedback and self-assess their comfort level with a challenging new skill.

Core Learning Activities

See documents linked below for unit plan and activities.

6th - Computer Programming Unit Plan

6th - Computer Programming

Sample Padlet page for posting work

Assessments

JavaScript Meme

Formative: Technology Project

Students create a meme using JavaScript, post it to an online bulletin board (Padlet), view peers' work, provide feedback, and self-assess personal confidence level.

Padlet Dashboard

Padlet: sample template for directions and class posting

Resources

Professional & Student

See folder linked below for unit resources.

Unit 3 (6th) - Hour of Code

BrainPop Login Page

BrainPop Vidcode JavaScript page

Student Learning Expectation & 21st Century Skills

Information Literacy

Critical Thinking

Spoken Communication

Written Performance

Interdisciplinary Connections

STEM Connections to other classes:

- Technology - exploring common coding languages
- Spanish - relationship between spoken/written languages and computer programming languages

Unit Planner: Lux Blox Slower Coasters
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:25AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 17 - Week 23

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Lux Blox Slower Coasters

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Energy and Matter

Concepts: potential energy, kinetic energy, energy transformations, conservation of energy, systems

G

Generalizations / Enduring Understandings

1. Potential energy can transform into kinetic energy and back into potential energy in a cycle.
2. Energy must be conserved, so its transformations can be traced through a system.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Potential energy can transform into kinetic energy and back into potential energy in a cycle.

- What is gravitational potential energy? (F)
- What other kinds of potential energy are there? (F)
- What is kinetic energy (F)
- How is potential energy transformed into kinetic energy in a roller coaster? (C)
- Can a roller coaster ever get as high as its initial starting height? (P)

2. Energy must be conserved, so its transformations can be traced through a system.

- What variables can be manipulated to slow down a ball going down a track? (F)
- What forces are acting on the ball that affect its energy? (F)
- Why must energy be conserved? (C)
- How can energy transformations be controlled? (C)
- What other energy transformation(s) take place when the roller coaster's potential energy changes to kinetic energy? (C)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Disciplinary Core Ideas

NGSS: Grade 5

PS2: Motion and Stability: Forces and Interactions

PS2.B: Types of Interactions

The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)

PS3: Energy

PS3.D: Energy in Chemical Processes and Everyday Life

The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)

NGSS: 6-8

PS2: Motion and Stability: Forces and Interactions

PS2.A: Forces and Motion

The motion of an object is determined by the sum of the forces acting on it; if the total force on the object is not zero, its motion will change. The greater the mass of the object, the greater the force needed to achieve the same change in motion. For any given object, a larger force causes a larger change in motion. (MS-PS2-2)

PS3: Energy

PS3.A: Definitions of Energy

Motion energy is properly called kinetic energy; it is proportional to the mass of the moving object and grows with the square of its speed. (MS-PS3-1)

A system of objects may also contain stored (potential) energy, depending on their relative positions. (MS-PS3-2)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- understand that there are many different types of energy.
- distinguish *gravitational potential energy* from *kinetic energy.*
- know that energy is always *conserved*, but it can be *transformed* into other types of energy.
- work collaboratively to construct Lux Blox tracks that can carry a ping pong ball.
- adjust track variables (*e.g.* ramp height and slope, turns, track width, amount of friction) to effectively manage the transformation of potential energy into kinetic energy.
- use an iPad to record photos and video.
- use the markup tools to annotate iPad photos in order to demonstrate their understanding of energy concepts.

Core Learning Activities

See document linked below for unit plan and activities.

6th - Lux Blox Slower Coasters

Assessments

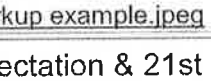
Summative: Group Project

2022 Collaborative Group Work Rubric - Lux Blox Slower Coasters (COVID-6th)

Annotated iPad Photos

Summative: Other Visual Assessments

Students annotate photos of their final track design to demonstrate their knowledge of unit concepts.


Lux Coaster photo markup example.jpeg

Resources

Professional & Student

See folder linked below for unit resources.

Unit 4 (6th) - Lux Blox Slower Coasters

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication

Interdisciplinary Connections

STEM connections to the regular classroom:

- Science - supports instruction for the following Performance Expectations:

Written Performance	○ Grade 5: 5-PS2-1, 5-PS3-1, ○ Grade 6: MS-PS3-2, MS-PS3-5

Unit Planner: Water Cycle Investigations
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:27AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 24 - Week 32

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Water Cycle Investigations

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Systems and System Models

Concepts: systems, modeling, investigation design, energy, matter, viral spread

G

Generalizations / Enduring Understandings

1. Energy and matter flow into, out of, and within systems.
2. Designing investigations enables the use of models to help explain, understand, and predict phenomena in order to solve real world problems.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Systems have inputs, processes and outputs allowing energy and matter flows within them.

- What is a system? (F)
- What are the components of the water cycle? (F)
- How can the processes within a system be influenced? (C)

2. Designing investigations enables the use of models to help explain, understand, and predict phenomena in order to solve real world problems.

- What is a control? (F)
- What is a variable? (F)
- Why do variables need to be controlled in an investigation? (C)
- How does modeling a system's components help to understand the entire system? (C)
- What limitations do models have? (C)
- How do you know when the data generated by models is reliable enough to apply in real world situations? (P)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

Practice 2. Developing and using models

Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.

Develop or modify a model—based on evidence – to match what happens if a variable or component of a system

is changed.

Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 6-8 builds on K-5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or solutions.

Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.

Collect data to produce data to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions.

NGSS: Crosscutting Concepts

NGSS: 6-8

Crosscutting Statements

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 may interact with other systems; they may have sub-systems and be a part of larger complex systems.

Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter, and information flows within systems.

Models are limited in that they only represent certain aspects of the system under study.

NGSS: Disciplinary Core Ideas

NGSS: Grade 5

ESS2: Earth's Systems

ESS2.A: Earth Materials and Systems

Earth's major systems are the geosphere(solid and molten rock, soil, and sediments),the hydrosphere (water and ice), the atmosphere (air), and the biosphere (livingthings, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)

PS1: Matter and Its Interactions

PS1.A: Structure and Properties of Matter

Matter of any type can be subdivided intoparticles that are too small to see, but even then the matter still exists and can be detected by other means. A model shows that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1)

NGSS: 6-8

ESS2: Earth's Systems

ESS2.C: The Roles of Water in Earth's Surface Processes

Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. (MS-ESS2-4)

ETS1: Engineering Design

ETS1.B: Developing Possible Solutions

Models of all kinds are important for testing solutions. (MS-ETS1-4)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- trace water as it cycles through Earth's atmosphere in different phases as a gas, liquid, or solid.
- recognize that water vapor is present in the air even though we cannot see it.
- understand that when more water vapor is present in the air, viral spread is lessened.
- work collaboratively to design an investigation to demonstrate that invisible water vapor is present in air.
- use PocketLab sensors to measure multiple conditions within a system (*e.g.* temperature, relative humidity, dew point).
- test variables that affect the amount of water vapor in a closed system.
- use scientific reasoning to support claims based on evidence from their investigation.
- design a system by manipulating variables to achieve a target humidity that could limit the spread of viruses.

Core Learning Activities

See document linked below for unit plan and activities.

Unit 5 (6th) - Water Cycle Investigations Unit Plan

6th - Water Cycle/PocketLab intro

Water Vapor Test Brainstorming TEMPLATE

Water Vapor Test Recording Sheet

Assessments

Wet Jeans Google Form
Formative: Other written assessments
Students complete a Google Form to establish their prior conceptions about the evaporation process and to provide a basis for argumentation.

Wet Jeans

Group Water Cycle Models
Formative: Other Visual Assessments
Groups of 3-4 students use Google Slides design tools create models of the water cycle to develop and share their understanding of unit content (see sample, attached).

0 Sample Wet Jeans/Water Cycle Models

Investigation Plan
Formative: Lab Assignment
Students design an investigation using PocketLab sensors to test a variable of their choice using a water cycle model.

Water Vapor Tests - Independent Designs Recording Sheet

Resources

Professional & Student
See folder linked below for unit resources.

Unit 5 (6th) - Water Cycle Investigations

Wet Jeans Probe Data

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

STEM connections to the regular classroom:

- Science - supports instruction for following Performance Expectations: 5-ESS2-1, 5-PS1-1, MS-ESS2-4

Unit Planner: Edison Robot Mazes
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:28AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 33 - Week 36

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Edison Robot Mazes

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Human/Machine Interaction

Concepts: robots, programmers, procedural programming, autonomous programming, problem solving

G

Generalizations / Enduring Understandings

1. Robot programmers employ procedural and/or autonomous programming methods to solve a given problem.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Robot programmers employ procedural and/or autonomous programming methods to solve a given problem.

- What is a robot? (F)
- What is procedural programming? (F)
- What is autonomous programming? (F)
- How does programming a robot to follow a predetermined path differ from programming one to navigate autonomously? (C)
- Is one type of programming best? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: Educational Technology (2016)

ISTE: All Grades

5. Computational Thinker

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. Students:

c. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

6. Creative Communicator

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. Students:

a. choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

7. Global Collaborator

Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally. Students:

c. contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

2016 ISTE Standards
Students 2016 ISTE Standards for Students, ©2016, ISTE® (International Society for Technology in Education), iste.org. All rights reserved.

Critical Content & Skills

*What students must **KNOW and be able to DO***
Students must know and/or be able to:

- recognize that machines can be programmed in different ways using different approaches.
- use Scratch-based block programming language to procedurally guide a robot.
- control a robot drive motors to navigate a maze step by step by:
  - manipulating both time and distance variables to control robot's forward motion.
  - manipulating angle measure variables to control robot's spin.

OR

- program robot drive motors and sensors to navigate a maze autonomously.

Core Learning Activities

See linked document below for unit plan.
6th - Edison Robot Mazes Unit Plan
6th - Edison Robot Mazes

Assessments

Robot Maze Rubric
Summative: Technology Project
Collaborative Group Work Rubric - Edison Mazes

Resources

Professional & Student
See linked folder below for unit resources.
(6th) - Edison Robot Mazes
Introductory Edison Maze Activity
Edison Mini-Maze Challenge
Edison Autonomous Maze Challenge Video
Autonomous Robotics Maze Challenge #2 Video

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

STEM connections to other classrooms:

- Math - use metric units of measure, estimate angles
- Music - program a song robot can play while navigating maze
- Technology - use Python- and Scratch-based programming platforms

Unit Planner: KEVA Cantilever Challenge
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:29AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 37 - Week 38

Last Updated: Thursday, March 24, 2022 by Peter Bernson

KEVA Cantilever Challenge

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Systems

Concepts: structures/substructures, systems/subsystems, properties of materials

G

Generalizations / Enduring Understandings

1. Structures and their substructures form systems that can be modeled and designed to meet specific criteria.
2. The properties of materials used in a structure determine their utility
3. Structures form complex systems and subsystems

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

What is a cantilever? (F)
How are cantilevers useful in solving design problems? (C)
What properties of materials determine their suitability for use in building cantilevers? (C)
How can a model of a system or subsystem help to meet engineering design criteria? (C)
Is there a mathematical relationship between a KEVA cantilever's beam length and the mass needed to anchor it? (P)
Are cantilevered structures less safe than fully supported ones? (P)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

Practice 2. Developing and using models

Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.

Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed.

Develop and/or use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales.

NGSS: Crosscutting Concepts

NGSS: 6-8

Crosscutting Statements

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 may interact with other systems; they may have sub-systems and be a part of larger complex systems.

Models are limited in that they only represent certain aspects of the system under study.

NGSS: Disciplinary Core Ideas

NGSS: 6-8

ETS1: Engineering Design

ETS1.B: Developing Possible Solutions

A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. (MS-ETS1-4) (secondary to MS-PS1-6)

There are systematic processes for evaluating solutions with respect to how well they meet criteria and constraints of a problem. MS-ETS1-2), (MS-ETS1-3) (secondary to MS-PS3-3) (secondary to MS-LS2-5)

Models of all kinds are important for testing solutions. (MS-ETS1-4)

ETS1.C: Optimizing the Design Solution

The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution. (MSETS1-4) (secondary to MS-PS1-6)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- identify and build a cantilever.
- recognize how cantilevers can be useful in building.
- understand how structures and their substructures form a system.
- model a system or subsystems to help to meet design goals.
- complete a video lesson/formative quiz introduction to cantilevers.
- use the Engineering Design Process to build multiple iterations of a design in order to maximize cantilever length.

