

HILLSBOROUGH TOWNSHIP SCHOOL DISTRICT

SCIENCE CURRICULUM

GRADE 5

AUGUST 2021

**Grade 5
Science Course Overview**

Science surrounds us, is interwoven in our lives, and our understanding is continuously changing. Children are natural scientists, wondering about the world around them. The fifth grade science program helps them make sense of their world, developing understandings of complex systems, from the smallest particles of matter to the Earth's place in the solar system. The fifth grade science curriculum of Hillsborough Township Public Schools aims to educate students in the areas of Physical Sciences, Life Sciences, as well as Earth and Space Sciences by building on their elementary experiences and to help them make sense of their world.

<p style="text-align: center;">Unit 1: Structure, Properties, and Interactions of Matter</p> <p>Students are able to describe that matter is made of particles too small to be seen through the development of a model. Students develop an understanding of the idea that regardless of the type of change that matter undergoes (both physical and chemical), and the total weight of matter is conserved. Students determine whether the mixing of two or more substances results in new substances.</p>	<p style="text-align: center;">Unit 2: Matter and Energy in Organisms and Ecosystems</p> <p>Students develop an understanding of the idea that plants get the materials they need for growth chiefly from air and water. Using models, students will describe the movement of matter among plants, animals, decomposers, and the environment. They will also explain how energy in animals' food was once energy from the Sun.</p>
<p style="text-align: center;">Unit 3: Earth Surface Processes</p> <p>Through the development of a model using an example, students are able to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact as a system. They describe and graph data to provide evidence about the distribution of water on Earth.</p>	<p style="text-align: center;">Unit 4: Space Systems - Stars and the Solar System</p> <p>Students develop an understanding of patterns in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. Students will be able to address misconceptions and have an initial understanding of gravity and how it works.</p>
<p>Science and Engineering Practices: Integrated Throughout All Units</p> <p>In the fifth grade performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information, as well as to use these practices to demonstrate understanding of the core ideas.</p>	
<p>Crosscutting Concepts</p>	

The crosscutting concepts of patterns, cause and effect, energy and matter, systems and system models, interdependence of science, engineering, and technology, and influence of engineering, technology, and science on society and the natural world are used for organizing concepts for these disciplinary core ideas.

The fifth grade science curriculum meets the requirements of the New Jersey Student Learning Standards for Science. It also helps to prepare students to meet and exceed the standards assessed by the New Jersey State administered assessments through higher order application of various skills required for complete understanding and sensemaking of science phenomena at the fifth grade level.

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

Unit Title	Time Frame/Pacing
Structure, Properties, and Interactions of Matter	7 weeks
Phenomena/Anchoring Activity/Anchoring Question/Essential Questions	
<p><u>Anchoring Phenomena:</u> Disappearing Gargoyles</p> <p><u>Phenomena:</u> Boiling water being thrown outside when it's freezing. Polyurethane Foam Blowing up a balloon. Mentos geyser, play with sound off</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> ● What is weight, and how can we compare the weights of different objects? ● What instruments do we use to measure weight? ● Is matter made up of small particles, even if we cannot see the particles with the naked eye? ● How can we model the basic building blocks of matter? ● What are the properties of each of the three states of matter? ● What are the properties of various kinds of matter? ● How can we recognize a material by knowing its properties? ● What are physical changes in matter? ● What are chemical changes in matter? 	
Enduring Understandings	
<ul style="list-style-type: none"> ● All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance). ● All matter consists of particles too small to be seen with the naked eye. ● Matter changes in reversible and irreversible ways. 	

Hillsborough Township Public Schools
Grade 5 Science Curriculum

NJ Standards/NGSS Performance Expectations Taught and Assessed
Students who demonstrate understanding can:

- 5-PS1-1 Develop a model to describe that matter is made of particles too small to be seen.
- 5-PS1-2 Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- 5-PS1-3 Make observations and measurements to identify materials based on their properties.
- 5-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances.
- 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.

3-Dimensional Learning Components

Science and Engineering Practices	Disciplinary Core Ideas (DCI)	Crosscutting Concepts
<p>Developing and Using Models</p> <ul style="list-style-type: none"> ● Use models to describe phenomena. (5-PS1-1) <p>Using Mathematics and Computational Thinking</p> <ul style="list-style-type: none"> ● Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2) <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> ● Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (5-PS1-3) ● Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4) 	<p>PS1.A: Structure and Properties of Matter</p> <ul style="list-style-type: none"> ● Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (5-PS1-1) <p>PS1.B: Chemical Reactions</p> <ul style="list-style-type: none"> ● No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2) ● When two or more different substances are mixed, a new substance with different 	<p>Scale, Proportion, and Quantity</p> <ul style="list-style-type: none"> ● Natural objects exist from the very small to the immensely large. ● Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. <p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</p> <ul style="list-style-type: none"> ● Science assumes consistent patterns in natural systems. <p>Cause and Effect</p> <ul style="list-style-type: none"> ● Cause and effect relationships are routinely identified and used to explain change.

