



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Springfield Public Schools
Springfield, New Jersey 07081

Science
Grade 3

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.

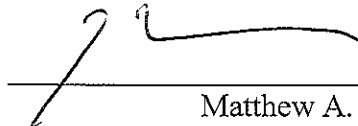
MOTION CARRIED

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:	3	Unit Title:	Engineering & Design Process
Unit Summary: The design process is used to develop new types of technology to meet people's needs.					
Primary Interdisciplinary Connections: Mathematics, ELA					
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: This unit will explore the design process. It illustrates how technology impacts the way people live/work and how technology changes over time.					
Career Readiness (Standard 9): 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements. 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.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.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global. 9.4.5.TL.5: Collaborate digitally to produce an artifact.					

Learning Targets

Standards:	3-5-ETS1; LA.RI; MA.3.MD
Content Statements:	Engineering Design. Key Ideas and Details; Craft and Structure; Integration of Knowledge and Ideas. The role of society in the development and use of technology. The application of engineering design. Represent and interpret data.
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.3.RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
LA.3.RI.3.7	Use information gained from text features (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
LA.3.RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
MA.3.3.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.
SEL.PK.12.5.2	Utilize positive communication and social skills to interact effectively with others.
8.2.5.ED.1	Explain the functions of a system and its subsystems.
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.
8.2.5.ED.4	Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints).
8.2.5.ED.5	Describe how specifications and limitations impact the engineering design process.
8.2.5.ED.6	Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.
8.2.5.ITH.2	Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have.
8.2.5.NT.2	Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries, and societies.
8.2.5.NT.3	Redesign an existing product for a different purpose in a collaborative team.

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:

- How do engineers use the design process?
- How are technology and society related?
- How can we improve a design?



- How can you apply the design process to solve a problem?

Unit Enduring Understandings:

- Engineers utilize the design process to solve problems.
- Technology evolves over time to meet the needs of society.

Unit Learning Targets:

Students will....

- Identify the steps of the design process.
- Describe the purpose of the design process.
- Discuss how technology changes over time.
- Explain how technology has affected society.
- Explain how society has affected technology.
- Apply the design process to improve a design.
- Apply the design process to a simulation of a real world problem.



Evidence of Learning

Summative Assessment: Unit 2 Test and investigation lab sheets

Equipment Needed: Items listed in investigations, Unit 2 vocabulary

TeacherResources: Teacher manual, projector, Think Central online- digital labs, science toolkits, Mystery Science, Defined Learning

Formative Assessments:

- Teacher observation
- Student participation
- Tests/quizzes
- Investigations
- Checklists



Lesson Plans

Lesson	Time Frame
Lesson 1 What is the design process?	60 min period
Lesson 2 How can we apply the design process?	60 min/2x week
Lesson 3 How do changes in technology impact society?	60 min period

Curriculum Development Resources/Technology Resources:

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

<https://www.brainpop.com/>

<https://jr.brainpop.com>

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

<https://www.youtube.com/>

<https://www.definedlearning.com>

<https://edpuzzle.com>

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What is the design process? Time Frame: 60 min period

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, PowerPoint Presentation

Equipment Needed: Projector, computer, Science Fusion work texts

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Identify and describe the steps in the design process. - Apply the design process to brainstorm possible solutions to a problem.	Lesson Sequence - Project digital lesson - Class discussion - Project powerpoint and show a real word problem (rabbit is getting into the garden and eating the fruit) - Exit ticket: put the steps of the design process in order	- Exit ticket - Class discussion - Sketches or list of possible solutions to real world problem
Differentiation: Modified expectations, grouping based on ability and behavior		
Resources Provided: - PowerPoint - Digital Lesson - Exit ticket recording sheet		



Lesson Plan 2 Template

Content Area: Science Lesson Title: How can we apply the design process? Time Frame: 60 min/ 2x week

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: PowerPoint

Equipment Needed: Projector, student recording sheet, pennies, bridge prototype (made from 2 shoe boxes and a cardboard slate), straws, paper clips, index cards, string