Core Learning Activities

See linked document below for unit plan.

Unit 7 (6th) - KEVA Cantilever Challenge Unit Plan

6th - KEVA Cantilever Challenge

Assessments

KEVA Cantilevers
Formative: Group Project
Anecdotal observation of student collaborative design and testing of KEVA plank cantilevered structures.
EdPuzzle Cantilever Video/Assessment
Formative: Other Visual Assessments
EdPuzzle Link

Resources

Professional & Student

See linked folder below for unit resources.

6th - KEVA Cantilevers

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

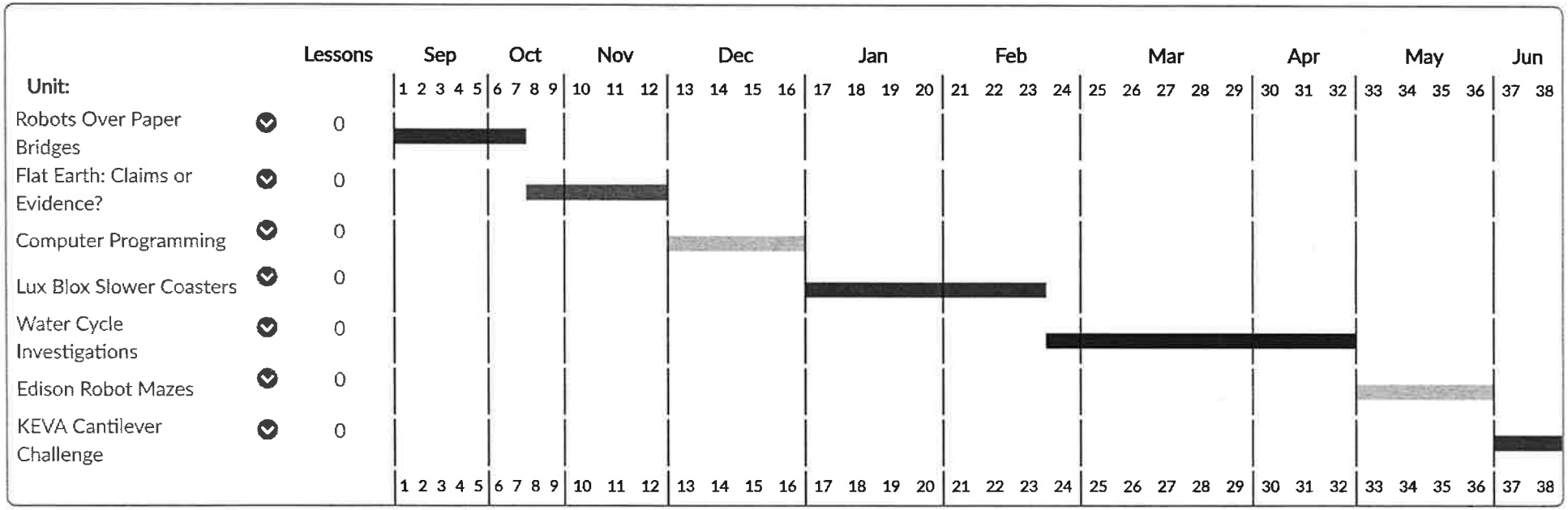
Interdisciplinary Connections

-

Newtown Public Schools

Integrated STEM Gr. 6

3 Curriculum Developers



Previous Year

Unit Planner: Robots Over Paper Bridges
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:21AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 1 - Week 7

Last Updated: Wednesday, March 23, 2022 by Peter Bernson

Robots Over Paper Bridges

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Structure and Function

Concepts: properties, materials, structure, suitability, solutions, engineering design

G

Generalizations / Enduring Understandings

1. Properties of materials determine the suitability for designing solutions to problems.
2. Alteration of a material's structure changes the effectiveness of the material's application.
3. Design solutions can be compared and improved to solve engineering problems.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Properties of materials determine the suitability for designing solutions to problems.

- What material properties does paper have? (F)
- Which properties of paper are advantageous for bridge building? (C)
- Why is paper not used in real-world bridge construction? (C)
- Is there a single best material for bridge building? (P)

2. Alteration of a material's structure changes the effectiveness of its application

- Can the properties of paper be manipulated to improve its ability to support a load? (C)

3. Design solutions can be compared and improved to solve engineering problems.

- What are the typical structural components of a bridge? (F)
- What is a static load? (F)
- What is a dynamic load? (F)
- How are the structural considerations different for a bridge carrying a dynamic load compared to a static load? (C)
- What determines when enough testing has been done to ensure the safety or effectiveness of a structure (P)?

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

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

Asking questions and defining problems in 6–8 builds on K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models.

Define a design problem that can be solved through the development of an object, tool, process or system and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions.

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

Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.

Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints.

NGSS: Crosscutting Concepts

NGSS: 6-8

Crosscutting Statements

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

Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- work effectively in a collaborative group.
- engage in the Engineering Design Process.
- manipulate the structure of paper to effectively build a bridge made of paper that can support a robot driving over it.
- program a remote control using barcodes that can control the drive motors of an Edison robot.

Core Learning Activities

See linked document for unit plan and activities.

6th - Robots Over Paper Bridges Unit Plan

6th - Paper Bridges instructions

Assessments

Collaborative Rubric - Edison Bridges

Summative: Group Project

Collaborative Rubric - Edison Bridges

Resources

Professional & Student

See linked folder for all unit resources.

(6th) - Robots Over Paper Bridges

Edison Bar Codes Resource Page

Student Learning Expectation & 21st Century Skills

Information Literacy

Critical Thinking

Spoken Communication

Written Performance

Interdisciplinary Connections

Unit Planner: Flat Earth: Claims or Evidence?
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:23AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 8 - Week 12

Last Updated: Wednesday, March 23, 2022 by Peter Bernson

Flat Earth: Claims or Evidence?

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Scientific Argumentation

Concepts: claims, evidence, reasoning, evaluation, gravity, astronomical patterns

G

Generalizations / Enduring Understandings

1. Observation of the Earth and sky provides evidence for claims about the nature of the planet.
2. Critical evaluation of evidence determines the validity of claims.
3. Scientific laws provide reasonable explanations for observable phenomena.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Observation of the Earth and sky provides evidence for claims about the nature of the planet.

- What is gravity? (F)
- What shape is the Earth? (F)
- What direction is down? (C)
- What constitutes evidence to support claims about the Earth's shape? (C)
- Are there evidence based claims to support the belief that the Earth is flat? (P)

2. Critical evaluation of evidence determines the validity of claims.

- What is a scientific claim? (F)
- What process leads to an informed decision? (C)
- How can evidence be used to evaluate a scientific claim? (C)
- Is it important to distinguish between scientific claims and nonscientific claims? (P)
- Is it important to acknowledge the weaknesses of your argument? (P)
- Are some claims more valid than others? (P)

3. Scientific laws provide reasonable explanations for observable phenomena.

- What is gravity? (F)
- How do scientists respond to different perspectives? (C)
- How does science change over time? (C)
- Which direction is down? (P)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

Practice 4. Analyzing and interpreting data

Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.

Analyze and interpret data to provide evidence for phenomena.

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

Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.

Construct an explanation using models or representations.

Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) 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 construct, revise and/or use an explanation for real-world phenomena, examples, or events.

Apply scientific reasoning to show why the data or evidence is adequate for the explanation or conclusion.

Practice 7. Engaging in argument from evidence

Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).

Compare and critique two arguments on the same topic and analyze whether they emphasize similar or different evidence and/or interpretations of facts.

Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail.

Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

Practice 8. Obtaining, evaluating, and communicating information

Obtaining, evaluating, and communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods.

Evaluate data, hypotheses, and/or conclusions in scientific and technical texts in light of competing information or accounts.

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

Scientific Knowledge is Based on Empirical Evidence

Science knowledge is based upon logical and conceptual connections between evidence and explanations.

Scientific Knowledge is Open to Revision in Light of New Evidence

Scientific explanations are subject to revision and improvement in light of new evidence.

NGSS: Disciplinary Core Ideas

NGSS: Grade 5

PS2: Motion and Stability: Forces and Interactions

PS2.B: Types of Interactions

The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)

NGSS: 6-8

PS2: Motion and Stability: Forces and Interactions

PS2.B: Types of Interactions

Gravitational forces are always attractive. There is a gravitational force between any two masses, but it is very small except when one or both of the objects have large mass—e.g., Earth and the sun. (MS-PS2-4)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- understand that massive objects like Earth exert a gravitational force toward their center of gravity.
- compare relative sizes and proportions of the elements of an Earth model.
- critically evaluate claims based on evidence and reasoning.
- determine the relative validity of different sources of scientific information.
- navigate and complete an activity on the Edpuzzle platform.

Core Learning Activities

See linked unit plan below.

Unit 2 (6th) - Flat Earth Claims/Evidence Unit Plan

Is the Earth Really Round?

Wonderings About the Flat Earth Model (by class)

Assessments

Looking Through the Earth
Formative: Other written assessments
Students select an answer and explain why it best describes what they think they would see if they could look straight through to the other side of the Earth.

Looking Through the Earth (probe)

Flat Earth: Claims, or Evidence?
Formative: Other written assessments
Video-based quiz requiring analysis of Flat Earth claims.

Resources

Professional & Student

See linked folder for all unit resources.

6th - Flat Earth Claims/Evidence

Where Do People Live? Probe Data

The Earth Is Curved - Ask a Spaceman video

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

STEM connections to the regular classroom:

- Science - supports instruction for following Performance Expectations: 5-PS2-1; MS-PS2-4

Unit Planner: Computer Programming
Integrated STEM Gr. 6

Monday, March 28, 2022, 10:10AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 13 - Week 16

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Computer Programming

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Human/Machine Interaction

Concepts: block-based programming, language-based programming, translation

G

Generalizations / Enduring Understandings

1. Computer programming languages translate instructions into a language computers understand to effect a desired outcome.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. People control computers by translating commands into programming languages.

- What is block-based programming? (F)
- What is language-based programming? (F)
- How does language-based programming differ from block-based programming? (C)
- How do programming languages compare to spoken languages? (C)
- Is it more effective to work on computer programming as part of a team or individually? (P)

Standard(s)

Connecticut Core Standards / Content Standards

CSTA: Computer Science Standards (2017)

CSTA: 6–8

Practices

Practice 2. Collaborating Around Computing
By the end of Grade 12, students should be able to:

3. Solicit and incorporate feedback from, and provide constructive feedback to, team members and other stakeholders.

Practice 5. Creating Computational Artifacts
By the end of Grade 12, students should be able to:

1. Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.

2. Create a computational artifact for practical intent, personal expression, or to address a societal issue.

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- use block-based programming to create a game or story using the code.org platform.
- share completed game/story with others by link or text message.
- understand the difference between block-based and text-based programming languages.
- follow detailed tutorial directions independently in order to learn basic JavaScript syntax and commands.
- apply JavaScript programming to create their own meme based on BrainPOP characters.
- take a screenshot of a selected area of their Chromebook screen.
- access saved files on their Chromebook and upload to an online space to share (Padlet).
- provide peer feedback and self-assess their comfort level with a challenging new skill.

Core Learning Activities

See documents linked below for unit plan and activities.

6th - Computer Programming Unit Plan

6th - Computer Programming

Sample Padlet page for posting work

Assessments

JavaScript Meme

Formative: Technology Project

Students create a meme using JavaScript, post it to an online bulletin board (Padlet), view peers' work, provide feedback, and self-assess personal confidence level.

Padlet Dashboard

Padlet: sample template for directions and class posting

Resources

Professional & Student

See folder linked below for unit resources.