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

properties may be formed. (5-PS1-4)

Interdisciplinary Connections: Math, ELA, and Computer Science and Design Thinking

Math

- MP.2 Reason abstractly and quantitatively. (5-LS1-1)
- MP.4 Model with mathematics. (5-LS1-1)
- MP.5 Use appropriate tools strategically. (5-LS1-1)
- 5.MD.A.1 Convert among different sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. (5-LS1-1)
- 5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (5-PS1-1)
- 5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. (5-PS1-1)
- 5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. (5-PS1-1)

ELA

- RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS1-1)
- W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (5-PS1-2), (5-PS1-3), (5-PS1-4)
- W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-PS1-2), (5-PS1-3), (5-PS1-4)
- W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (5-PS1-2), (5-PS1-3), (5-PS1-4)
- RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-LS1-1)
- RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-LS1-1)
- W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-LS1-1)

Computer Science and Design Thinking

- 8.1.5.DA.1 Collect, organize, and display data in order to highlight relationships or support a claim.
- 8.1.5.DA.3 Organize and present collected data visually to communicate insights gained from different views of the data.
- 8.1.5.DA.5 Propose cause and effect relationships, predict outcomes, or communicate ideas using data.
- 8.2.5.ED.2 Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
- 8.2.5.ED.3 Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Career Readiness, Life Literacies, and Key Skills

Hillsborough Township Public Schools
Grade 5 Science Curriculum

- 9.3.ST.2 Use technology to acquire, manipulate, analyze and report data.
- 9.3.ST.3 Describe and follow safety, health and environmental standards related to science, technology, engineering and mathematics (STEM) workplaces.
- 9.3.ST-ET.2 Display and communicate STEM information.
- 9.3.ST-ET.3 Apply processes and concepts for the use of technological tools in STEM.
- 9.3.ST-SM.2 Apply science and mathematics concepts to the development of plans, processes, and projects that address real world problems.

Social-Emotional Learning Competencies

- **Self-Awareness**
 - Recognize the importance of self-confidence in handling daily tasks and challenges.
- **Self-Management**
 - Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals.
- **Social Awareness**
 - Demonstrate an understanding of the need for mutual respect when viewpoints differ.
 - Recognize and identify the thoughts, feelings, and perspectives of others.
 - Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds.
- **Responsible Decision Making**
 - Develop, implement, and model effective problem solving and critical thinking skills.
- **Relationship Skills**
 - Establish and maintain healthy relationships.
 - Utilize positive communication and social skills to interact effectively with others.
 - Demonstrate the ability to prevent and resolve interpersonal conflicts in constructive ways.
 - Identify ways to resist inappropriate social pressure.
 - Identify who, when, where, or how to seek help for oneself or others when needed.

Learning Targets	Investigations/Resources	Formative Assessment
<p>How do we measure objects?</p> <ul style="list-style-type: none"> ● Predict whether an object is heavier or lighter than an informal standard. ● Compare the weights of objects in order to determine each object's correct position in a sequence. 	<p>Define weight/mass and explain how we can compare the weights of different objects.</p> <p>Use different instruments to measure weight and explore how a double pan balance has an approximate weight versus the digital scale is more precise. Weights</p>	<p>Whole-class discussion and journaling and Optional Exit Slip or Practice free response.</p>

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

<ul style="list-style-type: none"> Use standard metric weights to measure the weight of objects on a double pan balance and digital scale 		
<p>What is Matter?</p> <ul style="list-style-type: none"> Define matter and demonstrate that matter is made up of invisible particles that have weight and take up space. Explore a simplified model of the basic building blocks of matter. 	<p>Understand that we use senses to detect matter and that we only see substances when tiny particles are close together (liquid and solid).</p> <p>Investigate what happens when a liquid substance and solid substance are mixed together and bubbles are produced in a closed and open system.</p> <p>Use an inflatable ball to demonstrate that when air is released overtime, the weight of the ball will also decrease.</p> <p>Develop an understanding of matter moving between open and closed systems (like balloons, basketball, and bike tires).</p> <p>Connect that tiny particles are too small to see and we can use solid objects, like ping pong balls, to knock over styrofoam cups resulting in similar observations to an air cannon knocking over the same styrofoam cups.</p> <p>Develop a model to show how air, a gas, is matter to support that air, a gas, fits the definition of matter (include arrows and words).</p> <p>Using basic building block manipulatives to understand that the structure of tiny particles follows a particular set of rules. Discuss that the same materials in different configurations result in a different product while connecting this concept to</p>	<p>Results from Investigations Summary Packet</p> <p>Discuss real world applications that model air, a gas (Example: Deflated basketball)</p>

