

# Fourth Grade Science Parent Copy

## SCIENCE PROCESSES

### Inquiry Processes

- A. Make purposeful observation of the natural world using appropriate senses.
- B. Generate questions based on observations.
- C. Plan and conduct simple and fair investigations.
- D. Manipulate simple tools that aid observation and data collection. (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker)
- E. Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.
- F. Construct simple charts and graphs from data and observations.

### Inquiry Analysis and Communication

- A. Summarize information from charts and graphs to answer scientific questions.
- B. Share ideas about science through purposeful conversation in collaborative groups.
- C. Communicate and present findings of observations and investigations.
- D. Develop research strategies and skills for information gathering and problem solving.
- E. Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.

### Reflection and Social Implications

- A. Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
- B. Use data/samples as evidence to separate fact from opinion.
- C. Use evidence when communicating scientific ideas.
- D. Identify technology used in everyday life.
- E. Identify current problems that may be solved through the use of technology.
- F. Describe the effect humans and other organisms have on the balance of the natural world.
- G. Describe how people have contributed to science throughout history and across cultures.

## PHYSICAL SCIENCE

### Energy

#### ***Forms of Energy***

- A. Identify heat and electricity as forms of energy

#### ***Energy and Temperature***

- A. Demonstrate how temperature can be increased in a substance by adding energy
- B. Describe heat as the energy produced when substances burn, certain kinds of materials rub against each other, and when electricity flows through wire.
- C. Describe how heat is produced through electricity, rubbing, and burning.

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## ***Electrical Circuits***

- A. Explain how electrical energy is transferred and changed through the use of a simple circuit.

## **Properties of Matter**

### ***Physical Properties***

- A. Measure the weight (spring scale) and mass (balances in grams or kilograms) of objects.
- B. Measure volumes of liquids and capacities of containers in milliliters and liters.
- C. Demonstrate the use of centimeter cubes poured into a container to estimate the container's capacity.

### ***States of Matter***

- A. Compare and contrast the states (solids, liquids, gases) of matter.

### ***Magnets***

- A. Demonstrate magnetic field by observing the patterns formed with iron filings using a variety of magnets
- B. Demonstrate that non-magnetic objects are affected by the strength of the magnet and the distance away from the magnet.
- C. Create a simple working electromagnet and explain the conditions necessary to make the electromagnet.

### ***Conductive and Reflective Properties***

- A. Identify objects that are good conductors or poor conductors of heat and electricity.

## **Changes in Matter**

### ***Changes in State***

- A. Explain how matter can change from one state (liquid, solid, gas) to another by heating and cooling.

## LIFE SCIENCE

### **Organization of Living Things**

#### ***Life Requirements***

- A. Determine that plants require air, water, light, and a source of energy and building material for growth.
- B. Determine that animals require air, water, light, and a source of energy and building material for growth and repair.

# Fourth Grade Science Parent Copy

## Evolution

### ***Survival***

- A. Identify individual differences (for example: color, leg length, size, wing size) in organisms of the same kind.
- B. Identify how variations in physical characteristics of individual organisms give them an advantage for survival and reproduction.

## Ecosystems

### ***Interactions***

- A. Identify organisms as part of a food chain or food web.

### ***Changed Environment Effects***

- A. Explain how environmental changes can produce a change in the food web.

## EARTH SCIENCE

## Earth in Space and Time

### ***Characteristics of Objects in the Sky***

- A. Identify common objects in the sky, such as the sun and the moon.
- B. Compare and contrast the characteristics of the sun, moon and Earth, including relative distances and abilities to support life.

### ***Patterns of Objects in the Sky***

- A. Describe the orbit of the Earth around the sun as it defines a year.
- B. Explain that the spin of the Earth creates a day and a night.
- C. Describe the motion of the moon around the Earth.
- D. Explain how the visible shape of the moon follows a predictable cycle which takes approximately one month.
- E. Describe the **apparent** movement of the sun and moon across the sky though day/night and seasons.

### ***Fossils***

- A. Explain how fossils provide evidence of the history of the Earth.
- B. Compare and contrast life forms found in fossils and organisms that exist today.