Below is a list of the 2001/06 Grade 3-5 STE standards that will be assessed on the 2017 MCAS Grade 5 STE test. This list of standards is being released because schools and districts are currently transitioning to the standards in the 2016 Massachusetts STE Framework. Schools and districts are at different points of transition, so providing this list identifies standards that may need to be included in instruction.

|  |
| --- |
| **Earth and Space Science** |
| 1. Give a simple explanation of what a mineral is and some examples, e.g., quartz, mica. |
| 2. Identify the physical properties of minerals (hardness, color, luster, cleavage, and streak), and explain how minerals can be tested for these different physical properties. |
| 3. Identify the three categories of rocks (metamorphic, igneous, and sedimentary) based on how they are formed, and explain the natural and physical processes that create these rocks. |
| 4. Explain and give examples of the ways in which soil is formed (the weathering of rock by water and wind and from the decomposition of plant and animal remains). |
| 5. Recognize and discuss the different properties of soil, including color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants. |
| 6. Explain how air temperature, moisture, wind speed and direction, and precipitation make up the weather in a particular place and time. |
| 7. Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time. |
| 9. Differentiate between weather and climate. |
| 10. Describe how water on earth cycles in different forms and in different locations, including underground and in the atmosphere. |
| 11. Give examples of how the cycling of water, both in and out of the atmosphere, has an effect on climate. |
| 12. Give examples of how the surface of the earth changes due to slow processes such as erosion and weathering, and rapid processes such as landslides, volcanic eruptions, and earthquakes. |
| 13. Recognize that the earth is part of a system called the “solar system” that includes the sun (a star), planets, and many moons. The earth is the third planet from the sun in our solar system. |
| 14. Recognize that the earth revolves around (orbits) the sun in a year’s time and that the earth rotates on its axis once approximately every 24 hours. Make connections between the rotation of the earth and day/night, and the apparent movement of the sun, moon, and stars across the sky. |
| **Life Science** |
| 1. Classify plants and animals according to the physical characteristics that they share. |
| 2. Identify the structures in plants (leaves, roots, flowers, stem, bark, wood) that are responsible for food production, support, water transport, reproduction, growth, and protection. |
| 3.  Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death. |
| 4. Describe the major stages that characterize the life cycle of the frog and butterfly as they go through metamorphosis. |
| 5.  Differentiate between observed characteristics of plants and animals that are fully inherited (e.g., color of flower, shape of leaves, color of eyes, number of appendages) and characteristics that are affected by the climate or environment (e.g., browning of leaves due to too much sun, language spoken). |
| 6. Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive, e.g., shape of beak or feet, placement of eyes on head, length of neck, shape of teeth, color. |
| 7. Give examples of how changes in the environment (drought, cold) have caused some plants and animals to die or move to new locations (migration). |
| 8. Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment. Recognize that some animal behaviors are instinctive (e.g., turtles burying their eggs), and others are learned (e.g., humans building fires for warmth, chimpanzees learning how to use tools). |
| 9. Recognize plant behaviors, such as the way seedlings’ stems grow toward light and their roots grow downward in response to gravity. Recognize that many plants and animals can survive harsh environments because of seasonal behaviors, e.g., in winter, some trees shed leaves, some animals hibernate, and other animals migrate. |
| 10. Give examples of how organisms can cause changes in their environment to ensure survival. Explain how some of these changes may affect the ecosystem. |
| 11. Describe how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within a food chain from producers (plants) to consumers to decomposers. |
| **Physical Science** |
| 1. Differentiate between properties of objects (e.g., size, shape, weight) and properties of materials (e.g., color, texture, hardness). |
| 2. Compare and contrast solids, liquids, and gases based on the basic properties of each of these states of matter. |
| 3. Describe how water can be changed from one state to another by adding or taking away heat. |
| 4. Identify the basic forms of energy (light, sound, heat, electrical, and magnetic). Recognize that energy is the ability to cause motion or create change. |
| 5.Give examples of how energy can be transferred from one form to another. |
| 7. Identify and classify objects and materials that conduct electricity and objects and materials that are insulators of electricity. |
| 8.   Explain how electromagnets can be made, and give examples of how they can be used. |
| 10. Identify and classify objects and materials that a magnet will attract and objects and materials that a magnet will not attract. |
| 12. Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed. |
| **Technology/Engineering** |
| 1.1 Identify materials used to accomplish a design task based on a specific property, i.e., weight, strength, hardness, and flexibility. |
| 1.2  Identify and explain the appropriate materials and tools (e.g., hammer, screwdriver, pliers, tape measure, screws, nails, and other mechanical fasteners) to construct a given prototype safely. |
| 2.2  Describe different ways in which a problem can be represented, e.g., sketches, diagrams, graphic organizers, and lists. |
| 2.3 Identify relevant design features (e.g., size, shape, weight) for building a prototype of a solution to a given problem. |