

NEPTUNE CITY SCHOOL DISTRICT

Elementary Science Curriculum Grade 2



NEPTUNE CITY SCHOOL DISTRICT
Office of the Chief School Administrator, Principal
210 West Sylvania Avenue
Neptune City, NJ 07753

The Neptune City School District is appreciative and proud to accept and align the curriculum of the NEPTUNE CITY School District to properly prepare the Neptune City students for successful integration into the NEPTUNE CITY High School Educational Program.

April 1, 2025

Document C1#1

BOARD OF EDUCATION

Anthony Susino, President
David Calhaun, Vice President
Kimberly Bale
Sharon Dellett
Lisa Emmons
Drisana Lashley
Leidy Santana
Sherri Zanni

SCHOOL DISTRICT ADMINISTRATION

Mr. Pedro Garrido
Interim Chief School Administrator, Principal

George Gahles
School Business Administrator, Board Secretary

Michael Haynes
Supervisor of Special Services

SCHOOL DISTRICT MISSION STATEMENT

The Neptune City School District, in partnership with the parents and the community, will support and sustain an excellent system of learning, promote pride in diversity, and expect all students to achieve the New Jersey Student Learning Standards at all grade levels to become responsible and productive citizens.

NEPTUNE CITY SCHOOL DISTRICT

ELEMENTARY SCIENCE GRADE 2 CURRICULUM

Table of Contents

Acknowledgements.....	<i>i</i>
District Mission Statement.....	<i>ii</i>
District Educational Outcome Goals.....	<i>iii</i>
Integrated Social and Emotional Competencies.....	<i>iv</i>

Curriculum

<u>Unit Title</u>	<u>Page</u>
Safety.....	1
Unit 1: Plant and Animal Survival	4
Unit 2: Materials and Their Uses.....	13
Unit 3: Earth's Surface.....	20
Accommodation and Modifications.....	28

NEPTUNE CITY SCHOOL DISTRICT

Elementary Science Grade 2

Acknowledgements

The Grade 2 Science Curriculum was developed for the NEPTUNE CITY Elementary Schools through the efforts of Joseph Woerner, elementary teacher, in cooperation with Stacie Ferrara, Ed.D., Supervisor of STEM, and with guidance of Sally A. Millaway, Ed.D., Director for Curriculum, Instruction and Assessment.

Mr. Woerner is to be commended for his dedication in creating learning plans that are aligned with the 2020 New Jersey Student Learning Standards in Science. These learning plans contain student-centered, inquiry-based activities that meet the requirements of the standards. It is our hope that this guide will serve as a valuable resource for the staff members who teach second grade and that they will feel free to make recommendations for its continued improvement.

NEPTUNE CITY SCHOOL DISTRICT

DISTRICT MISSION STATEMENT

The primary mission of the NEPTUNE CITY School District is to prepare all of our students for a life-long learning process and to become confident, competent, socially- and culturally-conscious citizens in a complex and diverse world. It is with high expectations that our schools foster:

- A strong foundation in academic and modern technologies
- A positive, equitable, and varied approach to teaching and learning
- An emphasis on critical thinking skills and problem-solving techniques
- A respect for and an appreciation for our world, its resources, and its diverse people
- A sense of responsibility, good citizenship, and accountability
- An involvement by the parents and the community in the learning process

NEPTUNE CITY School District

Educational Outcome Goals

The students in the NEPTUNE CITY schools will become life-long learners and will:

- Become fluent readers, writers, speakers, listeners, and viewers with comprehension and critical thinking skills.
- Acquire the mathematical skills, understandings, and attitudes that are needed to be successful in their careers and everyday life.
- Understand fundamental scientific principles, develop critical thinking skills, and demonstrate safe practices, skepticism, and open-mindedness when collecting, analyzing, and interpreting information.
- Become technologically literate.
- Demonstrate proficiency in all New Jersey Student Learning Standards (NJSLS).
- Develop the ability to understand their world and to have an appreciation for the heritage of America with a high degree of literacy in civics, history, economics and geography.
- Develop a respect for different cultures and demonstrate trustworthiness, responsibility, fairness, caring, and citizenship.
- Become culturally literate by being aware of the historical, societal, and multicultural aspects and implications of the arts.
- Demonstrate skills in decision-making, goal setting, and effective communication, with a focus on character development.
- Understand and practice the skills of family living, health, wellness and safety for their physical, mental, emotional, and social development.
- Develop consumer, family, and life skills necessary to be a functioning member of society.
- Develop the ability to be creative, inventive decision-makers with skills in communicating ideas, thoughts and feelings.
- Develop career awareness and essential technical and workplace readiness skills, which are significant to many aspects of life and work.