Unit 3 (6th) - Hour of Code

BrainPop Login Page

BrainPop Vidcode JavaScript page

Student Learning Expectation & 21st Century Skills

Information Literacy

Critical Thinking

Spoken Communication

Written Performance

Interdisciplinary Connections

STEM Connections to other classes:

- Technology - exploring common coding languages
- Spanish - relationship between spoken/written languages and computer programming languages

Unit Planner: Lux Blox Slower Coasters
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:25AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 17 - Week 23

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Lux Blox Slower Coasters

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Energy and Matter

Concepts: potential energy, kinetic energy, energy transformations, conservation of energy, systems

G

Generalizations / Enduring Understandings

1. Potential energy can transform into kinetic energy and back into potential energy in a cycle.
2. Energy must be conserved, so its transformations can be traced through a system.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Potential energy can transform into kinetic energy and back into potential energy in a cycle.

- What is gravitational potential energy? (F)
- What other kinds of potential energy are there? (F)
- What is kinetic energy (F)
- How is potential energy transformed into kinetic energy in a roller coaster? (C)
- Can a roller coaster ever get as high as its initial starting height? (P)

2. Energy must be conserved, so its transformations can be traced through a system.

- What variables can be manipulated to slow down a ball going down a track? (F)
- What forces are acting on the ball that affect its energy? (F)
- Why must energy be conserved? (C)
- How can energy transformations be controlled? (C)
- What other energy transformation(s) take place when the roller coaster's potential energy changes to kinetic energy? (C)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Disciplinary Core Ideas

NGSS: Grade 5

PS2: Motion and Stability: Forces and Interactions

PS2.B: Types of Interactions

The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)

PS3: Energy

PS3.D: Energy in Chemical Processes and Everyday Life

The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)

NGSS: 6-8

PS2: Motion and Stability: Forces and Interactions

PS2.A: Forces and Motion

The motion of an object is determined by the sum of the forces acting on it; if the total force on the object is not zero, its motion will change. The greater the mass of the object, the greater the force needed to achieve the same change in motion. For any given object, a larger force causes a larger change in motion. (MS-PS2-2)

PS3: Energy

PS3.A: Definitions of Energy

Motion energy is properly called kinetic energy; it is proportional to the mass of the moving object and grows with the square of its speed. (MS-PS3-1)

A system of objects may also contain stored (potential) energy, depending on their relative positions. (MS-PS3-2)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- understand that there are many different types of energy.
- distinguish *gravitational potential energy* from *kinetic energy.*
- know that energy is always *conserved*, but it can be *transformed* into other types of energy.
- work collaboratively to construct Lux Blox tracks that can carry a ping pong ball.
- adjust track variables (*e.g.* ramp height and slope, turns, track width, amount of friction) to effectively manage the transformation of potential energy into kinetic energy.
- use an iPad to record photos and video.
- use the markup tools to annotate iPad photos in order to demonstrate their understanding of energy concepts.

Core Learning Activities

See document linked below for unit plan and activities.

6th - Lux Blox Slower Coasters

Assessments

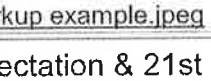
Summative: Group Project

2022 Collaborative Group Work Rubric - Lux Blox Slower Coasters (COVID-6th)

Annotated iPad Photos

Summative: Other Visual Assessments

Students annotate photos of their final track design to demonstrate their knowledge of unit concepts.


Lux Coaster photo markup example.jpeg

Resources

Professional & Student

See folder linked below for unit resources.

Unit 4 (6th) - Lux Blox Slower Coasters

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication

Interdisciplinary Connections

STEM connections to the regular classroom:

- Science - supports instruction for the following Performance Expectations:

Written Performance	○ Grade 5: 5-PS2-1, 5-PS3-1, ○ Grade 6: MS-PS3-2, MS-PS3-5

Unit Planner: Water Cycle Investigations
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:27AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 24 - Week 32

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Water Cycle Investigations

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Systems and System Models

Concepts: systems, modeling, investigation design, energy, matter, viral spread

G

Generalizations / Enduring Understandings

1. Energy and matter flow into, out of, and within systems.
2. Designing investigations enables the use of models to help explain, understand, and predict phenomena in order to solve real world problems.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Systems have inputs, processes and outputs allowing energy and matter flows within them.

- What is a system? (F)
- What are the components of the water cycle? (F)
- How can the processes within a system be influenced? (C)

2. Designing investigations enables the use of models to help explain, understand, and predict phenomena in order to solve real world problems.

- What is a control? (F)
- What is a variable? (F)
- Why do variables need to be controlled in an investigation? (C)
- How does modeling a system's components help to understand the entire system? (C)
- What limitations do models have? (C)
- How do you know when the data generated by models is reliable enough to apply in real world situations? (P)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

Practice 2. Developing and using models

Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.

Develop or modify a model—based on evidence – to match what happens if a variable or component of a system

is changed.

Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 6-8 builds on K-5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or solutions.

Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.

Collect data to produce data to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions.

NGSS: Crosscutting Concepts

NGSS: 6-8

Crosscutting Statements

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 may interact with other systems; they may have sub-systems and be a part of larger complex systems.

Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter, and information flows within systems.

Models are limited in that they only represent certain aspects of the system under study.

NGSS: Disciplinary Core Ideas

NGSS: Grade 5

ESS2: Earth's Systems

ESS2.A: Earth Materials and Systems

Earth's major systems are the geosphere(solid and molten rock, soil, and sediments),the hydrosphere (water and ice), the atmosphere (air), and the biosphere (livingthings, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)

PS1: Matter and Its Interactions

PS1.A: Structure and Properties of Matter

Matter of any type can be subdivided intoparticles that are too small to see, but even then the matter still exists and can be detected by other means. A model shows that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1)

NGSS: 6-8

ESS2: Earth's Systems

ESS2.C: The Roles of Water in Earth's Surface Processes

Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. (MS-ESS2-4)

ETS1: Engineering Design

ETS1.B: Developing Possible Solutions

Models of all kinds are important for testing solutions. (MS-ETS1-4)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- trace water as it cycles through Earth's atmosphere in different phases as a gas, liquid, or solid.
- recognize that water vapor is present in the air even though we cannot see it.
- understand that when more water vapor is present in the air, viral spread is lessened.
- work collaboratively to design an investigation to demonstrate that invisible water vapor is present in air.
- use PocketLab sensors to measure multiple conditions within a system (*e.g.* temperature, relative humidity, dew point).
- test variables that affect the amount of water vapor in a closed system.
- use scientific reasoning to support claims based on evidence from their investigation.
- design a system by manipulating variables to achieve a target humidity that could limit the spread of viruses.

Core Learning Activities

See document linked below for unit plan and activities.

Unit 5 (6th) - Water Cycle Investigations Unit Plan

6th - Water Cycle/PocketLab intro

Water Vapor Test Brainstorming TEMPLATE

Water Vapor Test Recording Sheet

Assessments

Wet Jeans Google Form
Formative: Other written assessments
Students complete a Google Form to establish their prior conceptions about the evaporation process and to provide a basis for argumentation.

Wet Jeans

Group Water Cycle Models
Formative: Other Visual Assessments
Groups of 3-4 students use Google Slides design tools create models of the water cycle to develop and share their understanding of unit content (see sample, attached).

0 Sample Wet Jeans/Water Cycle Models

Investigation Plan
Formative: Lab Assignment
Students design an investigation using PocketLab sensors to test a variable of their choice using a water cycle model.

Water Vapor Tests - Independent Designs Recording Sheet

Resources

Professional & Student
See folder linked below for unit resources.

Unit 5 (6th) - Water Cycle Investigations

Wet Jeans Probe Data

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

STEM connections to the regular classroom:

- Science - supports instruction for following Performance Expectations: 5-ESS2-1, 5-PS1-1, MS-ESS2-4

Unit Planner: Edison Robot Mazes
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:28AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 33 - Week 36

Last Updated: Thursday, March 24, 2022 by Peter Bernson

Edison Robot Mazes

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Human/Machine Interaction

Concepts: robots, programmers, procedural programming, autonomous programming, problem solving

G

Generalizations / Enduring Understandings

1. Robot programmers employ procedural and/or autonomous programming methods to solve a given problem.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. Robot programmers employ procedural and/or autonomous programming methods to solve a given problem.

- What is a robot? (F)
- What is procedural programming? (F)
- What is autonomous programming? (F)
- How does programming a robot to follow a predetermined path differ from programming one to navigate autonomously? (C)
- Is one type of programming best? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: Educational Technology (2016)

ISTE: All Grades

5. Computational Thinker

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. Students:

c. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

6. Creative Communicator

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. Students:

a. choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

7. Global Collaborator

Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally. Students:

c. contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

2016 ISTE Standards
Students 2016 ISTE Standards for Students, ©2016, ISTE® (International Society for Technology in Education), iste.org. All rights reserved.

Critical Content & Skills

*What students must **KNOW and be able to DO***
Students must know and/or be able to:

- recognize that machines can be programmed in different ways using different approaches.
- use Scratch-based block programming language to procedurally guide a robot.
- control a robot drive motors to navigate a maze step by step by:
  - manipulating both time and distance variables to control robot's forward motion.
  - manipulating angle measure variables to control robot's spin.

OR

- program robot drive motors and sensors to navigate a maze autonomously.

Core Learning Activities

See linked document below for unit plan.
6th - Edison Robot Mazes Unit Plan
6th - Edison Robot Mazes

Assessments

Robot Maze Rubric
Summative: Technology Project
Collaborative Group Work Rubric - Edison Mazes

Resources

Professional & Student
See linked folder below for unit resources.
(6th) - Edison Robot Mazes
Introductory Edison Maze Activity
Edison Mini-Maze Challenge
Edison Autonomous Maze Challenge Video
Autonomous Robotics Maze Challenge #2 Video

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

STEM connections to other classrooms:

- Math - use metric units of measure, estimate angles
- Music - program a song robot can play while navigating maze
- Technology - use Python- and Scratch-based programming platforms

Unit Planner: KEVA Cantilever Challenge
Integrated STEM Gr. 6

Monday, March 28, 2022, 9:29AM

Reed Intermediate School / 2021-2022 / Grade 6 / Science / Integrated STEM Gr. 6 / Week 37 - Week 38

Last Updated: Thursday, March 24, 2022 by Peter Bernson

KEVA Cantilever Challenge

Bernson, Peter; Fonovic, Jessica; Stentiford, Todd

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Systems

Concepts: structures/substructures, systems/subsystems, properties of materials

G

Generalizations / Enduring Understandings

1. Structures and their substructures form systems that can be modeled and designed to meet specific criteria.
2. The properties of materials used in a structure determine their utility
3. Structures form complex systems and subsystems

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

What is a cantilever? (F)
How are cantilevers useful in solving design problems? (C)
What properties of materials determine their suitability for use in building cantilevers? (C)
How can a model of a system or subsystem help to meet engineering design criteria? (C)
Is there a mathematical relationship between a KEVA cantilever's beam length and the mass needed to anchor it? (P)
Are cantilevered structures less safe than fully supported ones? (P)

Standard(s)

Connecticut Core Standards / Content Standards

NGSS: Science and Engineering Practices

NGSS: 6-8

Practice 2. Developing and using models

Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.

Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed.

Develop and/or use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales.

NGSS: Crosscutting Concepts

NGSS: 6-8

Crosscutting Statements

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 may interact with other systems; they may have sub-systems and be a part of larger complex systems.

Models are limited in that they only represent certain aspects of the system under study.

NGSS: Disciplinary Core Ideas

NGSS: 6-8

ETS1: Engineering Design

ETS1.B: Developing Possible Solutions

A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. (MS-ETS1-4) (secondary to MS-PS1-6)

There are systematic processes for evaluating solutions with respect to how well they meet criteria and constraints of a problem. MS-ETS1-2), (MS-ETS1-3) (secondary to MS-PS3-3) (secondary to MS-LS2-5)

Models of all kinds are important for testing solutions. (MS-ETS1-4)

ETS1.C: Optimizing the Design Solution

The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution. (MSETS1-4) (secondary to MS-PS1-6)

Access the interactive version of the NGSS here

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students must know and/or be able to:

- identify and build a cantilever.
- recognize how cantilevers can be useful in building.
- understand how structures and their substructures form a system.
- model a system or subsystems to help to meet design goals.
- complete a video lesson/formative quiz introduction to cantilevers.
- use the Engineering Design Process to build multiple iterations of a design in order to maximize cantilever length.

