Second Grade Science

Content Area: **Science**
Course(s):
Time Period: **Sample Time Period**
Length: **Full Year**
Status: **Not Published**

Statement of Purpose and Table of Contents

The Second Grade Science Curriculum is aligned to the Next Generation Science Standards utilizing Cross-cutting Concepts, Science and Engineering Practices, and Disciplinary Core Ideas to facilitate growth within performance expectations. Throughout these units, students will engage in active learning through problem solving, sense making, and exploration of scientific phenomena. Students will identify problems and test solutions, explain the cause and effect relationship of matter, design solutions to scientific problems through data collections, and analyze relationships in an ecosystem. The engineering design process is the foundation for this student-driven curriculum. It provides students the opportunity to discover real-life problems, explore interest and passion in and beyond science, and apply learning to the world they live in. Second grade students will learn that engineering is a process that includes identifying a problem, brainstorming ideas, creating a solution, and improving their ideas. They will recognize that certain materials serve different purposes and that they can be changed in various ways. Students will also learn that the Earth can change quickly and slowly, and that human interaction can be a factor in Earth changes.

Unit 1: Engineering Design

Content Area: **Science**
Course(s): **Science**
Time Period: **1st Trimester**
Length: **12 days**
Status: **Published**

Summary of the Unit

In this unit of study, students will ask questions based on observations to find more information about the natura
how the shape of an object helps it function as needed to solve a problem. Data from tests of an object or tool w
patterns is called out as an organizing concept for these disciplinary core ideas. Students demonstrate grade-app
communicating information. Students are also expected to use these practices to demonstrate understanding of t

Enduring Understandings

- Engineering is a process that can solve problems.
- Patterns can be used to solve problems.
- Cause and effect relationships can help predict future events.
- Models can be used to observe and test what cannot be seen.

Essential Questions

- How do engineers solve problems?
- What is a design for?
- What are the criteria and constraints of a successful solution?
- What is the process for developing potential design solutions?
- How are engineering, technology, science and society interconnected?

Summative Assessment and/or Summative Criteria

Student writing samples will be used.

Assessments (worksheets and activities) for specific lessons are in the unit plan.

Resources

BrainPopJr.

Discovery Education

Epic! books (Engineering Collection)

YouTube (links in unit plan)

Mystery Science

Children's Literature (titles in the lesson)

Unit Plan

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Topic/Selection Timeframe	General Objectives	Instructional Activities	Benchmarks/Assessments	Standards
2 days	Students will be able to list characteristics of scientists.	Students will watch a BrainPopJr movie about things that scientists do. Create a class anchor chart listing what scientists do. If desired, add the list to a science notebook. (observe, predict, measure, classify, communicate etc…) Read Ada Twist, Scientist by Andrea Beaty. Have students point out things Ada is doing as a scientist.	Observation/Participation	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3
1 day	Students will be able to observe and describe objects to make predictions.	Watch a brainpop jr video about making observations. Tell them they are going to think like scientists. Students will view a slide show of "mystery" zoomed in pictures. They will use part of what they see, as well as what they know, to guess (predict) what the picture is.	Observation/Participation (Linked slideshow is also in resources)	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3
1 day	Students will be able to classify objects and explain what category they would go in.	Remind students that scientists have certain skills and they are going to think like scientists again. Refer to the anchor chart. Give students a short list of objects (i.e. a pencil, a pen, and a crayon) and ask what they have in common. Tell students when they classify,	Sorting sheet-Main Idea/Detail Categories (See resources)	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3

		they sort, or put items together that have the same characteristics. Repeat with other words and/or small classroom objects.		
2 days	Students will be able to define the word engineer and tell what engineers do.	Remind students that we have been talking about scientists and what scientists do. Explain that there are other important people who use many of the same skills, called engineers. Read Rosie Revere, Engineer and have students compare Rosie to Ada Twist. List traits of engineers. Watch a short video: "What's an Engineer?" and discuss.	What does an engineer look like?(See resources)	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3
1 day	Students will be able to describe a problem that objects in the classroom solve.	Remind students that engineers create things in order to solve a problem. Remind them that we learned about bridges, cars, and microwaves. List objects in the classroom such as the SMARTboard, a pencil, a rolling chair, etc. and have students brainstorm to decide what problem they solve/solved.	Observation/participation	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3
2 days	Students will be able to list the steps in the engineering process.	Tell students that engineers have to follow a process in order to solve problems. Share the engineering process posters. *See resources. Watch the BrainpopJr. video about engineering and design. Students create a flip book and/or coloring page about the design process.	Create an engineering process flip book. *See resources	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3
1 day	Students will be able to use the engineering process to create a fidget spinner.	Review the steps in the design process. Tell the students they are going to create something to solve a problem. Share a scenario with them and give out supplies (unifix cubes) and the design process sheet. Students create fidget spinners and change their designs/evaluate and improve their design.	Fidget Spinner STEM activity *see resources Design Process sheet *see resources	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3