INTEGRATED SOCIAL AND EMOTIONAL LEARNING COMPETENCIES

The following social and emotional competencies are integrated in this curriculum document:

Self-Awareness	
x	Recognize one's own feelings and thoughts
x	Recognize the impact of one's feelings and thoughts on one's own behavior
x	Recognize one's personal traits, strengths and limitations
	Recognize the importance of self-confidence in handling daily tasks and challenges
Self-Management	
	Understand and practice strategies for managing one's own emotions, thoughts and behaviors
x	Recognize the skills needed to establish and achieve personal and educational goals
	Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals
Social Awareness	
x	Recognize and identify the thoughts, feelings, and perspectives of others
x	Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds
x	Demonstrate an understanding of the need for mutual respect when viewpoints differ
x	Demonstrate an awareness of the expectations for social interactions in a variety of setting
Responsible Decision Making	
x	Develop, implement and model effective problem solving and critical thinking skill
x	Identify the consequences associated with one's action in order to make constructive choices
x	Evaluate personal, ethical, safety and civic impact of decisions.
Relationship Skills	
x	Establish and maintain healthy relationships
x	Utilize positive communication and social skills to interact effectively with others
	Identify ways to resist inappropriate social pressure
x	Demonstrate the ability to present and resolve interpersonal conflicts in constructive ways
x	Identify who, when, where, or how to seek help for oneself or others when needed

Unit Plan Title	Safety
Suggested Time Frame	Ongoing and Embedded in Units as Appropriate

Overview / Rationale
Safety in the classroom setting is important for students and teachers. Personal safety is reviewed at the beginning of each school year in science lessons and should be demonstrated and adhered to by teachers and students in all activities including class demonstrations, lab investigations, hands-on projects, gardening, outdoor classroom settings and any other school setting as well as SummerWood.

Stage 1 – Desired Results	
Established Goals: Although there are no specific New Jersey Student Learning Standards in Science describing safety procedures or rules, teachers should refer to the standards in each unit that requires and utilizes laboratory activities, demonstrations and investigations to support meeting the standard(s).	
Essential Questions: <ul style="list-style-type: none"> How can accidents and injuries be avoided in the classroom and laboratory settings? What steps should be taken to respond to emergencies and accidents in the classroom, laboratory and workplace setting? 	Enduring Understandings: <ul style="list-style-type: none"> Safety precautions are important for all areas of life and should be practiced by everyone on a daily basis. It is important that safety practices are understood and exercised in the classroom, laboratory, and on the job.
Knowledge: <i>Students will know...</i> <ul style="list-style-type: none"> Lab safety rules and expectations Names and uses of lab equipment Location and use of safety equipment 	Skills: <i>Students will be able to...</i> <ul style="list-style-type: none"> Explain appropriate health and safety practices in the classroom and laboratory. Identify common hazards in the classroom and school setting.. Identify name and use of material and equipment Explain how to respond to various safety situations and accidents. Demonstrate how to use materials and equipment. .

Interdisciplinary Connections

New Jersey Student Learning Standards -English Language Arts (2016)

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

New Jersey Student Learning Standards-Comprehensive Health and Physical Education(2020)

2.1.2.EH.2: Identify what it means to be responsible and list personal responsibilities. •

2.1.2.EH.3: Demonstrate self-control in a variety of settings (e.g., classrooms, playgrounds, special programs).

2.1.2.EH.4: Demonstrate strategies for managing one's own emotions, thoughts and behaviors.

2.2.2.MSC.1: Perform a combination of sequences of locomotor movements and rhythmic activities (e.g., walking, balancing, hopping, skipping, running).

2.2.2.MSC.3: Demonstrate manipulative movements (e.g., throwing, catching, dribbling, running, kicking) while moving in personal and general space, time, directions, pathways and ranges

2.2.2.MSC.6: Execute appropriate behaviors and etiquette while participating in activities, games, sports, and other events to contribute to a safe environment.

2.3.2.PS1: Demonstrate personal habits and behaviors that contribute to keeping oneself and others healthy and the environment clean and safe.

2.3.2. PS.3: Recognize and demonstrate safety strategies to prevent injuries at home, school, in the community (e.g., traffic safety, bicycle/scooter safety, fire safety, poison safety, accident prevention).

2.3.2. PS.4: Develop an awareness of warning symbols and their meaning (e.g., red light, stop sign, poison symbol).

Student Resources

n/a

Teacher Resources

Flinn Safety Course for teachers online (free with registration)

<https://labsafety.flinnsci.com/>

NSTA Safety Resources

<https://www.nsta.org/topics/safety>

Duty of Care

<https://static.nsta.org/pdfs/DutyOfCare.pdf>

Safety and the NGSS

https://static.nsta.org/pdfs/Safety%20and%20the%20Next%20Generation%20Science%20Standards_29Oct2020_FINAL.pdf

Safety Practices with Demonstrations

<https://static.nsta.org/pdfs/MinimumSafetyPracticesAndRegulations.pdf>

Stage 2 – Assessment Evidence

Pre-Assessments:

What do you know about safety?

Formative Assessments:

Equipment- names and uses

Room layout and safety equipment location

Use of Safety equipment- eye wash, hood, fire blanket, fire extinguisher

Fire drill exit

Call for help in school

Stage 3 – Learning Plan

- Explain and demonstrate safety expectation
- Safety tour of classroom-
- Practice fire drill
- Review Safety equipment - name, location, use
- Review scenarios and how to call for help
- Model how to handle materials and equipment
- Review safety procedures throughout the year and before any activity.
- Explain how to dispose of materials and broken glass

Unit Plan Title	Unit 1: Plant and Animal Survival
Suggested Time Frame	16 Days (Fast Track) 26 Days (Extended Track)

Overview / Rationale
In this unit, students explore what kinds of living things are present in an area, and why some plants and animals live in certain places, but others do not. Students discover what animals and plants need to survive and how sometimes that survival comes down to dependence on another plant or animal. Students explore the many different kinds of living things in an area as they examine case studies on how plants and animals survive in four different habitats: rainforest, desert, pond, and ocean.