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Identify the steps of the design process. - Apply the steps of the design process to improve a design.	Lesson Sequence - Have students recall the steps of the design process. - Display the building bridges PowerPoint and review the directions. - Students will write down materials and work with a group to draw a design. - Students will show teachers their first design and if approved, teachers will give students materials to begin building bridges. - Groups will build bridges and test models on the prototype bridge. - Groups will then go back and make changes to improve their designs. - Groups will continue testing models and changing/improving their design in order to hold as many pennies as possible. - Class discussion recapping experiences with designing and redesigning bridges.	- Building bridge model - Student participation - Teacher observation - Recording sheet
Differentiation: Pre-selected groups based on ability and behaviors, modified expectations dependent on each student, choice of bridge design		
Resources Provided: Think Central		



Lesson Plan 3 Template

Content Area: Science Lesson Title: How do changes in technology impact society? Time Frame: 60 minute period

Lesson Components

21st Century Themes

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

21st Century Skills

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

Interdisciplinary Connections: ELA and Technology

Integration of Technology: Digital lesson and use of projector, display student pictures on document camera

Equipment Needed: Projector, Science Fusion worktext, Think Central: digital lesson

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Explain how technology affects how people live and what they do. - Explain how people affect technology by inventing new things. - Explain how technology solves problems in society.	Lesson Sequence - Display “how are technology and society related” digital lesson. - Students will break up into small groups. In small groups students will read pages 70-77 in Science Fusion worktext. - In groups students will draw a picture comparing and contrasting one example of technology from the past and how it has developed to the present. - Students will present pictures to the rest of the class. Teacher will display the pictures on the Elmo camera.	- Student participation - Teacher observation - Science fusion workbook pages with written responses - Picture of technology from the past to present (including written description)
Differentiation: Pre-selected groups based on ability and behavior, teacher led intervention group (as needed), modeling through the use of digital lesson		
Resources Provided: Think Central - digital lesson, Science Fusion worktext		



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: 3	Unit Title: Engineering Process
Created: 3rd Grade Team	Board Approved on:	



Unit Overview Template

Content Area: Science **Grade Level:** 3 **Unit Title:** Simple Machines

Unit Summary: Simple machines make work easier to do by changing the direction or size of the force. Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. Objects in contact exert forces on each other.

Primary Interdisciplinary Connections: Mathematics, ELA

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: This unit will explore simple and compound machines. It illustrates how simple and compound machines are used in daily life to make work easier.

Career Readiness (Standard 9):

- 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
- 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.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.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
- 9.4.5.TL.5: Collaborate digitally to produce an artifact.

Learning Targets

Standards: 3-PS2; LA.3.RI; LA.3.W; MATH.MP

Content Motion and Stability: Forces and Interactions

Statements:

Key Ideas and Details. Research to Build and Present Knowledge.

Mathematics Practices.

CPI#: **Cumulative Progress Indicator (CPI):**

3-PS2-1	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
3-PS2-2	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
3-PS2-3	Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.



3-PS2-4	Define a simple design problem that can be solved by applying scientific ideas about magnets.
RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
W.3.8	Recall information from experiences or gather information from print or digital sources; take brief notes on sources and sort evidence in provided categories.
MP.2	Reason abstractly and quantitatively.

Science and Engineering Practices:

Asking Questions and Defining Problems Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3)

- Define a simple problem that can be solved through the development of a new or improved object or tool. (3-PS2-4)

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-PS2-1)
- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2)

Disciplinary Core Ideas (DCIs):

PS2.A: Forces and Motion

- Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces, are used at this level.) (3-PS2-1)
- The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.) (3-PS2-2)

PS2.B: Types of Interactions

- Objects in contact exert forces on each other. (3-PS2-1) Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each



situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. (3-PS2-3), (3-PS2-4)

Crosscutting Concepts:

Patterns

- Patterns of change can be used to make predictions. (3-PS2-2)

Cause and Effect

- Cause and effect relationships are routinely identified. (3-PS2-1)
- Cause and effect relationships are routinely identified, tested, and used to explain change. (3-PS2-3)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology

- Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. (3- PS2-4)

Connections to Nature of Science

Science Knowledge is Based on Empirical Evidence

- Science findings are based on recognizing patterns. (3-PS2-2)
- Scientific Investigations Use a Variety of Methods Science investigations use a variety of methods, tools, and techniques. (3-PS2-1)

Unit Essential Questions:

- What are simple machines?
- What are some other simple machines?
- How do simple machines affect work?

