Wall Township Public Schools	Board Approval Date: 8/18/26

Grade 2 Science Curriculum

During Marking Periods 2 and 3, students investigate life, Earth, and physical science through hands-on explorations and engineering design challenges. They explore plant growth, Earth's changing surface, the properties of materials, and states of matter while developing observation, problem-solving, and evidence-based reasoning skills aligned to the NGSS.

Course Sequence & Pacing

Unit Title	MP/Weeks
Unit 1: Animal Biodiversity & Habitats In this unit, students explore the incredible diversity of animals and habitats! They investigate animal classification and the traits that define each group. Students then explore habitats to discover how the living and non-living aspects of the environment affect the diversity of organisms. They use this information to design a bird feeder that will attract birds with specific food preferences.	MP 2 - Weeks 1-4
Unit 2: Plant Growth & Interactions In this unit, students explore how plants interact with the environment to meet their needs. Students build models of seeds to explore how and why plants disperse their seeds. Students also conduct hands-on investigations to determine what those seeds need in order to grow, and what the adult plants need in order to survive and thrive.	MP 2- Weeks 7-10
Unit 3: Erosion & the Earth's Surface In this unit, students explore maps, landforms, and bodies of water. They construct models of mountains to demonstrate how water flows downhill, and in the process, transforms huge rocks into the tiny grains of sand we find at the beach. Students also use models to demonstrate how erosion can happen slowly over time, but can also happen very quickly with landslides. They use this information to design solutions to slow down erosion and prevent landslides.	MP 3 -Weeks 11-13
Unit 4: Material Properties In this unit, students explore the properties of materials! They describe and classify different types of materials by properties like hardness, flexibility, absorbency, and the ability to conduct heat. Then, they determine which materials have properties best suited for certain types of clothing, cooking, and buildings. They also build card towers to explore how a small set of the same pieces can be disassembled and then reconstructed into a new object with different characteristics.	MP 3-Weeks 14-16
Unit 5: States of Matter In this unit, students explore solid and liquid states of matter! They explore how water is found around the world and can be frozen into solid ice. Students also investigate the properties of other materials and use their observations to construct an explanation that some changes caused by heating and cooling are reversible, while others are not.	MP 3 Weeks 17-19

Unit 1: Animal Biodiversity & Habits

Stage 1: Desired Results

Unit 1:Animal Biodiversity & Habits

Unit Summary: In this unit, students explore the incredible diversity of animals and habitats! They investigate animal classification and the traits that define each group. Students then explore habitats to discover how the living and non-living aspects of the environment affect the diversity of organisms. They use this information to design a bird feeder that will attract birds with specific food preferences.

Learning Standards

NJSLS Grade Level Standards: Science 2026

2-LS4-1- Make observations of plants and animals to compare the diversity of life in different habitats.

K-2-ETS1-1 -Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

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.

Curricular Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

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 (e.g., inductive, deductive).

9.4.2.CI.1- Demonstrate openness to new ideas and perspectives.

Computer Science & Design Thinking ***(****CS & DT****)*:

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

8.2.2.ED.1- Communicate the function of a product or device.

8.2.2.ED.2- Collaborate to design a solution to a simple problem using the engineering design process.

Interdisciplinary Connections:

NJSLS - ELA 2023

RI.CR.2.1 – Ask and answer questions to demonstrate understanding of informational texts about animals, habitats, and biodiversity.
RI.CI.2.2 – Determine the main idea and identify supporting details.
RI.IT.2.3 – Describe connections between historical events, scientific ideas, or procedures.
RI.TS.2.4 – Use text features to locate information efficiently.
RI.PP.2.5 – Describe how images contribute to understanding a text.
RI.MF.2.6 – Compare information presented in words and visuals.
RI.AA.2.7 – Explain how reasons and evidence support specific points.
RI.CT.2.8 – Compare and contrast information from multiple sources about habitats and organisms.
W.IW.2.2 – Write informative pieces describing habitats, organisms, and biodiversity.

W.WR.2.5 – Develop and strengthen writing through shared inquiry.
W.SE.2.6 – Gather information from observations and multiple sources.
W.RW.2.7 – Participate in shared research and science writing.

NJSLS - MATH 2023
2.DL.1 – Understand that people collect data to answer questions. Understand that data can vary.
2.M.A – Measure and estimate lengths in standard units

Climate Connections:
Students investigate how living and nonliving components of habitats support biodiversity. These experiences provide an age-appropriate foundation for later discussions about how changes to habitats, including those caused by environmental factors, can affect the diversity of plants and animals, without extending beyond the expectations of 2-LS4-1.

DEI Connections
Students learn that biodiversity strengthens ecosystems by recognizing and valuing the variety of living organisms within different habitats. Collaborative investigations encourage students to consider multiple perspectives and appreciate diversity in the natural world.

