



Springfield Public Schools
Springfield, New Jersey 07081

Science
Grade 4

Curriculum Guide

2021

This curriculum may be modified through varying materials, techniques, and strategies as per an individual student's IEP.

Springfield Board of Education
Approved July 19, 2021



**Springfield Public Schools
Springfield, New Jersey**

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Introduction

This template is the product of an initiative led by the New Jersey Department of Education, Office of Academic Standards, in partnership with the New Jersey Association for Supervision and Curriculum Development (NJASCD) and the New Jersey Principals and Supervisors Association (NJPSA). The project was undertaken with the assistance of New Jersey content area supervisors, curriculum coordinators, and teachers during spring-summer 2009. The goal of the project was to design exemplar unit plans and accompanying lesson plans aligned with the New Jersey Student Learning Standards that may be used by districts as models for the development of local curricula.

The Unit Overview Template, which follows, is a tool that can help districts define one unit plan of several that comprise a specific course in the curriculum for any content area. It is designed, once completed, to summarize the content and objectives for the unit, outline lessons and assessments that support the unit, and provide links to documents that facilitate delivery of the unit, such as student materials, background information, resources, and performance rubrics. To see how the units fit together in the design of a course, see the Curriculum Design Template included at the end of this document.

Seven content area Unit Overviews were created as part of the project to serve as exemplar unit plans that are aligned with the New Jersey Student Learning Standards and that assist in achieving the goal of engaging students, fostering achievement, and cultivating 21st century global skills. The units stress the integration of 21st century themes and skills, global perspectives, technology, and cross-curricular connections.

We encourage districts to use the exemplars in conjunction with the curriculum development tools and templates that emanated from this project as models for teaching and learning based on the New Jersey Student Learning Standards.

EXTRACT OF THE MINUTES OF A MEETING OF
THE BOARD OF EDUCATION OF
THE TOWNSHIP OF SPRINGFIELD
COUNTY OF UNION, NEW JERSEY
AS RECORDED IN THE OFFICIAL MINUTE BOOK

The Board of Education of the Township of Springfield, in the County of Union, New Jersey, convened in Regular Session on July 19, 2021 at 7:10 PM.

The following members of the Board of Education were present:

Present: Mr. Anthony Delia, Mr. Marc Miller, Mr. Hector Munoz, Mrs. Meredith Murphy, Mrs. Kristy Rubin, Mrs. Paula Saha, Mr. Scott Silverstein, Mrs. Hilary Turnbull, Mrs. Laura Gamarekian

The following resolution was offered by Mrs. Saha, seconded by Mr. Munoz and adopted by the Board of Education by the Roll Call vote as indicated.

TITLE: REVISED CURRICULUM

RESOLVED :

At the recommendation of the Superintendent, to approve the following revised curriculum –

- | | | |
|---------------------------------|---|-------------------|
| • Kindergarten Science | - | Elementary School |
| • Grade 1 Science | - | Elementary School |
| • Grade 2 Science | - | Elementary School |
| • Grade 3 Science | - | Elementary School |
| • Grade 4 Science | - | Elementary School |
| • Grade 5 Science | - | Elementary School |
| • Grade 6 Science | - | Middle School |
| • Grade 7 Science | - | Middle School |
| • Grade 8 Science | - | Middle School |
| • Grade 8 Automation & Robotics | - | Middle School. |
| • | | |

ROLL CALL:

Yeas: Unanimous by all Members present.

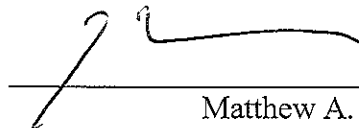
MOTION CARRIED

STATE OF NEW JERSEY)

)
COUNTY OF UNION)

I, Matthew A. Clarke, Business Administrator/Board Secretary of the Township of Springfield in the County of Union, State of New Jersey, hereby, certify that the foregoing extract from the minutes of the meeting of the Board of Education of said District duly called and held on July 19, 2021 has been compared by me with the original minutes as officially recorded in my Office in the Minute Book of said Township of Springfield Board of Education and is a true, complete copy thereof and of the whole of said original minutes so far as the same relates to the subject matter referred to on said extract. In witness, I have hereunto set my hand and affixed the corporate seal of said Board of Education this 20th day of July 2021.

SEAL



Matthew A. Clarke
Business Administrator/Board Secretary



Unit Overview Template

Content Area:	Science	Grade Level:	4	Unit Title:	Studying Science
Unit Summary: Scientists answer questions about the world around us by carrying out careful investigations.					
Primary Interdisciplinary Connections:					
21st Century Themes ✕ Creativity and Innovation ✕ Critical Thinking and Problem Solving ☐ ICT Literacy					
✕ Information Literacy ✕ Life and Career Skills ✕ Communication and Collaboration ✕ Media Literacy					
Unit Rationale: All scientists ask questions, answer them with investigations, and communicate the results to other scientists.					
Career Readiness (Standard 9):					
9.4.5.TL.5: Collaborate digitally to produce an artifact.					
9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.					
9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.					
9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.					
9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.					

Learning Targets

Standards:	3-5-ETS1; LA.4.RI
Content Statements:	Engineering Design
CPI#:	Cumulative Progress Indicator (CPI):
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
3-5-ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
LA.4.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.4.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.4.RI.4.10	By the end of year, read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed.



8.2.5.ITH.3	Analyze the effectiveness of a new product or system and identify the positive and/or negative consequences resulting from its use.
8.2.5.ITH.4	Describe a technology/tool that has made the way people live easier or has led to a new business or career.
8.2.5.NT.4	Identify how improvement in the understanding of materials science impacts technologies.
8.2.5.ETW.1	Describe how resources such as material, energy, information, time, tools, people, and capital are used in products or systems.
8.2.5.ETW.2	Describe ways that various technologies are used to reduce improper use of resources.
8.2.5.ETW.3	Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.
8.2.5.EC.1	Analyze how technology has contributed to or reduced inequities in local and global communities and determine its short- and long-term effects.

Science and Engineering Practices:

Asking Questions and Defining Problems

Asking questions and defining problems in 3–5 builds on K–2 experiences and progresses to specifying qualitative relationships.

- Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-5-ETS1-3)

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

- Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)

Disciplinary Core Ideas (DCIs):

ETS1.A: Defining and Delimiting Engineering Problems

- Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a



solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1)

ETS1.B: Developing Possible Solutions

- Research on a problem, such as climate change, should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)
- At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)
- Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3)

ETS1.C: Optimizing the Design Solution

- Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)

Crosscutting Concepts:

Influence of Engineering, Technology, and Science on Society and the Natural World

- People's needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1)
- Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)

Unit Essential Questions:

- What do scientists do?
- What skills do scientists use?
- How do scientists collect and use data?
- What kinds of models do scientists use?

Unit Enduring Understandings:

- Understand the Scientific Method
- Identify tools scientists use
- Understand how to collect and use data
- Understand how scientists use models

Unit Learning Targets:

Students will....

- Describe that science focuses on the natural world only.
- Explain that scientists make observations, ask questions, conduct investigations, and produce evidence that guides scientific thoughts and theory.
- Identify different tools that scientists use to study objects and properties.
- Communicates that scientists conduct multiple investigations.
- Explain that inquiry skills are used in daily life.
- Record data in tables and charts.



- Determines that technology helps scientists make more accurate models.