2 days	Students will be able to plan, build, and improve a design.	Students will watch Mystery Science "Could You Build a House out of Paper?" They will work in small groups to brainstorm and sketch a design for their house (use the design process sheet if desired). Students build a paper house. Change the design/properties and test out the structure. Discuss.	Mystery Science lesson assessment	RL.2.1 W 2.6 W. 2.7 W 2.8 2ETS1-1 2ETS1-2 2ETS1-3

LA.W.2.2	Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.RI.2	Reading Informational Text
LA.RI.2.8	Describe and identify the logical connections of how reasons support specific points the author makes in a text.
SCI.2.PS1.A	Structure and Properties of Matter
SCI.2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Suggested Modifications for Special Education, ELL and Gifted Students

- Modifications for any individual student's IEP plan must be met.
- Alter assignment lengths if necessary.
- Provide additional examples of annotation and the signposts.
- Allow additional time when in full class discussing for processing and discussion.
- Students should be provided with graphic organizers during annotations and discussions.
- Check for understanding by conferencing with the teacher.
- Students may choose a partner or teacher may choose a partner to work that student is comfortable with.
- Repeat and clarify any directions given.
- Allow for preferential seating within groups and the whole class.
- Modify amount of vocabulary words used

- Read chapter tests aloud/test orally
- Visual examples and videos used when appropriate

For Gifted Students:

- Allow time for independent study of the topics
- Students learn about an invention or scientist and share with the class. Make a timeline or poster.
- Students create a slide show or presentation using technology or classroom materials in order to present to the class.
- Explore activities in the Lakeshore Science kit.

Suggested Technological Innovations/Use

- 8.1.8. E.1: Effective use of digital tools assists in gathering and managing information.
- 8.2.8. F.2: Technology is created through the application and appropriate use of technological resources.
- 8.2.8. D.1: Information literacy skills, research, data analysis and prediction are the basis for the effective design of technology systems.
- Peer reviews are to be commented on mini papers through Google Documents
- 8.2.8. D.1: Information literacy skills, research, data analysis and prediction are the basis for the effective design of technology systems.

Cross Curricular/21st Century Connections

9.1 21st Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

- 9.1.8.A.1: Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills.
- 9.1.8.B.2: Assess data gathered to solve a problem for which there are varying perspectives (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple solutions.
- 9.1.8.C.2: Demonstrate the use of compromise, consensus, and community building strategies for carrying out different tasks, assignments, and projects.
- 9.1.8.D3: Use effective communication skills in face-to-face and online interactions with peers and adults from home and from diverse cultures.

- 9.1.8.F.1: Demonstrate how productivity and accountability contribute to realizing individual or group work goals within or outside the classroom.

Unit 2: Matter and Its Properties

Content Area: **Science**
Course(s): **Science**
Time Period: **2nd Trimester**
Length: **13 days**
Status: **Published**

Summary of the Unit

In this unit, students will use the scientific method and speaking and listening strategies in order to understand t for different uses, because their properties to make them more effective based on their intended purpose. Stude various tasks. Students will need to use their knowledge of properties to choose the best materials for the task. various ways states of matter can change.

Enduring Understandings

- Matter can be categorized by its properties.
- Heating and cooling causes matter to change.
- Some changes to matter can be undone, while others cannot.

Essential Questions

- What are the different properties of matter?
- What properties are best suited for different purposes?
- What are the differences between a solid, a liquid and a gas?
- How can a substance change?

Summative Assessment and/or Summative Criteria

Student writing samples will be used.

Assessments (worksheets and activities) for specific lessons are in the unit plan.