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

	the periodic table of elements.	
<p>How can matter change between states?</p> <ul style="list-style-type: none"> ● Describe the characteristics of the three states of matter. ● Plan and carry out an investigations to test whether water in its three states has the same amount of “stuff” (mass). 	<p>Explore different properties of the three states of matter by observing water change between a solid, liquid, and gas.</p> <p>Observe how energy, or heat, changes the properties, or behavior, of water under different circumstances by measuring weight before and after each investigation.</p> <p>Apply how a closed system or an open system might influence the weight of a substance, like water, in different scenarios.</p> <p>Clearly define observable properties of water as a solid, liquid, and gas using visual, verbal, and kinesthetic models.</p> <p>Why Does Matter Matter?</p>	<p>States of Matter Entrance Slip</p> <p>States of Matter Exit Slip</p> <p>Model particles</p> <p>Kinesthetic movements to model states of matter</p>
<p>How do we test properties of matter?</p> <ul style="list-style-type: none"> ● Describe materials as opaque, translucent, or transparent. ● Assess the capacity of various materials to conduct heat. ● Assess the capacity of various materials to conduct electricity. ● Describe the interactions of magnets with various materials. ● Describe the interactions of matter with electric charges. ● Collaborate with group members to carry out an investigation. 	<p>Define different properties of various kinds of matter using a light kit, heat conductivity tester, circuit conductivity tester, magnetic kit, and electrostatic kit.</p> <p>Investigate light properties using a laser and observe how light can be reflected, pass easily through an object (transparent), partially pass through an object (translucent), or not at all (opaque).</p> <p>Define what materials let heat pass through easily or not easily.</p> <p>Investigate which materials let an electrical current</p>	<p>Sample Properties of Matter Open Response</p> <p>Sorting properties worksheet</p> <p>Results/reflection and discussion from the Investigations</p>

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

	<p>pass through easily or not easily using a circuit tester.</p> <p>Using a clear rod with silk to investigate positive and negative charges.</p> <p>Investigate how we can recognize a material by knowing its properties. Properties Article and Investigations</p>	
<p>How can matter change?</p> <ul style="list-style-type: none"> ● Describe physical changes of matter. ● Describe chemical changes of matter. 	<p>Generate a list of examples where matter changes to discuss whether an object is physically changing or chemically changing.</p> <p>Investigate, analyze, and report physical changes like changing ice into water on a hot plate, molding modeling clay, separating ironing filings from baking soda using a magnet. Use a digital scale to focus on the weight of items to document any changes.</p> <p>Predict interactions on what change might occur when water and sand are combined together.</p> <p>Investigate, analyze, and report chemical changes in closed systems like mixing vegetable oil, water, and soap, baking soda and vinegar. (Sample Investigation)</p> <p>Model, using basic building blocks of matter, what is happening between a physical and chemical change before and after a physical or chemical change.</p> <p>Determine whether a change is either physical or</p>	<p>Results/reflection and discussion from the Investigations</p> <p>Can Matter Change?</p>

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

	<p>chemical using evidence based on observable interactions. For example, take sodium polyacrylate and water (fake snow) and introduce salt into the mixture.</p>	
<p>Instructional Modifications and/or Accommodations (ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate</p>		
<ul style="list-style-type: none"> ● Read articles and/or directions to students to help with comprehension ● Teacher provided scaffolding for designing investigations, one-on-one or in small groups ● Provide access to anchor charts and classroom labels relevant to science concepts ● Scribe for students or allow students to use talk-to-text feature on Chromebooks when responding to questions ● Provide access to articles and books further exploring the topic of study ● Any other modification as per student IEP or 504 plan 		
<p>Common Assessment(s)</p>	<p>Assessment Modifications and/or Accommodations (ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate</p>	
<ul style="list-style-type: none"> ● Small Particles Assessment ● Changes in Matter Assessment 	<ul style="list-style-type: none"> ● Provide modifications per IEPs, Word Bank ● Extended time, scribe, speech to text, challenge questions ● Specific accommodations/modifications per a student's IEP or 504 plan 	

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

Unit Title	Time Frame/Pacing
Matter and Energy in Organisms and Ecosystems	11 weeks
Phenomena/Anchoring Activity/Anchoring Question/Essential Questions	
<p><u>Anchoring Phenomena:</u> Life Inside a Dome</p> <p><u>Phenomena:</u> Pythons ruining natural food chain</p> <p>What plants need to grow?</p> <p>Worm poop Mound Mystery</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> ● How does interdependency affect an ecosystem? ● How do plants use photosynthesis for growth and development? ● What are the characteristics of a food web? ● How can you show relationships in a food web? ● What role(s) do decomposers play in an ecosystem? ● How do limiting factors affect an ecosystem? ● How can we model factors in an ecosystem? ● What adaptations and behavioral adaptations are specific to owls that enable them to obtain nutrients to survive in their habitat? ● How can you identify an owl's place in a food web using an owl pellet? ● What are the roles of worms in an ecosystem? ● What adaptations and behavioral adaptations are specific to worms that enable them to obtain nutrients to survive in their habitat? ● How is the composting process essential to an ecosystem? 	
Enduring Understandings	
<ul style="list-style-type: none"> ● Energy flows and matter recycles through an ecosystem. ● Adaptations and behaviors help a species survive in their specific ecosystem. ● Plants and animals coexist interdependently for the sustainability of an ecosystem. 	

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

NJ Standards/NGSS Performance Expectations Taught and Assessed
Students who demonstrate understanding can:

- 5-PS3-1 Use models to describe that that energy in animals' food (used motion, and to maintain body warmth) was once energy from the Sun.
- 5-LS1-1 Support an argument that plants get the materials they need for growth chiefly from air and water.
- 5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
- 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.