Evidence of Learning

Summative Assessment: 4 days - Word Play and Apply Concepts

Equipment Needed: Science Fusion Textbook, Unit Kit, Leveled Readers, Science Folders, Supplemental materials to meet NJSLs as needed, Flip Charts, Science Fusion Website

Teacher Resources: Science Fusion Teacher Manual, Online Component

Formative Assessments:

- Teacher questioning
- Active Reading
- Textbook responses
- Online Labs
- Paper Scientists
- Unit Review



Lesson Plans

Lesson	Time Frame
Lesson 1 What do Scientists Do?	1 hours 20 minutes/ 3-4 days
Lesson 2 What Skills do Scientists Use?	1 hours 20 minutes/ 2 days
Lesson 3 How do Scientists Collect and Use Data?	1 hours 20 minutes/3-4 days

Teacher Notes:

Learning can be guided through the use of differentiated work plans to meet student needs.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

www.definedlearning.com

www.tinyurl.com/thinkcentral

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What do Scientists Do? Time Frame: 80 minutes/
3-4 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT
Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Describe that science focuses on the natural world only. - Explain that scientists make observations, ask questions, conduct investigations, and produce evidence. - Communicate that scientists conduct multiple types of investigations. - Recognize that scientific knowledge requires evidence.	.Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading as needed.		
Resources Provided: Science Fusion Resources		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What Skills do Scientists Use? Time Frame: 80 minutes/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Explain that inquiry skills are used in daily life. • Identify examples of skills used to carry out common tasks.	Lesson Sequence 1. Whole class presentation and discussion of digital lesson 2. Partner reading of textbook pages 3. Completion of active reading tasks and textbook responses 4. Independent completion of Word Play and Apply Concepts	• Questioning during digital lesson • Active Reading Responses • Textbook Responses
Differentiation: Small groups to guide reading as needed.		
Resources Provided: Science Fusion Resources		



Lesson Plan 3 Template

Content Area:	Science	Lesson Title:	How do Scientists Collect and Use Data?	Time	1 hour 20 minutes/3-4 days
				Frame:	

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Determine that scientists often conduct research as part of an investigation. - Identify tools that scientists use to study objects and properties. - Record data in appropriate tables and charts based on the purpose of the data.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading as needed.		
Resources Provided: Science Fusion Resources		



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly***, ***Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills		X	
Allow for student choice		X	
Provide scaffolding for acquiring targeted knowledge/skills	X		
Integrate global perspectives		X	
Integrate 21st century skills	X		
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills		X	
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	X		
Are varied to address different student learning styles and preferences		X	
Are differentiated based on student needs	X		
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X		
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	X		
Provide opportunities for student reflection and self-assessment		X	
Provide data to inform and adjust instruction to better meet the varying needs of learners	X		

Curriculum Design Template

Content Area:	Science	Grade Level:	4	Unit Title:	Studying Science
Created by:	Grade 4 Team		Board Approved on:		



Unit Overview Template

Content Area:	Science	Grade Level:	4	Unit Title:	Weathering and Erosion
Unit Summary: There are forces constantly changing Earth’s surface.					
Primary Interdisciplinary Connections:					
<u>21st Century Themes</u> X Creativity and Innovation X Critical Thinking and Problem Solving ☐ ICT Literacy					
X Information Literacy X Life and Career Skills X Communication and Collaboration ☐ Media Literacy					
Unit Rationale:	The environment is constantly changing due to a variety of factors, natural and human forces combined. Having an understanding of these factors helps students to be more aware of their impact on the environment.				
Career Readiness (Standard 9):					
9.4.5.TL.5: Collaborate digitally to produce an artifact.					
9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.					
9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.					
9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity.					
9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.					

Unit Summary: Weathering and the Processes that Shape the Earth					
Primary Interdisciplinary Connections:					
<u>21st Century Themes</u> ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy					
☐ Information Literacy ☐ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy					
Unit Rationale:	The Earth is constantly changing because of natural forces and human impact. The effects of erosion can have a negative impact on the natural world. Reducing these effects will help to save various ecosystems for years to come.				

Learning Targets

Standards:	4-ESS1; 4-ESS2; 4-ESS3 LA.4.RI; LA.4.L; MA.4.MD; Art
Content Statements:	Earth's Place in the Universe; Earth's Systems; Earth and Human Activity
CPI#:	Cumulative Progress Indicator (CPI):
4-ESS1-1	Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.



4-Ess2-1	Make observations and or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, or vegetation.
4-ESS2-2	Analyze and interpret data from maps to describe patterns of Earth's features.
4-ESS3-2	Generate and compare multiple solutions to reduce the impacts of natural Earth processes and climate change have on humans.
LA.4.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.4.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.4.RI.4.10	By the end of year, read and comprehend literary nonfiction (see Appendix A) at grade level text-complexity (see Appendix A) or above, with scaffolding as needed.
LA.4.L.4.4.B	Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph).
MA.4.4.MD.A.1	Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table.
Art 1.3.P.D.2	Create two and three-dimensional works of art while exploring color, line, shape, form, texture, and space.

Science and Engineering Practices:

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

- Identify the evidence that supports particular points in an explanation. (4-ESS1-1)
- Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. (4-ESS3-2)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (4-ESS2-1)

Analyzing and Interpreting Data

Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.

- Analyze and interpret data to make sense of phenomena using logical reasoning. (4-ESS2-2)

Disciplinary Core Ideas (DCIs):



ESS1.C: The History of Planet Earth

- Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)

ESS2.A: Earth Materials and Systems

- Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2- 1)

ESS2.B: Plate Tectonics and Large-Scale System Interactions

- The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth. (4-ESS2-2)

ESS2.E: Biogeology

- Living things affect the physical characteristics of their regions. (4- ESS2-1)

ESS3.B: Natural Hazards

- A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts. (4- ESS3-2)

ETS1.B: Designing Solutions to Engineering Problems

- Testing a solution involves investigating how well it performs under a range of likely conditions. (secondary to 4-ESS3-2)

Crosscutting Concepts:

Patterns

- Patterns can be used as evidence to support an explanation. (4-ESS1-1), (4-ESS2- 2)

Cause and Effect

- Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2- 1), (4-ESS3- 2)

Connections to Engineering, Technology, and Applications of Science

Influence of Science, Engineering and Technology on Society and the Natural World

- Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demands. (4-ESS3-2)



Connections to Nature of Science

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes consistent patterns in natural systems. (4- ESS1-1)

Unit Essential Questions:

- What are the different types of weather?
- How does each type of weather create different landforms?
- What is the water cycle?
- What are Types of Weather?

Unit Enduring Understandings:

- Several factors affect the landscape of the earth.
- Earth is always changing.
- Water moves in a regular cycle that influences the weather.

Unit Learning Targets:

Students will....

- Identify the different types of landforms.
- Identify different types of weather.
- Identify how different types of weather changes the earth.
- Identify ways to slow erosion.
- Describe the water cycle and the role that evaporation, condensation, & precipitation play in it.
- Describe the composition of the atmosphere.
- Identify factors that make up weather.