Resources

BrainPopJr.

Discovery Education

Epic! books (book collection)

YouTube (links in the unit plan)

Mystery Science

Unit Plan

Topic/Selection Timeframe	General Objectives	Instructional Activities	Benchmarks/Assessments	Standards
2 days	Students will be able to classify objects in regards to their state of matter.	Read: Matter: First Science (Epic) Song: Move like States of Matter Song: Matter Chatter	Solid/Liquid/Gas worksheet (See Resources) Cut/sort pictures cut from magazines.	2-PS1-1 W.2.8 RI.2.1 RI.2.8 2.G.A.2
1 day	Students will be able to determine that states of matter can change (i.e. liquid to solid and vice versa).	Changing States of Matter (DE) and complete an AEIOU graphic organizer (DE SOS)	Complete a graphic organizer during/after the video.	2-PS1-1 W.2.8 RI.2.1 RI.2.8 2.G.A.2
2 days	Students will be able to describe the properties of matter.	Crash Course Kids: Basic Properties of Matter https://youtu.be/wyRy8kowyM8 What are the properties of matter? https://videoguru.com/video/second_grade_physical_science_a01/	Students will write a riddle to describe an object. using words to describe its color, texture, weight, strength, malleability… i.e. It is white. It is cold. It is wet. You can pick it up. You can mold it into shapes. (snow)	2-PS1-1 W.2.8 RI.2.1 RI.2.8 2.G.A.2

1 day	Students will be able to categorize items by their properties.	Students will observe a group of small objects and/or pictures of objects. Sort items and ask students how they sorted them. Create a chart with the object and a way to describe it. Group objects.	Sorting Sheet (See Resources)	2-PS1-1 W.2.8 RI.2.1 RI.2.8 2.G.A.2
1 day	Students will be able to compare and contrast two structures by using their properties.	Students will be given a certain number of connecting cubes to create a structure. They will write down/draw what it looks like. Use the same cubes to make another structure. Tell how they are alike/different.	Block Activity (lesson 9) *There are other resources in this lesson, as well.	2-PS1-3 W.2.8 RI.2.1 RI.2.8 2.G.A.2
1 day	Students will be able to identify what properties cause each material to be best suited for a solution.	**Mystery Science** Why are so many toys made out of plastic?	Mystery Science lesson assessment	2-PS1-1 W.2.8 RI.2.1 RI.2.8 2.G.A.2
2 days	Students will be able to recognize and describe that heating and cooling cause matter to change. Students will be able to manipulate matter to test the effects of heating and	**Brainpop Jr** Changing States of Matter **Mystery Science** Can you really fry an egg on a hot sidewalk?	Ask students to draw an invention that will insulate ice cream on a hot day. Label the drawing and list the materials needed.	2-PS1-4. W.2.8 RI.2.1 RI.2.8 2.G.A.2

	cooling on an object.			
2 days	Students will be able to demonstrate how everyday objects exhibit irreversible and reversible changes.	**Brainpop Jr** Physical and Chemical Changes **Epic-** Changing Matter and Makerspace Discuss dissolving, evaporation, melting and freezing, heating, burning, and mixing. Demonstrate by mixing sugar or salt in water, and lighting a match.	Students write an example of each kind of change (reversible/irreversible)	2-PS1-4. W.2.8 RI.2.1 RI.2.8 2.G.A.2

LA.W.2.2	Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.RI.2	Reading Informational Text
LA.RI.2.8	Describe and identify the logical connections of how reasons support specific points the author makes in a text.
SCI.2.PS1.A	Structure and Properties of Matter
SCI.2.ESS2.A	Earth Materials and Systems
SCI.2-PS1	Matter and Its Interactions
SCI.2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
SCI.2-PS1-4	Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
SCI.2-PS1-3	Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

Suggested Modifications for Special Education, ELL and Gifted Students

- Modifications for any individual student's IEP plan must be met.
- Alter assignment lengths if necessary.
- Provide additional examples of annotation and the signposts.