Stage 1 – Desired Results
<p>Established Goals: New Jersey Student Learning Standards -Science (2020) 2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow. 2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats. K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p>
<p>Essential Questions:</p> <ul style="list-style-type: none"> • What kinds of living things are there? • What do plants and animals need to survive? • How do plants and animals depend on each other? • Why do plants and animals live in some places and not others? • How do plants and animals survive in different habitats?
<p>Enduring Understandings:</p> <ul style="list-style-type: none"> • Every habitat on Earth has its own plants and animals that depend on the physical parts of the habitat and each other to survive. • Objects and organisms can be described in terms of their parts. • Systems in the natural and designed world have parts that work together. • Events have causes that generate observable patterns. • Plants depend on water and light to grow.
<p>Knowledge: <i>Students will know...</i></p> <ul style="list-style-type: none"> • Different plants and animals that live on land and in the water. • How to organize and collect data by grouping observations. • Graphs can be used to help identify patterns in the natural world. • The basic needs of plants and what happens when they don't get those needs met. • Plants and animals work together to meet their needs.

- Pollinators, like bees, play vital role in the life of plants which in turn are important to all of life.
- The structure of plants and animals is related to their function.
- Some problems can be solved by designing tools that mimic nature.
- The plants, animals, and environmental factors (weather, climate, type of water) of a polar, rainforest, and desert habitats.
- The plants and animals of a rainforest, desert, pond and ocean habitats and how they meet their needs in each habitat.

Skills:

Students will be able to...

- Make observations of plants and animals in different areas.
- Record observations by writing or drawing and analyzing data.
- Use observations and data to make comparisons of different kinds of living things.
- Make a graph to represent living things on land and in water.
- Use a graph to identify patterns of living things on land and in water.
- Investigate plants with and without water or light to determine whether plants need water and light to grow.
- Identify patterns in plants receiving no water or no light.
- Analyze and interpret data about their plants.
- Ask a question, make a prediction, and plan an investigation that will answer their question.
- Observe bees pollinating flowers and recognize that plants depend on animals for pollination or to move their seeds around.
- Ask questions based on observations and define a simple problem that can be solved through the development of a new or improved object or tool.
- Sketch a design of a model of a hand pollinator.
- Develop and test a model of a hand pollinator.
- Understand that the shape and stability of a hand pollinator is related to its function.
- Make observations of different kinds of living things in a polar habitat, rainforest habitat, and desert habitat.
- Record and collect data about different habitats.
- Use data from observations as a basis to compare three habitats and describe them as being hotter, colder, wetter, drier, or as having freshwater or saltwater.
- Make observations of images and videos of plants and animals in a rainforest.
- Collect data by marking their field guides and taking notes about what they observe in a rainforest.
- Use data, including counting and numbers, to identify patterns in plants and animals in a rainforest.
- Make observations of images of plants and animals to compare the diversity of life in a desert.
- Compare clues about plants and animals in a desert as a basis to answer questions.
- Use information about desert plants and animals to identify patterns in a desert habitat.
- Observe images and read about how plants and animals meet their needs in a pond habitat.
- Record and compare information about plants and animals in a pond habitat.
- Use data about pond plants and animals to identify patterns in a desert habitat.
- Observe images and gather facts about different kinds of ocean animals.
- Collect data about ocean animals in order to answer questions and make comparisons.
- Communicate information about ocean animals, using data to support facts.
- Compare pairs of ocean animals and identify patterns that support ways they are alike or different.

Interdisciplinary Connections
<p>New Jersey Student Learning Standards for English Language Arts (2016)</p> <p>W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).</p> <p>W.2.8 Recall information from experiences or gather information from provided sources to answer a question.</p> <p>SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.</p> <p>New Jersey Student Learning Standards for Mathematics (2016)</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.</p> <p>New Jersey Student Learning Standards for Career Readiness, Life Literacies, and Key Skills (2020)</p> <p>9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem</p> <p>9.4.2.IML.2: Represent data in a visual format to tell a story about the data.</p> <p>9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults.</p> <p>New Jersey Student Learning Standards for Computer Science and Design Thinking (2020)</p> <p>8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.</p> <p>8.1.2.DA.3: Identify and describe patterns in data visualizations.</p> <p>8.1.2.DA.4: Make predictions based on data using charts or graphs.</p> <p>8.2.2.ITH.1: Identify products that are designed to meet human wants or needs.</p> <p>8.2.2.ITH.2: Explain the purpose of a product and its value.</p> <p>8.2.2.ITH.5: Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.</p> <p>8.2.2.NT.2: Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.</p>

Student Resources
<ul style="list-style-type: none"> • Interactive Notebook (available in Spanish) • Science Journal (available in Spanish)
Teacher Resources
<ul style="list-style-type: none"> • Teach TCI teacher subscription www.teachtci.com . Reach out to STEM Supervisor for login/password • Unit 1 Lesson guides 1-8 • Science journal • Interactive Student Notebook • Teach TCI Handouts

Stage 2 – Assessment Evidence

Pre-Assessments:

Observing Phenomena

Formative Assessments:

Vocabulary

Questions and Observations of Student Work Throughout the Lesson

Wrap Up: My Science Concepts

Make Sense of Phenomena

Summative Assessments:

Show What You Know

Lesson/Unit Assessment (available in Spanish)

Lesson Game

Performance Task(s):

Show What You Know

Stage 3 – Learning Plan

Bold= Fast track (required activities)

Italic = Extended track (optional activities to support student learning)

Lesson 1: What Kind of Living Things Are There?