3-Dimensional Learning Components

Science and Engineering Practices	Disciplinary Core Ideas (DCI)	Crosscutting Concepts
<p>Developing and Using Models</p> <ul style="list-style-type: none"> ● Use models to describe phenomena. (5-LS2-1), (5-PS3-1) <p>Engaging in Argument from Evidence</p> <ul style="list-style-type: none"> ● Support an argument with evidence, data, or a model. (5-LS1-1) <p>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</p> <ul style="list-style-type: none"> ● Science explanations describe the mechanisms for natural events. (5-LS2-1) 	<p>PS3.D: Energy in Chemical Processes and Everyday Life</p> <ul style="list-style-type: none"> ● The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) <p>LS1.C: Organization for Matter and Energy Flow in Organisms</p> <ul style="list-style-type: none"> ● Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (<i>secondary to 5-PS3-1</i>) <p>LS1.C: Organization for Matter and Energy Flow in Organisms</p> <ul style="list-style-type: none"> ● Plants acquire their material for growth chiefly from air and water. (5-LS1-1) <p>LS2.A: Interdependent Relationships in Ecosystems</p>	<p>Energy and Matter</p> <ul style="list-style-type: none"> ● Energy can be transferred in various ways and between objects. <p>Energy and Matter</p> <ul style="list-style-type: none"> ● Matter is transported into, out of, and within systems. <p>Systems and System Models</p> <ul style="list-style-type: none"> ● A system can be described in terms of its components and their interactions.

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

- The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

LS2.B: Cycles of Matter and Energy Transfer in Ecosystems

- Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)

Interdisciplinary Connections: Math, ELA, and Computer Science and Design Thinking

Math

- MP.2 Reason abstractly and quantitatively. (5-ESS2-1), (5-ESS2-2)
- MP.4 Model with mathematics. (5-ESS2-1), (5-ESS2-2)

Hillsborough Township Public Schools
Grade 5 Science Curriculum

- 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS2-1)

ELA

- RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5- PS3-1)
- RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-LS1-1)
- SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-PS3-1), (5- ESS2-1), (5-ESS2-2)
- W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS2-2)

Computer Science and Design Thinking

- 8.2.5.C.1 Collaborate with peers to illustrate components of a designed system.
- 8.2.5.B.1 Examine ethical considerations in the development and production of a product through its life cycle.
- 8.2.5.D.3 Follow step by step directions to assemble a product or solve a problem.
- 8.2.5.D.5 Describe how resources such as material, energy, information, time, tools, people and capital are used in products or systems.
- 8.2.5.D.6 Explain the positive and negative effect of products and systems on humans, other species and the environment, and when the product or system should be used.
- 8.2.5.D.7 Explain the impact that resources such as energy and materials used in a process to produce products or systems have on the environment.

Career Readiness, Life Literacies, and Key Skills

- 9.3.ST.1 Apply engineering skills in a project that requires project management, process control and quality assurance.
- 9.3.ST.3 Describe and follow safety, health and environmental standards related to science, technology, engineering and mathematics (STEM) workplaces.
- 9.3.ST-SM.4 Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.
- 9.3.ST-SM.2 Apply science and mathematics concepts to the development of plans, processes, and projects that address real world problems.

Social-Emotional Learning Competencies

- **Self-Awareness**
 - Recognize the importance of self-confidence in handling daily tasks and challenges.
- **Self-Management**
 - Recognize the skills needed to establish and achieve educational and personal goals.

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

- **Social Awareness**
 - Recognize and identify the thoughts, feelings, and perspectives of others.
- **Responsible Decision Making**
 - Develop, implement, and model effective problem solving and critical thinking skills.
- **Relationship Skills**
 - Establish and maintain healthy relationships.
 - Utilize positive communication and social skills to interact effectively with others.
 - Demonstrate the ability to prevent and resolve interpersonal conflicts in constructive ways.
 - Identify who, when, where, or how to seek help for oneself or others when needed.

Learning Targets	Investigations/Resources	Formative Assessment
<p>Food Webs and Energy</p> <ul style="list-style-type: none"> ● Explain how the members of any food chain or food web are connected to, or dependent upon, each other. ● Differentiate between and explain the roles of producers, consumers, herbivores, carnivores, omnivores, and decomposers. ● Construct a food web that correctly shows the relationship between the sun, producers, consumers, and decomposer. ● Demonstrate an understanding of the transfer of energy within food webs. 	<p>Complete sorting activity to identify and label relationships between organisms (Example: animal sort cards). Animal Sort Cards</p> <p>Review articles/videos/resources about interdependency and limiting factors for the survival, growth, and reproduction of species. Interdependency Article Limiting Factors Game</p> <p>Group discussion about flow of energy through ecosystems and interdependency.</p> <p>Use food web diagrams and models to show flow of energy and complexity of food webs and that food is energy for the survival of organisms.</p> <p>Review article/video/resource about the process of photosynthesis and plants need water and air for growth. Photosynthesis Article + Model</p> <p>Review key terms of photosynthesis and that this is</p>	<p>Draw a model of the key ingredients of photosynthesis to demonstrate understanding of the process.</p> <p>Use the food web provided to explain how living things use energy from the sun.</p> <p>Analyze food chain and food web.</p>