Unit Enduring Understandings:

- Simple machines make work easier. Some examples given are pulley, lever, and wheel-and-axle.
- Some other simple machines are inclined planes, screw, and wedge.
- Simple machines make work easier by changing the direction or the size of a force.

Unit Learning Targets:

Students will....

- Explain the scientific meaning of work.
- Define and explain the term simple machine.
- Identify examples and describe uses of simple machines (lever, pulley, wheel & axle, inclined plane, wedges & screws).
- Identify simple machines that are used at school, home, and work.
- Define and explain the term compound machine.
- Identify examples of compound machines that are used a school, home, and work.



Evidence of Learning

Summative Assessment: Unit 10 Test and investigation lab sheets

Equipment Needed: Items listed in investigations, Unit 10 vocabulary

Teacher Resources: Teacher manual, projector, Think Central digital labs, science toolkits, Mystery Science

Formative Assessments:

- Teacher observation
- Student participation
- Tests/quizzes
- Investigations
- Checklists



Lesson Plans

Lesson	Time Frame
Lesson 1 What are simple machines?	3.0 hours/2 days
Lesson 2 What are some other simple machines?	3.0 hours/2 days
Lesson 3 How do simple machines affect work?	2.0 hours/2 days

Teacher Notes:

May be helpful to gather a collection of simple machines from home and school to use as a model and reference during instruction.

Curriculum Development Resources/Technology Resources:

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

<https://www.brainpop.com/>

<https://jr.brainpop.com/>

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

<https://www.youtube.com/>

<https://www.definedlearning.com>

<https://mysteryscience.com>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What are simple machines? Time Frame: 1 hr/3 days

Lesson Components

21st Century Themes

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

21st Century Skills

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

Interdisciplinary Connections: Math, ELA

Integration of Technology: Science Fusion Digital Lesson

Equipment Needed: Teacher Book/Science Fusion Book pages 401-431, Projector

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Explain the scientific meaning of work. - Define and explain the term simple machines. - Identify levers, pulleys, and wheel-and-axles and tell how they are used. - Identify simple machines that are used at school.	Lesson Sequence - Introduce the concept of force and work. Have the students follow a set of directions including push in their chairs, pulling a book out of their desks and lifting a pencil. - Class will develop the concept of work as the use of a force to move an object. - Teacher will display a digital lesson, Unit 10 lesson 1. Pause to discuss each type of simple machine (lever, pulley, and wheel-and-axle) and examples of each. Explain how these machines make work easier. - As an exit ticket- students will choose two simple machines to illustrate.	- Exit ticket - Teacher observation of student responses during class discussion - Student participation
Differentiation: Modified expectations, classroom/behavior management techniques, reading aloud to students as needed, student choice in exit ticket		
Resources Provided: - Science Fusion Worktext pages 404-412 - Digital lesson, Unit 10 Lesson 1 - Brainpop.com - Learnzillion.com		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What are some other simple machines? Time Frame: 60 min/2x week

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: Math, ELA

Integration of Technology: Science Fusion Digital Lesson

Equipment Needed: Teacher Book/Student Book pages 403-431, Laptops, iPads, Collection of simple machines from school and home (i.e. screws, plastic knives and forks, Play Doh tools, ramps)

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Explain how inclined planes, wedges, and screws are related. - Describe uses of inclined planes, wedges, and screws. - Define and explain the term compound machine. - Recognize simple compound machines found in the students' environments.	Lesson Sequence - Review definitions of work and simple machines, including: levers, wheel-and-axles and pulleys. - Students will explore a collection of simple classroom and household tools, such as screws, ramps, plastic forks and Play-Doh tools. - Students will read pages 418-421 in Science Fusion books (whole class, partners, or small groups). Class will discuss function & attributes of different simple machines (inclined planes, screws, and wedges). - Students will think back to the exploration from the beginning of the class. Now that students have completed the reading, the class will compose a list of additional simple machines in the classroom & at home.	- Simple machine exploration - Teacher observation during class discussion - Class generated list including examples of simple machines at home and in school - Student participation
Differentiation: Heterogeneous grouping, modified expectations, reading aloud for students as needed, classroom/behavior management techniques required for exploration		
Resources Provided: Science Fusion Worktext pages 418-421 Bill Nye Video - Simple Machines		



