

GREEN TOWNSHIP SCHOOL DISTRICT



Content Area: Science
Course/Grade Level: 2nd Grade

Curriculum Committee Members:

Principal:
Jon Paul Bollette

Board Approval Date:
10/21/26



Mission:

All students will develop an understanding of scientific concepts and processes essential for informed decision-making, meaningful participation in civic life, and readiness for postsecondary opportunities, including careers in STEM fields.

Vision:

Prepare students to become scientifically literate individuals who can effectively:

- Apply scientific thinking, skills, and understanding to real-world phenomena and problems;
- Engage in systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned;
- Conduct investigations, solve problems, and engage in discussions;
- Discuss open-ended questions that focus on the strength of the evidence used to generate claims;
- Read and evaluate multiple sources, including science-related magazine and journal articles and web-based resources to gain knowledge about current and past science problems and solutions and develop well-reasoned claims; and
- Communicate ideas through journal articles, reports, posters, and media presentations that explain and argue.



Key Performance and Benchmark Tasks/Assessments

Formative assessments:

- Used to gauge student understanding and progress throughout the unit.
- Not necessarily graded
- Provide feedback for students to use to reflect, revise and refine their work.

Summative Assessments:

- Final projects or assessments to determine what students have learned over the course of the project or unit.

Benchmark Assessments:

- Teacher-created benchmark assessments to be given periodically during the year.

Alternative Assessments:

- Teacher modifies assignments and activities based on student needs.
- Oral assessments administered in place of written when necessary.
- Accommodation and modification ideas may be found here:
 - [Modifications & Accommodations Menu](#)
 - *Assessments other than paper & pencil tests See link for more info:*
http://education.gmu.edu/assets/docs/forms/mirs/assessment_brochure.pdf

Integrated Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with **ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students**.

The attached worksheets can be printed ahead of each unit during the planning phase to help the teacher plan for the needs of particular students in each class, allowing for differentiation per unit and per year. The worksheets contain suggested accommodations and modifications for Content & Material, Student Organization, Instructional Strategies, Assessments, Attention/Focus, Written Language, and Social/Behavioral.



[Modifications & Accommodations Menu](#)



Unit 1

<u>Measurement</u>	Pacing: 20 instructional periods
Unit Summary: In this unit, students develop measurement skills by using standard and nonstandard units to measure, compare, and describe the length, weight, capacity, and temperature of everyday objects. They collect and represent measurement data using tools and graphs while learning why standard units provide more reliable and consistent measurements.	
Essential Questions: - How do we measure and compare the length, weight, capacity, and temperature of objects? - How do measuring tools help us collect accurate information?	Enduring Understandings: - Measurement allows us to describe, compare, and communicate the attributes of objects using consistent units and tools. - Scientists and mathematicians use appropriate tools, units, and data representations to make accurate observations and comparisons.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
- This Science unit is foundational and based on crucial mathematic standards to be used throughout the rest of the year. 2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. 2.MD.A.2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. 2.MD.A.3: Estimate lengths using units of inches, feet, centimeters, and meters. 2.MD.A.4: Measure to determine how much longer one	- Measure accurately using both nonstandard and standard units (cm/m) to measure the length of common objects - Compare and order three or more objects according to their length - Describe the length of different objects using appropriate vocabulary - Explain why a standard unit of measurement is more reliable than a nonstandard unit - Measure accurately using nonstandard units to measure the weight of common objects*	- Using Mathematics and Computational Thinking - Planning and Carrying Out Investigations - Analyzing and Interpreting Data - Obtaining, Evaluating, and Communicating Information



object is than another, expressing the length difference in terms of a standard length unit. • 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. • 2.MD.D.10: Draw a picture bar graph and a bar graph (with whole number scale) to represent a data set with up to four categories.	• Compare and order three or more objects according to their weight • Describe the weight of objects using appropriate vocabulary • Explain why a standard unit of measurement is more reliable than a nonstandard unit • Measure accurately using both nonstandard units to measure the capacity of containers* • Use nonstandard units to compare and order the relative capacities of various containers • Describe the capacity of the containers using comparative language such as more/greater/greatest, less/least, and equal • Use a bar graph to show results. Explain how to measure temperature • Describe situations in which they use thermometers in their daily lives	
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Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.2.CT.2 – Identify possible causes of a problem and brainstorm possible solutions.
- 9.4.2.CT.3 – Use data accessed on a website to identify evidence and make decisions.
- 9.4.2.TL.1 – Identify the basic features of a digital tool and explain the purpose of the tool.
- 9.4.2.TL.2 – Create a document using a word processing application.
- 9.4.2.TL.3 – Enter information into a spreadsheet and sort the information.
- 9.4.2.TL.6 – Illustrate and communicate ideas and stories using multiple digital tools.