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

	<p>the main process that is crucial for the success of all other species.</p> <p>Use modeling/experiments to demonstrate understanding of photosynthesis ingredients and process (ie. Draw a model of the key ingredients of photosynthesis to demonstrate understanding of the process, use live plants to conduct experiments to show how sunlight affects plant growth, etc.). Photosynthesis Experiment</p>	
<p>Owl Pellets</p> <ul style="list-style-type: none"> ● Describe adaptations specific to owls that enable them to obtain food. ● Sequence the steps in the process of owl pellet formation. ● Demonstrate an understanding of the transfer of energy within food webs by constructing a food web that correctly shows the relationships between owls as tertiary consumers, secondary consumers, primary consumers, and producers. 	<p>Dissect, observe, organize, and compare the contents of several owl pellets.</p> <p>Owl Pellet Dissection Journal</p> <p>Create an example food chain based on the contents of the owl pellet that supports how all animals rely on plants for survival.</p> <p>Draw conclusions about where in the food chain an owl falls and that all matter cycles through organisms and returns back as waste (solid, liquid, and gas).</p>	<p>Class discussion about owl pellets</p>
<p>Instructional Modifications and/or Accommodations (ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate</p>		
<ul style="list-style-type: none"> ● Read articles and/or directions to students to help with comprehension ● Teacher provided scaffolding for designing investigations, one-on-one or in small groups ● Provide access to anchor charts and classroom labels relevant to science concepts ● Scribe for students or allow students to use talk-to-text feature on Chromebooks when responding to questions ● Provide access to articles and books further exploring the topic of study ● Any other modification as per student IEP or 504 plan 		
<p>Common Assessment(s)</p>	<p>Assessment Modifications and/or Accommodations</p>	

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

	(ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate
<ul style="list-style-type: none">● Photosynthesis CA● Food Webs & Energy Common Assessment	<ul style="list-style-type: none">● Provide modifications per IEPs, Word Bank● Extended time, scribe, speech to text, challenge questions● Specific accommodations/modifications per a student's IEP or 504 plan

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

Unit Title	Time Frame/Pacing
Part 1: Earth Surface Processes	14 weeks
Phenomena/Anchoring Activity/Anchoring Question/Essential Questions	
<p><u>Anchoring Phenomena:</u> Dust Bowl Disaster</p> <p><u>Phenomena:</u> Solid Ice - Lake Baikal, Russia (picture at the bottom)</p> <p>Fire burning in space</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> ● How does defining a system explain the relationships between systems on Earth? ● What is the difference between static and dynamic systems? ● What are the characteristics of Earth's four main systems? ● How do Earth's systems interact? ● How can Earth systems be further observed at a local study site? ● Why is the hydrosphere crucial to sustaining life on Earth? ● How can we represent the distribution of water on Earth? ● How can we develop a research topic centered on the interaction of the hydrosphere with one of the other Earth's systems using a collection of nonfiction text and resources? ● How do models communicate information? ● What are Earth's material resources? ● What are Earth's energy resources? ● How do humans impact Earth's systems? ● How can we promote human responsibility for resource protection? 	
Enduring Understandings	
<ul style="list-style-type: none"> ● The Earth is made up of systems that are constantly interacting and changing. ● Research and observation uncover patterns, enabling predictions of how future systems interact. 	
NJ Standards/NGSS Performance Expectations Taught and Assessed	

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

Students who demonstrate understanding can:

- 5-ESS2-1 Develop a model using an example to describe the ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
- 5-ESS2-2 Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.
- 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect Earth’s resources, environment {,caused the rise in global temperatures} and address climate change issues.
- 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-Dimensional Learning Components

Science and Engineering Practices	Disciplinary Core Ideas (DCI)	Crosscutting Concepts
<p>Developing and Using Models</p> <ul style="list-style-type: none"> ● Develop a model using an example to describe a scientific principle. (5-ESS2-1) <p>Using Mathematics and Computational Thinking</p> <ul style="list-style-type: none"> ● Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2-2) <p>Obtaining, Evaluating, and Communicating Information</p> <ul style="list-style-type: none"> ● Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1) 	<p>ESS2.A: Earth Materials and Systems</p> <ul style="list-style-type: none"> ● Earth’s major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth’s surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1) <p>ESS2.C: The Roles of Water in Earth’s Surface Processes</p> <ul style="list-style-type: none"> ● Nearly all of Earth’s available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2) 	<p>Systems and System Models</p> <ul style="list-style-type: none"> ● A system can be described in terms of its components and their interactions. <p>Scale, Proportion, and Quantity</p> <ul style="list-style-type: none"> ● Standard units are used to measure and describe physical quantities such as weight and volume. <p>Science Addresses Questions About the Natural and Material World.</p> <ul style="list-style-type: none"> ● Science findings are limited to questions that can be answered with empirical evidence.