Observing Phenomena (5 minutes): Students observe a photo and answer a question.

Developing Observation Skills (20 minutes): Students look at photos and discuss how to tell the difference between different plants and animals.

Observing Nature* (15 minutes): Students observe the different living things around them and record their observations in their student notebook.

Analyzing Data* (10 minutes): Students count how many of each different kind of plant or animal you and your partner found.

Graphing Data (15 minutes):* Students make graphs to show the data from the field trip.

Sharing Data* (5 minutes): Students tell the class what they saw.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know* (10 minutes): Record the different kinds of living things you see in the photo of a pond.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Living Things
2. Kinds of Animals
3. Kinds of Plants
4. Observing Nature

***Students will do these portions during their fall SummerWood lesson but they can be done both with the classroom teacher around the school and with Mr. Woerner in SummerWood.**

Lesson 2: What Do Animals and Plants Need to Survive?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Marigold Experiment (5 minutes): Look at two Marigold plants and answer questions.

Planning Your Investigation (15 minutes): Plan an investigation about what plants need to survive.

Carrying Out Your Investigation (10 minutes): Record observations for day 1 and the last day of the experiment.

Sharing Results (20 minutes): Students share results in front of the class and answer questions.

Planning Another Investigation (20 minutes): Students come up with their own research questions and plan how to investigate it.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Complete the Venn diagram using the word bank.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading):

1. Animal Needs
2. Plant Needs

Lesson 3: How Do Plants and Animals Depend on Each Other?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Introducing Pollinators (5 minutes): Observe photos of bees pollinating flowers.

Hand Pollinators (15 minutes): Introduce the problems of pollinators disappearing.

Designing a Solution (20 minutes): Teams design a tool that people can use to move pollen from one flower to another.

Questioning Our Model (10 minutes): Answer questions about the model being used to test their design.

Testing Designs (15 minutes): Test your design using the dish with sand.

Improving Your Design (15 minutes): Use what you learned from the test to improve your design.

Sharing Solutions (30 minutes): Students show the class their design and then record notes about other designs.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Answer questions about a photo and design a tool to remove ticks from a deer.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Animal Survival
2. Plant Survival
3. Ideas from Nature

Lesson 4: Why Do Plants and Animals Live in Some Places and Not Others?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Habitat Hopping (5 minutes): Introduction to habitat visits.

Visiting a Polar Habitat (10 minutes): Visit the habitat and identify the living things that live there.

Visiting a Rainforest Habitat (10 minutes): Visit the habitat and identify the living things that live there.

Visiting a Desert Habitat (10 minutes): Visit the habitat and identify the living things that live there.

Comparing Habitats (5 minutes): Compare the three habitats we visited.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Observe an ocean habitat and answer questions about it.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading):

1. Habitats
2. Cold and Hot Habitats
3. Wet and Dry Habitats
4. Saltwater and Freshwater Habitats
5. Comparing Habitats

Lesson 5: How Do Plants and Animals Survive in a Rainforest?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Preparing for Your Trip(5 minutes): Prepare for your trip by thinking about what to bring and listening to the sounds rainforest animals make.

Visiting the Rainforest (15 minutes): Watch the videos, listen to the guide, and take notes during the trip.

Exploring More (15 minutes): Watch more videos about the rainforest and take notes.

Discussing What You Saw (5 minutes): Talk with a partner about your observations.

Writing a Blog (30 minutes): Create a blog to tell about your trip.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Draw a picture of a rainforest and plants and animals that live there.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading):

1. Rainforest
2. Living Things in a Rainforest
3. Survival in a Rainforest

Lesson 6: How Do Plants and Animals Survive in a Desert?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Introducing Desert Challenge (2 minutes): Introduce the game.

Learning How To Play Desert Challenge (3 minutes): Learn the rules of the game.

Playing the Game (25 minutes): Play desert challenge.

Playing Double Challenge (25 minutes): Play the Double Challenge to learn more about desert life.

Playing Final Challenge (3 minutes)

Reflecting On Desert Challenge (2 minutes): Think back on the game and what you learned about desert plants and animals.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Agree or disagree with a statement about a desert.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading):

1. Desert
2. Living Things in a Desert
3. Survival in a Desert

Lesson 7: How Do Plants and Animals Survive in a Pond?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Reading for Information (15 minutes): Students read a pond card to a partner and then the class.

Playing Pond Life (15 minutes): Students play a game in which they read their pond cards and make connections with other pond plants and animals they need.

Playing Again (30 minutes): Play the game a few more times but shuffle the pond cards before each game.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Write a letter describing the plant and animals that live in a pond.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading):

1. Ponds
2. Living Things in a Pond
3. Survival in a Pond

Lesson 8: How Do Plants and Animals Survive in the Ocean? [Students do this lesson in SummerWood during the winter lesson.](#)

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Visiting Ocean Data Centers (20 minutes): Students visit 4 ocean stations to learn about their ocean animals.

Visiting More Ocean Data Centers (20 minutes): Students visit 4 additional ocean stations to learn about their ocean animals.