Core Learning Activities

See linked document below for unit plan.

Unit 7 (6th) - KEVA Cantilever Challenge Unit Plan

6th - KEVA Cantilever Challenge

Assessments

KEVA Cantilevers
Formative: Group Project
Anecdotal observation of student collaborative design and testing of KEVA plank cantilevered structures.
EdPuzzle Cantilever Video/Assessment
Formative: Other Visual Assessments
EdPuzzle Link

Resources

Professional & Student

See linked folder below for unit resources.

6th - KEVA Cantilevers

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

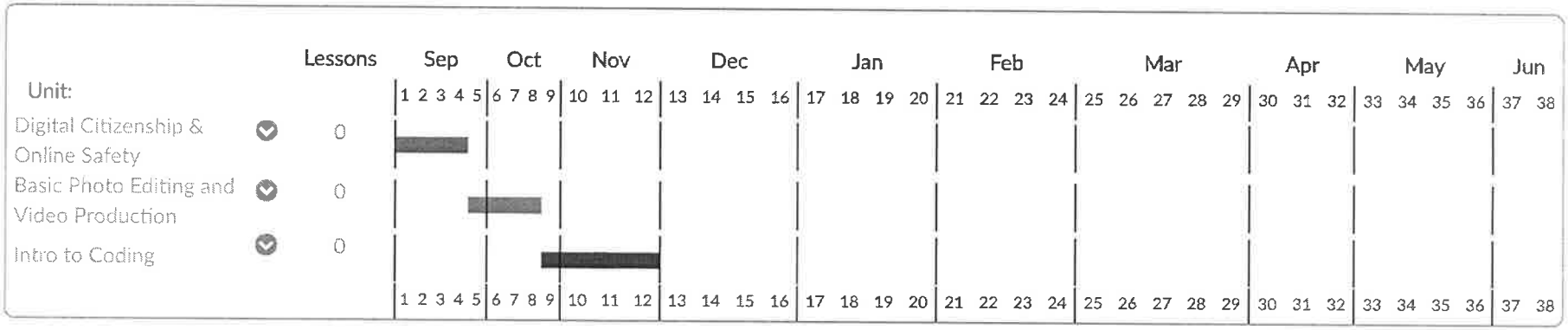
Interdisciplinary Connections

-

Newtown Public Schools

Computer Integration Gr. 7

2 Curriculum Developers



Unit Planner: Digital Citizenship & Online Safety
Computer Integration Gr. 7

Newtown Middle School / 2021-2022 / Grade 7 / F&AA: Technology / Computer Integration Gr. 7 / Week 1 - Week 4

Last Updated: Friday, February 18, 2022 by Austin Cirella

Digital Citizenship & Online Safety

Cirella, Austin; Swift, Kathleen

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Safety, Responsibility

Concepts: Discussion, Perspective, Self-awareness, Communication, Balance, Consequences, Data, Rigor, Awareness, Screen time and offline time

Computer Microconcepts: Digital Literacy, Online Safety, Content-specific Vocabulary, Online Etiquette, Digital Footprint, Security Threats, Online Actions, Social Media

G

Generalizations / Enduring Understandings

1. Consider how online actions impact the real world

2. An imbalance between screen time and offline time creates consequences.

3. Data protection requires rigor and awareness on the part of the user.

4. Online actions reverberate for years due to their near permanent status.

5. Tracking one's digital footprint reduces online security threats.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1a. What *is* social media? (F)
1b. What actions online can cause problems in the real world? (F)
1c. What is intellectual property? (F)
1d. What are the real world effects that result from online actions? (C)
1e. Should users face consequences in the real world for online actions? (P)
1f. How long should online content be able to impact the user? (P)

2a. What are detrimental effects on one's mind and/or body from too much screen time? (F?)
2b. How can people avoid having too much screen time in a world where screens are so pervasive? (C)
2c. Is it worth balancing screen time vs. offline time, if screen time brings enjoyment? (P)

3a.What are the most important ways to prevent a security breach? (F)
3b. Do pre-emptive safety procedures meaningfully reduce risk online? (C)
3c. Are safety procedures worth practicing, if they take extra effort or time? (P)

4a.How does one protect privacy online to prevent their media from being seen? (F)
4b. Can a user fully erase personal content from the internet? (C)
4c. Is saving other people's media ethical? (P)

5a. What is a digital footprint? (F)
5b. What are the best ways to track one's digital

	footprint? (F) **5c.** Can a person fully repair a damaged digital footprint? (C) **5d.** Is it ethical to investigate others' digital footprints without their permission? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: Educational Technology (2016)

ISTE: All Grades

1. Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

a. articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

2. Digital Citizen

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical. Students:

a. cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

b. engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.

c. demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

d. manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

2016 ISTE Standards

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students will know the permanence of their actions online.
Students will know the real world implications of their online actions.
Students will be able to critically analyze and discuss digital citizenship problems and ethical dilemmas.
Students will be able to demonstrate understanding and comprehension of online safety procedures and protocol as well as mitigation strategies.
Students will be able to successfully identify potential threats online before they succumb to them.
Students will be able to understand and respect the rights and obligations of using and sharing intellectual property.

Core Learning Activities

Formative:

Connections & Community assignment questions and discussion.
Safety & Privacy assignment questions and discussion.
Screen Time vs. Offline Time assignment, research, and discussion.
Technology & Data assignment questions and discussion.
Online Rights & Literacy assignment questions and discussion.
Evaluating Content assignment, research, and discussion.

Summative:

The Importance of Digital Safety Writing Assignment.
Connections & Community Lesson 1 Questions.pdf
Safety & Privacy Lesson 2 Questions.pdf
Screen Time vs. Offline Time Lesson 3 Questions.pdf
Technology & Data Lesson 4 Questions.pdf

Online Rights & Literacy Lesson 5 Questions.pdf
Evaluating Content Lesson 6 Questions.pdf
The Importance of Digital Safety Essay Assignment Sheet

Assessments

The Importance of Digital Safety Writing Assignment
Summative: Other written assessments
Summative Digital Safety Assignment
Classroom Discussion
Formative: Other oral assessments
The Importance of Digital Safety Essay Assignment Sheet

Resources

Professional & Student
Guided/Self-Paced Ever-Fi Software
EverFi Course Description
EverFi Login/Registration

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

- Information Literacy
- Critical Thinking
- Spoken Communication
- Written Performance

Information Literacy, Critical Thinking, Spoken Communication, and Written Performance will all be utilized in this unit.

Interdisciplinary Connections

English
Health

Unit Planner: Basic Photo Editing and Video Production
Computer Integration Gr. 7

Tuesday, February 22, 2022, 6:16 PM

Newtown Middle School / 2021-2022 / Grade 7 / F&AA: Technology / Computer Integration Gr. 7 / Week 5 - Week 8

Last Updated: Friday, February 18, 2022 by Austin Cirella

Basic Photo Editing and Video Production

Cirella, Austin; Swift, Kathleen

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Creativity, Practicality

Concepts: Process, Understanding, Creation, Design, Skill,

Computer Microconcepts: Video Production, Photo Editing, Ethics, Software, Message, Tools

G

Generalizations / Enduring Understandings

1. The skills of creating and editing videos and images enable one to become proficient in cultivating a message.

2. Effective photo editing and and video production necessitate specialized tools and software.

3. Learning multiple specific tools for photo editing and video production permits one to be effective at creating a cohesive product/message.

4. The specialized skills of video production and photo editing unlock a plethora of professional opportunities.

5. The dangers and ethics of photo and video editing evolve constantly.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1a. What is video production and photo editing and how do they work? (F)
1b. Why is video/photo editing an effective way to cultivate a powerful/memorable message? (C)
1c. Can editing a photo or video change the tone in a meaningful way? (P)

2a. What are specific tools for modern photo or video editing? (F)
2b. What photo and video editing methods are the most drastic/effective? (P)
2c. Which tools are the most effective at changing a photo or video? (F)

3a. What are programs that use modern tools for photo and video editing? (F)
3b. Why are there multiple photo and video editing programs that function similarly ? (C)
3c. Is learning a single editing program sufficient? (P)

4a. What are professional opportunities that require proficiency in photo or video editing and production? (F)
4b. What are differences between amateur and professional photo and video editing and production? (F)
4b. What are ways to professionalize photo and video editing and production? (C)
4c. Are there most effective ways to make photo or video work stand out through editing techniques or production techniques? (P)

5a. What are major ethics pitfalls you can be penalized for to consider when editing or creating a photo or video? (F)
5b. How can one anticipate ethics pitfalls before they occur? (C)

	5c. Are ethical pitfalls worth considering, if they are not against the law? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: Educational Technology (2016)

ISTE: All Grades

1. Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

a. articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

2. Digital Citizen

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical. Students:

c. demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

3. Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. Students:

b. evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

4. Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. Students:

a. know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

b. select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

c. develop, test and refine prototypes as part of a cyclical design process.

6. Creative Communicator

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. Students:

a. choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

b. create original works or responsibly repurpose or remix digital resources into new creations.

c. communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

d. publish or present content that customizes the message and medium for their intended audiences.

2016 ISTE Standards

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students will cultivate a specific message with video production and photo editing.
Students will use specialized tools necessary to be proficient in video production and photo editing in the modern age.
Students will effectively employ multiple programs to improve their video production and photo editing capabilities.
Students will use video production and photo editing skills in a professional environment.

Students will know the challenges and how to avoid ethics complications in video production and photo editing.
Students will create an original video and image.
Students will edit an original video and image.
Students will practice video editing with multiple software.
Students will experience examples of multiple types of video production hardware.
Students will demonstrate proficiency in video production and editing across multiple platforms.

Core Learning Activities

Formative:
Video Production and Photo Editing: The Basics. - Multiple Classroom Demonstration and Activity
How to create a specific message or tone with editing techniques - Classroom Demonstration and Activity
Different Photo and Video Tools for Different Tasks- Classroom Demonstration and Activity
How to use different programs in unison- Classroom Demonstration and Activity
Ethical dilemmas in video production and photo editing and how to avoid them - Classroom Discussion and Writing Exercise
Careers and opportunities in video production and photo editing - Classroom Discussion and Research Activity
Summative:
Create original video or complex edited photo- Technology Project

Assessments

Classroom Demonstration Follow Up Hands-on Activities
Formative: Other Visual Assessments
Ethical Dilemmas Writing Exercise
Formative: Written Report
After a classroom discussion about the potential ethical pitfalls surrounding photo and video editing and production students are asked to identify ways to avoid these problems and additionally find more ethical dilemmas they may not have considered previously.
Careers and Opportunities Research Activity
Formative: Other written assessments
After a classroom discussion surrounding students expectations about the potential for photo and video editing to turn into a professional career, they are tasked with researching to find 3 additional careers that might interest them in the field of video or photo production and editing.
Create Your Own Video
Summative: Technology Project
Students are asked to create a single complex photo or video that has edits made to it to create multiple tones or themes. This is a summative assessment that culminates all the skills they have learned throughout the unit.