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

ESS3.C: Human Impacts on Earth Systems

- Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)

Interdisciplinary Connections: Math, ELA, and Computer Science and Design Thinking

Math

- MP.2 Reason abstractly and quantitatively. (5-ESS2-1), (5-ESS2-2)
- MP.4 Model with mathematics. (5-ESS2-1), (5-ESS2-2)
- 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS2-1)

ELA

- RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS3-1)
- RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-LS1-1)
- SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-PS3-1), (5-ESS2-1), (5-ESS2-2)
- W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS2-2)

Computer Science and Design Thinking

- 8.2.5.A.2 Investigate and present factors that influence the development and function of a product and a system.
- 8.2.5.A.3 Investigate and present factors that influence the development and function of products and systems, e.g., resources, criteria and constraints.
- 8.2.5.B.2 Examine systems used for recycling and recommend simplification of the systems and share with product developers.
- 8.2.5.C.5 Explain the functions of a system and subsystems.
- 8.2.5.D.3 Follow step by step directions to assemble a problem.
- 8.2.5.D.4 Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.
- 8.2.5.D.6 Explain the positive and negative effect of products and systems on humans, other species and the environment, and when the product or system should be used. product or solve.

Hillsborough Township Public Schools
Grade 5 Science Curriculum

- 8.2.5.D.7 Explain the impact that resources such as energy and materials used in a process to produce products or systems have on the environment.

Career Readiness, Life Literacies, and Key Skills

- 9.3.ST.2 Use technology to acquire, manipulate, analyze and report data.
- 9.3.ST-ET.6 Apply the knowledge learned in the study of STEM to provide solutions to human and societal problems in an ethical and legal manner.
- 9.3.ST-SM.2 Apply science and mathematics concepts to the development of plans, processes and projects that address real world problems.
- 9.3.ST-SM.4 Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.

Social-Emotional Learning Competencies

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

Learning Targets

Investigations/Resources

Formative Assessment

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

<p>What is a system?</p> <ul style="list-style-type: none"> ● Define what a system is, and explain the connection between its parts (components) and their interactions. ● Compare examples of static and dynamic systems. ● Understand that systems occur on both a small (everyday) and large (global) scale. ● Review ecosystems and biomes and their relationship to the hydrosphere, biosphere, geosphere, and atmosphere. 	<p>Discuss how parts of how a system works together.</p> <p>Explore how systems work with real world examples using pictures or other resources.</p> <p>Read the story “Parts of the House Argue” to show how all things work as a system to be a whole.</p>	<p>Entrance Slip Is it a system?</p> <p>Groups of students will answer: In what ways is an athletic team a system? What is the function of the system? What are the components of the system? How do the components work?</p> <p>Students make a chart on chart paper and present - Oral questioning</p>
<p>Earth Systems (Spheres)</p> <ul style="list-style-type: none"> ● Identify characteristics of each of Earth’s systems (spheres). ● Give examples of interactions between spheres. ● Explain the importance of the hydrosphere and the distribution of Earth’s water. ● Comprehend and respond to nonfiction reading texts. 	<p>Understand the concept of a “system” as it applies to Earth.</p> <p>Describe how there are many parts that make up the Earth (abiotic and biotic factors).</p> <p>Identify the four spheres of the Earth system and components in each sphere using pictures.</p> <p>Use a photo model to find interactions between spheres.</p> <p>Virtual Field Trip</p>	<p>Classify components of Earth’s features as land, water, air, and living things.</p> <p>Local sphere Observation</p> <p>Earth's System Photo Observation</p> <p>Earth Sphere Interaction - Photo</p>
<p>The Hydrosphere</p> <ul style="list-style-type: none"> ● Graph the distribution of water on Earth. ● Develop a research topic centered on the interaction of the hydrosphere with one of the Earth’s other systems. ● Use print and non-print sources to research a topic. 	<p>Exploring the percentages of water on Earth.</p> <p>Develop a graph to show the relative amounts of salt and fresh water in each of the following: oceans, glaciers and polar ice caps, groundwater, lakes, rivers, wetlands, and the atmosphere.</p> <p>Use various examples to model percentages of</p>	<p>Class discussion about salt and fresh water percentages on Earth</p> <p>Connecting Hydrosphere Using Models</p>