Evidence of Learning

Summative Assessment: Brain Checks and Word Play, Erosion presentation
Equipment Needed: Science Fusion Textbook
Teacher Resources: Science Fusion Teacher Manual, Science Fusion Textbook, Online Components

Formative Assessments:

- Teacher questioning
- Active Reading
- Textbook responses

Lesson Plans

Lesson	Time Frame
Lesson 1 The Water Cycle	80 min/2 days
Lesson 2 What are Types of Weather?	80 min/2 days
Lesson 3 How is Weather Predicted?	80 min/2 days

Teacher Notes:

These lessons are a portion of the weathering and erosion unit, it helps students to build the understanding for why weathering and erosion occurs.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.brainpop.com/science/earthsystem/watercycle/>
<http://studyjams.scholastic.com/studyjams/jams/science/ecosystems/water-cycle.htm>
<http://studyjams.scholastic.com/studyjams/jams/science/weather-and-climate/weather-and-climate.htm>
<http://studyjams.scholastic.com/studyjams/jams/science/weather-and-climate/weather-instruments.htm>
<http://definedlearning.com>
www.tinyurl.com/thinkcentral
<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What is the Water Cycle? Time Frame: 80 min/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Study Jams, Brain Pop videos, The Magic School Bus *Wet All Over* Video

Equipment Needed: Science Fusion textbook, projector, computer, elmo, teacher's guide, flipchart

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Describe the water cycle and the role that evaporation, condensation, and precipitation play in it. - Explain how the sun provides the energy for the water cycle. - Explain how the oceans and other bodies of water interact through the water cycle. - Describe the path of precipitation from cloud to ground to runoff and groundwater.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading as necessary		
Resources Provided: Science Fusion resources		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What are types of Weather? Time Frame: 80 min/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Science Fusion textbook, projector, computer, elmo, teacher's guide, flipchart

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Describe the composition of the atmosphere. - Identify factors that make up weather. - Explain how different types of precipitation form. - Describe some forms of severe weather.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to support reading, if needed.		
Resources Provided: Science Fusion		



Lesson Plan 3 Template

Content Area: Science & Social Studies Lesson Title: Weathering Rocks Time Frame: 80 min/ 2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Art

Integration of Technology: Studyjams, Brainpop

Equipment Needed: paper plates, several pieces of chalk, fork, vinegar, sandpaper, plastic cup and water

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: Model different kinds of weathering and compare how they change rock.	Lesson Sequence - Record observing a piece of chalk (allow students to use a magnifying glass). - Students are asked to make a hypothesis as to which chalk will undergo the most change and the least change. - One piece of chalk is designated as the control. The other four will undergo a different type of “weathering” (rubbed with sandpaper, scratched with a fork, soaked in vinegar). Students will record their observations. - One of the pieces of chalk is placed in water and frozen. - The next day, the chalk should be thawed and students are allowed to observe and compare results.	- Teacher questioning - Completed data sheets with hypothesis - Responses to Analyze This and Draw Conclusions questions
Differentiation: Number of questions to be answered can be modified		
Resources Provided: Learning A-Z: Weathering Rocks teacher’s guide and Data Sheets		



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly***, ***Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills		X	
Allow for student choice		X	
Provide scaffolding for acquiring targeted knowledge/skills	X		
Integrate global perspectives	X		
Integrate 21st century skills	X		
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	X		
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	X		
Are varied to address different student learning styles and preferences	X		
Are differentiated based on student needs	X		
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process		X	
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	X		
Provide opportunities for student reflection and self-assessment		X	
Provide data to inform and adjust instruction to better meet the varying needs of learners		X	

Curriculum Design Template

Content Area: Science	Grade Level: 4	Unit Title: Weathering & the Processes that Shape the Earth
Created: Grade 4 Team	Board Approved on:	



Unit Overview Template

Content Area:	Science	Grade Level:	4th Grade	Unit Title:	The Engineering Process
Unit Summary: Engineers use a process to design products & processes that solve human problems.					
Primary Interdisciplinary Connections:					
<u>21st Century Themes</u> ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy					
☐ Information Literacy ☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy					
Unit Rationale: Design and build tools to meet needs to help solve a problem.					
Career Readiness (Standard 9):					
9.4.5.TL.5: Collaborate digitally to produce an artifact.					
9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.					
9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.					
9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.					
9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.					

Learning Targets

Standards:	E3-5-ETS1; 4-PS4; LA.4.RI; LA.4.W; MA.4.NBTB
Content Statements:	Engineering Design; Waves and their Applications in Technologies for Information Transfer
CPI#:	Cumulative Progress Indicator (CPI):
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
3-5-ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
4-PS4-3	Generate and compare multiple solutions that use patterns to transfer information.
LA.4.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.4.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.4.RI.4.10	By the end of year, read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed



LA.4.W.4.10	Write routinely over extended time frames (time for research, reflection, metacognition/self-correction and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
MA.4.4.NBTB.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm

Science and Engineering Practices:

Asking Questions and Defining Problems

Asking questions and defining problems in 3–5 builds on K–2 experiences and progresses to specifying qualitative relationships.

- Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-5-ETS1-3)

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

- Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2), (4-PS4-3)

Disciplinary Core Ideas (DCIs):

ETS1.A: Defining and Delimiting Engineering Problems

- Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1)

ETS1.B: Developing Possible Solutions

- Research on a problem, such as climate change, should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)



- At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)
- Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3)

ETS1.C: Optimizing the Design Solution

- Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3), (secondary to 4-PS4-3)

PS4.C: Information Technologies and Instrumentation

- Digitized information can be transmitted over long distances without significant degradation. High-tech devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa. (4-PS4-3) .

Crosscutting Concepts:

Influence of Engineering, Technology, and Science on Society and the Natural World

- People's needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1)
- Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)

Patterns

- Similarities and differences in patterns can be used to sort and classify designed products. (4-PS4-3)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology

- Knowledge of relevant scientific concepts and research findings is important in engineering. (4-PS4-3)

Unit Essential Questions:

- What is an Engineering Design Process?
- How can you Design a Solution?
- What is technology?
- How do we use Technology?

Unit Enduring Understandings:

- Implement the Engineering Design Process.
- Understand how to design a solution.
- Identify technology.
- Understand how to use technology.

Unit Learning Targets:

Students will describe how to use the design process to create a solution to a problem.



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Students will identify examples of tools that will help people produce, shape and build things
Students will identify needs that technology meets.



Evidence of Learning

Summative Assessment: 2 days-Word Play and Apply Concepts/STEM

Equipment Needed: Science Fusion Textbook, Unit Kit, Leveled Readers, Science Folders, Supplemental materials to meet NJSLs as needed, Flip Charts, Science Fusion Website

Teacher Resources: Science Fusion Teacher Manual, Online Component

Formative Assessments:

- Teacher Questioning
- Active Reading
- Textbook Responses
- Inquiry Charts
- Online Labs
- Unit 2 Review



Lesson Plans

Lesson	Time Frame
Lesson 1 What is an Engineering Design Process?	1 hour 20 minutes/3-4 days
Lesson 2 How Can you Design a Solution to a Problem?	1 hour 20 minutes/3-4 days
Lesson 3 What is Technology?	1 hour/2-3 days

Teacher Notes: Lessons can be guided through the use of differentiated work plans.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

www.definedlearning.com

<https://www-k6.thinkcentral.com/ePC/start.do>

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science	Lesson Title: What is an Engineering Design Process?	Time Frame: 80 minutes/ 3-4 days
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Lesson Components

21st Century Themes

☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: Technology, ELA, Math

Integration of Technology: Students use technology as a resource. Students utilize the online labs and the Defined Learning website to create STEM projects.

Equipment Needed: Science Fusion Website, Science Fusion Textbook, Laptops, DefineStem website,

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: Describe how to use the design and a solution to a problem.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading as needed.		
Resources Provided: Science Fusion Resources, Defined Learning website		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What Is Technology? Time Frame: 80 minutes/
3-4 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☒ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: Technology, ELA, Math, Engineering

Integration of Technology: Students use technology as a resource. Students utilize the online labs and the Defined Learning website to create STEM projects.

Equipment Needed: Science Fusion Website, Science Fusion Textbook, Laptops, Defined Learning website.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Identify examples of tools that help people produce, shape or build things. - Describe differences of technology within the community. - Identify benefits/risks of technology.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small group to guide reading.		
Resources Provided: Science Fusion Resources		



Lesson Plan 3 Template

Content Area: Science Lesson Title: STEM Boat Building Time Frame: 80 minutes/
3-4 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: Technology, ELA, Math

Integration of Technology: Students use technology to research the different materials provided to build their boats as well as how boats work now-a-days.