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- Brainpop.com
- Science Fusion PowerPoint for Unit 10 Lesson 2



Lesson Plan 3 Template

Content Area: Science Lesson Title: How do simple machines affect work? Time Frame: 60 min/2x week

Lesson Components

21st Century Themes

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

21st Century Skills

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

Interdisciplinary Connections: Math, ELA

Integration of Technology: Science Fusion Digital Lesson, Defined Learning

Equipment Needed: Science Fusion flip chart, books, metric ruler, string, toy car, spring scale, three pieces of cardboard of different lengths (10 cm, 15 cm, 20 cm), safety goggles

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Explain how simple machines affect the amount of force needed to move an object. - Build a model of a simple machine.	Lesson Sequence - Review how to use a spring scale. Demonstrate how to read the measurement in spring scale & how to attach scale to the string. - The students will work in groups to create 3 models of inclined planes. Have the students review the Flipchart p. 50 directions as a group. - Groups will create a stack of books that is 7 cm high. Then they will tie a string to a toy car and attach the string to the spring scale. - The students will measure the amount of force it takes to lift the car straight up to the top of the books with no ramp and record the result. - The students will then use the 10cm cardboard to create a ramp from the table surface to the top of the stack of books. The students will then slowly pull the car up the ramp. Record the force. - Repeat Step 5 for the two other pieces of cardboard (15 cm and 20cm). - Complete Science Fusion pages 429-430. Work with group members to answer	- Inclined planes models - Student participation and use of spring scales - Teacher observation - Science Fusion worktext pages 429-430 for recording data, drawing conclusions & analyzing data



	questions to analyze & report results from data. Discuss which method used the least/most force & why.	
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Differentiation: Pre-selected groups based on ability & behaviors, modified expectations dependent on each student; Students share roles/responsibilities according to their learning needs/strengths

Resources Provided:

- Science Fusion Flip Chart
- Science Fusion Worktext pages 429-430
- Spring scales, toy cars, string, safety goggles
- Defined STEM
- Mystery Science: Invisible Forces: Mystery 1 and 3



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: 3	Unit Title: Simple & Compound Machines
Created: 3rd Grade Team Board Approved on:		



Unit Overview Template

Content Area: Science **Grade Level:** 3 **Unit Title:** Life Science

Unit Summary: The performance expectations in third grade help students formulate answers to questions such as: How do organisms vary in their traits? How are plants, animals, and environments of the past similar or different from current plants, animals, and environments? What happens to organisms when their environment changes?

Primary Interdisciplinary Connections: Mathematics, ELA

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: Students are expected to develop an understanding of the similarities and differences of organisms' life cycles. An understanding that organisms have different inherited traits, and that the environment can also affect the traits that an organism develops, is acquired by students at this level. In addition, students are able to construct an explanation using evidence for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. Students are expected to develop an understanding of types of organisms that lived long ago and also about the nature of their environments. Throughout this unit and lessons students will have an opportunity to develop and use models, plan and carry out investigations, analyze and interpret data, construct explanations and design solutions, engage in argument from evidence, and obtain, evaluate, and communicate information.

Career Readiness (Standard 9):

- 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
- 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.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.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
- 9.4.5.TL.5: Collaborate digitally to produce an artifact.

Learning Targets

Standards: 3-LS1; 3-LS2; 3-LS3; 3-LS4; MA.3.MD; LA.3.RI; Art

Content Statements: From Molecules to Organisms: Structures and Processes; Ecosystems: Interactions, Energy, and Dynamics; Heredity: Inheritance and Variation of Traits; Biological Evolution: Unity and Diversity.

Understand and use technology systems; The application of the design process.