Learning Targets

Unit Essential Questions:

- How do scientists classify animals?
- Why do different habitats have different plants and animals?
- How do habitats help organisms survive?
- Why is biodiversity important?
- How can engineering help meet the needs of living things?

Unit Enduring Understandings:

- Living things can be classified by their observable characteristics.
- Different habitats support different kinds of plants and animals.
- Living and nonliving parts of a habitat work together to meet organisms' needs.
- Biodiversity varies from one habitat to another.
- Engineers use observations and evidence to design solutions that meet specific needs.

Learning Objectives

Students will be able to:

- Observe and classify animals based on shared characteristics.
- Compare the diversity of plants and animals in different habitats.
- Identify the living and nonliving components of a habitat.
- Explain how habitats support the survival of organisms.
- Analyze evidence to compare biodiversity across habitats.
- Design, build, and evaluate a bird feeder that meets the needs of a specific bird species.
- Record observations using charts, tables, drawings, and models.
- Communicate evidence-based explanations using scientific vocabulary.

Vocabulary

Unit Vocabulary (Tier 1)	Academic Vocabulary (Tier 2)	Tier 3
• animal • habitat • plant • living • nonliving • diversity • classify • mammal • bird • reptile • amphibian • fish • insect • invertebrate • observe • compare • evidence • environment • bird feeder	• classify • compare • contrast • analyze • investigate • identify • explain • describe • evidence • characteristics • environment • relationship • model • communicate • design • solution • prototype	• biodiversity • habitat • organism • species • vertebrate • invertebrate • adaptation • ecosystem • physical environment • engineering design process • prototype • biodiversity survey • trait • classification

Stage 2: Evidence of Student Learning

Formative Assessments:

- Teacher observations
- Class discussions
- Turn-and-talks
- Science notebooks
- Animal sorting activities
- Habitat scavenger hunt recording sheets
- Frog call identification activity
- Bird feeder design sketches
- Engineering planning sheets
- Exit tickets
- Vocabulary checks
- Think-Pair-Share
- Observation checklists

- Claim-Evidence-Reasoning (CER) discussions
- Teacher questioning during investigations

Summative Assessments:

- Lesson 1 Assessment
- Lesson 2 3D Assessment
- Lesson 3 Assessment
- Lesson 4 Assessment
- Unit Assessment
- Bird Feeder Engineering Design Challenge
- End-of-unit written or oral explanation comparing biodiversity in different habitats using evidence from investigations.

Core Instructional & Supplemental Materials

Core Materials

- Science notebook
- Student workbook
- Anchor charts
- Informational texts about animals and habitats
- Read-aloud books
- Vocabulary cards
- Chart paper
- Markers
- Pencils
- Colored pencils
- Crayons

Investigation Materials

- Animal classification cards
- Animal sorting mats
- Habitat picture cards
- Habitat scavenger hunt recording sheets
- Frog call audio recordings
- Audio player or speakers
- Bird photographs
- Bird feeder planning templates
- Observation and recording sheets
- Cardboard
- Paper plates
- Plastic cups
- Craft sticks
- String or yarn
- Pipe cleaners
- Wooden dowels
- Tape
- Glue
- Scissors
- Hole punch
- Birdseed (optional)
- Recycled building materials

Technology

- Mystery Science - Unit 1
- Computer or Chromebook
- Interactive whiteboard/SmartBoard
- Internet access
- Teacher presentation slides
- Document camera
- Videos of habitats and biodiversity
- Digital maps of ecosystems
- Frog call recordings
- Digital assessment platform (if applicable)

Accommodations and Modifications:
Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students

Suggested Strategies and Practices that Support Students with Disabilities:

- Follow All IEP Modifications
- Introduce Key Vocabulary Before Lesson
- Teacher Reads Aloud Daily
- Choral Reading
- Chants, Songs
- Small Group Instruction
- Use Books On Tape
- Allow Extra Time To Complete Assignments Or Tests
- Allow Answers To Be Given Orally Or Dictated

Suggested Strategies and Practices that Support English Language Learners:

- Visuals
- Gesturing
- Miming
- Roleplay
- Simplified Language / Teacher Talk / Thinking Aloud
- Introduce Key Vocabulary Before Lesson
- Picture Directions

Students At Risk of Failure:

- Provide Peer Tutoring
- Multisensory Instruction
- Use Audio Books
- Allow Extra Time To Complete Assignments Or Tests
- Work In A Small Group
- One On One Instruction
- Personal Word Walls / Word Rings (ex. letter sound word rings)
- Teacher Modeling
- Pattern Sentences (speaking and/or writing)
- Choral Chanting
- Small Group Instruction / Cooperative Learning
- Allowing For Additional Wait Time For Student Responses During Conversations

Students with 504 Plans:

- Follow All 504 Modifications
- Provide Picture Instructions

- Small Group Instruction
- Allow Extra Time To Complete Assignments Or Tests
- Allowing For Additional Wait Time For Student Responses During Conversations
- Provide Fidget Tools
- Flexible Seating
- Chunk Assignments
- Positive Reinforcement