Equipment Needed: Student Laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Create a boat that floats in water holding as many pennies as possible. • Utilize the design process to improve their boat design.	Lesson Sequence 1. Whole class presentation on engineering design process 2. Group work : create boat sketch, answer questions, gather materials, first build, test boat, improve boat 3. Completion of reflection after building and improving boats	• STEM response sheet • STEM reflection
Differentiation: Modified Stem Response Sheet, Various Graphic Organizing for Planning		
Resources Provided: Science Fusion Resources		



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	x		
Allow for student choice	x		
Provide scaffolding for acquiring targeted knowledge/skills	x		
Integrate global perspectives		x	
Integrate 21st century skills	x		
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills		x	
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	x		
Are varied to address different student learning styles and preferences	x		
Are differentiated based on student needs	x		
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	x		
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives			
Provide opportunities for student reflection and self-assessment		x	
Provide data to inform and adjust instruction to better meet the varying needs of learners		x	

Curriculum Design Template

Content Area: Science	Grade Level: 4	Unit Title: STEM
Created: Grade 4 Team	Board Approved on:	



Unit Overview Template

Content Area:	Science	Grade Level:	4	Unit Title:	Plants and Animals
Unit Summary: Living things are adapted for survival in their environment					
Primary Interdisciplinary Connections:					
<u>21st Century Themes</u> ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy					
☐ Information Literacy ☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy					
Unit Rationale:	Living Things have structures and behaviors that help them survive in their environment.				
Career Readiness (Standard 9):					
9.4.5.TL.5: Collaborate digitally to produce an artifact.					
9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.					
9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.					
9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.					
9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.					

Learning Targets

Standards:	4-LS1; 4-PS4; LA.4.RI; LA.4.L
Content Statements:	From Molecules to Organisms: Structures and Processes; Waves and their Applications in Technologies for Information Transfer
CPI#:	Cumulative Progress Indicator (CPI):
4-LS1-1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
4-PS4-2	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
LA.4.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.4.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.4.RI.4.10	By the end of year, read and comprehend literary nonfiction (see Appendix A) at grade level text-complexity (see Appendix A) or above, with scaffolding as needed.
LA.4.L.4.4.B	Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph).
Science and Engineering Practices:	
Engaging in Argument from Evidence	



Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Construct an argument with evidence, data, and/or a model. (4- LS1-1)

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

- Develop a model to describe phenomena. (4-PS4-2)

Disciplinary Core Ideas (DCIs):

LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

PS4.B: Electromagnetic Radiation

- An object can be seen when light reflected from its surface enters the eyes. (4-PS4-2)

Crosscutting Concepts:

Systems and System Models

- A system can be described in terms of its components and their interactions. (4-LS1-1)

Cause and Effect

- Cause and effect relationships are routinely identified. (4-PS4-2)

Unit Essential Questions:

- What are some plant structures?
- How do plants and animals reproduce?
- How can we observe a plant's life cycle?
- How are living things adapted to their environment?

Unit Enduring Understandings:

- Understand the process of photosynthesis
- Identify plant structures and how they are used in the process of photosynthesis
- Identify and understand the stages of a life cycle
- Describe the role of pollination in a plant life cycle
- Define and explain physical and behavioral adaptations in animals

Unit Learning Targets:

Students will....

- List three plant structures and explain the function of each structure.
- Describe how plants reproduce.
- Draw the stages in a seed plant's life cycle.
- Identify some animals that lay eggs and some that have young that are born alive.



- Describe differences between physical and behavioral adaptations and give an example of each adaptation.



Evidence of Learning

Summative Assessment: 2 days-Word Play and Apply Concepts/STEM

Equipment Needed: Science Fusion Textbook, Unit Kit, Leveled Readers, Science Folders, Supplemental materials to meet NJSLs as needed, Flip Charts, Science Fusion Website

Teacher Resources: Science Fusion Teacher Manual, Online Component

Formative Assessments:

- Teacher Questioning
- Active Reading
- Textbook Responses
- Inquiry Charts
- Online Labs
- Unit 2 Review



Lesson Plans

Lesson	Time Frame
Lesson 1 What are plant structures?	80 mins/2 days
Lesson 2 How do plants reproduce?	80 mins/2 days
Lesson 3 How can we observe a plant's life cycle?	80 mins/2 days

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

www.definedlearning.com

www.tinyurl.com/thinkcentral

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What are some plant structures? Time Frame: 80 mins/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Describe the structures of typical plants. - Describe the process of photosynthesis.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading as needed.		
Resources Provided: - Science fusion resources - Various live plants - Inquiry chart Lesson 3 - Brain pops and Study Jams		



Lesson Plan 2 Template

Content Area: Science Lesson Title: How Do Plants Reproduce? Time Frame: 80 mins/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Identify stages in the life cycles of a flowering plant. - Recognize that all seed-plant life cycles include germination, maturity, reproductions, and death. - Describe the role of pollination in the sexual reproduction of seed plants. - Describe ways that plants are pollinated.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading as needed.		
Resources Provided: - Science fusion resources - The Bee Movie (a great visual of the role of pollination)		



Lesson Plan 3 Template

Content Area: Science Lesson Title: How are Living Things Adapted to their Environment? Time Frame: 80 mins/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
 Civic Literacy ☐ Health Literacy

21st Century Skills

☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Define and explain the terms environment and adaptation. - Define and explain physical and behavioral adaptations. - Recognize physical and behavioral adaptations in plants and animals.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups as needed.		
Resources Provided: Science Fusion resources.		



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills		X	
Allow for student choice	X		
Provide scaffolding for acquiring targeted knowledge/skills		X	
Integrate global perspectives		X	
Integrate 21st century skills	X		
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills		X	
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills		X	
Are varied to address different student learning styles and preferences	X		
Are differentiated based on student needs	X		
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X		
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives		X	
Provide opportunities for student reflection and self-assessment		X	
Provide data to inform and adjust instruction to better meet the varying needs of learners	X		

Curriculum Design Template

Content Area: Science	Grade Level: 4	Unit Title: Plants and Animals
Created: Grade 4 Team	Board Approved on:	



Unit Overview Template

Content Area:	Science	Grade Level:	4	Unit Title:	Energy and Ecosystems
Unit Summary: Ecosystems are made up of both living and nonliving parts that impact one another.					
Primary Interdisciplinary Connections:					
<u>21st Century Themes</u> ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy					
☐ Information Literacy ☐ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy					
Unit	Living things get the energy they need to move and grow from food and plants make				
Rationale:	their own food. Animals eat plants or other animals.				
Career Readiness (Standard 9):					
9.4.5.TL.5: Collaborate digitally to produce an artifact.					
9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.					
9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.					
9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.					
9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.					

Learning Targets

Standards:	4-LS1; LA.4.RI; Art
Content Statements:	From Molecules to Organisms: Structures and Processes
CPI#:	Cumulative Progress Indicator (CPI):
4-LS1-1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
4-LS1-2	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.
LA.4.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.4.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.4.RI.4.10	By the end of year, read and comprehend literary nonfiction (see Appendix A) at grade level text-complexity (see Appendix A) or above, with scaffolding as needed.
Art 1.3.P.D.2	Create two and three-dimensional works of art while exploring color, line, shape, form, texture, and space.
Science and Engineering Practices:	
Developing and Using Models	



Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

- Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2)

Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Construct an argument with evidence, data, and/or a model. (4-LS1-1)

Disciplinary Core Ideas (DCIs):

LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

LS1.D: Information Processing

- Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)

Crosscutting Concepts:

Systems and System Models

- A system can be described in terms of its components and their interactions. (4-LS1-1), (4-LS1-2)

Unit Essential Questions:

- What are populations, habitats and niches ?
- What are food chains?
- How do people impact ecosystems?