Preparing Your Report (10 minutes): Students will prepare a report on their ocean animal to present to the class.

Presenting Your Report (30 minutes): As groups present other students will write one interesting fact about the animals and ask questions.

Comparing Ocean Animals (10 minutes): Students take turns picking two ocean animals and telling one or more ways they are different.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Students draw ocean animals you would see in shallow and deep water.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading):

1. The Ocean
2. Living Things in the Ocean
3. Survival in the Ocean

Unit Plan Title	Unit 2: Materials and Their Uses
Suggested Time Frame	12 Days (Fast Track) - 18 Days (Extended Track)

Overview / Rationale
In this unit, students find out what everything is made of by classifying materials by their properties and comparing the differences between liquids and solids. Students understand how materials are used for different purposes, how materials are reused, what happens when materials are mixed, and what happens when materials are heated or cooled. Using what they know about materials, can students determine which materials to use in different weather, specifically to stay dry?

Stage 1 – Desired Results
<p>Established Goals: New Jersey Student Learning Standards -Science (2020) 2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. 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. 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change (e.g. climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.</p>
<p>Essential Questions:</p> <ul style="list-style-type: none"> ● What is everything made of? ● How are liquids and solids different? ● How are materials used for different purposes? ● How can materials be reused? ● What happens when materials are mixed? ● What happens when materials are heated or cooled?
<p>Enduring Understandings:</p> <ul style="list-style-type: none"> ● Materials, used for a variety of purposes, have different properties depending on how they are used. ● Heating and cooling a material can change its properties.
<p>Knowledge: <i>Students will know...</i></p> <ul style="list-style-type: none"> ● Objects are made from different materials that can be described. ● Objects and materials can be classified by their properties and patterns. ● Materials can be solids or liquids.

- Contains can be measured in different ways (height, length, how much they can hold) and with different tools.
- Humans use materials with different properties for different purposes.
- Objects can be broken apart into smaller pieces, put together to make larger pieces, or change shapes.
- That a variety of objects can be built from a small set of pieces.
- Different materials can be mixed and some can and cannot be separated.
- When materials are heated or cooled they change and some can and cannot be changed back.
- That objects are made of different materials.
- Properties of liquids and solids.
- People use materials that have properties that are suited to different purposes.

Skills:

Students will be able to...

- Describe materials by their properties such as color, texture, hardness.
- Observe properties of objects, look for patterns, and find ways to classify objects by their properties.
- Communicate to others different ways of sorting objects.
- Work collaboratively to choose a material and have others guess the material based on its properties.
- Investigate ways to compare sizes of containers such as by height, length, or by how much they can hold.
- Use tools to measure sizes of containers.
- Gather data and make a picture graph to serve as evidence to answer questions about how much water a container holds.
- Design and test bridge materials to find out which materials are strongest and whether they absorb or keep water out.
- Analyze data from tests to find out which materials are best suited for building a bridge.
- Build different structures with the same set of materials and observe that a variety of objects can be built from a small set of pieces.
- Communicate design ideas to others with a drawing or model.
- Make observations to collect data that can be used to compare different structures.
- Observe materials and record information about their properties including whether the materials are solid or liquid.
- Plan and investigate what happens when different materials are mixed, then record data and look for patterns in data about mixtures.
- Observe changes caused by materials being heated and cooled.
- Make a claim about whether changes made to materials by heating and cooling can be reversed.
- Construct an argument using evidence to support claims that materials can or cannot change back.
- Observe patterns in changes that are caused by heating and cooling.

Interdisciplinary Connections

New Jersey Student Learning Standards for English Language Arts (2016)

RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

RI.2.8 Describe how reasons support specific points the author makes in a text.

W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

New Jersey Student Learning Standards for Mathematics (2016)

MP.2 Reason abstractly and quantitatively.

MP.4 Model with mathematics.

MP.5 Use appropriate tools strategically.

2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

New Jersey Student Learning Standards for Career Readiness, Life Literacies, and Key Skills (2020)

9.4.2.IML.2: Represent data in a visual format to tell a story about the data.

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.

9.4.2.CT.2: Identify possible approaches and resources to execute a plan.

9.4.2.CT.3: Use a variety of types of thinking to solve problems

New Jersey Student Learning Standards for Computer Science and Design Thinking (2020)

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.2.2.ITH.1: Identify products that are designed to meet human wants or needs.

8.2.2.ITH.2: Explain the purpose of a product and its value.

8.2.2.ITH.5: Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.

8.2.2.NT.2: Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.

Student Resources

- Interactive Notebook (available in Spanish)
- Science Journal (available in Spanish)

Teacher Resources

- Teach TCI teacher subscription www.teachtci.com
- Unit 1 Lesson guides 1-8
- Science journal
- Interactive Student Notebook
- Teach TCI Handouts

Stage 2 – Assessment Evidence

Pre-Assessments:

Observing Phenomena

Formative Assessments:

Vocabulary

Questions and Observations of Student Work Throughout the Lesson

Wrap Up: My Science Concepts

Make Sense of Phenomena

Summative Assessments:

Show What You Know

Lesson/Unit Assessment (available in Spanish)

Lesson Game

Performance Task(s):

Show What You Know

Stage 3 – Learning Plan

Bold= Fast track (required activities)

Italic = Extended track (optional activities to support student learning)

Lesson 1: What is Everything Made of?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Describing Materials (15 minutes): Students work in groups to describe materials provided by the teacher.

