

GREEN TOWNSHIP SCHOOL DISTRICT



Content Area: Science
Course/Grade Level: 3rd Grade

Curriculum Committee Members:

Principal:
Jon Paul Bollette

Board Approval Date:
10/21/26



3rd Grade

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.



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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



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Organization, Instructional Strategies, Assessments, Attention/Focus, Written Language, and Social/Behavioral.

[Modifications & Accommodations Menu](#)



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Unit 1

<u>Forces and Interactions</u>	Pacing: 11 instructional periods
Unit Summary: In this unit, students use standard measurement tools to investigate distance, time, and motion while recognizing patterns that help predict how objects move. They explore how contact and non-contact forces, including pushes, pulls, gravity, and magnetism, affect the motion of objects and explain how balanced and unbalanced forces influence movement.	
Essential Questions: • Why do scientists use standard units of measurement? • How do forces affect the way objects move? • What is the difference between contact and non-contact forces?	Enduring Understandings: • Standard units of measurement allow scientists to accurately describe and compare the distance, time, and motion of objects. • Forces are pushes and pulls that can start, stop, speed up, slow down, or change the direction of an object's motion. • Some forces require objects to touch, while others, such as gravity and magnetism, act without direct contact.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. [Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.] [Assessment Boundary: Assessment does not include technical terms such as period and frequency.] • 3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. [Clarification Statement: Examples could include an unbalanced force on one side of a ball can	• Compare measurements obtained by using a non-standard and standard units • Explain why standard units are more reliable than non-standard units • Define Measurement • Define and measure distance • Explain the importance of initial and ending position when measuring distance traveled • Explain why people need a standard unit for measuring time	• Planning and Carrying Out Investigations • Using Mathematics and Computational Thinking • Analyzing and Interpreting Data • Developing and Using Models • Constructing Explanations and Designing Solutions • Obtaining, Evaluating, and



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make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.] [Assessment Boundary: Assessment is limited to one variable at a time: number, size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down.] • 3-PS2-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. [Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.] [Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.] • 3-PS2-4. Define a simple design problem that can be solved by applying scientific ideas about magnets.* [Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.] • 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible	• Use time to measure how long it takes an object to move • Demonstrate an understanding that the faster something moves, the less time it takes to cover distance • Use patterns to predict future motion • Explain that a push or a pull causes an object at rest to move • Explain that a force can cause a moving object to stop or change direction • Explain that it requires more force to move a heavier object than a lighter one • Use arrows to represent the direction and effort of a force • Explain that if an object is at rest, two equal forces in opposite directions will cause the object to stay at rest • Explain that when two forces are applied to an object, motion results when the forces are not equal, or not applied in opposite directions • Demonstrate that magnetic force is a non-contact force • Describe gravity as an invisible, non-contact force that pulls objects closer to the earth • Classify various forces as contact or non-contact	Communicating Information
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Interdisciplinary Connections



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2020 Career Readiness, Life Literacies, and Key Skills

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).

9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).

Unit 1: Core Unit Content

Key Concepts

- ☐ Linear measurement
- ☐ Measuring distance and motion
- ☐ Forces and Motion
- ☐ Balanced and unbalanced forces
- ☐ Contact and non-contact forces
- ☐ Magnets

Instructional Materials & Resources

Magnets (all types), Magnetic building blocks,

Unit 1: Assessments

Formative assessments:

- Teacher observation and questioning
- Exit tickets and science journal
- Data tables and measurement activities
- Force classification activities
- Investigation discussion and predictions



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- Hands on demonstration/investigations
- Oral explanations or presentations
- Magnetic Engineering design challenge

Summative Assessments:

- Force and Motion lab
- Motion and force investigation
- Magnetism lab

Alternative Assessments:

- The teacher modifies assignments and activities based on student needs.
- Oral assessments administered in place of written when necessary.
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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](#)



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Unit 2

Life Cycles and Traits

Pacing: 30 instructional periods

Unit Summary: In this unit, students investigate the life cycles of plants and animals, explore inherited and learned traits, and examine how variations help organisms survive. Through observations, nonfiction texts, and scientific investigations, students use evidence from fossils and living organisms to understand how life has changed over time and how organisms interact within their environments.

Essential Questions:

- How do plants and animals grow and change throughout their life cycles?
- How are traits passed from parents to offspring?
- What can fossils and other evidence teach us about Earth's past?

Enduring Understandings:

- Plants and animals have predictable life cycles that include growth, development, reproduction, and survival, although different organisms develop in different ways.
- Organisms inherit traits from their parents, develop learned and acquired characteristics, and exhibit variations that help them survive in their environments.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.] • 3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include	• Identify and sequence life cycles stages common to flowering plants and trees • Identify and sequence general animal life cycle stages • Differentiate among direct development and complete and incomplete metamorphosis • Comprehend and respond to nonfiction reading texts • Identify, describe, and sequence life cycle stages common to flowering plants • Conduct investigations to compare life cycles of familiar plants • Make and record accurate observations regarding growth of familiar plants	• Obtaining, Evaluating, and Communicating Information • Developing and Using Models • Planning and Carrying Out Investigations • Analyzing and Interpreting Data • Constructing Explanations and Designing Solutions • Engaging in Argument from Evidence