Specific Strategies and Practices that Support Gifted & Talented Students:

- Do Not Always Be Explicit, Allow For Discovery
- Propose Interest-based Extension Activities
- Use Varied Modes Of Pre-assessment And Assessment
- Provide Whole Group Enrichment Explorations
- Teach Cognitive And Methodological Skills
- Ask Higher Order Thinking Questions

Unit 2: Plant Growth & Interactions

Stage 1: Desired Results

Unit 2: Plant Growth & Interactions

Unit Summary: In this unit, students explore how plants interact with the environment to meet their needs. Students build models of seeds to explore how and why plants disperse their seeds. Students also conduct hands-on investigations to determine what those seeds need in order to grow, and what the adult plants need in order to survive and thrive.

Learning Standards

NJSLS Grade Level Standards: Science 2026

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.
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.

Curricular Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

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 (e.g., inductive, deductive).

9.4.2.CI.1- Demonstrate openness to new ideas and perspectives.

Computer Science & Design Thinking ***(****CS & DT****)*:

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

8.2.2.ED.1- Communicate the function of a product or device.

8.2.2.ED.2- Collaborate to design a solution to a simple problem using the engineering design process.

Interdisciplinary Connections:

NJSLS - ELA 2023

RI.CR.2.1 – Ask and answer questions to demonstrate understanding of informational texts about animals, habitats, and biodiversity.
RI.CI.2.2 – Determine the main idea and identify supporting details.
RI.IT.2.3 – Describe connections between historical events, scientific ideas, or procedures.
RI.TS.2.4 – Use text features to locate information efficiently.
RI.PP.2.5 – Describe how images contribute to understanding a text.
RI.MF.2.6 – Compare information presented in words and visuals.
RI.AA.2.7 – Explain how reasons and evidence support specific points.
RI.CT.2.8 – Compare and contrast information from multiple sources about habitats and organisms.
W.IW.2.2 – Write informative pieces describing habitats, organisms, and biodiversity.
W.WR.2.5 – Develop and strengthen writing through shared inquiry.

W.SE.2.6 – Gather information from observations and multiple sources.
W.RW.2.7 – Participate in shared research and science writing.
NJSLS - MATH 2023
2.DL.1 – Understand that people collect data to answer questions. Understand that data can vary.
2.M.A – Measure and estimate lengths in standard units

Climate Change Connections:
This unit provides a natural opportunity to discuss how healthy plants help ecosystems and how environmental conditions such as sunlight, wind, and changing weather affect plant growth and survival. Students can also investigate how planting trees helps protect habitats and communities. This supports the climate change integration opportunities identified within the NJSLS for ELA and Mathematics while remaining appropriate to the unit's primary focus.
DEI Connections
Students recognize that plants display variation while sharing common inherited characteristics. Students also work collaboratively, valuing different ideas during engineering design.

Learning Targets

Unit Essential Questions:

- How do seeds travel to new places?
- Why do seeds have different shapes and structures?
- How do animals help plants reproduce?
- What do plants need to survive and grow?
- How do scientists use models to understand plant systems?

Unit Enduring Understandings:

- Plants have basic needs, including water and sunlight, in order to grow and survive.
- Different seed structures help plants disperse their seeds in different ways.
- Animals play an important role in pollinating plants and helping them reproduce.
- Plant structures are adapted to perform specific functions.
- Scientists use models and investigations to explain how plants interact with their environment.

Learning Objectives

Students will be able to:

- Develop models that demonstrate how seeds are dispersed.
- Explain how seed structures help plants reproduce.
- Model how animals pollinate flowering plants.
- Plan and conduct investigations to determine whether plants need water and sunlight to grow.
- Collect, record, and analyze data from plant growth investigations.
- Compare how different environmental conditions affect plant growth.
- Construct evidence-based explanations using observations from investigations.
- Communicate scientific ideas using models, drawings, charts, and scientific vocabulary.

Vocabulary

Unit (Tier 1) Vocabulary	Academic (Tier 2) Vocabulary	Tier 3 Vocabulary
• plant • seed • flower • roots • stem • leaves • water • sunlight • soil • grow • pollinate • pollen • bee • animal • habitat • observe • model • investigate	• compare • analyze • investigate • explain • evidence • observe • structure • function • predict • conclude • model • relationship • environment • survive • reproduce	• pollination • seed dispersal • germination • ecosystem • pollinator • adaptation • life cycle • interdependent relationships • seed coat • embryo • engineering model • prototype

Stage 2: Evidence of Student Learning

Formative Assessments:

