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EDTL 7100

Learning Outcomes

**Grade 5 Science**

**Learning Outcomes**

**Earth and Space Sciences**

* The student will learn that the Earth’s rotation causes day and night.
* The student will learn that Earth is one of several other planets that orbit the sun and that the moon orbits the Earth.
* The student will learn the many characteristics about Earth (e.g. three-fourths is covered by water, has an atmosphere, elliptical orbit, sits on a tilted axis, and is spherical in shape).
* The student will learn that other stars in space are similar to the sun, but some are smaller or bigger depending upon the distance they are from Earth.
* The student will learn that the supply of non-renewable resources are limited, but can be extended further, through the use of reducing, reusing, and recycling (e.g. 3 R’s).
* The student will investigate that Earth’s renewable resources (e.g. water, air, wildlife, and plants) can be maintained.

**Life Sciences**

* The student will learn the role of producers (e.g. plants), how its energy is transferred throughout ecosystems, and how it uses the sun to create its own energy and food (e.g. photosynthesis).
* The student will explain that all food can be traced back to plants.
* The student will be able to trace the organization of simple food chains or food webs (e.g. producers, herbivores, carnivores, omnivores, and decomposers).
* The student will determine the basic needs (e.g. food, water, shelter, air, carrying capacity, and waste disposal) that organisms must have to survive within ecosystems. The student will also learn about the many different ecosystems located on planet Earth.
* The student will learn the different patterns of behavior related to an organism’s ecosystem, which includes the number of organisms present, food availability, and physical changes to the ecosystem.
* The student will analyze the effects of organisms and humans have on ecosystems, whether they are beneficial, neutral, or detrimental (e.g. beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees, and introduction of a new species).

**Physical Sciences**

* The student will define temperature and describe how it is measured.
* The student will trace how thermal energy can be transferred from one object to another by conduction.
* The student will describe how an electrical outlet can produce thermal energy, light, sound, or magnetic forces.
* The student will trace how an electrical current will travel through a simple circuit that will also light a bulb.
* The student will explore and summarize observations of refraction (bending) and reflection of light.
* The student will describe and summarize observations of reflection and absorption of sound.
* The student will describe that the changing rate of vibration can vary with the pitch of a sound.

**Science and Technology**

* The student will investigate the positive and negative impacts humans and technology on the environment.
* The student will revise an existing design used to solve a problem.
* The student will explain how the solution to one problem may create other problems.

**Scientific Inquiry**

* The student will select and safely use the appropriate tools to collect data when conducting investigations (e.g. timers, thermometers, balances, and microscopes).
* The student will evaluate observations and measurements made by other people and identify reasons for any discrepancies.
* The student will use evidence and observations to explain and communicate the results of investigations.
* The student will identify one or two variables in a simple experiment.
* The student will identify any potential hazards or precautions needed in an investigation.
* The student will explain why the results of an experiment are sometimes different (e.g. unexpected differences, how the investigation was carried out, or errors in observations.).

**Scientific Ways of Knowing**

* The student will summarize how conclusions and ideas change as new knowledge is gained.
* The student will develop descriptions, explanations, and models using evidence to defend/support findings.
* The student will explain why an experiment must be repeated by different people or at different times to yield consistent results.
* The student will identify how scientists use different kinds of ongoing investigations depending on the questions they are trying to answer.
* The student will keep records of investigations and observations that are understandable weeks or months later.
* The student will identify a variety of scientific and technological work that people of all ages, backgrounds, and groups perform.