- Silhouette Art
- Overlay Lesson
- Word Picstitch
- Animated Pumpkin Lesson Pixlr
- Hex Code Coloring
- Colorizing and Combining
- Video Production and Photo Editing Summative Assessment Sheet

Resources

Professional & Student
Photoshop or Pixlr
Adobe Premier Pro or ClipChamp

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

Art

• Information Literacy • Critical Thinking • Spoken Communication • Written Performance •	

Unit Planner: Intro to Coding
Computer Integration Gr. 7

Newtown Middle School / 2021-2022 / Grade 7 / F&AA: Technology / Computer Integration Gr. 7 / Week 9 - Week 12

Last Updated: Friday, February 18, 2022 by Austin Cirella

Intro to Coding

Cirella, Austin; Swift, Kathleen

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Logical & Analytical Problem Solving, Creativity

Concepts: Data, Rigor, Systems, Patterns, Process, Logic, Analysis, Paths, Results

Computer Microconcepts: Coding, Efficiency, Content-specific Vocabulary, Coding Syntax, Coders, Instructions, Outcomes

G

Generalizations / Enduring Understandings

1. Coders employ a sequence of instructions to create desired outcomes.

2. Coding requires problem solving and presents alternative paths to the same result.

3. Sharing basic structure and syntax like loops, variables, and array indexing enable basic coding to be universal.

4. Effective coding saves time and energy.

5. Loops allow for more efficient coding.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1a. What is text based coding (F)
1b. What are the steps to basic coding? (F)
1c. How does coding work? (C)
1d. How is the sequence of coding similar to other systems? (C)
1e. Is coding more similar to math- based sequencing or science -based sequencing? (P)

2a. What are effective uses of coding in the modern world to solve problems? (F)
2b. What potential negative effects does coding lead to? (F)
2c. Why do people code? (C)
2d. Does using code to solve problems raise any ethical dilemmas? (P)

3a. What is coding syntax? (F)
3b. What are examples of syntax outside of coding? (F)
3c. Why is syntax important for coding? (C)
3d. Are individual coding languages worth learning? (P)

4a. What are examples of how people use code to save time? (F)
4b. What are basic strategies to make coding more efficient? (F)
4c. What are real world benefits of efficiency in coding? (C)
4d. Is efficiency in coding important if the same task can be done inefficiently? (P)

5a. What are "loops" in coding? (F)
5b. Why do people use loops in coding? (C)
5c. How do loops make coding more efficient? (C)
5d. Is looping necessary to make a code effective? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: Educational Technology (2016)

ISTE: All Grades

1. Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

4. Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. Students:

a. know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

5. Computational Thinker

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. Students:

a. formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.

c. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

d. understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

2016 ISTE Standards

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students will know how coding is used to achieve real world results.
Students will know how to start coding effectively.
Students will know the basics of coding loops.
Students will be able to effectively demonstrate coding syntax.
Students will be able to understand how coding affects everyday life.
Students will be able to use coding to solve basic abstract problems.
Students will be able to understand what coding is at a core level.
Students will be able to demonstrate effective coding by producing their own code.
Students will produce multiple of their own unique levels in the provided software.

Core Learning Activities

Formative:

What is coding? Activity and Worksheet
Why do people code? Classroom discussion
Misconceptions and how coding works in the real world. Video and discussion
How important is coding syntax? Online coding activity with JavaScript and discussion
What are loops? Video and discussion

Summative:

Challenge Assignment - Technology Project
What is coding?
How does coding work in the real world?
How important is coding syntax?
What are loops?
Create a Challenge Assessment.

Assessments

What is coding?
Formative: Other Visual Assessments
What is coding?
How does coding work in the real world?
Formative: Other oral assessments
This video accompanied with a brief oral discussion both prior and after the video is the core of this assessment. Ideally you will go over misconceptions of how coding works first including depictions of coding in popular media and "hacking". After the video you would host a classroom discussion highlighting the differences between perceptions and reality. This is a participation based activity that includes turn and talks as well as whole room discussion.
How does coding work in the real world?
How important is coding syntax?
Formative: Technology Project
What are loops?
Formative: Other oral assessments
This video accompanied with a brief oral discussion both prior and after the video is the core of this assessment. Ideally you will go over what students think looping is and a brief explanation. After the video you would host a classroom discussion where the reasons for looping in coding become clear. This is a participation based activity that includes turn and talks as well as whole room discussion.
Create a Challenge Assessment-
Summative: Technology Project
Create a Challenge Assessment.

Resources

Professional & Student
Code.org
Vidcode.com
Codemonkey.com
Code.org
vidcode.com
codemonkey.com

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

- Information Literacy
- Critical Thinking
- Spoken Communication
- Written Performance

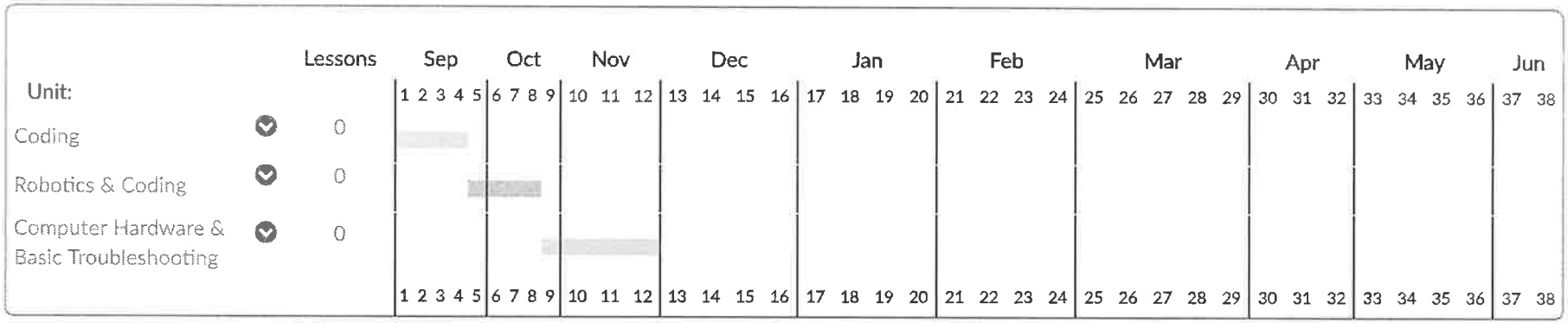
Interdisciplinary Connections

Science
Math

Newtown Public Schools

Computer Integration Gr. 8

2 Curriculum Developers



Unit Planner: Coding
Computer Integration Gr. 8

Newtown Middle School / 2021-2022 / Grade 8 / F&AA: Technology / Computer Integration Gr. 8 / Week 1 - Week 4

Last Updated: Friday, February 18, 2022 by Austin Cirella

Coding

Cirella, Austin; Swift, Kathleen

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Logical & Analytical Problem Solving, Creativity
Concepts: Data, Rigor, Systems, Patterns, Process, Logic, Analysis
Computer Microconcepts: Coding, Amateur Coding, Efficiency, Content-specific Vocabulary, For-loops, Arrays, Indexing, Variables, Formulas & Strings in Coding

G

Generalizations / Enduring Understandings

1. Coders utilize variables to increase the efficiency of desired outcomes.

2. Coding efficiency depends on indexing and arrays.

3. Implementing formulas in coding increases efficiency

4. For-loops, an effective tool, cut down on unnecessary code in most coding languages.

5. Amateur level coding effectively solves abstract problems.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1a. What are variables in coding? (F)
1b. How does one create a coding variable? (F)
1c. How do variables work? (C)
1d. How are variables in coding similar to variables in math or science? (C)
1e. Are coding variables worth using if they require prior planning? (P)

2a. What is indexing? (F)
2b. What are arrays in coding? (F)
2c. How do indexes and arrays work together to create efficient coding? (C)?
2c. When would it be applicable to use an index/array? (F)?
2d. Do the limitations on arrays make their implementation worthwhile? (P)

3a. What are formulas in coding? (F)
3b. What are some examples of formulas outside of coding? (F)
3c. How does the introduction of a formula make a code more efficient? (C)
3d. Are there any potential situations when using a formula wouldn't be worth the time and effort? (P)
3e. Are formulas more effective than indexing or arrays for making code more efficient? (P)

4a. What are for-loops in coding? (F)
4b. How are for-loops different from regular coding loops? (F)
4c. How do for-loops impact a code? (C)
4d. Are for-loops as effective as regular loops at

	increasing efficiency? (P) **5a.** What makes coding "amateur?" (F) **5b.** What kind of problems does amateur coding solve? (F) **5c.** How does amateur coding differ from professional-level coding? (F) **5d.** How can someone approach an abstract problem with only amateur level coding? (C) **5d.** Is creating media as an amateur coder an efficient way to learn coding? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: Educational Technology (2016)

ISTE: All Grades

1. Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

5. Computational Thinker

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. Students:

a. formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.

b. collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

c. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

d. understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

2016 ISTE Standards

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students will know how amateur coding can be used to achieve real world results.
Students will know how to use basic coding protocols.
Students will know to make their own coding more efficient.
Students will effectively demonstrate formulas in coding.
Students will effectively demonstrate for-loops in coding.
Students will understand and utilize what an array and index is as pertaining to coding.
Students will solve basic abstract problems with coding.
Students will produce a final product that shows proficiency in coding.

Core Learning Activities

Formative:

What are variables? Demonstration and code production. Check
How does one implement formulas in code? Demonstration and code production.
Indexes and arrays in a nutshell. Demonstration and code production.
What are for-loops? Demonstration and code production.
Amateur coding solutions. Demonstration and code production.

Summative:

Create a Game Assignment

Assessments

Create a Game Assignment
Summative: Technology Project
Create a Game In CodeMonkey Assignment.
Online Code Productions
Formative: Technology Project
codemonkey.com
Create a Game In CodeMonkey Assignment.

Resources

Professional & Student
Codemonkey.com
codemonkey.com

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

- Information Literacy
- Critical Thinking
- Spoken Communication
- Written Performance

Interdisciplinary Connections

Math
Science

Unit Planner: Robotics & Coding
Computer Integration Gr. 8

Newtown Middle School / 2021-2022 / Grade 8 / F&AA: Technology / Computer Integration Gr. 8 / Week 5 - Week 8

Last Updated: Saturday, February 19, 2022 by Austin Cirella

Robotics & Coding

Cirella, Austin; Swift, Kathleen

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Practicality, Analysis

Concepts: Analysis, Logic, Understanding, Design

Computer Microconcepts: Robotics, Coding, AI, Automation, 2d vs 3d space, inputs, program languages, robotic movement, functionality, challenges

G

Generalizations / Enduring Understandings

1. Robotics enable efficiency in the real world with automation & AI.

2. Functionality in robotics demands effective and efficient coding to be successful in desired task.

3. 2d vs 3d space presents unique challenges for coding robotic movement.

4. Robots interpret precise human inputs to complete tasks.

5. Successfully coding robots allows choosing among multiple program languages.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1a. What are tasks that robots make faster? (F)
1b. Why do people create robots to complete tasks? (C)
1c. How do robots make tasks more efficient? (C)
1d. Is relying on robots to complete tasks a dangerous exercise practice? (P)

2a. What are some issues that arise in robotics if the robotic code is not efficient? (F)
2b. Why is efficient coding important in robotics? (C)
2c. Are the problems created by inefficiency worth tackling in a working system? (P)

3a. What are the differences to consider when coding something virtually in 2d space compared to 3d space? (F)
3b. How might the differences in 2d coding vs 3d coding present themselves in the real world? (C)
3c. Are the differences in 2d space vs 3d space worth taking into account? (P)

4a. Are robots capable of doing things completing tasks on their own? (F)
4b. Why are precise inputs imperative to successful outcomes with robotics? (C)
4c. Is it valuable to create a robot that requires less than precise inputs? (P)

5a. What coding languages are used for the most popular robotics today? (F)
5b. Why is each of these languages used specifically? (F)
5c. What coding languages seem the most accessible and why? (C)
5d. Which coding language is most essential to learn for

	robotics? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: Educational Technology (2016)

ISTE: All Grades

1. Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

a. articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

d. understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

3. Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. Students:

a. plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

b. evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

c. curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

d. build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

4. Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. Students:

a. know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

b. select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

c. develop, test and refine prototypes as part of a cyclical design process.

d. exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

6. Creative Communicator

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. Students:

b. create original works or responsibly repurpose or remix digital resources into new creations.

c. communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

d. publish or present content that customizes the message and medium for their intended audiences.

2016 ISTE Standards

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students will know how automation and AI are used to increase efficiency.
Students will know how coding is essential to robotics.
Students will know multiple approaches to coding in robotics and different programming languages.
Students will know robots are only capable of taking input.
Students will code a spherical robot in 3d space.
Students will create a multimedia presentation about a piece of robotics.
Students will understand the challenges and limitations of robotics in the real world.

