Tennessee Science

Fifth Grade

Matter and Its Interactions 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.** 5.PS1.1
	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.** 5.PS1.2
	3	**Construct an argument using the physical properties of matter that combining substances may or may not result in a new substance.** 5.PS1.3
Motion and Stability: Forces and Interactions 5.PS2	1	**Plan and carry out an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of the object.** 5.PS2.1
	2	**Make observations and measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.** 5.PS2.2
	3	**Use evidence to support that the gravitational force exerted by Earth on objects is directed toward the Earth's center.** 5.PS2.3
	4	**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.** 5.PS2.4
From Molecules to Organisms: Structures and Processes 5.LS1	1	**Compare and contrast animal responses that are instinctual versus those that are learned by gathering information through the senses, which is then processed in the brain and stored as memories to guide their actions.** 5.LS1.1
Heredity: Inheritance and Variation of Traits 5.LS3	1	**Distinguish between inherited characteristics and those characteristics that result from a direct interaction with the environment. Apply this concept by giving examples of characteristics of living organisms that are influenced by both inheritance and the environment.** 5.LS3.1
	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.** 5.LS3.2

Biological Change: Unity and Diversity 5.LS4	1	**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.** 5.LS4.1
Earth's Place in the Universe 5.ESS1	1	**Explain that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth.** 5.ESS1.1
	2	**Research and explain the position of the Earth and the solar system within the Milky Way galaxy, and compare the size and shape of the Milky Way to other galaxies in the universe.** 5.ESS1.2
	3	**Use a model to explain how the orbit of the Earth and sun cause observable patterns: a. day and night; b. changes in length and direction of shadows over a day.** 5.ESS1.3
	4	**Explain the cause and effect relationship between the positions of the sun, earth, and moon and resulting eclipses, tides, and appearance of the moon.** 5.ESS1.4
	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.** 5.ESS1.5
	6	**Use tools to describe the position of constellations and how they appear to move from the Earth's perspective throughout the seasons.** 5.ESS1.6
Engineering Design 5.ETS1	1	**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.** 5.ETS1.1
Links Among Engineering, Technology, Science, and Society 5.ETS2	1	**Use appropriate tools to make measurements and answer testable questions.** 5.ETS2.1