- Teacher observations
- Science notebook entries
- Turn-and-talk discussions
- Seed model investigations
- Pollination model activities
- Plant growth observation journals
- Data collection charts
- Exit tickets
- Vocabulary checks
- Think-Pair-Share
- Teacher questioning
- Claim-Evidence-Reasoning (CER) discussions
- Investigation recording sheets
- Student model explanations

Summative Assessments:

- Lesson 1 3D Assessment
- Lesson 2 3D Assessment
- Lesson 3 Assessment
- Lesson 4 Assessment
- Lesson 5 3D Assessment
- Unit Assessment
- Seed Dispersal Model Performance Task
- Pollination Model Performance Task
- Plant Growth Investigation Report

Core Instructional & Supplemental Materials		
Core Materials • Science notebook • Student workbook • Informational texts about plants and pollinators • Vocabulary cards • Anchor charts • Chart paper • Pencils • Colored pencils • Markers • Crayons	**Investigative Materials** • A Variety of seeds • Seed models • Craft materials (paper, felt, fabric, foam) • Cotton balls • Velcro • Pom-poms • Pipe cleaners • Cups • Potting soil • Radish seeds • Spray bottles • Water • Plastic containers • Light source or sunny window • Dark storage container • Plant growth recording sheets • Measuring rulers • Artificial flowers • Cotton swabs • Powdered drink mix or colored chalk (to simulate pollen) • Bee model materials ("Fluffadoo") • Digital plant simulation (for Puzzling Plants activity)	**Technology Resources** • Computer or Chromebook • Interactive whiteboard/SmartBoard • Internet access • Teacher presentation slides • Document camera • Videos on pollination, seed dispersal, and plant growth • Digital assessment platform (if applicable) • Mystery Science - Unit 2

Accommodations and Modifications:
Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students

Suggested Strategies and Practices that Support Students with Disabilities:

- Follow All IEP Modifications
- Introduce Key Vocabulary Before Lesson
- Teacher Reads Aloud Daily
- Choral Reading
- Chants, Songs
- Small Group Instruction
- Use Books On Tape
- Allow Extra Time To Complete Assignments Or Tests
- Allow Answers To Be Given Orally Or Dictated

Suggested Strategies and Practices that Support English Language Learners:

- Visuals
- Gesturing
- Miming
- Roleplay
- Simplified Language / Teacher Talk / Thinking Aloud
- Introduce Key Vocabulary Before Lesson
- Picture Directions

Students At Risk of Failure:

- Provide Peer Tutoring
- Multisensory Instruction
- Use Audio Books
- Allow Extra Time To Complete Assignments Or Tests
- Work In A Small Group
- One On One Instruction
- Personal Word Walls / Word Rings (ex. letter sound word rings)
- Teacher Modeling
- Pattern Sentences (speaking and/or writing)
- Choral Chanting
- Small Group Instruction / Cooperative Learning
- Allowing For Additional Wait Time For Student Responses During Conversations

Students with 504 Plans:

- Follow All 504 Modifications

- Provide Picture Instructions
- Small Group Instruction
- Allow Extra Time To Complete Assignments Or Tests
- Allowing For Additional Wait Time For Student Responses During Conversations
- Provide Fidget Tools
- Flexible Seating
- Chunk Assignments
- Positive Reinforcement

Specific Strategies and Practices that Support Gifted & Talented Students:

- Do Not Always Be Explicit, Allow For Discovery
- Propose Interest-based Extension Activities
- Use Varied Modes Of Pre-assessment And Assessment
- Provide Whole Group Enrichment Explorations
- Teach Cognitive And Methodological Skills
- Ask Higher Order Thinking Questions

Unit 3: Erosion & the Earth's Surface

Stage 1: Desired Results

Unit 3: Erosion & the Earth's Surface

Unit Summary: In this unit, students explore maps, landforms, and bodies of water. They construct models of mountains to demonstrate how water flows downhill, and in the process, transforms huge rocks into the tiny grains of sand we find at the beach. Students also use models to demonstrate how erosion can happen slowly over time, but can also happen very quickly with landslides. They use this information to design solutions to slow down erosion and prevent landslides.

Learning Standards

NJSLS Grade Level Standards: Science 2026

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-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
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.
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.

Curricular Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

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 (e.g., inductive, deductive).

9.4.2.CI.1- Demonstrate openness to new ideas and perspectives.

Computer Science & Design Thinking (*CS & DT***):**

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

8.2.2.ED.1- Communicate the function of a product or device.

8.2.2.ED.2- Collaborate to design a solution to a simple problem using the engineering design process.

Interdisciplinary Connections:

NJSLS - ELA 2023

RI.CR.2.1 – Ask and answer questions to demonstrate understanding of informational texts about animals, habitats, and biodiversity.
RI.CI.2.2 – Determine the main idea and identify supporting details.
RI.IT.2.3 – Describe connections between historical events, scientific ideas, or procedures.
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RI.CT.2.8 – Compare and contrast information from multiple sources about habitats and organisms.
W.IW.2.2 – Write informative pieces describing habitats, organisms, and biodiversity.
W.WR.2.5 – Develop and strengthen writing through shared inquiry.
W.SE.2.6 – Gather information from observations and multiple sources.
W.RW.2.7 – Participate in shared research and science writing.

