

2022 - 2023, First Grade, Science, Quarter 1

Big Ideas/Key Concepts:	
<ul style="list-style-type: none"> ● Plants have form and function which can be related to their parts. ● Plants have a life cycle with identifiable patterns. ● Changes in a plant’s environment may cause the plant to respond in different ways. ● Science tools can support an investigation when used appropriately. 	
Standards	Student Friendly “I Can” Statements
<p><u>From Molecules to Organisms: Structures and Processes</u></p> <p>1.LS1.1 Recognize the structure of plants (roots, stems, leaves, flowers, fruits) and describe the function of the parts (taking in water and air, producing food, making new plants).</p>	<p><u>From Molecules to Organisms: Structures and Processes</u></p> <p>I can ask questions to investigate how the parts of a plant work to meet the plant’s needs.</p> <p>I can identify the parts of a plant: roots, stems, leaves, flowers, fruits.</p> <p>I can connect the parts of a plant (roots, stems, leaves, flowers, fruits) with their function (taking in water and air, producing food, making new plants).</p>
<p>1.LS1.2 Illustrate and summarize the life cycle of plants.</p>	<p>I can create a model which summarizes the life cycle of plants.</p> <p>I can describe patterns and predict changes that happen at each stage of the life cycle of plants.</p>
<p>1.LS1.3 Analyze and interpret data from observations to describe how changes in the environment cause plants to respond in different ways. <i>Note: The focus of this standard is on responses a single plant may have to changes in its environment, not changes to a species over time.</i></p>	<p>I can investigate how changes in the environment cause plants to respond in different ways.</p> <p>I can use the results of an investigation to describe how changes in the environment can cause plants to respond in different ways.</p>

<p><u>Links Among Engineering, Technology, Science, and Society</u></p> <p>1.ETS2.1 Use appropriate tools (magnifying glass, basic balance scale) to make observations and answer testable scientific questions. <i>Note: Activities involving measurement should use relative descriptions such as more or less, closer or farther, etc.</i></p>	<p><u>Links Among Engineering, Technology, Science, and Society</u></p> <p>I can describe how a hand lens helps us make better observations.</p> <p>I can describe how a balance scale helps us compare the weight of two things.</p> <p>I can plan an investigation that uses science tools (magnifying glass, basic balance scale) to make observations and answer testable questions.</p>
<p>Embedded K-8 TN Computer Science Standards:</p> <ul style="list-style-type: none"> ● AIT.1 Identify and define problems and form significant questions for investigation. ● AIT.2 Develop a plan to use technology to find a solution and create projects. ● AIT.6 Collect, organize, analyze, and interpret data to identify solutions and/or make informed decisions. ● DC.1 Advocate, demonstrate, and routinely practice safe, legal, and responsible use of information and technology. 	

2022 - 2023, First Grade, Science, Quarter 2

Big Ideas/Key Concepts:	
<ul style="list-style-type: none"> ● Light and heat energy from our Sun warm Earth’s surface. ● Light is required to make things visible. ● Some objects produce their own light, while other objects reflect light. ● Solve scientific problems by asking testable questions, making observations, and gathering information. ● Objects are transparent, translucent, opaque, and/or reflective. 	
Standards	Student Friendly “I Can” Statements
<p><u>Energy</u></p> <p>1.PS3.1 Make observations to determine how sunlight warms Earth’s surfaces (sand, soil, rocks, and water). <i>Note: Observations about temperature should be limited to relative terms such as ‘feels warmer’ or ‘feels cooler’, in the case of thermometers, whether the ‘red line went up/down’.</i></p>	<p><u>Energy</u></p> <p>I can observe and describe how sunlight warms Earth’s surfaces (sand, soil, rocks, and water).</p> <p>I can compare and contrast the effects of placing an object in direct sunlight and placing it in shade.</p>
<p><u>Waves and Their Application in Technologies for Information Transfer</u></p> <p>1.PS4.1 Use a model to describe how light is required to make objects visible. Summarize how illumination could be from an external light source or by an object giving off its own light. <i>Note: The speed of light and wave properties should not be discussed, merely the idea that light travels in straight paths.</i></p>	<p><u>Waves and Their Application in Technologies for Information Transfer</u></p> <p>I can model and describe how light makes objects visible.</p> <p>I can use evidence to explain that light travels in a straight path.</p> <p>I can compare and contrast light that is reflected off a surface and light that is produced by an object.</p>