Represent and interpret data.

Key Ideas and Details; Craft and Structure.

Each art medium has its own materials, processes, skills, and technical application methods.

CPI#:	Cumulative Progress Indicator (CPI):
3-LS1-1	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
3-LS2-1	Construct an argument that some animals form groups that help members survive.
3-LS3-1	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
3-LS3-2	Use evidence to support the explanation that traits can be influenced by the environment.
3-LS4-1	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
3-LS4-3	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
3-LS4-4	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
MA.3.3.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch
MA.3.3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
RL.3.1	Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.



Art 1.3.P.D.2	Create two and three-dimensional works of art while exploring color, line, shape, form, texture, and space.
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Science and Engineering Practices:

Asking Questions and Defining Problems

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

- Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3)
- Define a simple problem that can be solved through the development of a new or improved object or tool. (3-PS2-4)

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 models to describe phenomena. (3-LS1-1)

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. (3-LS2-1), (3-LS4-3)
- Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-LS4-4)

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. Clarification: When possible and feasible, digital tools should be used.

- Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1), (3-LS4-1)

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., observations, patterns) to support an explanation. (3-LS3-2), (3-LS4-2)

Disciplinary Core Ideas (DCIs):

LS1.B: Growth and Development of Organisms

- Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

LS2.C: Ecosystem Dynamics, Functioning, and Resilience



- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)

LS2.D: Social Interactions and Group Behavior

- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (3-LS2-1)

LS3.A: Inheritance of Traits

- Many characteristics of organisms are inherited from their parents. (3-LS3-1)
- Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3-LS3-2)

LS3.B: Variation of Traits

- Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)
- The environment also affects the traits that an organism develops. (3-LS3-2)

LS4.A: Evidence of Common Ancestry and Diversity

- Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (3-LS4-1)
- Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1)

LS4.B: Natural Selection

- Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)

LS4.C: Adaptation

- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

LS4.D: Biodiversity and Humans

- Populations live in a variety of habitats and change in those habitats affects the organisms living there. (3-LS4-4)

Crosscutting Concepts:

Patterns

- Patterns of change can be used to make predictions. (3-LS1-1)
- Similarities and differences in patterns can be used to sort and classify natural phenomena. (3-LS3-1)



Cause and Effect

- Cause and effect relationships are routinely identified and used to explain change. (3-LS2-1), (3-LS3-2), (3-LS4-2), (3-LS4-3)

Scale, Proportion, and Quantity

- Observable phenomena exist from very short to very long time periods. (3-LS4-1)

Systems and System Models

- A system can be described in terms of its components and their interactions. (3-LS4-4)

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. (3-LS4-4)

Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence

- Science findings are based on recognizing patterns. (3-LS1-1)

Unit Essential Questions:

- What are some plant and animal life cycles?
- What are structural and behavioral adaptations?
- What are ecosystems and what lives in them?
- What is a Food Chain?
- What are some food chains?
- How do environmental changes affect living things?

Unit Enduring Understandings:

- All living things go through a cycle of growth.
- Living things have adaptations that help them survive in their environment.
- All living things, once-living, and nonliving interact in an ecosystem.
- All living things need energy to survive and grow.

Unit Learning Targets:

Students will....

- Use evidence to support the explanation that traits can be influenced by the environment.
- Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms
- Define and explain the term food chain and explain that energy moves up a food chain and are made up of producers, consumers, and decomposers.
- Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.



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- Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.



Evidence of Learning

Summative Assessment: Unit 3 and 4 Test and investigation lab sheets

Equipment Needed: Items listed in investigations, Unit 3 and 4 vocabulary

Teacher Resources: Science teacher manual, projector, Think Central online- digital labs, science toolkits, Mystery Science

Formative Assessments:

- Teacher observation
- Student participation
- Tests/quizzes
- Investigations
- Checklists



Lesson Plans

Lesson	Time Frame
Lesson 1 What are some plant and animal life cycles?	40 minutes /5 days
Lesson 2 What are structural and behavioral adaptations?	40 hours/5 days
Lesson 3 What are ecosystems & what lives in them? What is a Food Chain?	40 hours/5 days