- Allow additional time when in full class discussing for processing and discussion.
- Students should be provided with graphic organizers during annotations and discussions.
- Check for understanding by conferencing with the teacher.
- Students may choose a partner or teacher may choose a partner to work that student is comfortable with.
- Repeat and clarify any directions given.
- Allow for preferential seating within groups and the whole class.
- Modify amount of vocabulary words used
- Read chapter tests aloud/test orally
- Visual examples and videos used when appropriate

For Gifted Students:

- Allow time for independent study of the topics.
- Students explain other ways to change matter. Use a science journal.
- Students create a slide show or presentation using technology or classroom materials in order to present to the class.
- Explore activities in the Lakeshore Science kit.

Suggested Technological Innovations/Use

- 8.1.8. E.1: Effective use of digital tools assists in gathering and managing information.
- 8.2.8. F.2: Technology is created through the application and appropriate use of technological resources.
- 8.2.8. D.1: Information literacy skills, research, data analysis and prediction are the basis for the effective design of technology systems.
- Peer reviews are to be commented on mini papers through Google Documents
- 8.2.8. D.1: Information literacy skills, research, data analysis and prediction are the basis for the effective design of technology systems.

Cross Curricular/21st Century Connections

9.1 21st Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers

in diverse ethnic and organizational cultures.

- 9.1.8.A.1: Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills.
- 9.1.8.B.2: Assess data gathered to solve a problem for which there are varying perspectives (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple solutions.
- 9.1.8.C.2: Demonstrate the use of compromise, consensus, and community building strategies for carrying out different tasks, assignments, and projects.
- 9.1.8.D3: Use effective communication skills in face-to-face and online interactions with peers and adults from home and from diverse cultures.
- 9.1.8.F.1: Demonstrate how productivity and accountability contribute to realizing individual or group work goals within or outside the classroom.

Unit 3: Ecosystems: Interactions, Energy, and Dynamics

Content Area: **Science**
Course(s): **Science**
Time Period: **2nd Trimester**
Length: **15 days**
Status: **Published**

Summary of the Unit

In this unit, students will identify what photosynthesis is, and why plants need this process to survive. Students will also discuss the importance of pollination in the plant life cycle and how pollination can occur in many different ways. Students will discuss how there are many different kinds of living things in any area, and they exist in different places on land and in water. They will explain how humans can have a positive or negative effect on insects or animal habitats.

Enduring Understandings

- Events have causes that generate patterns in an ecosystem.
- The stability of structures are related to their functions.
- Humans can positively or negatively affect an ecosystem.

Essential Questions

How does a plant grow?

How do seeds spread?

How do humans affect ecosystems?

Summative Assessment and/or Summative Criteria

Student writing samples will be used.

Assessments (worksheets and activities) for specific lessons are in the unit plan.

Resources

BrainPopJr.

Discovery Education

Epic! books (book collection)

YouTube (links in the unit plan)

Mystery Science

Unit Plan

Topic/Selection Timeframe	General Objectives	Instructional Activities	Benchmarks/Assessments	Standards
3 days	Students will be able to research what various plants need to grow and be healthy. Students will be able to plan and conduct an investigation to explore the needs of different plants.	Introduce the topic with a plant growth time lapse video. https://youtu.be/UvTRLyXr5xQ Make a KWL chart about plants. Read Gail Gibbons From Seed to Plant https://www.getepic.com/app/read/36597 Students work in small groups to discuss what a plant needs and how they can change the variables. Draw what each one would look like.	Student observation/questioning	**NJSLSA.R1** **NJSLSA.W7** **NJSLSA.W8** **2-LS2-1** **2-LS2-2**
Ongoing	Students will be able to analyze data and communicate results on plants and their need for varying levels of sunlight and water.	Either plant seeds in cups or use class plants. Students observe and write/draw what they see. Put one in sunlight. One far away from the window. Water one. Don't water another. Continue to observe. Define the words control and variable.	Investigation Works printable (See resources)	**NJSLSA.R1** **NJSLSA.W7** **NJSLSA.W8** **2-LS2-1** **2-LS2-2** **ETS1.B**

