

ACTON PUBLIC SCHOOLS

GRADE ONE SCIENCE PROGRAM

Organisms
(Life Science)

Key Questions

- What basic needs do all organisms have?
- What similarities do plants and animals have?
- What are some similarities between aquatic and land organisms? How are they suited to their habitat?

Concepts

1. We use our *senses* to *observe* the world around us.
2. *Organisms* have *basic needs*, such as food, water, air, space and shelter.
3. Each type of organism has *specific needs*, such as type of food, amount of water, amount of light, amount of space, and type of shelter.
4. There is a wide *diversity* of living things on earth. Some animals, such as fish, can be grouped according to common characteristics: scales, gills, internal skeleton.
5. Organisms grow, change, and die over time.
6. Some plants grow from *seeds*. The roots grow first, and then the *stem*.
7. Plants have similarities, such as the ability to grow and the need for water, light, space and air.
8. Animals have similarities, such as the ability to move and the need for food, water, space and shelter.
9. Plants and animals have similarities, such as basic needs, the ability to grow and change, and the fact that they are alive and that they all eventually die.
10. Humans are similar to other organisms. Humans have basic needs. They also grow, change, have babies, and eventually die.

Skills

Students will

1. observe and describe the characteristics of seeds and plants;
2. plant seeds and observe and record their growth (optional);
3. observe and describe the characteristics of a variety of plants and animals in both land and water environments (habitats);
4. record observations in words and drawings;
5. make comparisons among a variety of plants and animals;
6. communicate ideas through writing, drawing, and discussion;

Organisms: Skills (cont'd)

7. read to enhance understanding of the basic needs of organisms and the diversity of life;
8. apply what they know about plants and animals to what they know about themselves;
9. maintain plants and animals outside their natural environments.

Attitudes

Students will

1. develop an interest in exploring the characteristics of plants and animals;
2. gain an awareness of the diversity of life;
3. develop positive attitudes toward different forms of life;
4. develop an awareness that humans are similar to other living things;
5. develop a sensitivity to the needs of living things.

Recommended kit/materials

Organisms, Science and Technology For Children (STC) kit, National Science Resources Center, Smithsonian Institution, 1996. (Carolina Biological Supply Company)

Solids and Liquids (Physical Science)

Key Questions

- What are some properties of liquids?
- What are some properties of solids?
- How can we investigate the properties of solids and liquids?

Concepts

1. Solids and liquids can be described by their properties.
2. Some properties of solids are color, shape, ability to roll or stack, hardness, magnetic attraction, and whether they float or sink.
3. Some properties of liquids are color, tendency to flow, degree of viscosity or fluidity, whether they are miscible with water, and whether they float or sink in water.
4. Tests can be performed to investigate properties of solids and liquids that cannot otherwise be observed.

Solids and Liquids (cont'd)

Skills

Students will

1. observe and describe the properties of solids and liquids;
2. conduct tests to investigate the properties of solids and liquids;
3. sort solids into groups on the basis of their properties;
4. compare similarities and differences among solids;
5. compare similarities and differences among liquids;
6. apply tests to investigate new solids and liquids;
7. compare the properties of solids with the properties of liquids;
8. communicate ideas, observations and experiences through writing, drawing, and discussion.
9. describe the various ways that objects can move.

Attitudes

Students will

1. accept that there is more than one way to describe solids and liquids;
2. recognize the importance of organizing information and results on charts;
3. develop an interest in investigating the physical world.

Recommended kit/materials

Solids and Liquids, Science and Technology For Children (STC) kit, National Science Resources Center, Smithsonian Institution, 1996. (Carolina Biological Supply Company)

Goals for Weather (Earth/Physical Science)

Key Questions

- What tools do meteorologists use to study the weather?
- How does the weather change from day to day? Are there any patterns? How could we track weather from day to day?

Concepts

1. Weather changes from day to day and week to week.
2. Features of weather include cloud cover, precipitation, wind and temperature.
3. Tools used to measure different features of weather include wind flags, thermometers, and rain gauges.

Goals for Weather: Concepts (cont'd)

4. Meteorologists are scientists who study, observe, and record information about the weather and who use that information to forecast the weather.
5. Weather affects the decisions people make about the clothing they will wear and their outside activities.

Skills

Students will

1. observe the weather by using their senses;
2. discuss and record information about weather features;
3. use simple tools to estimate wind speed and measure temperature and rainfall;
4. observe differences in types of clouds;
5. conduct experiments and draw conclusions about appropriate clothing for different types of weather;
6. organize weather data on graphs and long-term data collection charts;
7. interpret and summarize long-term weather data.

Attitudes

Students will

1. develop increasing awareness of weather;
2. appreciate how weather affects daily life;
3. recognize that measurements and long-term records are useful and help us learn more about weather.

Recommended kit/materials

Weather, Science and Technology For Children (STC) kit, National Science Resources Center, Smithsonian Institution, 1995. (Carolina Biological Supply Company)

Magnets (Physical/Earth Science)

Key Questions

- What does a magnet do?
- How do people use magnets?

Concepts

Students will understand that

1. a magnet pulls on all things made of iron;
2. magnets either push or pull on other magnets;

Magnets: Concepts (cont'd)

3. a magnet's pull diminishes rapidly as the magnet moves farther away from an object;
4. magnets have north-seeking and *south-seeking* poles, and describe their interaction as *attracting or repelling* (like poles repel; unlike poles attract);
5. understand that magnets *attract* iron (steel) and other magnetic materials (cobalt, nickel);
6. the magnetic field is strongest at the magnet's pole;
7. a group of objects can be sorted into two categories (magnetic and non-magnetic).

Recommended kit/materials

Acton Public Schools kit, *Magnets*, 1998