Classifying Materials (30 minutes): Students work in groups to classify materials provided by the teacher.

Playing Twenty Questions (30 minutes): Answer yes or no to questions to figure out what a secret material.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Write three clues about an object and draw a picture of the object and then share clues with a partner to help them guess your object.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

My Science Concepts (5 minutes): Reflect on your understanding of this concept and mark your progress.

Text with Notes (Reading)

1. Materials
2. Properties
3. Comparing Properties

Lesson 2: How Are Liquids and Solids Different?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Identifying Containers (5 minutes): Students will compare the size and contents of containers.

Comparing Sizes (15 minutes): Students organize containers from smallest to largest based on characteristics.

Measuring Containers (15 minutes): Students will measure the same containers using different tools.

Analyzing Data (5 minutes): Students use their measurements to make claims about each container.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Students identify liquids and solids and how they would measure each.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Liquids and Solids
2. Measuring Liquids and Solids

Lesson 3: How Are Materials Used for Different Purposes?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Defining the Problem (5 minutes): Students observe a variety of bridges and answer questions about them.

Collecting and Analyzing Data (25 minutes): Students test different materials to see how strong they are and how they interact with water.

Designing a Bridge (15 minutes): Teams use the materials just tested to build a bridge.

Writing a Report (10 minutes): Teams report on the bridge materials, bridge properties, and other features.

Testing the Bridge (20 minutes): Two judges will test the bridge: one with water and the other with blocks.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Students are introduced to only the properties of new materials and select the best ones for different purposes.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Materials for Keeping out Rain
2. Materials for Cleaning Up Spills
3. Materials for Building
4. New Ways to Use Materials

Lesson 4: How Can Materials Be Reused?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Creating an Extreme Design (35 minutes): At stations students build and rebuild different designs using the same materials.

Creating More Extreme Designs (30 minutes): Students go to other stations to repeat “ Extreme Design ” activity with different materials.

Sharing Designs (5 minutes): Students draw their favorite extreme design.

Comparing Designs (10 minutes): Students use photos to compare their designs.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Students use tangram puzzle pieces to make a picture.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Reusing Materials
2. Changing Shapes

Lesson 5: What Happens When Materials Are Mixed?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Identifying Properties of Materials (10 minutes): Students tell if a material is a liquid or a solid and make other observations about each material.

Mixing Materials (10 minutes): Students will mix and try to separate mixed materials.

Sharing Results (10 minutes): Groups report the results of their mixing activity.

Mixing Other Materials (30 minutes): Groups select materials that were not yet mixed and repeat the “Mixing Materials” activity.

Looking for Patterns (5 minutes): Students identify which materials could and could not be separate.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Make predictions for different materials if they are mixed.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Mixtures
2. Properties of Mixtures

Lesson 6: What Happens When Materials Are Heated or Cooled?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Observing Changes from Heating (20 minutes): Students watch different kitchen materials get heated and record their observations.

Observing Changes from Cooling (10 minutes): Students make observations of materials that were put in a freezer.

Discovering Causes (15 minutes): Students watch videos of materials being heated and make claims if the changes can be reversed.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Explain what happened to a little boy’s ice pop that was left outside on a hot day.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Freezing and Melting
2. Heating and Cooling
3. Changes That Cannot Be Reversed
4. Clues to Causes

Unit Plan Title	Unit 3: Earth's Surface
Suggested Time Frame	16 Days (Fast Track) 24 Days (Extended Track)

Overview / Rationale

In this unit, students discover the features of the Earth's surface, including its many different forms of land and water. Students understand how maps are used to represent land and water. Students go on a video tour of some national parks in America to examine rapid and slow changes including how natural events such as earthquakes, volcanoes, and erosion from wind and water shape Earth's surface. Students find out how problems that are caused by wind and water are solved. Using what they know, can students develop a design to protect a road from a landslide?

Stage 1 – Desired Results

Established Goals:

2-ESS1-1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
 2-ESS2-1 Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
 2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water in an area.
 2-ESS2-3 Obtain information to identify where water is found on Earth and that it can be solid or liquid.
 K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Essential Questions:

- What is on Earth's surface?
- What kinds of land and water are found on Earth?
- How do maps show land and water?
- How does Earth's surface change?
- How do earthquakes and volcanoes change the land?
- How do wind and water change the land?
- How can problems caused by wind and water be solved?
- The Earth's surface can be changed quickly or slowly by forces such as wind, water, volcanoes, and earthquakes.

Enduring Understandings:

- The Earth's surface is constantly changing, being changed quickly or slowly by forces such as wind, water, volcanoes, and earthquakes.

Knowledge:

Students will know...

- Water and landforms are parts of Earth.
- Water is found in various places on Earth in solid or liquid form.

- The different shapes and kinds of land on Earth.
- How to use a map to describe and find the land and water parts of the Earth.
- Rocks, sand, and soil can be moved by water and wind. \
- Rocks can be broken into smaller pieces and more easily moved by water and wind.
- Some events on Earth happen quickly while others happen slowly.
- Volcanoes, earthquakes, and landslides change the Earth's surface.
- Humans can design solutions to prevent or slow wind, water, or landslides from changing the shape of the land.
- Some events happen very quickly while others occur very slowly over a time period much longer than one can observe.