NJSLS - MATH 2023

2.DL.1 – Understand that people collect data to answer questions. Understand that data can vary.
2.M.A – Measure and estimate lengths in standard units

Climate Change Connections:

Students investigate how water changes Earth's surface through erosion, flooding, and weathering. While the unit does not directly address climate change, it provides foundational understanding of Earth's surface processes and the role of water in shaping landforms, supporting future learning about environmental change in later grades.

DEI Connections

Students collaborate to investigate natural processes, analyze evidence, and evaluate multiple engineering solutions. The unit promotes inclusive problem-solving by valuing different ideas and approaches during scientific inquiry.

Learning Targets

Unit Essential Questions:

- How do maps help us understand Earth's surface?
- How does water change the land over time?
- Why do some Earth changes happen quickly while others happen slowly?
- How do rivers, mountains, and landforms affect the movement of water?
- How can engineering help prevent erosion?

Unit Enduring Understandings:

- Earth's surface is made up of different landforms and bodies of water.
- Water shapes Earth's surface through erosion and weathering.
- Some changes to Earth's surface happen quickly, while others happen over long periods of time.
- Maps and models help scientists understand Earth's features and how they change.
- Engineers design solutions to reduce erosion and protect land from water damage.

Learning Objectives

Students will be able to:

- Identify and describe major landforms and bodies of water.
- Develop models that represent Earth's surface.
- Explain how rivers flow from higher to lower elevations.
- Investigate how water causes weathering and erosion.
- Use evidence to explain how Earth changes over time.
- Compare fast and slow Earth processes.
- Design, build, test, and improve solutions that reduce erosion.
- Analyze engineering designs and communicate evidence-based conclusions.

Vocabulary

Unit (Tier 1) Vocabulary	Academic (Tier 2) Vocabulary	Tier 3 Vocabulary
• map • land • water • river • lake • ocean • mountain • hill • valley • canyon • rock • sand • soil • erosion • weather • flood • model • observe	• compare • investigate • analyze • explain • evidence • model • predict • describe • observe • pattern • solution • design • test • evaluate • conclude	• erosion • weathering • landform • body of water • canyon • sediment • deposition • flash flood • watershed • elevation • engineering design process • prototype

Stage 2: Evidence of Student Learning

Formative Assessments:

- Teacher observations
- Science notebook entries
- Map-reading activities
- Mystery Mapmaker activity
- Paper Mountains investigation
- Rocking the River model
- Cornmeal Canyon investigation
- Erosion Engineering design notebook
- Turn-and-talk discussions
- Exit tickets
- Vocabulary checks
- Think-Pair-Share
- Teacher questioning
- Claim-Evidence-Reasoning (CER) discussions

- Investigation recording sheets

Summative Assessments:

- Lesson 1 Assessment
- Lesson 2 Assessment
- Lesson 3 Assessment
- Lesson 4 3D Assessment
- Lesson 5 Assessment
- Lesson 6 Assessment
- Unit Assessment
- Erosion Engineering Design Challenge
- Student explanation describing how water changes Earth's surface using evidence from investigations

Core Instructional & Supplemental Materials		
Core Materials • Science notebook • Student workbook • Informational texts about landforms, maps, and erosion • Vocabulary cards • Anchor charts • Chart paper • Pencils • Colored pencils • Markers • Crayons	**Investigative Materials** • Printed maps • Landform picture cards • Treasure maps • Construction paper • Spray bottles • Paper mountain models • Water trays • Rocks or rock samples • Construction paper (for Rocking the River activity) • Cornmeal • Aluminum trays or shallow pans • Plastic cups • Droppers or pipettes • Craft sticks • Sand • Soil • Small pebbles • Modeling clay • Recycled engineering materials • Tape	**Technology Resources** • Computer or Chromebook • Interactive whiteboard/SmartBoard • Internet access • Teacher presentation slides • Document camera • Digital maps (Google Earth or similar) • Videos demonstrating erosion, rivers, flash floods, and canyon formation • Digital assessment platform (if applicable) • Mystery Science Unit 3

	• Glue • Scissors • Investigation recording sheets	

Accommodations and Modifications:
Students with Disabilities, English Language Learners,
Students at Risk of Failure, Students with 504s, Gifted & Talented Students

Suggested Strategies and Practices that Support Students with Disabilities:

- Follow All IEP Modifications
- Introduce Key Vocabulary Before Lesson
- Teacher Reads Aloud Daily
- Choral Reading
- Chants, Songs
- Small Group Instruction
- Use Books On Tape
- Allow Extra Time To Complete Assignments Or Tests
- Allow Answers To Be Given Orally Or Dictated

