

## Essential Skills for 7<sup>th</sup> grade Science 2009

Mexico Middle School

### Matter & Energy (1): Energy

- Classify materials as conductors or insulators of electricity.
- Diagram and identify a complete electrical circuit.
- Compare parallel and series circuits.
- Describe how current flow can be affected in an electrical circuit.
- Describe how like charges (magnetic, static, electrical) repel and unlike charges attract.
- Describe how thermal energy can be transferred by conduction, convection & radiation.
- Describe the types, and identify examples, of materials that transfer heat by conduction, convection & radiation.
- Classify materials as conductors or insulators of thermal energy.

### Force & Motion (2)

- Classify and describe the types of motion.
- Calculate the speed of an object in motion.
- Construct and interpret line graphs representing speed.
- Identify and describe the types of forces acting on an object.
- Compare gravitational forces between objects.
- Compare the effect(s) of balanced and unbalanced forces on an object's motion.
- Describe how friction affects the motion of an object and ways to increase or decrease friction.
- Explain that  $\text{force} = \text{mass} \times \text{acceleration}$ .
- Measure and compare forces acting on an object using a spring scale.
- Describe and calculate work being done on an object.
- Explain how simple machines affect effort, direction and distance while doing work and evaluate simple machine designs.

### Earth Systems (5) Weather/atmosphere/water cycle

- Describe the properties of the atmosphere and their effects on weather.
- Compare climate and weather.
- Identify solar radiation as the energy source for weather.
- Explain and diagram the steps of the water cycle, including the different forms of water (snow, rain, sleet, fog, clouds, dew, humidity).
- Explain how thermal energy is transferred through the water cycle.
- Explain that the differences in the heating of the Earth's surface affect the temperature and movement of air.
- Identify weather conditions associated with warm fronts and cold fronts.
- Identify factors that affect weather patterns and climate.
- Collect and interpret weather data, including temperature, humidity, atmospheric pressure, wind speed and direction.

### Universe (6)

- Classify and describe the properties of celestial bodies.

- Describe and explain how the Earth's composition and its location in the solar system allow it to sustain life.
- Label and explain the phases of the moon.
- Explain how gravity affects all objects and their motion in the solar system.
- Explain how the length of daylight and seasons are affected by the Earth's tilt, rotation, and revolution.
- Describe and explain how the position and motion of the sun, earth, and moon affect the apparent positions of each other as viewed from Earth.