

Standards	Student Friendly "I Can" Statements
<p>5.LS3.2 Provide evidence and analyze data that plants and animals have traits inherited from parents and that variations of these traits exist in a group of similar organisms.</p> <p>Biological Change: Unity and Diversity</p> <p>5.LS4.2 Use evidence to construct an explanation for how variations in characteristics among individuals within the same species may provide advantages to these individuals in their survival and reproduction.</p> <p>5.LS4.1 Analyze and interpret data from fossils to describe types of organisms and their environments that existed long ago. Compare similarities and differences of those to living organisms and their environments. Recognize that most kinds of animals (and plants) that once lived on Earth are now extinct.</p> <p>Earth's Place in the Universe</p>	<p>I can provide evidence through research and direct investigation that plants and animals have traits inherited from parents.</p> <p>I can describe how variations of traits (e.g., height) exist in a group of similar organisms.</p> <p>Biological Change: Unity and Diversity</p> <p>I can use evidence to explain how an individual's physical characteristics may provide survival advantages over other individuals from the same species within an environment (e.g., light vs dark peppered moth populations).</p> <p>I can explain that an animal with advantages in an environment is more likely to reproduce and survive.</p> <p>I can analyze and interpret data from fossils to describe types of organisms and their environments that existed long ago.</p> <p>I can compare similarities and differences of fossils to living organisms and their environments.</p> <p>I can describe that most kinds of animals (and plants) that once lived on Earth are now extinct.</p> <p>Earth's Place in the Universe</p>
<p>5.ESS1.7 Use evidence from the presence and location of fossils to determine the order in which rock strata were formed.</p>	<p>I can determine the order in which rock strata were formed based on evidence from the presence and location of fossils.</p> <p>I can use the presence of fossils to recognize the order of rock strata even if natural forces (e.g., earthquakes, flowing water) cause a shift in the rock strata.</p>

Embedded K-8 TN Computer Science Standards:

- **AIT.5** Evaluate the accuracy, relevance, appropriateness, and bias of electronic information sources.
- **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.
- **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.

2021 - 2022, Fifth Grade, Science, Quarter 2

Big Ideas/Key Concepts:

- Matter can undergo phase changes between a solid, liquid, or gas, and these changes can be explained.
- The Law of Conservation of Mass is explored to demonstrate that matter cannot be lost or regained.
- Two or more substances that are mixed together may result in a mixture with a change of certain properties.
- Different variables affect dissolving solids into liquids; this can be shown through a design process.

Technology has advanced through the years to make what cannot be seen by the naked eye visible.

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<p><u>Matter and Its Interactions</u></p> <p>5.PS1.1 Analyze and interpret data from observations and measurements of the physical properties of matter to explain phase changes between a solid, liquid, or gas.</p> <p>5.PS1.2 Analyze and interpret data to show that the amount of matter is conserved even when it changes form, including transitions where matter seems to vanish.</p> <p>5.PS1.3 Design a process to measure how different variables (temperature, particle size, stirring) affect the rate of dissolving solids into liquids.</p> <p>5.PS1.4 Evaluate the results of an experiment to determine whether the mixing of two or more substances results in a change of properties.</p>	<p><u>Matter and Its Interactions</u></p> <p>I can analyze and interpret data from observations and measurements of the physical properties of matter to explain phase changes between a solid, liquid, or gas.</p> <p>I can understand matter is made up of particles too small to be seen and that matter changes state when physical conditions change, i.e.: when the temperature increases or decreases.</p> <p>I can analyze and interpret data to show matter is conserved even when a change in form takes place, including instances where matter seems to vanish (i.e. Law of Conservation of Mass).</p> <p>I can design a process to measure how temperature, particle size, and/or stirring affect the rate of dissolving solids into liquids.</p> <p>I can investigate and interpret the results of an experiment where two or more substances were mixed together to determine what type of property change(s) took place.</p>

