

Grade 5 Science

70-80% of the school year should be spent on core units, and the remainder of the time should be spent on optional units or on further development of the core units. No less than 3 weeks (7.5 hours) and not more than 8 weeks (20 hours) should be spent on any core unit.

- 1 Core Unit: Heat
- 2 Core Unit: Matter and Its Changes
- 3 Core Unit: Plant Structure and Function
- 4 Core Unit: Resources
- 5 Optional Unit: Communities and Ecosystems
- 6 Optional Unit: Human Circulation and Breathing
- 7 Optional Unit: Machines and Work
- 8 Optional Unit: Oceans

1 Core Unit: Heat (pp. 504-508 in Science: A Curriculum Guide for the Elementary Level)

1. Describe the nature of heat:

- 1.1 Investigate the effects of heat energy on matter.
- 1.2 Explain the kinetic molecular theory.
- 1.3 Measure the temperature of various substances.
- 1.4 Recognize some sources of heat energy.

2. Describe the transfer of heat energy:

- 2.1 Contrast conduction, convection, and radiation of heat energy.
- 2.2 Identify methods of heat conservation in buildings.

2 Core Unit: Matter and its Changes (pp. 509-513 in Science: A Curriculum Guide for the Elementary Level)

1. Describe the particle theory of matter:

- 1.1 Describe the atom as a basic unit of matter.
- 1.2 Explain the relationship between atoms and elements.
- 1.3 Distinguish between atoms and molecules.
- 1.4 Describe how molecules form.
- 1.5 Explain the relationship between molecules and compounds.

2. Investigate and describe the physical and chemical properties of matter:

- 2.1 Distinguish between physical properties and chemical properties of substances.
- 2.2 Identify some physical properties of objects.
- 2.3 Identify some chemical properties of objects.
- 2.4 Measure the mass and the weight of some objects.
- 2.5 Compare solutions with other mixtures.
- 2.6 Observe and describe some physical changes.
- 2.7 Observe and describe some chemical changes.

3 Core Unit: Plant Structure and Function (pp. 514-518 in Science: A Curriculum Guide for the Elementary Level)

1. Describe the characteristics of vascular plants:

- 1.1 Identify the roots, stems, leaves and flowers of plants.
- 1.2 Observe and describe fibrous root systems and tap root systems.
- 1.3 Use leaves and seeds to identify plant species.

2. Explain some of the functions of the roots, stems, leaves, and flowers of plants:

- 2.1 Observe and describe the movement of water through a stem of a vascular plant.
- 2.2 Compare and contrast the processes of photosynthesis and respiration.
- 2.3 Describe the process of pollination and seed production.
- 2.4 Observe and describe plant adaptations.
- 2.5 Experiment with the variables which influence seed germination.

3. Describe agriculture in Saskatchewan as it relates to field and forage crops:

- 3.1 Identify some field crops and their products.
- 3.2 Recognize the importance of plants in the prevention of soil erosion.

4 Core Unit: Resources (pp. 519-524 in Science: A Curriculum Guide for the Elementary Level)

1. Describe Saskatchewan's natural resources:

- 1.1 List examples of natural resources found in Saskatchewan.
- 1.2 Classify the natural resources of Saskatchewan as renewable or nonrenewable.
- 1.3 Distinguish between resources used to produce energy and those used to produce goods.
- 1.4 Recognize the global concern for air, soil, and water.

2. Describe human impact on the environment:

- 2.1 Describe the water cycle.
- 2.2 Identify water pollutants and their sources.
- 2.3 Recognize the importance of proper waste disposal.
- 2.4 Examine the technology of waste water treatment.
- 2.5 Describe air as a mixture of gases, vapours, and solid particles.
- 2.6 Identify common air pollutants and their sources.
- 2.7 Explain how soil can become polluted.
- 2.8 Describe some of the causes of soil erosion and soil degradation.
- 2.9 Identify methods of preventing soil loss.
- 2.10 Discuss the relationship between agriculture and soil, air, and water quality.

5 Optional Unit: Communities and Ecosystems (p. 525 in Science: A Curriculum Guide for the Elementary Level)

1. Understand the concept of the ecosystem:

- 1.1 Describe the habitat of a number of populations.
- 1.2 Identify and describe the niches of the populations comprising a community.
- 1.3 Discuss the factors which limit the population of a species.

2. Investigate and describe the ecosystem of the local community:

- 2.1 Identify and describe the animal, plant, fungi, algae, and protist populations in the local community.
- 2.2 Describe the niche of members of those populations.
- 2.3 Trace the changes in the local ecosystem.

6 Optional Unit: Human Circulation and Breathing (p. 526 in Science: A Curriculum Guide for the Elementary Level)**1. Describe the functioning of the circulatory system:**

- 1.1 Identify the four chambers of the heart and the role of each chamber.
- 1.2 Describe the functions of the arteries, the capillaries, and the veins.
- 1.3 Observe and describe blood.
- 1.4 Explain the function of blood plasma and blood solids.
- 1.5 Discuss the difference in blood pressure in the arteries and the veins.
- 1.6 Describe some conditions which impair the efficiency of the circulatory system.
- 1.7 Describe some surgical process for repairing arteries.
- 1.8 Investigate the design of artificial hearts.

2. Describe the functioning of the respiratory system:

- 2.1 Identify the components of the respiratory system.
- 2.2 Describe the function of the diaphragm.
- 2.3 Describe the components of the lungs and windpipes.
- 2.4 Describe how the air is cleaned before it gets to the lungs.
- 2.5 Describe the process of inhalation and exhalation.
- 2.6 Describe some conditions which impair the efficiency of the respiratory system.
- 2.7 Investigate the technology of lung transplants.

3. Consider the interaction between the two systems:

- 3.1 Discuss the diffusion of gases.
- 3.2 Describe the diffusion of gases from the lungs to the capillaries and from the capillaries to the lungs.

7 Optional Unit: Machines and Work (p. 527 in Science: A Curriculum Guide for the Elementary Level)**1. Explain the principles of simple machines:**

- 1.1 Demonstrate how the three classes of levers work.
- 1.2 Demonstrate how to use pulleys to lift a mass.
- 1.3 Compare force required to lift objects directly and with simple machines.
- 1.4 Identify some common applications of simple machines.
- 1.5 Distinguish between simple and compound machines.

2. Calculate work done on objects:

- 2.1 Use a spring scale to measure force.
- 2.2 Measure distance.
- 2.3 Define work.
- 2.4 Calculate the work done on an object.

8. Optional Unit: Oceans (p. 528 in Science: A Curriculum Guide for the Elementary Level)**1. Describe the physical characteristics of the ocean:**

- 1.1 Compare the contents of ocean water and fresh water.
- 1.2 Investigate the formation of waves.

- 1.3 Describe how tides form.
- 1.4 Consider the topography of the ocean floor.
- 1.5 Describe how the ocean influences climate.
- 2. Describe the diversity of life in the ocean:**
- 2.1 Outline some marine food webs.
- 2.2 Investigate the effect of pollutants on life in the ocean.