Core Learning Activities

Formative:
Automation and AI in Robotics - Classroom discussion and Video
Efficiency in Robots - Video and Demonstration
Robots interpret precise human inputs to complete tasks - Classroom demonstration and activity
What are the differences between coding in virtual space and in the real world? - Classroom activity & demonstration
Learning the basics of robotics and coding- Classroom discussion and activity
Summative:
Choose a Robot Slideshow and Research - Technology Project and Research Project
Robotics Obstacle Course - Technology Project and Classroom Activity

Assessments

Classroom Discussions
Formative: Other oral assessments
Classroom Activities
Formative: Other Visual Assessments
Choose a Robot Slideshow and Research
Summative: Technology Project
For this project students are going to research and create a slideshow on the things you learned.

The goal of the project will be presented in the the following fashion :

1. Pick a piece of technology that you are interested in and you think has the ability to or already does change the world for the better.
You can choose any piece of technology.

2. Once you have chosen a piece of technology, do safe research on the internet about it.

3. Use your research to answer the following questions with multiple complete sentences in the attached Google Doc:

1. When & where was this technology invented?
2. Has this technology changed over time? How?
3. Who invented this technology?
4. What are some examples of this technology in action? Make sure to give multiple examples.
5. Is coding involved in making this technology work?
6. How/Where does this technology get made? How much does it cost?
7. Why did they invent this technology?
8. How does this technology make the world a better place?
9. Does this technology affect people in their everyday lives?
10. Is there any similar technology that tries to do the same thing?
11. How do you think you could change or add to this technology to make it better?

Resources

Professional & Student
Sphero Robots & Application

12. What would the world be like without this technology? Be specific. {-(! Make sure you cite your sources !)-} 4. Create a slideshow in Google Slides that goes over the answers to all of these questions and presents your information. This slideshow should be about 15-20 slides and include multiple pictures of your technology or any related images. Make sure you have a works cited slide! 5. When you are done filling in the answers in Google Docs and have completed your slideshow make sure they are both handed in! An example of a piece of technology that makes the world a better place is smartphones. Smartphones help keep families connected and let people communicate in emergencies. You can choose whatever topic you want, this is just an example. **Robotics Obstacle Course** **Technology Project** https://www.youtube.com/watch?v=Jky9l1ihAkg Tech Project Assignment Sheet https://www.youtube.com/watch?v=FjSyv2N5QEQ	
Student Learning Expectation & 21st Century Skills Information Literacy Critical Thinking Spoken Communication Written Performance • Information Literacy • Critical Thinking • Spoken Communication • Written Performance •	Interdisciplinary Connections Science Math

Unit Planner: Computer Hardware & Basic Troubleshooting
Computer Integration Gr. 8

Tuesday, February 22, 2022 (updated)

Newtown Middle School / 2021-2022 / Grade 8 / F&AA: Technology / Computer Integration Gr. 8 / Week 9 - Week 12

Last Updated: Friday, February 18, 2022 by Austin Cirella

Computer Hardware & Basic Troubleshooting

Cirella, Austin; Swift, Kathleen

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Lens: Logical & Analytical Problem Solving, Practical

Concepts: Process, Logic, Sequence, Analysis, Understanding

Computer Microconcepts: Troubleshooting, Software, Hardware, Computer Repair, Components, End User Experience, Skill, Computer Skills, Building, Information

G

Generalizations / Enduring Understandings

1. The accessible skill of software troubleshooting enables one to extend the life of a personal computer.

2. Repairing a computer exemplifies an accessible and essential skill in the modern age.

3. Understanding the components of a computer enables successful hardware troubleshooting.

4. The components inside a computer all work cohesively and in unison to deliver the end user experience.

5. Building a computer requires the right information, rendering it accessible to all.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1a. What is software troubleshooting and how is it beneficial? (F)
1b. What are some generic approaches to troubleshooting software issues? (F)
1c. How can troubleshooting extend the life of a personal computer? (C)
1d. Are specific troubleshooting solutions worth learning? (P)

2a. What is computer repair? (F)
2b. What are some effective software repair solutions? (F)
2c. What are some effective hardware repair solutions? (F)
2d. Why is troubleshooting a computer important for extending its life? (C)
2e. Are there times where software or hardware repair may not be worth it? (P)

3a. What are the essential components of a computer? (F)
3b. Do all computers have the same components? (F)
3c. Why are some components specialized? (C)
3d. Which component is the most essential for a computer to operate? (P)

4a. Which components interact with each other on the inside of a computer? (F)
4b. Why do almost the all of the parts of a computer have to be working for a computer to function effectively? (C)
4c. Can one component work cohesively? (P)

	5a. What is needed to build a computer? (F) 5b. Which kind of tasks and environments call for different types of computers and why? (C) 5c. Is learning to build a computer a valuable skill when one can buy a pre-made computer? (P)

Standard(s)

Connecticut Core Standards / Content Standards

ISTE: ISTE Students (2019)

ISTE: All Grades

1.1 Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

1.1.a. articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

1.1.d. understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

1.3 Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. Students:

1.3.c. curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

1.3.d. build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

2016 ISTE Standards

Critical Content & Skills

*What students must **KNOW and be able to DO***

Students will know the basics of software and hardware troubleshooting.
Students will know the importance of troubleshooting for extending the life of a computer.
Students will have a strong grasp on the components inside a computer and how they operate in tandem to deliver the end user experience most everyone is familiar with.
Students will understand the importance of being able to build your own computer and how to get started doing it themselves.
Students will troubleshoot basic computer issues.
Students will access the materials needed to build their own computer with ease.
Students will explain how computer components work together.

Core Learning Activities

Formative:

How to troubleshoot basic software issues - Classroom Discussion and Guided Walkthrough Activity
How to troubleshoot basic hardware issues - Classroom Discussion and Guided Walkthrough Activity
What are the components inside a computer and how do they work? - Research and Discussion
How to repair/replace a computer component - Demonstrations/Hands-on activity
How to extend the life of your PC - Classroom Discussion and Video Video

Summative:

Build a computer with PC part picker - Online Activity and Classroom Discussion

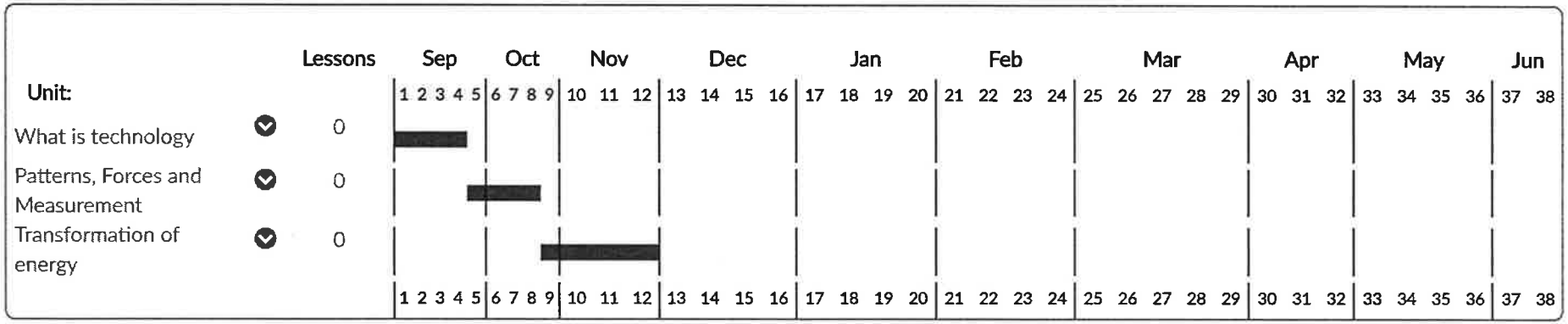
Assessments	Resources
Research Questions **Formative: Other written assessments**	*Professional & Student* https://pcpartpicker.com/list/

Written Report Students will research questions presented to them to find correct information and find reliable sources. **Classroom Discussions and Activities** **Formative: Other oral assessments** **Build a Computer with PC Part Picker** **Summative: Technology Project** Students are tasked with using the online tool introduced to them to build a compatible computer setup for multiple different uses and price points. https://pcpartpicker.com/list/ PC Life Extension Video Hardware Questions #1 Hardware Questions #2 Hardware Questions #3	Computer case and parts
Student Learning Expectation & 21st Century Skills Information Literacy Critical Thinking Spoken Communication Written Performance • Information Literacy • Critical Thinking • Spoken Communication •	Interdisciplinary Connections Science

Newtown Public Schools

Technology Education Gr. 7

2 Curriculum Developers



Previous Year

Unit Planner: What is technology
Technology Education Gr. 7

Tuesday, February 22, 2022 8:27 AM

Newtown Middle School / 2021-2022 / Grade 7 / F&AA: Technology / Technology Education Gr. 7 / Week 1 - Week 4

Last Updated: Friday, February 18, 2022 by Kevin Eppley

What is technology

Connors, Jenna; Eppley, Kevin

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Concepts / Conceptual Lens **SAFETY**

1. Tools
2. Safety
3. Decision making
4. Consequences
5. Preparation
6. Waste

G

Generalizations / Enduring Understandings

1. Appropriate use of tools promotes safety
2. Decision making enables students to understand positive and negative consequences of safety.
3. Preparation improves safety and reduces waste

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.
a. How far should fingers stay from a moving blade? (F)
b. What is the appropriate attire and equipment needed to use power tools in the classroom? (F)
c. Is there a time when it's appropriate to ignore safety protocols?(P)

2.
a. Why is it important to perform a maintenance check on a saw prior to using it?? (C)
b. Are machines dangerous if you know how to use them?(c)

3.
a. What is the biggest pollutant from humans? (F)
b. Are all building materials "recyclable?" (P)
c. Why should you measure before cutting? (c)
d. Is it ever possible to leave no waste after a building project?(P)

Standard(s)

Connecticut Core Standards / Content Standards

scroll saw standards.docx

Critical Content & Skills

*What students must **KNOW and be able to DO***

- Students will complete a safety exam
- Students will understand safety procedures for using tools and machinery
- Students will use practical skills to solve real world problems by utilizing the engineering design process.
- Students will identify how engineers are able to use power tools safety
- Students will understand waste and how to avoid it in the classroom

Core Learning Activities

- Safety demonstration and lab
- Safety Demo and assessment
- How to use the design process
- Going Green research, slideshow, and presentation
- What is Technology challenge

Assessments

What is technology
Formative: Group Project
what is technology questions.docx
peer rubric
Technology Project
peer rubric (1).docx
Saw assesment
Summative: Other written assessments
Lab Assignment
Scroll saw saftey assesment.pdf

Resources

Professional & Student
scroll saw

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

Unit Planner: Patterns, Forces and Measurement
Technology Education Gr. 7

Tuesday, February 22, 2022 8:28:53

Newtown Middle School / 2021-2022 / Grade 7 / F&AA: Technology / Technology Education Gr. 7 / Week 5 - Week 8

Last Updated: Friday, February 18, 2022 by Kevin Eppley

Patterns, Forces and Measurement

Connors, Jenna; Eppley, Kevin

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Structure

1. Measurement
2. Design
3. Forces
4. Patterns
5. Data
6. Structures
7. 2D/3D Shapes
8. Climate
9. Geography

G

Generalizations / Enduring Understandings

1. Structures are constructed from specific patterns and shapes.
.2 Forces affect structural designs.
3. Culture, Climate and geography greatly influence the design of structures.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.
a. What is a pattern? (F)
b. What is a 2d/3d shape? (F)
c. Is honeycomb a structurally strong pattern(F)
d. Where can we find patterns in nature? (C)
2.
a. What makes a structure safe ?(F)
b. What are the forces acting on a building?(F)
c. Can triangles be used to support structures(F)
d. How can we combat forces on a structure(c)
3.
a. Can a house be built in every continent on the planet (f)
b. How does culture influence design? (C)
c. Are there certain materials that must be used to keep buildings safe and comfortable? (P)
d. How does climate influence design? (C)
e. How does geography influence design? (C)
f. What material are houses made out of? (F)

Standard(s)

Connecticut Core Standards / Content Standards

measurment standards.docx

Critical Content & Skills

*What students must **KNOW and be able to DO***

- Students will understand that patterns can create data to be analyzed.
- Students will understand that design involves a set of steps, which can be performed in different sequences and repeated as needed.
- Students will be able to model, test, evaluate, and modify their structural solutions.