2-3 days	Students will be able to identify multiple ways insects help plants pollinate. Students will be able to design or research a simple model based on evidence to show how insects help plants pollinate.	Watch a pollination video and discuss. Students complete a pollination activity with kool aid, cotton balls, and q-tips.	See resources for demo/activity.	**NJSLSA.R1** **NJSLSA.W 7** **NJSLSA.W 8** **2-LS2-1** **2-LS2-2** **ETS1.B**
1 day	Students will be able to identify ways animals help plants disperse seeds.	Mystery Science How did a plant travel halfway around the world? YouTube Seed dispersal	Mystery Science seed pod activity Students write and illustrate one way seeds can be moved.	**NJSLSA.R1** **NJSLSA.W 7** **NJSLSA.W 8** **2-LS2-1** **2-LS2-2** **ETS1.B**
1 day	Students will be able to describe a habitat as meeting an animal's need for food, shelter, and water.	Read a habitat book on Epic or What is a Habitat? on Discovery Ed	Draw and label and/or write about the students' habitats. Students will write about how their needs are met in their habitats.	**NJSLSA.R1** **NJSLSA.W 7** **NJSLSA.W 8** **2-LS2-1** **2-LS2-2** **ETS1.B**
5 days	Students will be able to observe and describe the life cycle of the frog.	Share with students that the class will be learning about raising frogs from the tadpole stage to adulthood. They will learn about the metamorphosis process and about the characteristics and needs of living things. Read a frog book on Epic! Frog Book (two choices in the book collection). Complete a life cycle sheet (in resources). Students will observe the stages of the life cycle and write about the stages as the tadpole grows and changes.	Draw and write about a the life cycle of a frog.	**NJSLSA.R1** **NJSLSA.W 7** **NJSLSA.W 8** **2-LS2-1** **2-LS2-2** **ETS1.B**

4 days	Students will be able to summarize the plants and animals found in two different habitats. Students will be able to compare and contrast the diversity of habitats.	Brain Pop Jr Habitats videos will be shown for two habitats (or various books from the library/Epic!). List plants/animals/climate. Work as a class to make a Venn diagram comparing two of the habitats. Students compare a different habitat (or two different ones) the following day.	List of plants/animals/climate (participation/observation) Venn diagram comparing/contrasting two habitats	**NJSLSA.R1** **NJSLSA.W 7** **NJSLSA.W 8** **2-LS2-1** **2-LS2-2** **ETS1.B**
1 day	Students will be able to research how people have affected insect and animal habitats.	Students watch a short video about how humans change their environment. List positive/negative changes discussed.	Create a class anchor chart/student lists.	**NJSLSA.R1** **NJSLSA.W 7** **NJSLSA.W 8** **2-LS2-1** **2-LS2-2** **ETS1.B**
2 days	Students will be able to recommend changes for negative effects on insect and animal habitats.	Students work together to create a poster that explains a way to change a negative behavior (i.e. recycling, carpooling, planting trees, etc.)	Create a poster encouraging changes for negative effects on habitats.	**NJSLSA.R1** **NJSLSA.W 7** **NJSLSA.W 8** **2-LS2-1** **2-LS2-2** **ETS1.B**

LA.W.2.2	Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.RI.2	Reading Informational Text
LA.RI.2.8	Describe and identify the logical connections of how reasons support specific points the author makes in a text.
SCI.2.LS2.A	Interdependent Relationships in Ecosystems
SCI.2.LS4.D	Biodiversity and Humans
SCI.2.ETS1.B	Developing Possible Solutions
SCI.2-LS2-1	Plan and conduct an investigation to determine if plants need sunlight and water to grow.
SCI.2-LS2-2	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

SCI.2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.
SCI.2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Suggested Modifications for Special Education, ELL and Gifted Students

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- Provide additional examples of annotation and the signposts.
- Allow additional time when in full class discussing for processing and discussion.
- Students should be provided with graphic organizers during annotations and discussions.
- Check for understanding by conferencing with the teacher.
- Students may choose a partner or teacher may choose a partner to work that student is comfortable with.
- Repeat and clarify any directions given.
- Allow for preferential seating within groups and the whole class.
- Modify amount of vocabulary words used
- Read chapter tests aloud/test orally
- Visual examples and videos used when appropriate

For Gifted Students:

- Allow time for independent study of the topics
- Students learn more about a habitat or a different habitat. Create a triorama or diaorama.
- Students create a slide show or presentation using technology or classroom materials in order to present to the class.
- Explore activities in the Lakeshore Science kit.
- Write a poem, song, or report about a habitat.

Suggested Technological Innovations/Use

- 8.1.8. E.1: Effective use of digital tools assists in gathering and managing information.
- 8.2.8. F.2: Technology is created through the application and appropriate use of technological resources.

