2022 - 2023, Third Grade, Science, Quarter 1

Big Ideas/Key Concepts:

- **Living things have forms and functions which support survival.**
- **There is a cause and effect relationship between an environment undergoing a natural change and organisms' ability to survive.**
- **Living things, including humans, adapt to their environment and may have their resources affected by an environment.**

Standards	Student Friendly "I Can" Statements
From Molecules to Organisms: Structures and Processes **3.LS1.1** Analyze the internal and external structures that aquatic and land animals and plants have to support survival, growth, behavior, and reproduction.	**From Molecules to Organisms: Structures and Processes** I can research and explain that aquatic and land animals have internal and external parts which perform specific functions (e.g., lungs or gills for breathing, stomach for digesting food, etc.). I can research and explain that aquatic and land plants have internal and external parts which perform specific functions (e.g., leaves absorb energy from sunlight, roots absorb nutrients from soil or water, etc.). I can analyze and describe how an organism's internal and external parts support its survival, growth, behavior, and reproduction.
Ecosystems: Interactions, Energy, and Dynamics **3.LS2.1** Construct an argument to explain why some animals benefit from forming groups.	**Ecosystems: Interactions, Energy, and Dynamics** I can construct an argument to explain why some animals benefit from forming groups (e.g. school of fish or herd of cattle). I can differentiate between animal groups where individuals have similar roles and animal groups where individuals have different roles.

	I can explain why a species might benefit from forming a small group or forming a large group depending on their needs. I can compare different reasons for why animals benefit from forming groups (i.e., obtain food, defend themselves, cope with changes).
Biological Change: Unity and Diversity **3.LS4.1** Explain the cause and effect relationship between a naturally changing environment and an organism's ability to survive.	**Biological Change: Unity and Diversity** I can explain how a naturally changing environment may affect an organism's ability to survive.
3.LS4.2 Infer that plant and animal adaptations help them survive in land and aquatic biomes.	I can research and explain how plant and animal adaptations help them survive in their biomes (land and aquatic).
3.LS4.3 Explain how changes to an environment's biodiversity influence human resources.	I can explain that various types of living things can often be found in a habitable environment. I can explain how human resources are affected by changes to an environment and the living things found in it (e.g., overfishing reduces availability of a food source).
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. ● **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, Third Grade, Science, Quarter 2

Big Ideas/Key Concepts:

- **Planets are classified as inner planets or outer planets according to patterns found in their physical properties.**
- **Matter is made up of particles too small to be seen.**
- **Solids, liquids, and gases have identifiable physical properties.**
- **Heating or cooling matter may cause changes that can be reversed, or changes that cannot be reversed.**
- **Matter has physical properties such as color, texture, shape, length, mass, temperature, volume, state, hardness, and flexibility.**

Standards	Student Friendly "I Can" Statements
Earth's Place in the Universe **3.ESS1.1** Use data to categorize the planets in the solar system as inner or outer planets according to their physical properties.	**Earth's Place in the Universe** I can research data on the planets in the solar system in order to sort them as inner or outer planets based on their physical properties.
Matter and Its Interactions **3.PS1.1** Describe the properties of solids, liquids, and gases and identify that matter is made up of particles too small to be seen.	**Matter and Its Interactions** I can investigate and determine that matter is made up of particles too small to be seen. I can model and describe the properties (e.g. particle movement) of solids, liquids, and gases.
3.PS1.2 Differentiate between changes caused by heating or cooling that can be reversed and that cannot.	I can investigate and explain the difference between changes caused by heating or cooling that can be reversed and those that cannot.
3.PS1.3 Describe and compare the physical properties of matter including color, texture, shape, length, mass, temperature, volume, state, hardness, and flexibility.	I can describe and compare matter by its physical properties including color, texture, shape, length, mass, temperature, volume, state, hardness, and flexibility.

Embedded K-8 TN Computer Science Standards:

- **AIT.1** Identify and define problems and form significant questions for investigation.
- **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.
- **DC.3** Exhibit leadership for digital citizenship.

2021 - 2022, Third Grade, Science, Quarter 3

Big Ideas/Key Concepts:

- **Natural hazards impact humans and the environment, and solutions can be engineered to reduce a hazard's impact.**
- **Design a solution to a real-world problem using the engineering design process.**
- **The water cycle on Earth is a series of events that impacts an environment and follows a repeatable pattern.**
- **Cloud types can be classified and associated with specific weather conditions.**
- **Weather and climate varies throughout different regions on Earth.**

Standards	Student Friendly "I Can" Statements
Earth and Human Activity **3.ESS3.1** Explain how natural hazards (fires, landslides, earthquakes, volcanic eruptions, floods) impact humans and the environment	**Earth and Human Activity** I can research and explain how humans are impacted by natural hazards (fires, landslides, earthquakes, volcanic eruptions, floods). I can research and explain how the environment is impacted by natural hazards (fires, landslides, earthquakes, volcanic eruptions, floods).
3.ESS3.2 Design solutions to reduce the impact of natural hazards (fires, landslides, earthquakes, volcanic eruptions, floods) on the environment.	I can explain that natural hazards are formed by processes which we cannot prevent, but we can design solutions to reduce their impact. I can design a solution to reduce the impact of natural hazards on the environment (fires, landslides, earthquakes, volcanic eruptions, floods). ***Apply the Engineering Design Standards found on the following page***
Engineering Design	**Engineering Design**