Core Learning Activities

- Students will utilize zometools to correctly build and then identify 2d/ 3d shapes while labeling the faces, edges and vertices. Students will be able to correctly calculate the perimeter and volume of the shapes they create.
- Students will learn about local architecture and how to design buildings, bridges, and structures. (RIS)
- Students will work in groups as they create zometools structures based on a set of criteria and constraints.
- Students will work in groups to design and create the most efficient structure based on the formula E=Force/Mass. Students will explore multiple materials fasteners and adhesives as they collect data to design the most efficient building.

Assessments

Safe Structure Project
Summative: Group Project
Oral Report
7th grade Architectural Project .docx
Shape assessments
Summative: Group Project
2d shape assesment.pdf
3d shapes assesment.pdf
How to measure assessment
Formative: Lab Assignment
How to measure assesment.pdf

Resources

Professional & Student
Zome tool kits
Building materials

2D_3D Figures Introduction.pptx

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

Unit Planner: Transformation of energy
Technology Education Gr. 7

Tuesday, February 22, 2022 10:49 AM

Newtown Middle School / 2021-2022 / Grade 7 / F&AA: Technology / Technology Education Gr. 7 / Week 9 - Week 12

Last Updated: Friday, February 18, 2022 by Kevin Eppley

Transformation of energy

Connors, Jenna; Eppley, Kevin

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Concepts: Energy

1. Kinetic energy
2. Compression
3. Strain
4. Structure
5. Stress
6. Projectiles
7. Designs
8. Forces

G

Generalizations / Enduring Understandings

1.Compression weakens structures.
2. Energy moves projectiles.
3.Forces can strain/stress designs.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.
a. What is compression? (F)
b. How do natural forces cause compression on a structure? (C)
c.Is any structure immune to compression forces? (P)
2.
a. How do you store potential energy in a rubber band? (C)
b. How do you turn potential energy into kinetic energy? (C)
c. Is there an object that has both kinetic and potential energy? (P)
3.
A. How can compression, torsion, tension, and shear weaken the design of a structure?(c)
B. How do earthquakes destroy buildings? ©
C. Is there any building that is earthquake proof? (P)

Standard(s)

Connecticut Core Standards / Content Standards

energy standards.docx

Critical Content & Skills

*What students must **KNOW and be able to DO***

- Students will understand and apply the 4 forces of compression, tension, torsion, and shear.
- Students will be able to model, test, evaluate, and modify their potential and kinetic energy testers.
- Students will understand that design involves a set of steps, which can be performed in different sequences and

repeated as needed.

Core Learning Activities

- Students will build on previous knowledge of potential and kinetic energy as they develop towers, catapults and vehicles based on a specific set of criteria and constraints with the main focus on energy transfer.
- Tension spring test
- Compression book challenge

Assessments

potential and kinetic energy
Formative: Other written assessments
Potential and kinetic energy reflection-assesment.pdf
potential and kinteic energy cost analysis.pdf
Energy Assesment
Formative: Technology Project
efficency tower rubric.pdf
efficency tower assesment-reflection.pdf

Resources

Professional & Student
Efficiency Tower building kits
Potential and kinetic kits
The Leaning Tower Of Pisa Italy's Legendary Architectural Mistake Massive Engineering Mistakes.mp4

Student Learning Expectation & 21st Century Skills

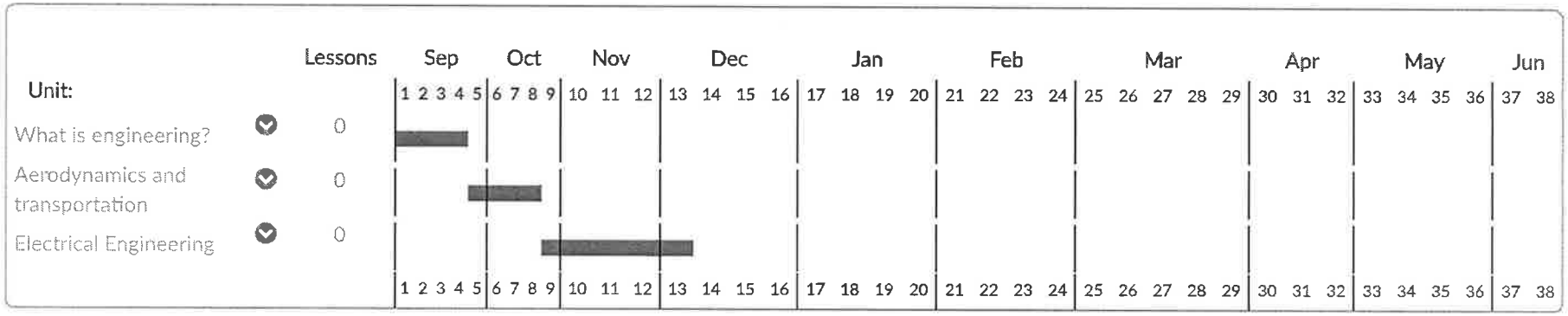
Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

Newtown Public Schools

Technology Education Gr. 8

2 Curriculum Developers



Previous Year

Unit Planner: What is engineering?
Technology Education Gr. 8

Tuesday, February 22, 2022 8:52AM

Newtown Middle School / 2021-2022 / Grade 8 / F&AA: Technology / Technology Education Gr. 8 / Week 1 - Week 4

Last Updated: Friday, February 18, 2022 by Kevin Eppley

What is engineering?

Connors, Jenna; Eppley, Kevin

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

1. Tools
2. Precision
3. Accuracy
4. Efficiency
5. Decisions

Lenses: Safety, (drill press)

G

Generalizations / Enduring Understandings

1. Decision making enables students to understand positive and negative consequences of safety.
2. Preparation improves safety and reduces waste
3. What does it mean to be efficient in school? In construction?

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.
a. Why should you work slowly when using power tools (c)
b. How far should your fingers stay from the drill press when engaged (F)
c. What is the appropriate attire and equipment needed to use power tools in the classroom?(f)
d. Is there a time when it's appropriate to ignore the safety protocols? (P)

2.
a. Why should you measure before drilling? (c)
b. If you do not perform a maintenance check on the drill press what might happen? (C)
c. Are machines dangerous if you know how to use them (p)

3.
a. Is it ever possible to use all building materials, leaving no waste? (P)
b. How can you drill two holes in separate pieces of wood and have them align perfectly (P)
c. How do different cultures use tools to safely construct buildings? (P)

Standard(s)

Connecticut Core Standards / Content Standards

drill standards.docx

Critical Content & Skills

*What students must **KNOW and be able to DO***

1. Students will safely use the drill press.
2. Students will minimize waste
3. Students will be able to clean their area when they are finished working.
4. Students will pass a drill press exam

Core Learning Activities

- Safety demonstration and lab
- Safety exam
- Clean up demonstration
- What is Engineering (Careers)
- Hobby Organizer
- Class discussion

Assessments

Engineers that changed the world
Formative: Group Project
Engineers that changed the world (1).docx
Hobby Organizer
Formative: Group Project
HobbyOrganizerDesignBrief (1).docx
Scale Model Project
Summative: Personal Project
2021-2022 Scale Model Assignment .docx
Engineers that changed the world
Summative: Group Project
Group Project
Engineers that changed the world .docx
Drill press safety assessment
Formative: Written Test
drill press saftey.png

Resources

Professional & Student
drill press
practice kits
Engineers that changed the world

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

Unit Planner: Aerodynamics and transportation
Technology Education Gr. 8

Tuesday, February 22, 2022, 10:47 AM

Newtown Middle School / 2021-2022 / Grade 8 / F&AA: Technology / Technology Education Gr. 8 / Week 5 - Week 8

Last Updated: Tuesday, February 15, 2022 by Kevin Eppley

Aerodynamics and transportation

Connors, Jenna; Eppley, Kevin

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Concepts / Conceptual Lens
Motion

Newton's laws
Gravity
Inertia
Gyroscopic rotation
Fins
Patterns

G

Generalizations / Enduring Understandings

1. 1. The interaction of gravity and inertia allows for the predictable patterns of motion in the universe.
   2. Every action has an equal and opposite reaction.
   3. Slanted fins allow rockets to achieve gyroscopic rotation.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.
A. How does gravity affect rockets? (F)
B. Can rockets fly with no gravity? (C)
C. Is a balloon a rocket? (P)
D. Who uses rockets? (P)
2.
A. What are Newton's Laws of Motion(f)
B. What happens when a ball is thrown at the floor? (F)
C. Why does this happen? (C)
3.
A. What is a gyroscope (F)
B. Why do you throw a football with a spiral (c)
C. Why does the "bike tire" self- balance when it is spinning (C)

Standard(s)

Connecticut Core Standards / Content Standards
transportation standards.docx

Critical Content & Skills

*What students must **KNOW and be able to DO***

1. Students will be able to design, build, test and re-engineer a rocket based on a set of criteria and constraints.

2. Students will identify Newton's Laws of Motion and how they apply to the rocket by drawing a model or using 3D modeling software.
3. Students will launch rockets outside and record data.

Core Learning Activities

- Gyroscope tire demonstration
- Inertia stick demonstration
- Rocket nose cone and fin build demonstration
- 3d modeling of rocket on computer
- 2d sketch on paper
- Rocket launch
- Rocket redesign
- Reflection

Assessments

peer rubric
Technology Project
peer rubric (1).docx
rocket assessment
Summative: Group Project
Rocket assesment.pdf
rocket saftey.pdf

Resources

Professional & Student
Gyroscope tire demonstration
Inertia stick demonstration
3d software

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

Math
Science

Unit Planner: Electrical Engineering Technology Education Gr. 8

Tuesday, February 22, 2022, 10:09 AM

Newtown Middle School / 2021-2022 / Grade 8 / F&AA: Technology / Technology Education Gr. 8 / Week 9 - Week 13

Last Updated: Tuesday, February 15, 2022 by Kevin Eppley

Electrical Engineering

Connors, Jenna; Eppley, Kevin

- Unit Planner
- Lesson Planner

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Concepts/lens: Safety

Electricity
Electrons
Insulators
Circuits
Wires
Short circuits
Magnets
Conductors

G

Generalizations / Enduring Understandings

1. Insulators disrupts the flow of electrons
2. Spinning magnets around conductors (wires) creates electricity
3. Short circuits left unprotect can cause injury.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.
A. What is electricity? (F)
B. What is an electron (F)
C. What are insulators and conductors? (C)
2.
A. How do you generate electricity?(c)
B. What direction do electrons flow? (f)
C. When was the last time electricity did not work? (c)
3.
A. What is a short circuit ?(F)
B. Why is a short circuit dangerous? (P)
C. What can we do to protect ourselves from short circuits? (F)
D. How much should electricity cost? (P)

Standard(s)

Connecticut Core Standards / Content Standards

electrical standrds.docx

Critical Content & Skills

*What students must **KNOW and be able to DO***

1. Students will define insulators and conductors based on electricity.
2. Students will identify insulators and conductors around the classroom.
3. Students will create circuits based on their skill level and experience.

4. Students will identify and construct parallel and series circuits by following a procedure.
5. Students will use technology to measure electricity accurately and precisely.
6. Students will share knowledge about innovations in technology as related to electricity.