Unit 1: Core Unit Content

Key Concepts



- ☐ Linear measurement using standard and nonstandard units
- ☐ Weight measurement using standard and nonstandard units
- ☐ Measuring capacity and liquid measurements
- ☐ Measuring temperature

Instructional Materials & Resources

Knowing Science
Scholastic Science Spin
Generation Genius
NJDOE Science and Curriculum Resources

Unit 1: Assessments

Formative assessments:

- Teacher observation of students engaged in group and independent activities.
- Individual and small group conferences/interviews to assess understanding with rubric
- Self-assessment by students with guidance from teacher.

Summative Assessments:

- Teacher created assessments and projects
- Teacher/District created benchmark assessments

Alternative Assessments:

Unit 1: Accommodations & Modifications



Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



Unit 2

Matter and Materials

Pacing: 13 instructional periods

Unit Summary: In this unit, students investigate the properties of matter by classifying materials, comparing solids, liquids, and gases, and exploring how heating and cooling can cause materials to change. Through fair tests and hands-on investigations, students learn to select appropriate materials for specific purposes and recognize that matter can change while still following predictable patterns.

Essential Questions:

- How can we use the properties of materials to sort, classify, and describe them?
- How does heating or cooling change matter?
- What makes solids, liquids, and gases different from one another?

Enduring Understandings:

- Materials have observable properties that can be used to describe, classify, and compare them. All matter has mass, takes up space, and can exist as a solid, liquid, or gas.
- Matter can change in different ways. Some changes are reversible, while others are irreversible, and changes in temperature can cause water to change states.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. [Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.] • 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.* [Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.] [Assessment Boundary: Assessment of quantitative measurements is limited to length.] • 2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be	• Use dichotomous (opposite) sorting to classify a set of attributes • Define a ‘fair test’ • Plan an investigation to determine which material is best suited for a specific task • Recognize that all matter takes up space and has mass • Find distinctions/relationships between solids liquids, and gases, based on observable properties • Describe how water can change from one state to another • Explain that a change in temperature causes water to change states	• Planning and Carrying Out Investigations • Analyzing and Interpreting Data • Developing and Using Models • Using Mathematics and Computational Thinking • Constructing Explanations and Designing Solutions • Obtaining, Evaluating, and Communicating Information



disassembled and made into a new object. [Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.] • 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. [Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.]	• Describe how heating/cooling can cause reversible/irreversible changes • Explore how a structure made of separate pieces can be rearranged to form a new one	
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Interdisciplinary Connections

[2020 Career Readiness, Life Literacies, and Key Skills](#)

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.TL.3: Enter information into a spreadsheet and sort the information.

Unit 2: Core Unit Content

Key Concepts

- ☐ Classifying matter by its properties
- ☐ States of matter: solid, liquid, gas
- ☐ Change in matter

Instructional Materials & Resources

Knowing Science
Scholastic Science Spin
Generation Genius



Unit 2: Assessments

Formative assessments:

- Teacher observation of students engaged in group and independent activities.
- Individual and small group conferences/interviews to assess understanding with rubric
- Self-assessment by students with guidance from teacher.

Summative Assessments:

- Teacher created assessments and projects
- Teacher/District created benchmark assessments

Alternative Assessments:

Unit 2: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



Unit 3

<u><i>Ecosystems</i></u>	Pacing: 26 instructional periods
Unit Summary: In this unit, students explore how plants and animals survive through adaptations and how living things depend on one another within ecosystems. They investigate food chains, food webs, and the effects of natural events and human actions on habitats while discovering ways they can help protect and care for the environment.	
Essential Questions: • How do adaptations help plants and animals survive? • How are plants and animals connected in an ecosystem? • How do natural events and human activities affect habitats?	Enduring Understandings: • Plants and animals have physical structures and behaviors that help them meet their basic needs and survive in their environments. • All living things are connected through food chains, food webs, and relationships that help ecosystems function as balanced systems. • Natural events and human actions can change habitats, and people have a responsibility to care for and protect the environment.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. [Assessment Boundary: Assessment is limited to testing one variable at a time.] • 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats. [Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]	• Explain that all of a plant's basic needs must be met in order for it to live and grow • Describe the roles that a plant's roots, stems, and leaves play in its food production and survival • Plan and carry out a guided inquiry about the basic needs of plants • Record observations from the inquiry • Communicate ideas about their observations both verbally and in writing	• Planning and Carrying Out Investigations • Developing and Using Models • Analyzing and Interpreting Data • Obtaining, Evaluating, and Communicating Information



