

# Rockwood School District

## GRADE ONE SCIENCE STANDARDS

### **I. Science Process – The student will plan, conduct, and analyze results of scientific experiments.**

#### **1. Investigative Methods**

- i. Formulate testable questions and explanations (hypotheses).
- ii. Conduct a fair test to answer a question.
- iii. Make suggestions for reasonable improvements or extensions of a fair test.

#### **2. Data Collection and Analysis**

- i. Determine the appropriate tools and techniques to collect data.
- ii. Use a variety of tools and equipment to gather data (e.g., hand lenses, magnets, thermometers, metric rulers, balances, graduated cylinders, spring scales).
- iii. Measure length to the nearest centimeter, mass to the nearest gram, volume to the nearest milliliter, temperature to the nearest degree Celsius.
- iv. Compare amounts/measurements.
- v. Use quantitative and qualitative data as support for reasonable explanations.
- vi. Use data as support for observed patterns and relationships, and to make predictions to be tested.
- vii. Analyze whether evidence supports proposed explanations.

#### **3. Communicate Investigations**

- i. Communicate the procedures and results of investigations and explanations through oral presentations, drawings and maps, data tables, graphs (bar, single line, pictograph), writings.

### **II. The Universe has observable and predictable properties, structure, and movement.**

#### **1. Our interaction with the sun and moon**

- i. Observe and describe the presence of the sun, moon, and stars in the sky.
- ii. Observe there are more stars in the sky than anyone can count and that they are scattered unevenly and vary in brightness.
- iii. Describe the Sun as only being seen in the daytime and appears to move across the sky from morning to night.

- iv. Observe the moon can be seen sometimes at night and sometimes during the daytime.
- v. Observe that the moon appears to change shape over the course of a month.

### **III. The Earth's surface is changed by geological, atmospheric, oceanic, and human influenced forces.**

#### **1. Earth's Composition**

- i. Observe and describe the physical properties (e.g. odor, color, appearance, relative grain size, texture, absorption of water) and different components (i.e. sand, clay, humus) of soils.
- ii. Observe and describe the physical properties of rocks (e.g. size, shape, color, presence of fossils).

#### **2. Changes in the Earth's Surface**

- i. Observe and describe ways humans use Earth's materials (e.g. soil, rocks) in daily life.
- ii. Observe and identify examples of slow changes in the Earth's surface and surface materials (e.g. rock, soil layers) due to processes such as decay (rotting), freezing, thawing, breaking, or wearing away by running water or wind.

### **IV. Force & Motion can be explained and predicted using scientific observations and principles.**

#### **1. Motion**

- i. Identify ways (push, pull) to cause some objects to move by touching them.
- ii. Describe ways to change the motion of an object (i.e. how to cause an object to go slower, go faster, go farther, change direction, stop).
- iii. Describe an objects motions as straight, circular, vibrating (back and forth) zigzag, stopping, starting, and falling.
- iv. Compare the speeds (faster vs. slower) of two moving objects.
- v. Compare the position of an object relative to another object (e.g. left of or right of).

#### **2. Force**

- i. Identify the force (i.e. push or pull) required to do work (move an object).
- ii. Describe the direction and amount of force (i.e. direction of push or pull, strong/weak push or pull) needed to change an objects motion (i.e. faster/slower, change in direction).
- iii. Identify magnets cause some objects to move without touching them.

- iv. Describe and compare the distances traveled by heavier/lighter objects after applying the same amount of force (i.e. push or pull) in the same direction.
- v. Describe and compare the distances traveled by objects with the same mass after applying different amounts of force (i.e. push or pull) in the same direction.
- vi. Compare and describe the amount of force (i.e. more, less, or same push or pull) needed to raise an object using an inclined plane (ramp) of different slopes.

**V. Animals have structures and characteristics that help it grow and survive.**

**1. Animal Life Cycles**

- i. Identify and relate the similarities and differences among animal parents and their offspring or multiple offspring.
- ii. Identify and sequence life cycles (birth, growth, and development, reproduction and death) of animals (i.e. butterfly, frog, chicken, snake, dog).
- iii. Record observations on the life cycle of different animals (e.g. butterfly, dog, frog, chicken, snake).

**2. Animal Survival**

- i. Identify the basic needs of most animals (i.e. air, water, food, shelter).
- ii. Identify and compare the physical structures of a variety of animals (e.g. sensory organs, beaks, appendages, body covering) (Do NOT assess terms sensory organs or appendages).
- iii. Identify the relationships between the physical structures of animals and the function of those structures (e.g. taking in water, support, movement, obtaining food, reproduction).