Core Learning Activities

- Insulators and conductors testing activity
- Magneto generator
- Snap circuit lessons
- Students will design, build and test electrical circuits based on a set of criteria and constraints.
- Students will design, build, and test, and redesign an Electromagnet and collect data on their results.
- Students will design, build, test and redesign an Electromotor
- Students will design, build, and test a electrical "operation" game
- Students will follow a procedure to complete a series of circuits and record their data

Assessments

Circuit assessment
Summative: Technology Project
Snap circuit assesment 1.pdf
Electromagnet relfection-assesment.pdf
insulators and conductors assement 1.pdf
electrical assesments
Formative: Written Test
Electricty assement 1 Bill Nye.pdf
insulators and conductors assement 1.pdf

Resources

Professional & Student
Insulators and conductors testing activity
Magneto generator
Snap circuit lessons/kits

Student Learning Expectation & 21st Century Skills

Information Literacy
Critical Thinking
Spoken Communication
Written Performance

Interdisciplinary Connections

Math
Science

Personnel - Certified/Non-Certified

Equal Employment Opportunity (Affirmative Action)

The Board of Education (Board) will provide equal employment opportunities for all persons without regard to race, color, religion, age, marital status, national origin, alienage, ancestry, sex, sexual orientation, disability, pregnancy, genetic information, veteran status, or gender identity or expression. ~~The Board directs the administration to set as a goal the recruitment, selection, and employment of qualified people among racial and ethnic minority groups.~~

The Board requests an annual report from the Superintendent of Schools concerning the extent to which the abovementioned affirmative action program goals are being achieved.

No advertisement of employment opportunities may by intent or design restrict employment based upon discrimination as defined by law.

Legal Reference: Connecticut General Statutes

4a-60 Nondiscrimination and affirmative action provisions in contracts of the state and political subdivisions rather than municipalities

4a-60a Contracts of the state and political subdivisions, oer than municipalities, to contain provisions re nondiscrimination on the basis of sexual orientation

10153 Discrimination on account of marital status.

46a60 Discriminatory employment practices prohibited.

46a-81a Discrimination on the basis of sexual orientation

Title VII, Civil Rights Act 42 U.S.C. 2000e, et seq.

Personnel - Certified/Non-Certified

Plan for Minority Recruitment and Selection

The Board of Education (Board) believes that a skillful and diverse staff contributes significantly to high quality, engaging learning environments, predicated on a climate of inclusion, and directs the Superintendent to enact a planning process that supports efforts to encourage, recruit, employ, and retain a qualified diverse staff.

In compliance with all applicable State statutes pertaining to a written plan for racially and ethnically diverse staff recruitment and retention, the District will:

1. Inform all recruiting sources of the Board's non-discrimination policy.
2. Develop contacts with community organizations and educational institutions, to publicize job openings within the school district and to solicit referrals of racially and ethnically diverse candidates.
3. Maintain or expand as appropriate the help-wanted advertising to include print and/or broadcast media that is targeted to diverse applicants.
4. Utilize the Connecticut Regional Education Service Centers (RESCs) and Connecticut Regional Educational Application Placement (CT REAP) websites to publicize available positions within the District.
5. Participate in local job fairs, including those that are sponsored by community organizations that embrace and celebrate diversity.
6. Annually review and report to the Board the plan and the efforts to employ and retain a qualified, racially and ethnically diverse staff.

(cf. 4111/4211 - Recruitment and Selection)
(cf. 4111.1/4211.1 - Equal Opportunity Employment: Affirmative Action)

Legal Reference: Connecticut General Statutes
4a-60 Nondiscrimination and affirmative action provisions in contracts of the state and political subdivisions rather than municipalities
4a-60a Contracts of the state and political subdivisions, other than municipalities, to contain provisions re nondiscrimination on the basis of sexual orientation
10-153 Discrimination on account of marital status
46a-60 Discriminatory employment practices prohibited
46a-81a Discrimination on the basis of sexual orientation
Title VII, Civil Rights Act U.S.C. 2000e, et. seq.
PA 16-41 An Act Concerning the Recommendations of the Minority Teacher Recruitment Task Force
PA 18-34 An Act Concerning Minority Teacher Recruitment and Retention
PA 19-74 An Act Concerning Minority Teacher Recruitment and Retention

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Personnel - Certified/Non-Certified

Required COVID-19 Vaccinations

The Newtown Board of Education (the "Board") recognizes the importance of protecting the health and safety of students, staff and the community during the COVID-19 pandemic. Therefore, in accordance with the Governor's Executive Order, the Board authorizes the administration to develop a regulation concerning vaccination against COVID-19.

Legal Reference Connecticut General Statutes

10-145 Certificate necessary to employment. Forfeiture for noncompliance. Substitute teachers.

Governor's Executive Order No. 13G, September 10, 2021

Governor's Executive Order No. 14, September 28, 2021

Governor's Executive Order No. 14a, September 30, 2021

Policy adopted: January, 18, 2022

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Personnel - Certified/Non-Certified

Required COVID-19 Vaccinations

Definitions

For purposes of this policy, the following definitions shall apply:

"Fully vaccinated" means at least 14 days have elapsed since a person has received the final dose of a vaccine approved for use against COVID-19 by the U.S. Food and Drug Administration, or as otherwise defined by the Centers for Disease Control.

"Contract Worker" means any person who provides service to the Board requiring such person to make regular and frequent visits to district schools or to have regular or frequent contact with students or staff, but who is not employed by the Board, excluding any person who visits a Board school only to provide one-time or limited-duration repairs, services, or construction, or a volunteer.

"Covered Worker" refers to all employees, both full and part-time, contract workers, contractors, providers, assistants, substitutes, and other individuals working in a district school including individuals providing operational or custodial services or administrative support or any person whose job duties require them to make regular or frequent visits to any district schools or to have regular or frequent contact with students or staff.

Covered Worker does not include a contractor or employee of an outside vendor who visits a district school only to provide one-time or limited-duration repairs, services, or construction, or a volunteer.

"Contractor" refers to any person or business entity, including a vendor of support services or subcontractor, that provides the personnel who function as contract workers, or covered workers for the Board.

COVID-19 Vaccination Requirements

Vaccines shall be required as provided below.

Personnel - Certified/Non-Certified

Required COVID-19 Vaccinations

COVID-19 Vaccination Requirements (continued)

On and after September 27, 2021, the Board shall not employ, or maintain a contract for the provision of in-person services of, any covered worker or an entity that employs a covered worker, unless such covered worker:

1. is fully vaccinated against COVID-19,
2. has received the first dose and has either received a second dose or has an appointment for the second dose in a two-dose series vaccination, such as Pfizer or Moderna vaccines, or has received a single-dose vaccine, such as Johnson & Johnson's Janssen vaccine, or
3. is exempt from this requirement because a physician, physician's assistant, or advanced practice registered nurse determined that the administration of COVID-19 vaccine is likely to be detrimental to the covered worker's health, or the individual objects to vaccination on the basis of a sincerely held religious or spiritual belief, and the covered worker is able to perform their essential job functions with a reasonable accommodation that is not an undue burden on the school board or child care facility; provided that any school board or childcare facility employee claiming such exemption shall apply for an exemption due to medical conditions or sincerely held religious or spiritual beliefs.

   Each request for an exemption will be considered on an individualized, case by case basis. Employees who have applied for an exemption must provide appropriate supporting documentation upon request.
4. A covered worker who is hired before September 27, 2021 may, as an alternative to vaccination, and regardless of whether such worker has a medical or religious exemption, comply with the testing requirements contained within this policy.
5. The Board will not employ, or contract for the provision of services from, any covered worker or entity that employs a covered worker subject to the conditions above and is not exempt who has received the first dose of a two-dose series vaccination but fails to receive the second dose on the appropriate date as recommended by CDC or at the scheduled appointment without good cause.

Vaccination Verification and Testing for Covered Workers

The school board shall authenticate, or where applicable require that the contractor providing the services of a covered worker authenticate, the vaccination status of covered workers, maintain documentation of vaccination or exemption of such covered workers and report compliance with this order, in a form and manner directed by the Department of Public Health.

Beginning September 27, 2021, covered workers who have not demonstrated proof of full vaccination are required to submit to COVID-19 testing one time per week on an ongoing basis until fully vaccinated. Adequate proof of the test results on a weekly basis shall be presented to the Board in a form prescribed by the Board.

Personnel - Certified/Non-Certified

Required COVID-19 Vaccinations (continued)

Vaccination Verification and Testing for Volunteers

While we appreciate and recognize community members who want to volunteer in our schools, we also want to keep our staff and students safe. As of January 15, we will be asking volunteers to present proof of COVID-19 vaccination OR a negative COVID test result within the previous 72 hours of the time a volunteer will be working in the school. If a volunteer will be present in the school beyond one week (5 school days) from the date of the negative test, he or she would be asked to test again for each subsequent week.

Acceptable Proof of Vaccination

Covered workers may demonstrate proof of vaccination by providing one of the following:

1. A valid CDC COVID-19 Vaccination Record Card or photo of the Vaccination Record Card;
2. Documentation from a health care provider or electronic health care records;
3. A certificate from the Vaccine Administration Management System (VAMS), if the individual received vaccination through the VAMS system; or
4. A copy of the individual's official immunization record from the Connecticut Immunization Information System, CT WiZ.

Covered workers must also complete and sign a Declaration Attesting to the Authenticity of an Individual's COVID-19 Vaccination Record, provided by the Board. Proof of vaccination will not be deemed valid unless accompanied by the individual's signed declaration. The District reserves the right to authenticate a Vaccination Record Card in a manner consistent with any binding standards issues by the Commissioner of Public Health for such authentication.

Personal attestation will not be accepted as an acceptable form of proof of a COVID-19 vaccination. (*The Commissioner of Public Health may promulgate binding standards for authentication of a Vaccination Record Card.)*

All proof of vaccination must contain the name and date of birth of the individual, the manufacturer of the COVID-19 vaccine that was administered, and the date(s) on which the vaccine was administered. Employees must not include any additional medical or genetic information with proof of vaccination.

Violations and Enforcement

Any covered worker who fails to comply with this policy shall not be allowed on the premises of the school board until the individual provides adequate proof of compliance or without prior written authorization of the school board.

Personnel - Certified/Non-Certified

Required COVID-19 Vaccinations (continued)

The school board recognizes that it will be in violation of this policy, based on the Governor's Executive Order, when it permits a covered worker who has not complied with this policy to be in a pre-K through grade 12 school, to make regular or frequent visits to any such school facility, or to have regular or frequent contact with children in child care, students, or staff.

The school board also commits a violation if it fails to authenticate the vaccination status of a covered worker or contract worker, maintain documentation of vaccination, testing, or allowable exemptions as required.

The Board recognizes that if the State Department of Education (SDE) determines that the Board is not in compliance with the requirements of this policy, the SDE may require Board to forfeit a portion of the total sum which is paid to the school board from the State Treasury in an amount to be determined by the Commissioner of Education, which amount shall be not less than one thousand dollars nor more than ten thousand dollars.

Any forfeited amount shall be withheld from a grant payment, as determined by the Commissioner, during the fiscal year following the fiscal year in which noncompliance is determined. (The Commissioner of Education may waive such forfeiture if the Commissioner determines that the failure of a school board to comply with such a provision was due to circumstances beyond its control.)

Policy Duration

This policy shall remain in effect through February 15, 2022 unless earlier modified or terminated by the Board.

Regulation Approved: January, 18, 2022

Board of Education
Newtown, Connecticut

Minutes of the special virtual Board of Education meeting held on March 24, 2022 at 6:30 p.m.

D. Zukowski, Chair
J. Vouros, Vice Chair
D. Ramsey, Secretary
R. Harriman (left 7:06 p.m.)
D. Cruson
J. Kuzma
J. Larkin
L. Rodrigue
T. Vadas
L. Asklof, Board Counsel

Item 1 – Call to Order
Ms. Zukowski called the meeting to order at 6:33 p.m.

Item 1 – Pledge of Allegiance

Item 2 – Consent Agenda
MOTION: Ms. Zukowski moved that the Board of Education go into executive session for a discussion of the attorney-client privileged communication regarding the transportation RFP and transportation contract and invite Dr. Rodrigue, Tanja Vadas, and Attorney Laurann Asklof _____seconded. Motion passes unanimously.

Mrs. Larkin moved to adjourn. Mrs. Kuzma seconded. Motion passes unanimously.

Item 3 – Adjournment
The meeting adjourned at 8:11 p.m.

Respectfully submitted:

_____
Donald Ramsey
Secretary

Board of Education
Newtown, Connecticut

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