Curriculum Development Resources/Technology Resources:

<https://www.brainpop.com/>
<https://jr.brainpop.com/>
<https://www-k6.thinkcentral.com/ePC/start.do>
<https://www.youtube.com/>
<https://www.definedlearning.com>
<https://www.mysteryscience.com>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What are some plant and animal life cycles? Time Frame: 40 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: Math, ELA, Art

Integration of Technology: online labs (Science Fusion), Brainpop, Defined Learning

Equipment Needed: Science Fusion, Leveled readers, flipchart, iPads and Laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Explain that different plants and animals have different life cycles - Explain that in flowering plants, flowers help plants reproduce - Explain that pollination must occur for flowering plants to produce - Describe the difference between complete and incomplete metamorphosis - Explain reproduction results in diversity in a species	Lesson Sequence - Students will first examine a plant's life cycle and understand how plants start as a seed, how plants get pollinated and how/why seeds travels. (page 91 - 100) - Students will examine animal life cycles and the difference of laying eggs and giving birth. Students will study the cycles of a lynx vs. an ostrich. - Students will understand that some animals go through a process of metamorphosis like a tadpole and some insects. They will identify the major changes that the tadpole goes through. - Students will compare and contrast people and animals from the same family, understanding diversity. (pages 101 - 112)	- Unit 3 Lesson 1 and 2 quizzes - Science Fusion worktext pages 91 - 112 for recording data, drawing conclusions & analyzing data - PBL - Student participation - Teacher Observation
Differentiation: Small group, modified PBL's, Stations, reading aloud for select students as needed		
Resources Provided: Science Fusion, laptops, iPads, PBL		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What are structural and behavioral adaptations? Time Frame: 40 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: Art, ELA

Integration of Technology: Science Fusion Labs, Defined Learning

Equipment Needed: Science Fusion, laptops and iPads, PBL's

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Define key vocabulary words (adaptation, camouflage, mimicry, hibernate, migrate) - Explain how adaptations help plants and animals survive in their environment - Explain the difference between instinctive and learned behavior	Lesson Sequence - Preview the images on page 116-117 and discuss how life in the wild can be dangerous. Animals must survive and their adaptations help them do so. Students will look at the images to identify some adaptations. - Preview the images on 118 and 119. Students will discuss ways animals can defend themselves against predators without fighting. - In pairs, students will discuss what a disguise is and how it might help animals in the wild. - Review the things that plants need to survive, such as water and sunlight. Discuss ways that plants might have difficulty surviving in their environments, and brainstorm possible adaptations that could help plants survive	- Unit 3 Lesson 4 and 6 quiz - Lesson 5 Lab - Science Fusion worktext pages 115 - 142 for recording data, drawing conclusions & analyzing data - PBL - Student participation - Teacher Observation
Differentiation: Small group, modified activity lists, Stations		
Resources Provided: Science Fusion, laptops, iPads, PBL, Mystery Science: Animals Through Time-Mystery 2 & Mystery 6		



Lesson Plan 3 Template

Content Area: Science Lesson Title: What are ecosystems and what lives in them? Time Frame: 40 minutes
 What is a Food Chain? hours/ 8 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, Math

Integration of Technology: Science Fusion Labs

Equipment Needed: Science Fusion, laptops and iPads, PBL's

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Define and explain vocabulary. - Describe aquatic and terrestrial environments. - Explain how plants and animals depend on one another. - Explain what food chains are made up of. - Explain that ecosystems are fragile and environmental changes, natural events, and humans can negatively impact living things.	Lesson Sequence - In groups or the whole class, students will describe what they hear, see, smell, taste and feel while at the beach. Responses will be recorded on board. - Review vocabulary words: environment, ecosystem and habitat. Students will identify the population and communities in an ecosystem. Students will think about why certain animals and plants can't live in other types of environments. - Students will compare and contrast different bodies of water. - Make a list of where plants, animals and humans get their energy from. Define key words: producer, photosynthesis, consumer and decomposer. - Students will examine food chains and identify which animals are predators and prey. - Research what happens to an ecosystem when nature and humans negatively interact with it. Students	- Unit 4 Lesson 1, 3 and 5 quiz - Lesson 2 and 4 Lab - Science Fusion worktext pages 115 - 142 for recording data, drawing conclusions & analyzing data - PBL - Student participation - Teacher Observation