• 2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	• Compare characteristics of the following ecosystems: woodland forest and rainforest; desert and polar (tundra); and fresh and saltwater • Give examples of animals and plants that live in each ecosystem • Understand that within each ecosystem there are many habitats which are able to support the plants and animals suited specifically to living there • Locate main idea and details in content-based nonfiction text using text features • Differentiate between structural and behavioral adaptations • Classify adaptations in terms of basic needs: taking in water and nutrients, breathing, defense and protection from predators, finding shelter, and managing body temperature • Give examples of external structures and information processing systems which are suited to a particular ecosystem • Explain interdependent relationships between animals and plants in any given ecosystem (pollination, seeds dispersal, food, and shelter) • Locate main idea and details on content-based nonfiction text using text features • Differentiate between and give examples of producers and consumers • Differentiate between and give examples of herbivore, carnivore, omnivore, decomposer, predator, and prey • Construct a food chain that correctly shows the relationship among the sun, producers, consumers, and decomposers	• Constructing Explanations and Designing Solutions • Using Mathematics and Computational Thinking
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	• Explain how members of any food chain or food web are connected to, or dependent upon, each other • Explain interdependency within a food web or habitat as a 'system' • Give cause and effect examples of natural changes in a habitat: rain or snowfall, flood, drought, wildfire, or other natural disaster • Give cause and effect examples of human impact on habitats and classify them as positive or negative • Give examples of how people can be good stewards of their local habitat	
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Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

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 (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2).

9.4.2.TL.2: Create a document using a word processing application.

9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9).

9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).

Unit 3: Core Unit Content

Key Concepts

- ☐ What plants need to survive
- ☐ Habitat
- ☐ Plant and animal adaptations and interdependency



- ☐ Food chains
- ☐ Habitat change and interconnectedness

Instructional Materials & Resources

Knowing Science
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Unit 3: Assessments

Formative assessments:

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Summative Assessments:

- Teacher created assessments and projects
- Teacher/District created benchmark assessments

Alternative Assessments:

Unit 3: Accommodations & Modifications

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[Modifications & Accommodations Menu](#)

Unit 4

Fast and Slow Changes and Earth's Structure

Pacing: 17 instructional periods

Unit Summary: In this unit, students investigate Earth's landforms and bodies of water, using maps and models to describe and represent Earth's surface. They explore how weathering, erosion, and rapid events change the land over time and apply the engineering design process to develop, test, and improve solutions that help reduce the effects of erosion.

Essential Questions:

- **How do maps and models help us understand Earth's surface?**
- **How does Earth's surface change over time?**
- **How can people design solutions to protect the land from erosion?**

Enduring Understandings:

- Earth's surface is made up of a variety of landforms and bodies of water that can be identified, described, and represented using maps and models.
- Earth's surface changes through both slow processes, such as weathering and erosion, and fast processes, such as floods, landslides, earthquakes, or volcanic eruptions.
- Engineers use observations, testing, and redesign to create solutions that reduce the effects of erosion and other changes to Earth's surface.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area. [Assessment Boundary: Assessment does not include quantitative scaling in models.] • 2-ESS2-3 Obtain information to identify where water is found on Earth and that it can be solid or liquid.	• Explain how landform maps serve as models of Earth's features • Locate and describe the main types of landform and water features • Differentiate between salt and fresh water features	• Developing and Using Models • Planning and Carrying Out Investigations



● 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly.] [Assessment Boundary: Assessment does not include quantitative measurements of timescales.] ● 2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.* [Clarification Statement: Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.] ● 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-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. The performance expectations above were developed using	● Create a model to represent landforms and water features ● Differentiate between slow and fast changes to Earth's surface ● Explain and give examples of weathering as a slow change ● Explain and give examples of erosion as a slow changes ● Explain and give examples of fast changes to Earth's surface ● Design and compare multiple solutions designed to prevent or slow water from changing the shape of the land ● Create a labeled diagram and physical model to illustrate how the solution solves the given problem ● Analyze observational data from tests of multiple design solutions ● Compare how each design solution performs	● Analyzing and Interpreting Data ● Constructing Explanations and Designing Solutions ● Obtaining, Evaluating, and Communicating Information ● Engaging in Argument from Evidence
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Interdisciplinary Connections

[2020 Career Readiness, Life Literacies, and Key Skills](#)

Unit 4: Core Unit Content

Key Concepts

- ❑ Landforms and water features



- ☐ Fast and slow changes in Earth's surface features
- ☐ Erosion prevention engineering challenge

Instructional Materials & Resources

Knowing Science
Scholastic Science Spin
Generation Genius
NJDOE Science and Curriculum Resources

Unit 4: Assessments

Formative assessments:

- Teacher observation of students engaged in group and independent activities.
- Individual and small group conferences/interviews to assess understanding with rubric
- Self-assessment by students with guidance from teacher.

Summative Assessments:

- Teacher created assessments and projects
- Teacher/District created benchmark assessments

Alternative Assessments:

Unit 4: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.



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