Suggested Strategies and Practices that Support English Language Learners:

- Visuals
- Gesturing
- Miming
- Roleplay
- Simplified Language / Teacher Talk / Thinking Aloud
- Introduce Key Vocabulary Before Lesson
- Picture Directions

Students At Risk of Failure:

- Provide Peer Tutoring
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- Use Audio Books
- Allow Extra Time To Complete Assignments Or Tests
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- One On One Instruction
- Personal Word Walls / Word Rings (ex. letter sound word rings)
- Teacher Modeling
- Pattern Sentences (speaking and/or writing)
- Choral Chanting
- Small Group Instruction / Cooperative Learning

● Allowing For Additional Wait Time For Student Responses During Conversations

Students with 504 Plans:

● Follow All 504 Modifications
● Provide Picture Instructions
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● Allow Extra Time To Complete Assignments Or Tests
● Allowing For Additional Wait Time For Student Responses During Conversations
● Provide Fidget Tools
● Flexible Seating
● Chunk Assignments
● Positive Reinforcement

Specific Strategies and Practices that Support Gifted & Talented Students:

● Do Not Always Be Explicit, Allow For Discovery
● Propose Interest-based Extension Activities
● Use Varied Modes Of Pre-assessment And Assessment
● Provide Whole Group Enrichment Explorations
● Teach Cognitive And Methodological Skills
● Ask Higher Order Thinking Questions

Unit 4: Material Properties

Stage 1: Desired Results

Unit 4: Material Properties

Unit Summary: In this unit, students explore the properties of materials! They describe and classify different types of materials by properties like hardness, flexibility, absorbency, and the ability to conduct heat. Then, they determine which materials have properties best suited for certain types of clothing, cooking, and buildings. They also build card towers to explore how a small set of the same pieces can be disassembled and then reconstructed into a new object with different characteristics.

Learning Standards

NJSLS Grade Level Standards: Science 2026

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.
K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
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.
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.

Curricular Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

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 (e.g., inductive, deductive).

9.4.2.CI.1- Demonstrate openness to new ideas and perspectives.

Computer Science & Design Thinking (*CS & DT***):**

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

8.2.2.ED.1- Communicate the function of a product or device.

8.2.2.ED.2- Collaborate to design a solution to a simple problem using the engineering design process.

Interdisciplinary Connections:

NJSLS - ELA 2023

RI.CR.2.1 – Ask and answer questions to demonstrate understanding of informational texts about animals, habitats, and biodiversity.
RI.CI.2.2 – Determine the main idea and identify supporting details.
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RI.MF.2.6 – Compare information presented in words and visuals.
RI.AA.2.7 – Explain how reasons and evidence support specific points.
RI.CT.2.8 – Compare and contrast information from multiple sources about habitats and organisms.
W.IW.2.2 – Write informative pieces describing habitats, organisms, and biodiversity.
W.WR.2.5 – Develop and strengthen writing through shared inquiry.
W.SE.2.6 – Gather information from observations and multiple sources.
W.RW.2.7 – Participate in shared research and science writing.
NJSLS - MATH 2023
2.DL.1 – Understand that people collect data to answer questions. Understand that data can vary.
2.M.A – Measure and estimate lengths in standard units

DEI Connections
Students work collaboratively to investigate materials and engineering solutions, recognizing that different ideas and approaches can lead to successful designs. The unit emphasizes inclusive collaboration and evidence-based decision-making.

Learning Targets

Unit Essential Questions:

- How do the properties of materials affect how they are used?
- Why are some materials better for certain jobs than others?
- How can we test and compare the properties of materials?
- How can objects be redesigned using the same materials?
- How do engineers use evidence to improve designs?

Unit Enduring Understandings:

- Materials have observable properties that determine how they can be used.
- Different materials are better suited for different purposes.
- Scientists investigate and compare material properties through observation and testing.
- Objects can be taken apart and rebuilt into new objects with different characteristics.
- Engineers use evidence from testing to design and improve solutions.

Learning Objectives

Students will be able to:

- Observe and classify materials based on their physical properties.
- Compare materials to determine which are best suited for a specific purpose.
- Conduct investigations to test properties such as flexibility, absorbency, hardness, and heat conductivity.
- Explain how material properties influence design decisions.
- Construct evidence-based explanations using investigation data.
- Design, build, test, and improve simple engineering solutions.
- Observe how objects can be disassembled and reconstructed into new objects.
- Communicate scientific findings using models, charts, drawings, and scientific vocabulary.