Unit Enduring Understandings:

- Distinguish between habitats, populations and niches.
- Demonstrate how energy is transferred in an ecosystem.
- Describe how human activity affects ecosystems.

Unit Learning Targets:

- Students will explain how populations and communities are related.
- Students will explain connections among organisms in a food web.
- Students will describe how human activity affects an ecosystem.
- Students will describe the impact of trash on the environment.



Evidence of Learning

Summative Assessment: 1 day

Equipment Needed: Science Fusion Textbook, Unit Kit, Leveled Readers, Science Folders, Supplemental materials to meet NJSLs as needed, Flip Charts, Science Fusion Website

Teacher Resources: Science Fusion Teacher Manual, Online Component

Formative Assessments:

- Teacher Questioning
- Active Reading
- Textbook Responses
- Inquiry Charts
- Online Labs



Lesson Plans

Lesson	Time Frame
Lesson 1 What are Populations, Habitats, and Niches?	80 min/2 days
Lesson 2 What are Food Chains?	80 min/2 days
Lesson 3 How do People Impact Ecosystems?	80 min/2 days

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

www.definedlearning.com

www.tinyurl.com/thinkcentral

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What are Populations, Habitats, and Niches? Time Frame: 80 min/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Distinguish between habitat and niche. - Distinguish between population and community. - Explain the organization of populations, communities, and ecosystems. - Describe an organism's niche at various stages of its life cycle.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small group to support reading, if needed		
Resources Provided: Science Fusion resources		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What are Food Chains? Time Frame: 80 mins/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: Art and ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Demonstrate that a food chain shows how energy moves from producers to consumers. • Recognize that energy for most food chains begin with the sun. • Distinguish between herbivores, carnivores and omnivores.	Lesson Sequence 1. Whole class presentation and discussion of digital lesson 2. Partner reading of textbook pages 3. Completion of active reading tasks and textbook responses 4. Independent completion of Word Play and Apply Concepts	• Questioning during digital lesson • Active Reading Responses • Textbook Responses
Differentiation: Small groups for reading as needed		
Resources Provided: Science Fusion resources		



Lesson Plan 3 Template

Content Area: Science Lesson Title: How do People Impact Ecosystems? Time Frame: 80 mins/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st Century Skills

☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Define pollution and conservation. - Describe how human activity affects ecosystems.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups for reading as needed		
Resources Provided: Science Fusion Resources		



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	X		
Allow for student choice	X		
Provide scaffolding for acquiring targeted knowledge/skills	X		
Integrate global perspectives		X	
Integrate 21st century skills		X	
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	X		
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills		X	
Are varied to address different student learning styles and preferences	X		
Are differentiated based on student needs	X		
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X		
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	X		
Provide opportunities for student reflection and self-assessment		X	
Provide data to inform and adjust instruction to better meet the varying needs of learners	X		

Curriculum Design Template

Content Area: Science	Grade Level: 4	Unit Title: Energy and Ecosystems
Created: Grade 4 Team	Board Approved on:	



Unit Overview Template

Content Area:	Science	Grade Level:	4	Unit Title:	Energy
Unit Summary: Heat is a form of energy that can be transferred between objects.					
Primary Interdisciplinary Connections:					
<u>21st Century Themes</u> ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy					
☐ Information Literacy ☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy					
Unit Rationale: Energy is continuously used in our everyday lives.					
Career Readiness (Standard 9):					
9.4.5.TL.5: Collaborate digitally to produce an artifact.					
9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.					
9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.					
9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.					
9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.					

Learning Targets

Standards:	4-ESS3; 4-PS3; 4-PS4; LA.4.RI
Content Statements:	Earth and Human Activity; Energy; Waves and their Applications in Technologies for Information Transfer
CPI#:	Cumulative Progress Indicator (CPI):
4-ESS3-1	Obtain and combine information to describe the energy and fuels are derived from natural resources and their uses affect the environment.
4-PS3-1	Use evidence to construct an explanation relating the speed of an object to the energy of that object.
4-PS3-4	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
4-PS4-1	Develop a model of waves to describe patterns in terms of amplitude and wavelengths and that waves can make objects move.
LA.4.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.4.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.4.RI.4.10	By the end of year, read and comprehend literary nonfiction (see Appendix A) at grade level text-complexity (see Appendix A) or above, with scaffolding as needed.
Science and Engineering Practices:	



Obtaining, Evaluating, and Communicating Information

Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluate the merit and accuracy of ideas and methods.

- Obtain and combine information from books and other reliable media to explain phenomena. (4-ESS3-1)

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

- Use evidence (e.g., measurements, observations, patterns) to construct an explanation. (4-PS3-1)
- Apply scientific ideas to solve design problems. (4-PS3-4)

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

- Develop a model using an analogy, example, or abstract representation to describe a scientific principle. (4-PS4-1)

Disciplinary Core Ideas (DCIs):

ESS3.A: Natural Resources

- Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)

PS3.A: Definitions of Energy

- The faster a given object is moving, the more energy it possesses. (4-PS3-1)

PS3.B: Conservation of Energy and Energy Transfer

- Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy. (4-PS3-4)

PS3.D: Energy in Chemical Processes and Everyday Life

- The expression “produce energy” typically refers to the conversion of stored energy into a desired form for practical use. (4-PS3-4)

PS4.A: Wave Properties

- Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach. (Note: This grade band endpoint was moved from K–2.) (4-PS4-1)



- Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks). (4-PS4-1)

ETS1.A: Defining Engineering Problems

- Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (secondary to 4-PS3- 4)

Crosscutting Concepts:

Cause and Effect

- Cause and effect relationships are routinely identified and used to explain change. (4-ESS3-1)

Energy and Matter

- Energy can be transferred in various ways and between objects. (4-PS3-1), (4-PS3-4)

Patterns

- Similarities and differences in patterns can be used to sort and classify natural phenomena. (4-PS4-1)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology

- Knowledge of relevant scientific concepts and research findings is important in engineering. (4-ESS3- 1)

Influence of Science, Engineering and Technology on Society and the Natural World

- Over time, people's needs and wants change, as do their demands for new and improved technologies. (4-ESS3-1)
- Engineers improve existing technologies or develop new ones. (4-PS3-4)

Connections to Nature of Science

Science is a Human Endeavor

- Most scientists and engineers work in teams. (4-PS3-4)
- Science affects everyday life. (4- PS3-4)

Scientific Knowledge is Based on Empirical Evidence

- Science findings are based on recognizing patterns. (4-PS4-1)

Unit Essential Questions:

- What are some forms of energy?



- Where does energy come from?
- What is heat?
- How is heat produced?
- What are conductors and insulators?
- Which materials are conductors?

Unit Enduring Understandings:

- Identify forms of energy
- Understand difference between potential and kinetic energy
- Describe heat
- Understand temperature changes
- Identify and describe conductors and insulators

Unit Learning Targets:

Students will....

- Identify three examples of forms of energy in our classroom.
- Demonstrate how potential energy can be transformed into kinetic energy.
- Describe three ways heat can be transferred.
- Explain what happens to an object's temperature when it is exposed to heat.
- Classify materials into two categories: those that conduct heat well and those that do not.
- Explain how you can tell whether a material is a good conductor of heat.