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genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.] ● 3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.] ● 3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.] ● 3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.] ● 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.] ● 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*	● Comprehend and respond to nonfiction reading texts ● Identify, describe, and sequence life cycle stages common to most frogs ● Conduct investigations which relate to frog life cycle stages ● Make and record accurate observations regarding growth of tadpoles and froglets ● Recognize and understand that conducting science investigations involving animals require safe and ethical practices ● Comprehend and respond to nonfiction reading texts ● Differentiate among inherited, learned, and acquired traits ● Understand that physical and behavioral traits are passed from parent to offspring ● Construct a structured inquiry survey about inherited human traits ● Explore how nature has influenced human learning and technology ● Explain the role of trait variation in the survival of plants and animals ● Comprehend and respond to nonfiction reading texts ● Differentiate between types of animal groups and the purpose of each ● Associate specific animals with each type of group ● Explain how different senses are used for communication between group members ● Comprehend and respond to nonfiction reading texts	
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[Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.]
[Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]

- Explain what a fossil is
- Describe how fossils are formed
- Develop an argument from evidence that Earth's environments/organisms have changed over millions of years

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.5.CT.1 – Identify and gather relevant data that will aid in the problem-solving process.
- 9.4.5.IML.1 – Evaluate digital sources for accuracy, perspective, credibility, and relevance.
- 9.4.5.TL.5 – Collaborate digitally to produce an artifact.
- 9.4.5.TL.6 – Adapt and use digital tools to design and develop a product.
- 9.4.5.DC.6 – Compare and contrast how digital citizenship practices impact individuals and communities

Unit 2: Core Unit Content

Key Concepts

- ☐ Foundations of life cycles
- ☐ Life cycles of common plants
- ☐ Characteristics of the frog life cycle
- ☐ Plants and animals have traits that can either be inherited or a product of the organism's environment
- ☐ Animal communities and survival
- ☐ Fossils and prehistoric organisms



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Instructional Materials & Resources

Unit 2: Assessments

Formative assessments:

- Teacher observation and questioning
- Exit tickets and science journals
- Life cycle sequencing modeling
- Investigation data and discussions

Summative Assessments:

- Life cycle models
- Plant Infographs

Alternative Assessments:

- The teacher modifies assignments and activities based on student needs.
- Oral assessments administered in place of written when necessary.
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Unit 2: Accommodations & Modifications

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[Modifications & Accommodations Menu](#)



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Unit 3

<u><i>Weather</i></u>	Pacing: 20 instructional periods
Unit Summary: In this unit, students investigate weather by collecting data, using weather instruments, and exploring how the water cycle, clouds, and atmospheric conditions influence daily weather and long-term climate. They also examine extreme weather events and apply the engineering design process to design, build, test, and improve structures that can better withstand hazardous weather conditions.	
Essential Questions: • What factors make up weather? • How is climate different from weather?	Enduring Understandings: • Weather is the result of interactions among air, water, and energy, and it can be observed, measured, and predicted using patterns and scientific tools. • Climate describes long-term weather patterns that influence seasons, biomes, and the plants and animals that live in different regions of Earth.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. • 3-ESS2-2. Obtain and combine information to describe climates in different regions of the world. • 3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard • 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and	• Identify and describe components of weather (temperature, precipitation, air pressure, wind, and humidity) • Make observations and collect data on local weather over a period of time • Build working models of weather instruments • Describe the relationship between the water cycle and weather	• Planning and Carrying Out Investigations • Analyzing and Interpreting Data • Developing and Using Models • Obtaining, Evaluating, and Communicating



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constraints on materials, time, or cost. • 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. • 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	• Math cloud formations with weather conditions • Describe the interdependent components of weather in forecasting • Comprehend and respond to nonfiction reading texts • Identify and describe general characteristics of polar, tropical, and temperate climate zones • Explain the connection between Earth's orbit and seasons in temperate zones • Understand the concept of biome and make comparisons between biomes in each climate zone • Comprehend and respond to nonfiction reading texts • Identify and describe general characteristics of tornadoes, hurricanes, and winter storms • Understand the damage that each type of extreme weather event may cause • Comprehend and respond to nonfiction reading texts • Understand the basic engineering design process • Identify hazards to property associated with extreme weather conditions • Learn the basics of house construction • Match stormproof technology to appropriate focus areas of the house • Design, build, and test a model of a house capable of withstanding extreme weather • Work cooperatively in small groups to accomplish the task • Comprehend and respond to nonfiction reading texts	Information • Constructing Explanations and Designing Solutions • Engaging in Argument from Evidence
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Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.5.CI.3 – Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
- 9.4.5.CT.1 – Identify and gather relevant data that will aid in the problem-solving process.
- 9.4.5.CT.4 – Apply critical thinking and problem-solving strategies to develop solutions to real-world problems.
- 9.4.5.IML.1 – Evaluate digital sources for accuracy, perspective, credibility, and relevance.
- 9.4.5.TL.5 – Collaborate digitally to produce an artifact.
- 9.4.5.TL.6 – Adapt and use digital tools to design and develop a product.

Unit 3: Core Unit Content

Key Concepts

- ☐ Unit introduction 'What is weather?'
- ☐ Climates and Biomes
- ☐ Types of extreme weather
- ☐ Engineering challenge: hurricane house

Instructional Materials & Resources

Unit 3: Assessments

Formative assessments:

- Teacher observation and questioning
- Weather data collection and graphs
- Weather instrument activities
- Exit tickets and science journals



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- Weather and climate discussions

Summative Assessments:

- Hurricane House Project/Storm-resistant house engineering challenge
- Weather data analysis
- Extreme weather research

Alternative Assessments:

- The teacher modifies assignments and activities based on student needs.
- Oral assessments administered in place of written when necessary.
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Unit 3: Accommodations & Modifications

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