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*Students will be able to:* SKILLS IN INQUIRY-BASED LEARNING

- Formulate a testable hypothesis.
- Design and conduct an experiment specifying variables to be changed, controlled, and measured.
- Select appropriate tools and technology (*calculators, computers, thermometers, meter sticks, balances, graduated cylinders, and microscopes*), and make quantitative observations.
- Present and explain data findings using multiple representations, including tables, graphs, mathematical and physical models, and demonstrations.
- Draw conclusions based on data or evidence presented in tables or graphs, and make inferences based on patterns or trends in the data.
- Communicate procedures and results using appropriate science and technology terminology.
- Offer explanations of procedures, and critique and revise them.

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*Students will be able to:* LIFE SCIENCE

- Give examples of ways in which organisms interact and have different functions within an ecosystem that enable the ecosystem to survive.
- Explain the roles and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.
- Explain how dead plants and animals are broken down by other living organisms (*decomposers*) and how this process contributes to the system as a whole.
- Recognize that producers (*plants that contain chlorophyll*) use the sun's energy to make sugars through a process called photosynthesis.
- Relate the extinction of species to a mismatch of adaptation and the environment.
- Identify ways in which ecosystems have changed throughout geologic time in response to physical conditions, interactions among organisms, and the actions of humans. Describe how changes may be catastrophic such as volcanic eruptions or ice storms.

*Students will be able to:*

*PHYSICAL SCIENCE*

- Give basic examples of elements and compounds.
- Differentiate between mixtures and pure substances.
- Recognize that a substance (*element or compound*) has a melting point and a boiling point, both of which are independent of the amount of the sample.
- Recognize that there are more than 100 elements that combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.
- Differentiate between an atom (*the smallest unit of an element that maintains the characteristics of that element*) and a molecule (*the smallest unit of a compound that maintains the characteristics of that compound*).
- Differentiate between physical and chemical changes.
- Explain and give examples of how mass is conserved in a closed system.
- Recognize that heat is a form of energy and that temperature change results from adding or taking away from a system.
- Explain the effect of heat on particle motion through a description of what happens to particles during a change in phase.
- Give examples of how heat moves in predictable ways, moving from warmer objects to cooler ones until they reach equilibrium.
- Differentiate between weight and mass, recognizing that weight is the amount of gravitational pull on an object.
- Differentiate between volume and mass. Define density.
- Recognize that the measurement of volume and mass requires understanding of the sensitivity of measurement tools (*rulers, graduated cylinders, balances*) and knowledge and appropriate use of significant digits.

*Students will be able to:*

*EARTH SCIENCE*

- Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through the earth's system.
- Explain the relationship among the energy provided by the sun, the global patterns of atmospheric movement, and the temperature differences among water, land and atmosphere.
- Explain how the tilt of the earth and its revolution around the sun result in an uneven heating of the earth, which in turn causes the seasons.
- Describe lunar and solar eclipses, the observed moon phases, and tides. Relate them to the relative positions of the earth, moon, and sun.
- Compare and contrast properties and conditions of objects in the solar system (*sun, planets, and moons*) to those on earth (*gravitational force, distance from the sun, speed, movement, temperature, and atmospheric conditions*).
- Recognize that gravity is a force that pulls all things on and near the earth toward the center of the earth. Gravity plays a major role in the formation of the planets, stars, and solar system and in determining their motions.
- Recognize that the universe contains many billions of galaxies, and that each galaxy contains many billions of stars.