Skills:

Students will be able to...

- Identify land and water patterns on a globe.
- Compare models to identify land and water on Earth.
- Develop a model of Earth's land and water areas.
- Obtain information from models to explain patterns in the natural world.
- Observe images of the different kinds of land and water found on Earth's surface.
- Observe and identify water found in the ocean, rivers, lakes, and ponds and exists in solid and liquid form.
- Identify the land or water form in the image and explain their choices to a partner, listening actively to arguments and agreeing or disagreeing based on evidence.
- Sketch land and water using red and blue colors to reveal patterns.
- Obtain information from images to make a book describing the different forms of land and water in order to answer a scientific question.
- Practice observing a map to see where things are located.
- Make a claim about where things are using a map to support the claim.
- Look for patterns on maps to describe where places are on a map
- Develop a model by drawing a map of the schoolyard and marking an X to show where a "treasure" can be found.
- Make observations first hand to describe rocks, sand, and soil.
- Observe images of Earth materials to describe relationships in the natural world in order to answer questions.
- Describe the effects of using different methods to move Earth materials.
- Distinguish between using a model and actual events in nature that cause Earth materials to move.
- Identify events that cause things to change rapidly.
- Observe ways rocks break into smaller pieces.
- Use information gathered as evidence to conclude that Earth events can happen quickly or slowly.
- Use information from images and scripts to provide evidence that Earth events can happen quickly or slowly.
- Use observations of photos to construct an evidence-based explanation about a volcanic eruption.
- Write a story about a farming village to tell what happened when a historic volcano erupted.
- Observe photos and look for evidence that land is changing to construct an explanation.
- Observe effects of the shape of land changing from wind and water.
- Conclude that some changes to land from wind and water happen quickly.
- Observe evidence that shows that rock changed slowly over a period of time.
- Use observations of photos and video to answer scientific questions.

- Observe the effects of a landslide on a road.
- Define a problem to be solved by a design to protect a road from landslides.
- Design a solution to an engineering problem and find different ways to use materials to solve the problem.
- Test the designs and compare strengths and weaknesses of each design.
- Record and use data from the tests to determine if the design works as intended.
- Compare models designed to prevent water from changing the shape of the land.
- Compare ideas about the effectiveness of a solution to keep a house from floods.

Interdisciplinary Connections

New Jersey Student Learning Standards for English Language Arts (2016)

RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

RI.2.9 Compare and contrast the most important points presented by two texts on the same topic.

W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.

New Jersey Student Learning Standards for Mathematics (2016)

MP.2 Reason abstractly and quantitatively.

MP.4 Model with mathematics.

MP.5 Use appropriate tools strategically.

2.NBT.A Understand place value.

2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

New Jersey Student Learning Standards for Career Readiness, Life Literacies, and Key Skills (2020)

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.

9.4.2.CT.2: Identify possible approaches and resources to execute a plan.

9.4.2.CT.3: Use a variety of types of thinking to solve problems.

9.4.2.IML.2: Represent data in a visual format to tell a story about the data.

New Jersey Student Learning Standards for Computer Science and Design Thinking (2020)

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.

8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process.

8.2.2.ITH.1: Identify products that are designed to meet human wants or needs.

8.2.2.ITH.2: Explain the purpose of a product and its value.

8.2.2.ITH.5: Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.

8.2.2.NT.2: Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.

Student Resources
<ul style="list-style-type: none"> Science Journal (available in Spanish) Interactive Notebook (available in Spanish)
Teacher Resources
<ul style="list-style-type: none"> Teach TCI teacher subscription www.teachtc.com Unit 1 Lesson guides 1-8 Science journal Interactive Student Notebook Teach TCI Handouts

Stage 2 – Assessment Evidence
<p>Pre-Assessments: Observing Phenomena</p> <p>Formative Assessments: Vocabulary Questions and Observations of Student Work Throughout the Lesson Wrap Up: My Science Concepts Make Sense of Phenomena</p> <p>Summative Assessments: Show What You Know Lesson/Unit Assessment (available in Spanish) Lesson Game</p> <p>Performance Task(s): Show What You Know</p>

Stage 3 – Learning Plan
<p>Bold= Fast track (required activities) <i>Italic = Extended track (optional activities to support student learning)</i></p> <p>Lesson 1: What is on the Earth’s Surface?</p> <p>Observing Phenomena (5 minutes): Students observe a photo and generate questions.</p>

Finding Places on Earth (30 minutes): Explore a photo of the Earth from space and identify the location of the major land masses.

Making a Model of Earth (30 minutes): Use clay to make a model of the Earth.

Using the Model (5 minutes): Students use their model to answer questions.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Describe a place on Earth that you would choose to land on if you were a returning astronaut.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Earth from Space
2. Earth's Land
3. Earth's Water

Lesson 2: What kinds of land and water are found on Earth?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Land and Water Lotto Game (30 minutes): Play a game describing land and water areas on Earth.

Making Books (15 minutes): Students create books with specific land and water photos from different locations.

Reading the Books (10 minutes): In pairs students will read their books to each other.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Label forms of land and water in a landscape drawing.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Mountains and Valleys
2. Rivers and Streams
3. The Ocean
4. Lakes and Ponds
5. Glaciers
6. Islands

Lesson 3: How do maps show land and water?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Understanding Maps (10 minutes): Students use a map to identify different locations from photos.