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

<ul style="list-style-type: none"> Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. 	<p>water on Earth.</p>	
<p>Sphere Interactions Project</p> <ul style="list-style-type: none"> Model sphere interactions. Extend the model illustrating Earth's four spheres to represent their interactions. 	<p>Identify and analyze sphere interactions.</p> <p>Conduct research using books and digital resources on sphere interactions.</p> <p>Develop a model (ex: presentation) about Earth systems and their interactions.</p>	<p>Complete a graphic organizer for project</p>
<p>Natural Resources/Human Impact</p> <ul style="list-style-type: none"> Give examples of material and energy resources. Explain how pollution affects Earth systems and interactions between systems. Create a model to understand water treatment. Give examples of ways humans can protect natural resources Comprehend and respond to nonfiction reading texts. 	<p>Identify natural resources using images, videos or other resources.</p> <p>Compare renewable, nonrenewable, and inexhaustible resources.</p> <p>Explore how human activity can influence Earth systems.</p> <p>Plastic Hunt Activity</p>	<p>Entrance Ticket: Earth's Material Resources</p> <p>Exit Slip: Human Impact Cartoon</p>
<p>Instructional Modifications and/or Accommodations (ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate</p>		
<ul style="list-style-type: none"> Read articles and/or directions to students to help with comprehension Teacher provided scaffolding for designing investigations, one-on-one or in small groups Provide access to anchor charts and classroom labels relevant to science concepts Scribe for students or allow students to use talk-to-text feature on Chromebooks when responding to questions Provide access to articles and books further exploring the topic of study Any other modification as per student IEP or 504 plan 		
<p>Common Assessment(s)</p>	<p>Assessment Modifications and/or Accommodations (ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate</p>	

Hillsborough Township Public Schools
Grade 5 Science Curriculum

- Earth's Major Systems Assessment
- Water and Natural Resources Assessment

- Provide modifications per IEPs, Word Bank
- Extended time, scribe, speech to text, challenge questions
- Specific accommodations/modifications per a student's IEP or 504 plan

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

Unit Title	Time Frame/Pacing
Part 2: Space Systems - Stars and the Solar System	5 weeks
Phenomena/Anchoring Activity/Anchoring Question/Essential Questions	
<p><u>Anchoring Phenomena:</u> Star Trails</p> <p><u>Phenomena:</u> Solar Flares Ups. Snow rolled up (picture at the bottom) Phases of the Moon (Different images of the moon at different points)</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> ● When you drop an object why does it move down? ● Does the size of an object make a difference in how quickly it falls? ● How does forward motion affect falling objects? ● Why are ideas constantly developing and changing in science? ● How can you support the idea that brightness of the sun in comparison to other stars is due to their distance from the Earth? ● What predictable patterns result from Earth's rotation and revolution? ● How do shadow patterns give clues about Earth's rotation and revolution? ● How do moon phases indicate the passage of time? ● How do star patterns change with seasons? ● What are the properties of a typical star like the sun? ● Why is the sun seen during the day but other stars are only visible at night? ● What is a light year and why is that measure used as a unit of distance for stars? ● How can we use data to develop a model of the relative distances of ten stars from the Earth? 	
Enduring Understandings	
<p>The Earth is part of a solar system, made up of distinct parts, which have temporal and spatial interrelationships. Earth's gravitational force is an invisible force that is directed down on an object.</p>	

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

NJ Standards/NGSS Performance Expectations Taught and Assessed
Students who demonstrate understanding can:

- 5-PS2-1 Support an argument that the gravitational force exerted by the Earth on objects is directed down.
- 5-ESS1-1 Support an argument that differences in the apparent brightness of the Sun compared to other stars is due to their relative distances from the Earth.
- 5-ESS1-2 Represent data in graphical displays to reveal patterns of daily changes in length and directions of shadows, day and night, and the seasonal appearance.
- 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-Dimensional Learning Components

Science and Engineering Practices	Disciplinary Core Ideas (DCI)	Crosscutting Concepts
<p>Engaging in Argument from Evidence</p> <ul style="list-style-type: none"> ● Support an argument with evidence, data, or a model. (5-ESS1-1) <p>Analyzing and Interpreting Data</p> <ul style="list-style-type: none"> ● Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5-ESS1-2) 	<p>PS2.B: Types of Interactions</p> <ul style="list-style-type: none"> ● The gravitational force of Earth acting on an object near Earth’s surface pulls that object toward the planet’s center. (5-PS2-1) <p>ESS1.A: The Universe and its Stars</p> <ul style="list-style-type: none"> ● The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1) <p>ESS1.B: Earth and the Solar System</p> <ul style="list-style-type: none"> ● The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the 	<p>Cause and Effect</p> <ul style="list-style-type: none"> ● Cause and effect relationships are routinely identified and used to explain change. <p>Scale, Proportion, and Quantity</p> <ul style="list-style-type: none"> ● Natural objects exist from the very small to the immensely large. <p>Patterns</p> <ul style="list-style-type: none"> ● Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena

Hillsborough Township Public Schools
Grade 5 Science Curriculum

day, month, and year. (5-ESS1-2)

Interdisciplinary Connections: Math, ELA, and Computer Science and Design Thinking

Math

- MP.2 Reason abstractly and quantitatively. (5-ESS1-1), (5-ESS1-2)
- MP.4 Model with mathematics. (5-ESS1-1), (5-ESS1-2)
- 5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5-ESS1-1)
- 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS1-2)

ELA

- RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-ESS1-1)
- RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.(5-ESS1-1)
- RI.5.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). (5-ESS1-1)
- RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-ESS1-1)
- W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-ESS1-1)
- SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-ESS1-2)

Computer Science and Design Thinking

- 8.2.5.C.1 Collaborate with peers to illustrate components of a designed system.
- 8.2.5.C.5 Explain the functions of a system and subsystems.
- 8.2.5.D.4 Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.