Evidence of Learning

Summative Assessment: 4 days - Word Play and Apply Concepts

Equipment Needed: Science Fusion Textbook, Unit Kit, Leveled Readers, Science Folders, Supplemental materials to meet NJSLs as needed, Flip Charts, Science Fusion Website

Teacher Resources: Science Fusion Teacher's Manual, Online Component

Formative Assessments:

- Teacher questioning
- Textbook responses
- Online Labs
- Energy Lapbook
- Unit Review



Lesson Plans

Lesson	Time Frame
Lesson 1 What are Some Forms of Energy?	80 hours/2 days
Lesson 2 What is Heat?	80 hours/2 days
Lesson 3 What are Conductors and Insulators?	80 hours/2 days

Curriculum Development Resources/Technology Resources:

www.thinkcentral.com

www.definedlearning.com

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What are Some Forms of Energy? Time Frame: 80 min/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Identify energy uses and their sources. - Describe the uses of chemical and mechanical energy. - Differentiate between kinetic and potential energy. - Understand that sound is a form of energy produced through vibrations.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Completion of lapbook activities - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses - Lapbook activities
Differentiation: Small groups to guide reading as needed.		
Resources Provided: - Science Fusion Materials - lapbook materials		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What is Heat? Time Frame: 80 min/2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy

☒ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy

☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Define temperature and heat. - Describe three ways to transfer heat. - Identify sources of heat.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Completion of lapbook activities - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses - Lapbook activities
Differentiation: Small groups to guide reading as needed		
Resources Provided: Science Fusion materials		



Lesson Plan 3 Template

Content Area: Science Lesson Title: What are Conductors & Insulators? Time Frame: 80 min/1 day

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Identify materials that conduct heat well. - Determine which materials can be used to prevent the transfer of energy as heat.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Completion of lapbook activities - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses - Lapbook activities
Differentiation: Small groups to guide reading as needed		
Resources Provided: Science Fusion Materials		



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly***, ***Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills		X	
Allow for student choice		X	
Provide scaffolding for acquiring targeted knowledge/skills	X		
Integrate global perspectives		X	
Integrate 21st century skills	X		
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills		X	
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	X		
Are varied to address different student learning styles and preferences		X	
Are differentiated based on student needs			
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X		
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	X		
Provide opportunities for student reflection and self-assessment	X		
Provide data to inform and adjust instruction to better meet the varying needs of learners	X		

Curriculum Design Template

Content Area: Science	Grade Level: 4	Unit Title: Energy
Created: Grade 4 Team	Board Approved on:	



Unit Overview Template

Content Area:	Science	Grade Level:	4	Unit Title:	Electricity
Unit Summary: Electric currents and magnets can be used for many purposes.					
Primary Interdisciplinary Connections:					
<u>21st Century Themes</u> ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy					
☐ Information Literacy ☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy					
Unit Rationale:	Generating stations transform potential and kinetic energy into electrical energy. Electrical energy travels over the electrical grid. This grid is a system of steel conductors and insulators that carries electricity from generating stations to our homes and businesses.				
Career Readiness (Standard 9):					
9.4.5.TL.5: Collaborate digitally to produce an artifact.					
9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.					
9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.					
9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity.					
9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.					

Learning Targets

Standards:	4-PS3; LA.4.RI
Content Statements:	Energy
CPI#:	Cumulative Progress Indicator (CPI):
4-PS3-2	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
4-PS3-3	Ask questions and predict outcomes about the changes in energy that occur when objects collide.
LA.4.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.4.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.4.RI.4.10	By the end of year, read and comprehend literary nonfiction (see Appendix A) at grade level text-complexity (see Appendix A) or above, with scaffolding as needed.
Science and Engineering Practices:	
Asking Questions and Defining Problems	



Asking questions and defining problems in grades 3–5 builds on K–2 experiences and progresses to specifying qualitative relationships.

- Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. (4-PS3-3)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

- Make observations to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (4-PS3-2)

Disciplinary Core Ideas (DCIs):

PS3.A: Definitions of Energy

- Energy can be moved from place to place by moving objects or through sound, light, or electric currents. (4-PS3-2), (4-PS3-3)

PS3.B: Conservation of Energy and Energy Transfer

- Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced. (4-PS3-2), (4-PS3-3)
- Light also transfers energy from place to place. (4-PS3-2)
- Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy. (4-PS3-2)

PS3.C: Relationship Between Energy and Forces

- When objects collide, the contact forces transfer energy so as to change the objects' motions. (4-PS3-3)

Crosscutting Concepts:

Energy and Matter

- Energy can be transferred in various ways and between objects. (4-PS3-2), (4-PS3-3)

Unit Essential Questions:

- What is electricity?
- How do electric charges interact?
- What is an electric current?

Unit Enduring Understandings:

- Magnets can be used to pick up metal objects. Electromagnets can be turned on and off, making them useful for moving large objects.



- A circuit provides a path through which electricity can flow. Series circuits have one path that the current can flow. Parallel circuits have two or more paths that electricity can flow.
- Electricity runs many appliances. Electricity is changed to heat, light, sound, and motion in these appliances.

Unit Learning Targets:

Students will....

- Explain what causes static electricity.
- Identify elements in a circuit that transform electrical energy, heat, sound, and motion.
- Describe how electricity is generated.



Evidence of Learning

Summative Assessment: Sum It Up, Brain Check (Word Play and Analyze It)

Equipment Needed: Science Fusion Textbook, Unit Kit, Leveled Readers, Science Folders, Supplemental materials to meet NJSLs as needed, Flip Charts, Science Fusion Website

Teacher Resources: Teacher's Guide

Formative Assessments:

- Teacher questioning
- Active Reading
- Textbook responses
- Online Labs
- Energy Lapbook
- Unit Review



Lesson Plans

Lesson	Time Frame
Lesson 1 What is Electricity?	80 min/ 2 days
Lesson 2 What are Electric Circuits, Conductors, and Insulators?	80 min/ 2 days
Lesson 3 How Do We Use Electricity?	80 min/ 2 days

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<http://www.andythelwell.com/blobz/>

www.definedlearning.com

www.tinyurl.com/thinkcentral

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What is Electricity? Time Frame: 80 min /2 days

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Explain what causes static electricity. - Describe how charged particles interact with one another. - Relate electricity to magnetism.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading, if needed.		
Resources Provided: Flip chart		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What Are Electric Circuits, Conductors & Insulators? Time Frame: 80 minutes / 2 days

Lesson Components

21st Century Themes

☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy

☒ Civic Literacy ☐ Health Literacy

21st Century Skills

☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy

☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Analyze circuits and explain how they work. - Identify elements in a circuit that transform electrical energy into heat, light, sound, and motion. - Identify conductors and insulators of electricity.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading, if needed.		
Resources Provided: Science Fusion resources		



Lesson Plan 3 Template

Content Area: Science Lesson Title: How Do We Use Electricity? Time Frame: 80 Minutes/2 days

Lesson Components

21st Century Themes

✕ Global Awareness ✕ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

☐ Creativity and Innovation ✕ Critical Thinking and Problem Solving ☐ Information Literacy
 ✕ Life and Career Skills ✕ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital Lesson, Study Jams, BrainPop videos

Equipment Needed: Fusion textbook, teacher guide, Fusion online component, projector, and computer, lapbook materials

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Identify ways in which electrical energy can be transformed into heat, light, sound, and motion. - Describe how electricity is generated. - Explain why energy conservation is important, and identify some ways to conserve electricity.	Lesson Sequence - Whole class presentation and discussion of digital lesson - Partner reading of textbook pages - Completion of active reading tasks and textbook responses - Independent completion of Word Play and Apply Concepts	- Questioning during digital lesson - Active Reading Responses - Textbook Responses
Differentiation: Small groups to guide reading, if needed.		
Resources Provided: Science Fusion Resources		



Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson ***Strongly, Moderately*** or ***Weakly*** meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills		X	
Allow for student choice	X		
Provide scaffolding for acquiring targeted knowledge/skills	X		
Integrate global perspectives		X	
Integrate 21st century skills	X		
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills		X	
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	X		
Are varied to address different student learning styles and preferences	X		
Are differentiated based on student needs	X		
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	X		
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives		X	
Provide opportunities for student reflection and self-assessment		X	
Provide data to inform and adjust instruction to better meet the varying needs of learners	X		

Curriculum Design Template

Content Area: Science	Grade Level: Fourth Grade	Unit Title: Electricity
Created: Grade 4 Team	Board Approved on:	



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS

IEP AND 504 ACCOMMODATIONS AND MODIFICATIONS FOR EARLY CHILDHOOD AND ELEMENTARY SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
Review of directions
Use of mnemonics
Have student restate information
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Use of a study carrel
Assistance in maintaining uncluttered space
Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Use of manipulatives
No penalty for spelling errors or sloppy handwriting
Follow a routine/schedule
Alternate quiet and active time
Teach time management skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Adjusted assignment timelines
Visual daily schedule



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Untimed tests
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book tests
Read test and directions to student
Provide study outline prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator and/or number line for math tests
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands
Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS MODIFICATIONS:



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Breaks between tasks
Cue expected behavior
Daily feedback to student
Have contingency plans
Use de-escalating strategies
Use positive reinforcement
Use proximity/touch control
Use peer supports and mentoring
Model expected behavior by adults
Have parent sign homework
Have parent sign behavior chart
Set and post class rules
Chart progress and maintain data



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS

IEP AND 504 ACCOMODATIONS AND MODIFICATIONS FOR MIDDLE AND HIGH SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
A locker with adapted lock
Review of directions
Review sessions
Use of mnemonics
Have student restate information
Provision of notes or outlines
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Weekly or bi-weekly home-school communication
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Lab and math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of tape recorder for lectures
Use of Interactive notebook
Use of a scribe
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Ability to type all assignments
Follow a routine/schedule
Teach time management and organizational skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Daily check-in with case manager or special education teacher
Adjusted assignment timelines
Visual daily schedule



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book or open-note tests
Read test and directions to student
Provide study guides prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Pace long-term projects
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Allow outlining, instead of writing for an essay or major project
Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator for math tests
Film or video supplements in place of reading text
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Pass/no pass option

Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS FOR STUDENTS:

- Breaks between tasks
- Cue expected behavior
- Daily feedback to student
- Have contingency plans
- Use de-escalating strategies
- Use positive reinforcement
- Use proximity/touch control
- Use peer supports and mentoring
- Model expected behavior by adults
- Have parent sign homework
- Set and post class rules
- Chart progress and maintain data



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS

Accommodations and Modifications for ESL Students

- Give tests orally
- Give instructions/directions in writing and orally
- Assign a peer tutor, same language or English speaking
- Allow use of bilingual/translation dictionary
- Provide summaries of text or study guides of particular chapters
- Allow errors in speaking
- Allow errors in writing
- Accept writing in first language
- Highlight key vocabulary
- Reduce amount of work required
- Assess comprehension through demonstration or other alternative means (gestures, drawings)
- Rephrase questions, directions, and explanations
- Reduce multiple choices on assessments
- Provide study guides and/ or outlines
- Shorten reading assignments
- Allow extended time for test/project completion
- Use of audio books
- Use of graphic organizers
- Use reduced text, so that print is not dense
- Use visuals/pictures throughout lesson/unit/assignment
- Adapt homework to reflect language proficiency/home support
- Adapt homework to reflect home support
- Provide hands-on activities and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation
- Use of translation dictionaries to locate words in the native language
- Use anecdotal records and portfolio of work as forms of assessment
- Use story retellings to assess comprehension

What Does the Gifted and Talented Experience Look Like? *Springfield Public Schools*

Mission Statement

The Gifted and Talented Program of the Springfield Public Schools aims to provide a meaningful and rigorous education that instills the value of lifelong learning and empowers all students to reach their full potential and become self-fulfilled creative leaders in accordance with the comprehensive standards of our state. We accomplish this by offering challenging, real-world experiences in a student-centered environment.

We recognize that students come from diverse socioeconomic, cultural, and ethnic backgrounds, and the mission of the gifted and talented program is to provide opportunities for students to explore their intellectual, creative, and artistic gifts and talents within the classroom and with beyond-the-classroom experiences. It is essential to provide diverse, appropriate, and ongoing learning experiences and environments that incorporate students' academic, psychological, and social needs. Our responsibility is to provide students with educational alternatives that teach, challenge, and expand their knowledge, while simultaneously stressing the development of independent and self-directed learners who continuously generate questions, analyze, synthesize, and evaluate information and ideas.

New Jersey Administrative Code 6A:8-3.1 defines students who are gifted and talented as those students who possess or demonstrate high levels of ability in one or more content areas when compared to their chronological peers in the local district and who require modification of their educational program if they are to achieve in accordance with their capabilities.

Goals:

To support our mission, we have established the following goals to guide our work:

- To infuse into the general education program a broad range of activities for high-level learning that will challenge all students to perform at advanced levels, and provide extended opportunities, resources, and support in particular areas where student interest or talent is demonstrated.
- To provide a continuum of gifted education services that will strengthen the total school program, offer enriching and challenging learning opportunities for all students, and provide specialized learning experiences
- To promote achievement of students' best potentials and increased ability.

Through a productive and collaborative relationship among the building principals, classroom teachers, and the Gifted and Talented teacher, our schools can create programming that will enhance the learning experience for every student and serve the unique and specialized needs of students currently demonstrating gifted behaviors.

Elements of the Schoolwide Enrichment Model, W.I.N (What I Need), differentiated instruction, advanced classes, or individual programs into a student's regular instruction program are integral to this overarching framework for gifted education in the Springfield School District.

Reference Board Policy and Regulation 2464 – Gifted and Talented Pupils (M)

Early Childhood Center **Edward V. Walton**

Schoolwide Virtual Enrichment

All first and second grade students have access to the [Gifted and Talented Virtual Classroom](#). This virtual classroom is a space for students to complete various challenges and enrichment opportunities at their own pace. Students can receive feedback and additional adaptable resources to meet their individual learning needs. The virtual classroom design expands accessibility to enrichment resources and allows students to choose learning activities according to their unique interests and abilities. The purpose of the activities is to encourage problem-solving, develop critical thinking

skills, and expand curiosity and imagination. Activities are aligned to the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

The Gifted and Talented teacher serves as a resource to all teachers within Edward V. Walton School. Teachers seeking resources for their high-ability learners will receive additional support from the Gifted and Talented teacher in various ways. This support may include additional units of study, challenging resources, and student projects.

Elementary Schools **James Caldwell** **Thelma L. Sandmeier**

The goal is to engage small groups of students in intensive learning experiences through standards-based, rigorous, and relevant units of study that supplement, not supplant, the grade-level curriculum and support students' unique learning needs.

Enrichment Experience Grade 3

Beginning in third grade, the G&T teacher will cycle through all classrooms to work on problem-solving and enrichment tasks with students. Driven by assessment data, academic performance, student interest, and teacher observation, small groups of students will meet with the G&T teacher during W.I.N. (What I Need) periods throughout the week that the teacher is assigned to their classroom teacher. Groupings will be flexible and monitored to best meet each student's needs throughout the school year. Activities will include brain teasers, puzzles, strategic thinking, problem-solving, and STEM challenges.