- 8.2.8. D.1: Information literacy skills, research, data analysis and prediction are the basis for the effective design of technology systems.
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Cross Curricular/21st Century Connections

9.1 21st Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

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- 9.1.8.C.2: Demonstrate the use of compromise, consensus, and community building strategies for carrying out different tasks, assignments, and projects.
- 9.1.8.D3: Use effective communication skills in face-to-face and online interactions with peers and adults from home and from diverse cultures.
- 9.1.8.F.1: Demonstrate how productivity and accountability contribute to realizing individual or group work goals within or outside the classroom.

Unit 4: Earth Systems

Content Area: **Science**
Course(s): **Science**
Time Period: **3rd Trimester**
Length: **15 days**
Status: **Published**

Summary of the Unit

In this unit of study, students apply their understanding of the idea that wind and water can change the shape of land to compare design solutions to slow or prevent such change. The crosscutting concepts of stability and change, structure and function, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, developing and using models, and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Enduring Understandings

- Weathering by wind, water, ice, and plants causes Earth's surfaces to change slowly.
- Severe weather and natural disasters cause Earth's surfaces to change quickly.
- Erosion changes the shape of land over time.

Essential Questions

- What land changes on Earth happen slowly?
- What land changes on Earth happen quickly?
- What impact does erosion play on daily life?

Summative Assessment and/or Summative Criteria

Student writing samples will be used.

Assessments (worksheets and activities) for specific lessons are in the unit plan.

Resources

BrainPopJr.

Discovery Education

Epic! books (collection)

YouTube

Mystery Science

Unit Plan

Unit Plan

Topic/Selection Timeframe	General Objectives	Instructional Activities	Benchmarks/Assessments	Standards
2-3 days	Students will be able to identify quick and slow land changes and its effect to the Earth's surface.	Students will watch a mystery science video, "What's Strong Enough to Make a Canyon?" and complete the accompanying worksheet. The teacher will demonstrate a rainstorm (as per the mystery science activity) and students will observe and sketch. Discuss slow changes on Earth. Day 2- Watch Rocks, Sand, and Erosion Why is there sand at the beach?? (Mystery Science)	Rainstorm Worksheet (Mystery Science) Lesson 2 Mystery Science assessment (See resources)	RI 2.1 W 2.6 W. 2.7 W 2.8 2ESS2-1 2ESS2-2 2ETS1-1
3 days	Students will be able to research and describe the changes made to the Earth's surface due to natural disasters.	Remind students that we talked about slow changes on Earth. Tell them that today we will be discussing fast changes on Earth. Show a short video about natural disasters as an introduction. List	Natural Disaster Wheel (See Resources) Landscape effects of Natural Hazards (See resources)	RI 2.1 W 2.6 W. 2.7 W 2.8 2ESS2-1 2ESS2-2

		disasters on chart paper. Students will complete a matching and/or hazards wheel (differentiated).		
2 days	Students will be able to communicate understanding of a slow and fast land change and its impact on daily life.	Review the changes previously discussed (erosion, natural hazards, etc.) and refer to the anchor charts/lists created as a class. Students choose one thing to write about from the list. i.e. "A _____ is a slow change. It _____." Brain Pop Jr. also has videos for both fast/slow life changes.	Students write two or more sentences telling about their chosen change (fast or slow) and what is does to change the Earth.	RI 2.1 W 2.6 W. 2.7 W 2.8 2ESS2-1 2ESS2-2
1 day	Students will be able to observe and record evidence of weathering in daily life. Students will be able to develop a claim on observations of weathering while supporting the claim with evidence.	Students will participate in a STEM activity with sugar cubes and other materials. They will break down sugar cubes by smashing them, rubbing them together, and dropping water on them. Record observations/write about the experience. A class chart can also be made to note observations	Weathering activity and response (See resources)	RI 2.1 W 2.6 W. 2.7 W 2.8 2ESS2-1 2ESS2-2 2ETS1-1
1 day	Students will be able to gather information to identify and illustrate different solutions to wind or water erosion.	Mystery Science- How Can you Stop a Landslide?	Students design a model to stop a landslide (can be done in conjunction with the other cornmeal demo from earlier in the unit).	RI 2.1 W 2.6 W. 2.7 W 2.8 2ESS2-1 2ESS2-2 2ETS1-1
4 days	Students will be able to gather information to identify and develop a model that represents major landforms and bodies of water on Earth.	Brainpop Jr Landforms will be shown and discussed. Students will match descriptions of each to an illustration (Landforms and Our World pages for landforms- in assessment and resources). Discuss how what we have learned about erosion correlates to the landforms. *Alternative- Discovery Ed Landforms	Landforms and Our World cut and paste (and/or notes and pictures written in a science journal) (See resources) There are landform and continents/ocean printables. Build landforms out of play-doh.	RI 2.1 W 2.6 W. 2.7 W 2.8 2ESS2-1 2ESS2-2 2ETS1-1