Career Readiness, Life Literacies, and Key Skills

- 9.3.ST-ET.1 Use STEM concepts and processes to solve problems involving design and/or production.
- 9.3.ST-ET.4 Apply the elements of the design process.
- 9.3.ST-SM.4 Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.

Social-Emotional Learning Competencies

Hillsborough Township Public Schools
Grade 5 Science Curriculum

- **Self-Awareness**
 - Recognize one’s feelings and thoughts.
- **Self-Management**
 - Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one’s goals.
- **Social Awareness**
 - Recognize and identify the thoughts, feelings, and perspectives of others.
 - Demonstrate an awareness of the expectations for social interactions.
 - Demonstrate an awareness of the differences among individuals, groups, and others’ cultural backgrounds.
- **Responsible Decision Making**
 - Develop, implement, and model effective problem solving and critical thinking skills.
 - Identify the consequences associated with one’s actions in order to make constructive choices.
- **Relationship Skills**
 - Establish and maintain healthy relationships.
 - Utilize positive communication and social skills to interact effectively with others.
 - Demonstrate the ability to prevent and resolve interpersonal conflicts in constructive ways.
 - Identify ways to resist inappropriate social pressure.
 - Identify who, when, where, or how to seek help for oneself or others when needed.

Learning Targets	Investigations/Resources	Formative Assessment
<p>Which Way is Down?</p> <ul style="list-style-type: none"> ● Sketch a picture to illustrate their initial understanding of gravity. ● Plan and carry out a series of experiments to address misconceptions about gravity. ● Revise their mental model of how gravity works based on evidence. ● Cite examples of how scientific thinking changes as a result of experiments. ● Sketch a second picture to demonstrate their new understanding of how gravity works. ● Support an argument that the gravitational force exerted by Earth on objects is directed down. 	<p>Generate a list of known ideas of gravity to review to investigate and uncover misconceptions. For example, is gravity the same in the United States and Australia?</p> <p>Investigate which direction objects fall when dropped.</p> <p>Perform investigations with various materials (ex. Paper, clay, books.) to determine that regardless of size and weight, objects fall down at the same time. Gravity/Air Resistance Investigation Packet</p> <p>Understand that gravity is a force that pulls objects towards the center of Earth and air resistance is a force that pushes against gravity.</p>	<p>Write and draw a model of falling objects in different places on Earth.</p> <p>Open Response Falling Objects (S)</p> <p>Write a paragraph that compares your initial understanding of gravity at the beginning of this lesson and your understanding of gravity now. Use evidence from experiments or history to illustrate your current understanding of gravity.</p>

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

	<p>Read, watch videos, and compare different sources to support how experiments can support or disprove claims.</p> <p>Feather vs Bowling Ball</p>	
<p>Our Sun the Star!</p> <ul style="list-style-type: none"> Describe the characteristics of our sun as a star that is similar to other stars. Explain why our sun appears to be larger in size than other stars (relative distance). Explain how a star’s distance, size, and temperature affect its magnitude. Associate the color of stars with their relative temperature and brightness. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. 	<p>Compare our sun to other stars in the sky by understanding that objects closer to the eye appear bigger and brighter than objects further away.</p> <p>Understand that there are specific properties that are evidence of why our sun appears bigger and brighter than other stars. For example, the color, the size, and the distance. Stars Article</p>	<p>Perceptive picture summary</p> <p>Individual perspective picture</p>
<p>Predictable Patterns</p> <ul style="list-style-type: none"> Explain and model the connections between day/night, seasonal patterns, and Earth’s rotation and revolution. Use newspapers, digital resources, and actual sky observations to gather and record data about sunrise/sunset times, shadows, constellations, and moon phases. Demonstrate understanding the length and direction of shadows in daily and seasonal patterns. 	<p>Gather data to determine the observable patterns are caused by Earth’s rotation and revolution around the sun. For example, day/night, seasons, shadows, moon phases, constellations. Patterns Article</p>	<p>Kinesthetic movement for patterns (day/night, year, moon phases)</p> <p>Written response of why we have day and night.</p> <p>Models- seasons, day/night and moon phases</p>
<p>Instructional Modifications and/or Accommodations (ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate</p>		

**Hillsborough Township Public Schools
Grade 5 Science Curriculum**

<ul style="list-style-type: none"> ● Read articles and/or directions to students to help with comprehension ● Teacher provided scaffolding for designing investigations, one-on-one or in small groups ● Provide access to anchor charts and classroom labels relevant to science concepts ● Scribe for students or allow students to use talk-to-text feature on Chromebooks when responding to questions ● Provide access to articles and books further exploring the topic of study ● Any other modification as per student IEP or 504 plan 	
Common Assessment(s)	Assessment Modifications and/or Accommodations (ELL, Special Education, Gifted, At-Risk of Failure, 504) When Appropriate
<ul style="list-style-type: none"> ● Gravity Assessment ● Sun and Earth's Pattern's Assessment 	<ul style="list-style-type: none"> ● Provide modifications per IEPs, Word Bank ● Extended time, scribe, speech to text, challenge questions ● Specific accommodations/modifications per a student's IEP or 504 plan