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<p>5.ESS1.4 Explain the cause and effect relationship between the positions of the Sun, Earth, and moon and resulting eclipses, position of constellations, and appearance of the moon.</p> <p>5.ESS1.5 Relate the tilt of the Earth's axis, as it revolves around the Sun, to the varying intensities of sunlight at different latitudes. Evaluate how this causes changes in day-lengths and seasons.</p> <p>5.ESS1.6 Use tools to describe how stars and constellations appear to move from the Earth's perspective throughout the seasons.</p>	<p>I can use a model to explain that the positions of the Earth, moon, and Sun affect what we see in the day and night sky, including the position of constellations.</p> <p>I can model the phases of the moon as a cycle and as a cause and effect relationship between the positions of the Earth, moon, and Sun.</p> <p>I can model solar and lunar eclipses as a cycle and as a cause and effect relationship between the positions of the Earth, moon, and Sun.</p> <p>I can connect the tilt of the Earth's axis as it revolves around the Sun to the amount of sunlight a location receives throughout the year.</p> <p>I can use tools (telescope and star chart) to describe how stars and constellations appear to move from our perspective throughout the year.</p>
<p><u>Links Among Engineering, Technology, Science, and Society</u></p> <p>5.ETS2.2 Describe how human beings have made tools and machines (x-ray cameras, microscopes, satellites, computers) to observe and do things that they could not otherwise sense or do at all, or as quickly or efficiently.</p> <p>5.ETS2.3 Identify how scientific discoveries lead to new and improved technologies.</p>	<p><u>Links Among Engineering, Technology, Science, and Society</u></p> <p>I can describe how tools, technology, and inventions are always being developed to help answer new questions and solve problems more quickly or efficiently.</p> <p>I can create a chart showing how scientific discoveries have led to new and improved technologies.</p>

Embedded K-8 TN Computer Science Standards:

- **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.

2021 - 2022, Fifth Grade, Science, Quarter 4

Big Ideas/Key Concepts:

- Both balanced and unbalanced forces affect the motion of objects.
- Using the engineering design process, students can design a solution for a problem involving forces and interactions.
- Using simple hand and measuring tools, a prototype of a solution can be constructed, tested to discover a point of failure, and revised with that failure point in mind to improve its overall effectiveness.
- On Earth, the force of gravity is directed towards the Earth’s center.
- Gravity interacts with mass and distance; these can be analyzed.
- The nervous and digestive systems have unique functions within the human body that contribute to health. (WCS Standards)

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<p><u>Motion and Stability: Forces and Interactions</u></p> <p>5.PS2.1 Test the effects of balanced and unbalanced forces on the speed and direction of motion of objects.</p> <p>5.PS2.2 Make observations and measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.</p> <p>5.PS2.3 Use evidence to support that the gravitational force exerted by Earth on objects is directed toward the Earth’s center.</p> <p>5.PS2.4 Explain the cause and effect relationship of two factors (mass and distance) that affect gravity.</p>	<p><u>Motion and Stability: Forces and Interactions</u></p> <p>I can design and evaluate a test showing the effects of balanced and unbalanced forces on the speed and direction of motion of objects.</p> <p>I can observe and measure an object’s motion to predict future motion.</p> <p>I can analyze data to provide evidence that a pattern can be used to predict future motion.</p> <p>I can use evidence to support the claim that the gravitational pull of Earth is directed toward Earth’s center.</p> <p>I can explain the cause and effect relationship of mass and distance as they relate to gravity.</p>

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<p>5.PS2.5 Explain how forces can create patterns within a system (moving in one direction, shifting back and forth, or moving in cycles), and describe conditions that affect how fast or slowly these patterns occur.</p> <p><u>Engineering Design</u></p> <p>5.ETS1.1 Research, test, retest, and communicate a design to solve a problem.</p> <p>5.ETS1.2 Plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered to identify which elements need to be improved. Apply the results of tests to redesign the prototype.</p> <p>5.ETS1.3 Describe how failure provides valuable information toward finding a solution.</p> <p><u>Links Among Engineering, Technology, Science, and Society</u></p> <p>5.ETS2.1 Use appropriate measuring tools, simple hand tools, and fasteners to construct a prototype of a new or improved technology</p> <p><u>Human Body Systems</u></p> <p>5.WCE.SC.1 Identify the parts of the nervous system and their functions. <i>Introduced after TCAP – this standard is not assessed.</i></p> <p>5.WCE.SC.2 Identify the parts of the digestive system and their functions. <i>Introduced after TCAP – this standard is not assessed.</i></p>	<p>I can model how forces can create patterns within a system, i.e. moving in one direction, shifting back and forth, or moving in cycles.</p> <p>I can use my model to describe conditions affecting how fast or slowly patterns within a system occur.</p> <p><u>Engineering Design</u></p> <p>I can research, test, retest, and communicate a design to solve a problem.</p> <p>I can plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered in order to identify which elements need to be improved.</p> <p>I can apply the results of tests to redesign a prototype.</p> <p>I can through direct investigation show how failure provides valuable information toward finding a solution.</p> <p><u>Links Among Engineering, Technology, Science, and Society</u></p> <p>I can use appropriate measuring tools, simple hand tools, and fasteners to build a prototype of a new or improved technology.</p> <p><u>Human Body Systems</u></p> <p>I can identify the parts of the nervous system (nervous system, brain, spinal cord, neurons) and their functions. I can correctly label a diagram of the nervous system.</p> <p>I can identify the parts of the digestive system (teeth, tongue, throat, esophagus, stomach, large intestine, small intestine) and their functions. I can correctly label a diagram of the digestive system.</p>

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