Targeted Gifted and Talented Programing Grades 4-5

Students may become identified as Gifted and Talented in fourth grade. Students that are identified may receive support from the G&T Teacher for up to five periods (200 minutes) a week during W.I.N. (What I Need) periods. Identified students will meet to explore grade-level content while incorporating depth and complexity in a student-centered, problem-based environment. The Gifted and Talented Program aims to provide students with various advanced and challenging learning experiences across content areas to promote independent thinking skills, refine critical thinking and communication skills, cultivate joy in learning, and expand student interests through problem-solving. The instruction that students receive incorporates 21st Century Skills and advanced content that is challenging, hands-on, and relevant to the real world.

Strategies and Practices that Support Gifted and Talented Students

- Adjusted Pace of Lessons
- Inquiry-Based Instruction
- Higher-Order Thinking Activities
- Interest-Based Content
- Real World Problem Solving/Problem Based Learning
- Independent Study/Passion Projects
- Units of Study with Like-Minded Peers

Schoolwide Virtual Enrichment

All JCS and TLS students have access to grade level-specific [Gifted and Talented Virtual Classrooms](#). These virtual classrooms are a space for students to complete various challenges and enrichment opportunities at their own pace. Students are able to receive feedback and additional opportunities based on their needs. The virtual classrooms have expanded the accessibility of enrichment resources directly to the students and allows for students to choose opportunities according to their interests and abilities. The purpose of the activities is to encourage problem solving, develop critical thinking skills, and expand curiosity and imagination in conjunction with the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

In addition to classroom support, the Gifted and Talented teacher also serves as a resource to all teachers in the building. Teachers that are seeking resources for their high ability learners will receive additional support from the Gifted and Talented teacher in various ways. This may include additional units of study, challenging resources, student projects, and meeting with the G&T teacher as needed.

Additional Enrichment Opportunities

Across all grade levels 3-5, as recommended by the classroom teacher, students exhibiting a need for additional enrichment may have the opportunity to meet with the G&T teacher as the schedule allows. Groupings will be flexible and monitored to best meet the students' needs throughout the school year. Activities will include, brain teasers, puzzles, strategic thinking activities, problem-solving challenges, and STEM challenges. Students engage in an extended process of asking questions, using resources, and developing answers that lead to thinking about what and how they are learning. Students are held accountable for how they work and use their time by demonstrating their learning through products or presentations.

Students self-select to participate in individual and/or group projects based on interest and commitment. The classroom teacher and/or the enrichment teacher will help guide

and monitor student exploration of chosen topics, facilitating their learning with resources and teaching of needed skills.

Secondary Schools
Florence M. Gaudineer Middle School
Jonathan Dayton High School

Grades 6-12: Access to specific content programs with higher levels of academic challenges (i.e. Pre-Algebra, Accelerated Communication Arts, and Advanced Placement Classes)

Dual Credit Courses provide students the opportunity to obtain high school credit, and college credit, simultaneously through partnerships with several institutions.

Project Lead the Way (PLTW) students become builders of technology by engaging in real world activities. Students are empowered as design thinkers collaborating on real world projects.

Gifted and Talented Identification Criteria

The Springfield Schools Gifted and Talented Program recognizes that students require differentiated learning experiences beyond the core curriculum being taught because of their advanced abilities in one or more content areas. These students may also have other cognitive qualities such as curiosity, creativity, motivation, leadership, and passion that require modifications to their academic experience.

Multiple Measures of Eligibility

Kindergarten through grade twelve identification process for gifted and talented students includes multiple measures. Multiple measures may include but are not limited to: achievement test scores; grades; student performance or products; intelligence testing; parent, student, and/or teacher recommendation; and other appropriate measures. The identification methodology is developmentally appropriate, non-discriminatory, and related to the programs and services offered by the Springfield School District. The identification procedures are reviewed annually.

According to N.J.A.C. 6A:8-3.1, all public school districts must have a board-approved gifted and talented identification process and provide services for identified students

enrolled in the grades of that school district. The regulations require that identification and services be made available to students in grades K-12.

When students are recommended for the Gifted and Talented Program there are multiple measures that are considered to determine if services are necessary and appropriate. The assessments used are as follows:

- *Cognitive Abilities Test (CogAT)*
- *Classroom Performance/Student Portfolios*
- *DRA2 Level*
- *iReady Diagnostic Scores*
- *Gifted Indicators Checklist*
- *Start Strong/NJSLA Assessment Data*

The N.J.A.C. requires that students be compared to their chronological peers in the local school district. The New Jersey Department of Education has not established state-level criteria for identifying students who are gifted, such as mandated tests or assessments, grade point averages, or IQ scores. Local school districts must use multiple measures to identify students.

Procedures

<https://www.straussesmay.com/seportal/Public/DistrictPolicy.aspx?policyid=2464&id=b8a33a9f505e4998a6db3fb8e1de778b>

Team meetings present the opportunity to review data and assess the educational needs of all students. Programs for gifted and talented students will be periodically evaluated for their continuing efficacy and adjusted accordingly. The parent of any student identified as gifted or talented shall be consulted regarding any program designed to address the student's particular needs.

NJDOE Fast Facts

<https://www.nj.gov/education/standards/gifted/>

<https://www.nj.gov/education/standards/gifted/legislation.shtml>

Gifted and talented student: The "[*Strengthening Gifted and Talented Education Act*](#)" defines a gifted and talented student as a "student who possesses or demonstrates a high level of ability in one or more content areas when compared to their chronological peers in the school district and who require modifications of their educational program if they are to achieve in accordance with their capabilities."

Twice-exceptional (2E) students: A twice-exceptional (2E) student is defined as "a student who is both gifted and a student with a disability. These students may also be

referred to as having dual exceptionalities or as being gifted with learning disabilities (GT/LD). This also applies to students who are gifted with ADHD or gifted with autism” (New Jersey Association for Gifted Children, www.nagc.org).

Instructional adaptation: An adjustment or modification to instruction enabling a student who is gifted and talented to participate in, benefit from, and demonstrate knowledge and application of the New Jersey Student Learning Standards in one or more content areas at the instructional level of the student, not just the student’s grade level.

Identifying gifted and talented students: The focus of identification is to provide programming and services in which students' specific learning needs and potential are appropriately addressed and met. In every New Jersey school district, there are students who require modifications to the general education curriculum if they are to achieve in accordance with their abilities. By identifying a student’s general intellectual ability, creativity, or specific academic area aptitudes, we are acknowledging that they need programming and services outside of the general education/grade level curriculum to advance their learning.

Supplemental Resources/Programming for Gifted Students

Edward V. Walton

- PETS Program – Primary Education Thinking Skills
- Group Solutions/Group Solutions 2 – Cooperative Logic Activities
- Lollipop Logic
- Beginning Thinking Skills
- AIMS Education Programming

James Caldwell and Thelma L. Sandmeier

Math/ELA

- Project M3: Mentoring Mathematical Minds
- Junior Great Books
- AIMS Education Programming
- Borenson Hands on Equations
- BizWorld
- Perplexors
- Advanced Math Explorations grade 3-5
- Challenging Units for Gifted Learners (ELA and Math)
- Creative Curriculum Extenders

- Differentiated Lessons & Projects
- Challenge Math Grades 4+
- Differentiating Instruction with Menus (All Content Areas)
- Jacob's Ladder
- Genius Hour/Passion Project
- Spatial Reasoning
- Logic Puzzles, Brain Games, Analogies

STEM

- Engineering is Elementary
- Engineer Throughout the Year
- PBS Design Squad
- DefinedSTEM
- Project Lead the Way (PLTW)

Enrichment Events

Experience for all students to be enriched through events related to the curricular or extracurricular activities. Examples include after school clubs, PTA-sponsored events, leadership opportunities, visual and performing arts, and community service opportunities.