Vocabulary		
Tier 1 Vocabulary • material • property • hard • soft • rough • smooth • flexible • rigid • absorb • waterproof • conduct • insulate • soil • sand • clay • model • design • investigate	**Tier 2 Vocabulary** • classify • compare • observe • investigate • analyze • explain • evidence • predict • describe • structure • function • solution • evaluate • prototype • engineer	**Tier 3 Vocabulary** • matter • observable properties • absorbency • conductivity • insulator • conductor • flexibility • rigidity • engineering design process • prototype • evidence • structure

Stage 2: Evidence of Student Learning

Formative Assessments:

- Teacher observations
- Science notebook entries
- Turn-and-talk discussions
- Material sorting activities
- Mad Hatter engineering challenge
- Feel the Heat investigation
- Paper Towers engineering challenge
- Mystery Mud investigation
- Exit tickets
- Vocabulary checks
- Think-Pair-Share
- Teacher questioning
- Claim-Evidence-Reasoning (CER) discussions

- Engineering design journals
- Investigation recording sheets

Summative Assessments:

- Lesson 1 Assessment
- Lesson 2 Assessment
- Lesson 3 Assessment
- Lesson 4 3D Assessment
- Unit Assessment
- Mad Hatter Engineering Design Challenge
- Paper Towers Engineering Challenge
- Student explanation describing how the properties of materials determine their best uses using evidence from investigations

Core Instructional & Supplemental Materials

Core Resources

- Science notebook
- Student workbook
- Informational texts about materials and engineering
- Vocabulary cards
- Anchor charts
- Chart paper
- Pencils
- Colored pencils
- Markers
- Crayons

Investigation Materials

- Fabric samples
- Felt
- Cotton
- Fleece
- Aluminum foil
- Plastic
- Paper
- Cardboard
- Foam
- Wood samples
- Metal samples
- Rubber samples
- Sponges
- Water droppers
- Bowls of water
- Thermometers (optional)
- Hot and cold water containers (teacher use)
- Oven mitt material samples
- 3" × 5" index cards
- Paper clips
- Hardcover books
- Sand
- Clay
- Soil samples
- Spray bottles
- Measuring cups

Technology Resources

- Computer or Chromebook
- Interactive whiteboard/SmartBoard
- Internet access
- Teacher presentation slides
- Document camera
- Online simulations of material properties
- Videos demonstrating insulators, conductors, and engineering design
- Digital assessment platform (if applicable)
- Mystery Science Platform

	• Plastic trays • Tape • Glue • Scissors • Investigation recording sheets	

Accommodations and Modifications:
Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students

Suggested Strategies and Practices that Support Students with Disabilities:

- Follow All IEP Modifications
- Introduce Key Vocabulary Before Lesson
- Teacher Reads Aloud Daily
- Choral Reading
- Chants, Songs
- Small Group Instruction
- Use Books On Tape
- Allow Extra Time To Complete Assignments Or Tests
- Allow Answers To Be Given Orally Or Dictated

Suggested Strategies and Practices that Support English Language Learners:

- Visuals
- Gesturing
- Miming
- Roleplay
- Simplified Language / Teacher Talk / Thinking Aloud
- Introduce Key Vocabulary Before Lesson
- Picture Directions

Students At Risk of Failure:

- Provide Peer Tutoring
- Multisensory Instruction
- Use Audio Books
- Allow Extra Time To Complete Assignments Or Tests
- Work In A Small Group
- One On One Instruction
- Personal Word Walls / Word Rings (ex. letter sound word rings)
- Teacher Modeling
- Pattern Sentences (speaking and/or writing)
- Choral Chanting

- Small Group Instruction / Cooperative Learning
- Allowing For Additional Wait Time For Student Responses During Conversations

Students with 504 Plans:

- Follow All 504 Modifications
- Provide Picture Instructions
- Small Group Instruction
- Allow Extra Time To Complete Assignments Or Tests
- Allowing For Additional Wait Time For Student Responses During Conversations
- Provide Fidget Tools
- Flexible Seating
- Chunk Assignments
- Positive Reinforcement

Specific Strategies and Practices that Support Gifted & Talented Students:

- Do Not Always Be Explicit, Allow For Discovery
- Propose Interest-based Extension Activities
- Use Varied Modes Of Pre-assessment And Assessment
- Provide Whole Group Enrichment Explorations
- Teach Cognitive And Methodological Skills
- Ask Higher Order Thinking Questions

Unit 5 - States of Matter

Stage 1: Desired Results

Unit 5: States of Matter

Unit Summary: In this unit, students explore solid and liquid states of matter! They explore how water is found around the world and can be frozen into solid ice. Students also investigate the properties of other materials and use their observations to construct an explanation that some changes caused by heating and cooling are reversible, while others are not.

Learning Standards

NJSLS Grade Level Standards: Science 2026

2-ESS2-3 Obtain information to identify where water is found on Earth and that it can be solid or liquid.
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-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

Curricular Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

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 (e.g., inductive, deductive).

9.4.2.CI.1- Demonstrate openness to new ideas and perspectives.

Computer Science & Design Thinking (*CS & DT***):**

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

8.2.2.ED.1- Communicate the function of a product or device.