		Continents and Oceans (Brain pop jr.) will be shown and discussed. Students sort and map the continents and oceans (Landforms and Our World correlating pages) Alternative- Discovery Ed Continents and Oceans		
2 days	Students will be able to map the landscapes and water in any area (i.e. Sayreville, New Jersey, USA).	Mystery Science If you floated down a river, Where would you end up? Use Google Earth to zoom in on a particular area (using Sayreville as the search). Students observe and discuss what they see on the map.	Accompanying sheet for the lesson in Mystery Science (Resources also in resource file.)	RI 2.1 W 2.6 W. 2.7 W 2.8 2ESS2-1 2ETS1-1

LA.W.2.2	Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion.
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.RI.2	Reading Informational Text
LA.RI.2.8	Describe and identify the logical connections of how reasons support specific points the author makes in a text.
MA.1.G	Geometry
SCI.2.ESS2.A	Earth Materials and Systems
SCI.2.ESS2.B	Plate Tectonics and Large-Scale System Interactions
SCI.2.ESS2.C	The Roles of Water in Earth's Surface Processes
SCI.2.ETS1.B	Developing Possible Solutions
SCI.2.ETS1.C	Optimizing the Design Solution
SCI.2-ESS2-3	Obtain information to identify where water is found on Earth and that it can be solid or liquid.
SCI.2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Suggested Modifications for Special Education, ELL and Gifted Students

- Modifications for any individual student's IEP plan must be met.
- Alter assignment lengths if necessary.
- Provide additional examples of annotation and the signposts.
- Allow additional time when in full class discussing for processing and discussion.
- Students should be provided with graphic organizers during annotations and discussions.
- Check for understanding by conferencing with the teacher.
- Students may choose a partner or teacher may choose a partner to work that student is comfortable with.
- Repeat and clarify any directions given.
- Allow for preferential seating within groups and the whole class.
- Modify amount of vocabulary words used
- Read chapter tests aloud/test orally
- Visual examples and videos used when appropriate

For Gifted Students:

- Allow time for independent study of the topics
- Students create a slide show or presentation using technology or classroom materials in order to present to the class.
- Explore activities in the Lakeshore Science kit.
- Write a poem, song, or report about a landform or its changes.
- Students draw a map of a fictitious island with landforms (or build it out of materials). Explain what would happen in a natural disaster and why.

Suggested Technological Innovations/Use

- 8.1.8. E.1: Effective use of digital tools assists in gathering and managing information.
- 8.2.8. F.2: Technology is created through the application and appropriate use of technological resources.
- 8.2.8. D.1: Information literacy skills, research, data analysis and prediction are the basis for the effective design of technology systems.
- Peer reviews are to be commented on mini papers through Google Documents
- 8.2.8. D.1: Information literacy skills, research, data analysis and prediction are the basis for the

effective design of technology systems.

Cross Curricular/21st Century Connections

9.1 21st Century Life and Career Skills: All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

- 9.1.8.A.1: Develop strategies to reinforce positive attitudes and productive behaviors that impact critical thinking and problem-solving skills.
- 9.1.8.B.2: Assess data gathered to solve a problem for which there are varying perspectives (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple solutions.
- 9.1.8.C.2: Demonstrate the use of compromise, consensus, and community building strategies for carrying out different tasks, assignments, and projects.
- 9.1.8.D3: Use effective communication skills in face-to-face and online interactions with peers and adults from home and from diverse cultures.
- 9.1.8.F.1: Demonstrate how productivity and accountability contribute to realizing individual or group work goals within or outside the classroom.