<p>1.PS4.2 Determine the effect of placing objects made with different materials (transparent, translucent, opaque, and reflective) in the path of a beam of light.</p> <p><i>Note: The way light scatters off of rough surfaces may be discussed but is not a principle part of this standard.</i></p>	<p>I can investigate how light interacts with a variety of materials to classify them as translucent, transparent, opaque, or reflective.</p> <p>I can carry out an investigation using a beam of light to determine if different surfaces reflect light, absorb light, or let light pass through.</p>
<p><u>Engineering Design</u></p> <p>1.ETS1.1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information.</p> <p><i>Note: The focus of this standard should be on the process of making observations to initially design a solution, instead of spending significant amounts of time actually coming up with a solution. An example could be “How long does it take an ice cream bar to melt?” and students would observe the ice cream bar every 30 minutes.</i></p>	<p><u>Engineering Design</u></p> <p>I can ask testable questions in order to solve a scientific problem.</p> <p>I can make short-term and long-term observations in order to solve a scientific problem.</p> <p>I can gather information in order to solve a scientific problem.</p>
<p>Embedded K-8 TN Computer Science Standards:</p> <ul style="list-style-type: none"> ● AIT.1 Identify and define problems and form significant questions for investigation. ● AIT.2 Develop a plan to use technology to find a solution and create projects. ● DC.1 Advocate, demonstrate, and routinely practice safe, legal, and responsible use of information and technology. ● DC.2 Exhibit a positive mindset toward using technology that supports collaboration, learning, and productivity. ● DC.3 Exhibit leadership for digital citizenship. ● DC.4 Recognize and describe the potential risks and dangers associated with various forms of online communications (e.g., cell phones, social media, digital photos). ● DC.5 Explain responsible uses of technology and digital information; describe possible consequences of inappropriate use such as copyright infringement and piracy. 	

2022 - 2023, First Grade, Science, Quarter 3

Big Ideas/Key Concepts in Quarter 1:	
<ul style="list-style-type: none"> ● Patterns can be observed in the day and night sky. ● Objects in the day and night sky change position. ● Objects in the sky can be observed using a telescope, which provides greater detail of objects in the sky. 	
Standards	Student Friendly “I Can” Statements
<p><u>Earth’s Place in the Universe</u></p> <p>1.ESS1.1 Use observations or models of the sun, moon, and stars to describe patterns that can be predicted. <i>Note: Students should focus on patterns for the shapes of the moon, rather than rote memorization of the names of lunar phases.</i></p>	<p><u>Earth’s Place in the Universe</u></p> <p>I can describe patterns to predict the movement of the sun and moon across the sky.</p> <p>I can use graphs or other models to describe patterns about the sun, moon, and stars.</p>
<p>1.ESS1.2 Observe natural objects in the sky that can be seen from Earth with the naked eye and recognize that a telescope, used as a tool, can provide greater detail of objects in the sky.</p>	<p>I can explain that a telescope lets us see objects in the sky in greater detail.</p> <p>I can compare photos of objects in the sky to determine if a telescope was used.</p>
<p>1.ESS1.3 Analyze data to predict patterns between sunrise and sunset and the change of seasons. <i>Note: In first grade, students should infer that there is some cause for the patterns in their data, but discussions of a mechanism for seasonal changes in daylight hours due to the tilt of the earth’s axis will be addressed in fourth grade.</i></p>	<p>I can collect data about sunrise and sunset times for days in different seasons to determine seasonal patterns.</p> <p>I can predict seasonal patterns between sunrise and sunset based on observations, informational texts, and class discussions.</p> <p>I can use data from simple bar graphs or pictographs to describe patterns of daylight throughout the seasons.</p>

Embedded K-8 TN Computer Science Standards:

- **AIT.6** Collect, organize, analyze, and interpret data to identify solutions and/or make informed decisions.
- **AIT.7** Infer and predict or propose relationships with data.
- **AIT.5** Evaluate the accuracy, relevance, appropriateness, and bias of electronic information sources.

2022 - 2023, First Grade, Science, Quarter 4

Big Ideas/Key Concepts:	
<ul style="list-style-type: none"> ● Plants need air, water, minerals, and light to grow and thrive. ● Plants can be classified by where they grow and the plants' parts. ● Plants depend on their surroundings and other living things to meet their needs. 	
Standards	Student Friendly "I Can" Statements
<p><u>Ecosystems: Interactions, Energy, and Dynamics</u></p> <p>1.LS2.1 Conduct an experiment to show how plants depend on air, water, minerals from soil, and light to grow and thrive. <i>Note: This standard seems very similar to 1.LS1.1. The key difference between these standards is 1.LS1.1 focuses on the structure that plants have to help them survive, while 1.LS2.1 focuses on how the environment provides for the needs of plants.</i></p>	<p><u>Ecosystems: Interactions, Energy, and Dynamics</u></p> <p>I can conduct an experiment to show how plants need air, water, minerals from soil, and light to grow and thrive.</p> <p>I can compare and contrast the results of plants grown with and without the things they need. (air, water, sunlight, soil)</p>
<p>1.LS2.2 Obtain and communicate information to classify plants by where they grow (water, land) and the plant's physical characteristics.</p>	<p>I can use texts to compare and contrast the physical properties of plants that grow on land and plants that grow in water.</p> <p>I can research and classify plants by where they grow (water, land) and the plant's physical properties.</p>
<p>1.LS2.3 Recognize how plants depend on their surroundings and other living things to meet their needs in the places they live.</p>	<p>I can identify the ways plants depend on their surroundings and other living things to meet their needs.</p> <p>I can explain how pollinators are an important part of the life cycle of plants.</p>

Embedded K-8 TN Computer Science Standards:

- **AIT.1** Identify and define problems and form significant questions for investigation.
- **AIT.2** Develop a plan to use technology to find a solution and create projects.