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- | | | |
|--|---|--|
| | <p>will discover what aspects are of the greatest risk to an ecosystem and what happens to the animals, plants, and the food chains.</p> <p>7. Brainstorm how humans can positively affect the environment to stop or help existing problems.</p> | |
|--|---|--|

Differentiation: Small group, modified activity lists, Stations

Resources Provided: Science Fusion, laptops, iPads, PBL



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: 3rd	Unit Title: Life Science
Created: 3rd Grade Team	Board Approved on:	



Unit Overview Template

Content Area: Science **Grade Level:** 3 **Unit Title:** Earth Systems

Unit Summary: The performance expectations in third grade help students formulate answers to questions such as: “What is typical weather in different parts of the world and during different times of the year? How can the impact of weather-related hazards be reduced? Students are able to organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. In the third grade performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems; developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

Primary Interdisciplinary Connections: Mathematics, ELA

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: Water is important to all living things in many different ways. The sun is the source of energy for the water cycle and weather.

Career Readiness (Standard 9):

- 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
- 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.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.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
- 9.4.5.TL.5: Collaborate digitally to produce an artifact.

Learning Targets

Standards: 3-ESS2; LA.3.W; MA.3.MD; SOC

Content Statements: Earth’s System, Earth and Human Activity

Understand and use technology systems; The application of the design process.

Production and Distribution of Writing.



Represent and Interpret Data.

Places are jointly characterized by their physical and human properties.

CPI#:	Cumulative Progress Indicator (CPI):
3-ESS2-1	Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
3-ESS2-2	Obtain and combine information to describe climates in different regions of the world.
3-ESS3-1	Make a claim about the merit of a design solution that reduces the impacts of climate change and/or a weather-related hazard.
LA.3.W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.
MA.3.3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve 1 and 2 step “how many more” and “how many less” problems using information presented in scaled bar graphs
SOC.6.1.4.B.4	Describe how landforms, climate and weather, and availability of resources have impacted where and how people live and work in different regions of NJ & US.

Science and Engineering Practices:

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.

- Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1)

Obtaining, Evaluating, and Communicating Information

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

- Obtain and combine information from books and other reliable media to explain phenomena. (3-ESS2-2)

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).

- Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-ESS3-1)

Disciplinary Core Ideas (DCIs):

ESS2.D: Weather and Climate



- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3- ESS2-1)
- Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3- ESS2-2)

ESS3.B: Natural Hazards

- A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1)

Crosscutting Concepts:

Patterns

- Patterns of change can be used to make predictions. (3-ESS2-1), (3- ESS2-2)

Cause and Effect

- Cause and effect relationships are routinely identified, tested, and used to explain change. (3-ESS3- 1)

Connections to Engineering, Technology, and Applications of Science

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

- Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). (3-ESS3-1)

Connections to Nature of Science

Science is a Human Endeavor

- Science affects everyday life. (3- ESS3-1)

Unit Essential Questions:

- What is the Water Cycle?
- What is Weather?
- How can we measure Weather?

Unit Enduring Understandings:

- Climate and weather shape the land and determine which living things are found in a region.
- Water has physical properties, changes in the form of water as it moves through Earth's systems are described as the water cycle.
- Water circulates through a continuous cycle, the sun's energy drives weather patterns.
- There are interactions between solids, liquids and water.

Unit Learning Targets:

Students will....

- Describe and compare sources of water on Earth.
- Explain why water is essential for living things and why it should be conserved.



- Define/explain the water cycle & explain that the sun is the source of energy that drives the water cycle.
- Define and explain the term weather and describe severe weather.
- Describe how to measure specific water conditions: wind direction, air temperature, amount of precipitation, and type of precipitation.
- Compare changes in weather over a period of time.
- Display recorded data in a way that effectively communicates that data.