8.2.2.ED.2- Collaborate to design a solution to a simple problem using the engineering design process.

Interdisciplinary Connections:

NJSLS - ELA 2023

RI.CR.2.1 – Ask and answer questions to demonstrate understanding of informational texts about animals, habitats, and biodiversity.
RI.CI.2.2 – Determine the main idea and identify supporting details.
RI.IT.2.3 – Describe connections between historical events, scientific ideas, or procedures.
RI.TS.2.4 – Use text features to locate information efficiently.
RI.PP.2.5 – Describe how images contribute to understanding a text.
RI.MF.2.6 – Compare information presented in words and visuals.
RI.AA.2.7 – Explain how reasons and evidence support specific points.
RI.CT.2.8 – Compare and contrast information from multiple sources about habitats and organisms.
W.IW.2.2 – Write informative pieces describing habitats, organisms, and biodiversity.
W.WR.2.5 – Develop and strengthen writing through shared inquiry.

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Climate Change Connections
Students investigate that water exists on Earth as both a liquid and a solid (**2-ESS2-3**), providing foundational knowledge about Earth's water systems. While climate change is not explicitly addressed, understanding the different states of water supports future learning about weather, climate, and Earth's changing systems in later grades.
DEI Connections:
Students engage in collaborative investigations, share observations, and evaluate evidence from multiple perspectives. The unit emphasizes respectful scientific discourse and collaborative problem-solving.

Learning Targets

Unit Essential Questions:

- Where is water found on Earth?
- How can water change between solid and liquid states?
- Which changes caused by heating or cooling can be reversed?
- Why are some materials better suited for certain purposes than others?
- How do scientists use evidence to explain changes in matter?

Unit Enduring Understandings:

- Water exists in different forms, including solid ice and liquid water.
- Heating and cooling can cause materials to change.
- Some changes caused by heating or cooling are reversible, while others are irreversible.
- Different materials have different properties that make them useful for specific purposes.
- Scientists use observations and evidence to explain changes in matter.

Learning Objectives

Students will be able to:

- Identify where water is found on Earth as both a liquid and a solid.
- Describe the properties of solids and liquids.
- Conduct investigations to observe changes caused by heating and cooling.
- Compare reversible and irreversible changes using evidence.
- Analyze data to determine which materials are best suited for specific purposes.
- Construct evidence-based arguments explaining changes in matter.
- Record observations using charts, drawings, and scientific vocabulary.
- Communicate scientific findings through discussion and writing.

Vocabulary

Tier 1 Vocabulary

- water
- ice
- solid
- liquid
- melt
- freeze
- heat
- cool
- change
- material
- plastic
- observe
- compare
- evidence
- investigate

Tier 2 Vocabulary

- analyze
- investigate
- compare
- explain
- evidence
- predict
- observe
- classify
- conclude
- argument
- reversible
- irreversible
- property
- temperature
- state

Tier 3 Vocabulary

- states of matter
- solid
- liquid
- melting
- freezing
- reversible change
- irreversible change
- physical property
- heating
- cooling
- evidence
- matter

Stage 2: Evidence of Student Learning

Formative Assessments:

- Teacher observations
- Science notebook entries
- Arctic Adventure investigation
- Ultimate Undo Showdown investigation
- Candy Melt investigation
- Turn-and-talk discussions
- Exit tickets
- Vocabulary checks
- Think-Pair-Share
- Teacher questioning
- Claim-Evidence-Reasoning (CER) discussions
- Investigation recording sheets
- Student explanations of reversible and irreversible changes

Summative Assessments:

- Lesson 1 Assessment
- Lesson 2 Assessment
- Lesson 3 Assessment
- Unit Assessment
- Candy Melt Investigation Performance Task
- Student-written argument explaining whether changes caused by heating or cooling are reversible or irreversible using evidence from investigations

Core Instructional & Supplemental Materials		
Core Resources • Science notebook • Student workbook • Anchor charts • Informational texts about sound and light • Read-aloud books • Vocabulary cards • Chart paper • Markers • Pencils • Crayons • Colored pencils	**Investigation Materials** • Plastic rulers • Rubber bands • String • Paper • Cardboard tubes • Simple musical instruments (or classroom instruments) • Flashlights • Transparent materials (clear plastic, acetate) • Translucent materials (wax paper, tissue paper) • Opaque materials (cardboard, construction paper, aluminum foil) • Colored cellophane • White paper • Construction paper • Colored markers • Paper cups • Index cards • Tape • Glue • Scissors • Craft sticks • Hole punch • Observation and recording sheets • Secret Signals templates	**Technology Resources** • Computer or Chromebook • Interactive whiteboard/SmartBoard • Internet access • Teacher presentation slides • Document camera • Videos demonstrating sound vibrations • Videos demonstrating light and shadows • Digital simulations of sound and light (if available) • Digital assessment platform (if applicable) • Mystery Science Platform

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