3.ETS1.1 Design a solution to a real-world problem that includes specified criteria for constraints.	I can design a solution to a real-world problem including specific criteria for constraints.
3.ETS1.2 Apply evidence or research to support a design solution.	I can apply evidence from research to support a design solution.
<u>Earth's Systems</u> **3.ESS2.1** Explain the cycle of water on Earth.	**<u>Earth's Systems</u>** I can use a model of the water cycle to explain how it is a series of events within a natural system and follows a repeatable pattern.
3.ESS2.2 Associate major cloud types (cumulus, cumulonimbus, cirrus, stratus, and nimbostratus) with weather conditions.	I can identify the form and function of major cloud types (cumulus, cumulonimbus, cirrus, stratus, and nimbostratus). I can associate major cloud types with weather conditions.
3.ESS2.3 Use tables, graphs, and tools to describe precipitation, temperature, and wind (direction and speed) to determine local weather and climate.	I can use appropriate weather tools to analyze local precipitation, temperature, and wind (direction and speed). I can use tables and graphs to interpret the data from weather tools and to describe local weather and climate.
3.ESS2.4 Incorporate weather data to describe major climates (polar, temperate, tropical) in different regions of the world.	I can use weather data to describe major climates (polar, temperate, and tropical) in different regions of the world.
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. ● **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, Third Grade, Science, Quarter 4

Big Ideas/Key Concepts:

- **Magnets have a cause and effect relationship with other magnets and that interaction can be applied to solve a problem.**
- **Use the engineering design process to solve real world problems.**
- **Energy is present when objects move, and can be transferred from one object to another.**
- **Electricity is a form of energy and can be converted to other forms of energy using open or closed simple circuits.**
- **Magnets can affect the position and movement of objects with certain properties, even without touching those objects.**
- **Identify the parts of the respiratory and circulatory systems and their functions within the human body. (WCS Standard)**

Standards	Student Friendly "I Can" Statements
Motion and Stability: Forces and Interactions **3.PS2.1** Explain the cause and effect relationship of magnets.	**Motion and Stability: Forces and Interactions** I can investigate the cause and effect relationship of magnets. I can compare and contrast the strength of different magnets. I can use the evidence gathered from an investigation to explain how changing the distance between magnets affects the forces between them.
3.PS2.2 Solve a problem by applying the use of the interactions between two magnets. *Note: Possible solutions may include creating a latch mechanism, using two magnets to keep surfaces from touching, separating a mixture of different materials, or sorting metals for recycling based on magnetic properties.*	I can ask questions to identify a problem and how magnets could be used to solve it. I can design a solution that involves two magnets interacting with each other.

Energy **3.PS3.1** Recognize that energy is present when objects move; describe the effects of energy transfer from one object to another. *Note: 3rd grade students are only responsible for recognizing qualitative changes in energy.*	**Energy** I can recognize that energy is present when objects move. I can analyze energy transfer during a collision between moving objects. I can make a pie chart or a simple bar graph to show that some of the total energy between the objects is used to produce sound, heat, and/or light (i.e., sparks). I can describe the effects of when energy is transferred from one object to another, including any resulting motion, sound, heat, or light. I can explain that energy can be transferred from place to place by sound, light, heat, and electric currents.
3.PS3.2 Apply scientific ideas to design, test, and refine a device that converts electrical energy to another form of energy, using open or closed simple circuits.	I can explain that an electric current is a form of energy transfer. I can use a model to show how electric energy is converted to another form of energy using open or closed simple circuits. I can design, test, and refine a device using open or closed simple circuits to convert electrical energy to another form of energy.
3.PS3.3 Evaluate how magnets cause changes in the motion and position of objects, even when the objects are not touching the magnet.	I can evaluate how magnets cause changes in the motion and position of objects, even when the objects are not touching the magnet. I can use evidence of magnets causing changes in the motion and position of objects to support the claim that magnets are transferring energy without making contact.

Links Among Engineering, Technology, Science, and Society **3.ETS2.1** Identify and demonstrate how technology can be used for different purposes.	**Links Among Engineering, Technology, Science, and Society** I can identify and demonstrate how technology can be used for different purposes.
Human Body Systems **3.WCE.SC.1** Identify the parts of the respiratory system and their functions. *Introduce after TCAP – this standard is not assessed.*	**Human Body Systems** I can identify and label the parts of the respiratory system (e.g. lungs, trachea, bronchi, and diaphragm). I can explain the functions of the parts of the respiratory system.
3.WCE.SC.2 Identify the parts of the circulatory system and their functions. *Introduce after TCAP – this standard is not assessed.*	I can identify and label the parts of the circulatory system (e.g. heart, blood vessel, artery, vein, capillary, platelets, and plasma). I can explain the functions of the parts of the circulatory system.
3.WCE.SC.3 Identify the parts of the ear and how each part functions in hearing. *Introduce after TCAP – this standard is not assessed.*	I can identify the parts of the ear and how they function together to provide hearing, which includes: the inner ear, the middle ear and the outer ear. I can correctly label a diagram of the ear including the: cochlea, semicircular canal, eardrum, ossicles, Eustachian tube, auricle and ear canal.

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.
- **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.
- **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.