Evidence of Learning

Summative Assessment: Unit 5 and 7 Test and investigation lab sheets

Equipment Needed: Items listed in investigations, Unit 5 and 7 vocabulary

Teacher Resources: Teacher manual, projector, Think Central online- digital labs, science toolkits

Formative Assessments:

- Teacher observation
- Student participation
- Tests/quizzes
- Investigations



Lesson Plans

Lesson	Time Frame
Lesson 1 What is Weather?	40 minutes/ 1-2 days
Lesson 2 How Can We Measure Weather?	40 minutes/ 1-2 days
Lesson 3 Defined Learning- Weather Reporter: Reducing The Impact of Severe Weather	40 minutes/ 2-3 days

Curriculum Development Resources/Technology Resources:

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

<https://www.brainpop.com/>

<https://jr.brainpop.com>

[https://www-k6.thinkcentral.com/ePC/start.do,](https://www-k6.thinkcentral.com/ePC/start.do)

<https://www.youtube.com/>

<https://www.definedlearning.com>

<https://edpuzzle.com>

<https://mysteryscience.com/>



Lesson Plan 1 Template

Content Area: Science Lesson Title: What is the Water Cycle? Time Frame: 40 minutes/
1-2 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: Social Studies, Math, ELA

Integration of Technology: Researching geographical areas with different climates, online labs (Science Fusion), Brainpop

Equipment Needed: Use iPads and laptops to research, Science Fusion Interactive labs and lessons., flipcharts

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • SW define and explain the term “weather”. • SW explain that the sun is a source of energy that drives the water cycle. • SW describe various types of severe weather • SW describe how to measure specific weather conditions.	Lesson Sequence • A World of Weather • Measuring Weather • Being Ready for Weather • Watch Out for Weather	• Lesson 1 quiz • Apply Concepts • PBL “Water and Weather”
Differentiation: Small group, modified PBL’s, Stations		
Resources Provided: Science Fusion, laptops, iPads, PBL, Mystery Science: Stormy Skies -Mystery 1 Where do clouds come from?		



Lesson Plan 2 Template

Content Area: Science Lesson Title: What is Weather? Time Frame: 40 min./1-2 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: Math and ELA

Integration of Technology: Researching geographical areas with different climates, online labs (Science Fusion), Brainpop

Equipment Needed: Science Fusion, Leveled readers, flipchart, iPads and Laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - SW define and explain the term “weather”. - SW explain that the sun is a source of energy that drives the water cycle. - SW describe various types of severe weather. - SW describe how to measure specific weather conditions.	Lesson Sequence - A World of Weather - Measuring Weather - Being Ready for Weather - Watch Out for Weather	- Lesson 2 quiz - Apply Concepts - PBL “Water and Weather”
Differentiation: small group, modified PBL’s and stations		
Resources Provided: - Science Fusion workbooks - Laptops, iPads - PBL’s - Mystery Science: Stormy Skies -Mystery 3 Why are some places always hot?		



Lesson Plan 3 Template

Content Area: Science Lesson Title: Weather Reporter: Time Frame: 40 mins/
 Reducing the Impact of 2-3 days
 Severe Weather

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: Math, ELA, and Social Studies

Integration of Technology: Defined Learning website, Brainpop, reading online data charts, weather.com

Equipment Needed: Science Fusion workbooks, i-Pads and laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Educate the school community on severe weather that can happen in your area. - Provide ideas and procedures that help keep people safe. - Take the role of a weather reporter to inform the community about weather predictions. - Study patterns of weather in order to make predictions in the future.	Lesson Sequence - Career Video-What does a meteorologist do? - What types of skills do you need to be a meteorologist? - How do meteorologists use data in their work? - Research: Weather and Climate, Patterns, Cause and Effect, Weather Related Hazards	- Plan and outline on a spreadsheet and notes taken - Research and data collected - Presentation of weather report and findings - Final weather report
Differentiation: whole class, small groups, independent		
Resources Provided: - Defined Learning online www.weather.com - laptops/iPads for research - Mystery Science: Mystery 2- Stormy Skies How can we predict when it's going to storm?		



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: 3rd	Unit Title: Weather and Water
Created: 3rd Grade 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.