Following Directions on Maps (30 minutes): Students write directions for a partner to see if they can follow them to a location on the map.

Drawing Treasure Maps (15 minutes): Students draw a treasure map of their schoolyard showing where they hid an object.

Using Treasure Maps (15 minutes): Groups trade maps and try to locate the hidden object.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Color a map of the US following a color code.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. What Maps Show
2. Reading Maps

Lesson 4: How Does Earth's Surface Change?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Comparing Earth Materials (10 minutes): Students examine and describe rocks, sand, and soil.

Moving Earth Materials (10 minutes): Students try to move rocks, sand, and soil using only air and water.

Breaking Down Rocks (20 minutes): Students use different rocks to make sand by rubbing them.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (5 minutes): Describe and answer questions about a photo of a landslide.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Earth's Changes
2. Fast and Slow Changes

Lesson 5: How Do Earthquakes and Volcanoes Change the Land?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

A Volcano in Mexico (5 minutes): Each group will act out what happened to a village when a volcano erupted from a cornfield 70 years ago.

Performing Act-It-Outs (40 minutes): Groups act out how it was before, during, and after the volcano erupted.

Writing the Story of Paricutin (40 minutes): Each student creates a book telling and showing what happened to them when the volcano erupted.

Reading the Books (15 minutes): Students partner up and read their books to each other.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Create a drawing predicting how a volcano or earthquake might change the land.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Earthquakes
2. Volcanoes
3. Studying Earth

Lesson 6: How Do Wind and Water Change the Land?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Trip to the Beach (10 minutes): Color in a map of the beach highlighting rocks, sand, and water.

Looking for Signs of Change (45 minutes): Students look at photos of different parts of the beach and identify where the land is changing and explain.

Sharing Experiences (45 minutes): In pairs students watch videos from their trip and explain how the land is changing and answer any questions.

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Create a drawing predicting how wind or rain might change the land.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Wind and Water
2. Sand Dunes
3. Rainfall
4. Rivers
5. Ocean Waves

Lesson 7: How Can Problems Caused by Wind and Water Be Solved?

Observing Phenomena (5 minutes): Students observe a photo and generate questions.

Landslide Review (5 minutes): Students watch a video of a landslide and answer questions.

Defining the Problem and Designing a Solution (30 minutes): Create a model of a road next to a mountain prone to landslides and design a solution to prevent the road from being damaged.

Testing the Designs (25 minutes): Students show their models to the class and answer questions about their design before it is test in a rainstorm. Take notes about how each design did during the rainstorm.

Comparing the Designs (10 minutes): Students talk about which design worked best, was easiest to build, would cost the least, would last the longest and then draw how they would improve their designs

Vocabulary (3 minutes)

Wrap-Up: My Science Concepts (4 minutes)

Show What You Know (10 minutes): Pick and defend a solution to the problem of living near a river that sometimes floods the land around a house.

Making Sense of the Phenomena (5 minutes): Use what you have learned to explain this phenomenon.

Text with Notes (Reading)

1. Problems Caused by Wind and Water
2. Protection from Wind
3. Protection from Water
4. Solving Problems Caused by Wind or Water

Accommodations and Modifications:

Below please find a list of suggestions for accommodations and modifications to meet the diverse needs of our students. Teachers should consider this a resource and understand that they are not limited to the recommendations included below.

An accommodation changes HOW a student learns; the change needed does not alter the grade-level standard. A modification changes WHAT a student learns; the change alters the grade-level expectation.

Special Education and 504 Plans All modifications and accommodations must be specific to each individual child's IEP (Individualized Educational Plan) or 504 Plan.

- Provide redirection
- Provide notes and copies of handouts with
- Pre-teach or preview vocabulary
- Have students repeat directions
- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments
- Model skills/techniques to be mastered
- Emphasize key words or critical information by highlighting
- Use of graphic organizers
- Teachers should note any issue that may impact safety- ex. contact lenses, allergies.

English Language Learners:

All modifications and accommodations should be specific to each individual child's LEP level as determined by the WIDA screening or ACCESS, utilizing the WIDA Can Do Descriptors.

- Pre-teach or preview vocabulary
- Repeat or reword directions
- Have students repeat directions
- Use of small group instruction
- Scaffold language based on their Can Do Descriptors
- Alter materials and requirements according to Can Do Descriptors

Students at Risk of Failure:

- Use of self-assessment rubrics for check-in
- Pair visual prompts with verbal presentations
- Ask students to restate information and/or directions
- Opportunity for repetition and additional practice
- Model skills/techniques to be mastered
- Extended time
- Provide copy of class notes

- Strategic seating with a purpose
- Provide students opportunity to make corrections and/or explain their answers
- Support organizational skills

High Achieving:

Extension Activities

- Allow for student choice from a menu of differentiated outcomes; choices grouped by complexity of thinking skills; variety of options enable students to work in the mode that most interests them
- Allow students to pursue independent projects based on their individual interests
- Provide enrichment activities that include more complex material
- Allow opportunities for peer collaboration and team-teaching
- Set individual goals

NEPTUNE CITY SCHOOL DISTRICT
Office of the Chief School Administrator, Principal
210 West Sylvania Avenue
Neptune City, NJ 07753

An Affirmative Action Equal Opportunity Employer