



Long Range Grade 2 Science and Technology Plan

Term 3: Energy and Control – Energy From Wind and Moving Water

Specific Expectations

Understanding Basic Concepts

- identify movement as an outcome of energy input (e.g., fuel enables cars, trucks, and buses to move; electricity enables the fan in the kitchen to move; food enables humans to move);
- recognize that it is the movement of air and water that produces energy and that air and water are not by themselves sources of energy;
- identify various ways in which moving water is used as a form of energy (e.g., hydroelectricity, tidal energy).

Developing Skills of Inquiry, Design and Communication

- design and construct a device propelled by air (e.g., a kite, a pinwheel, a balloon rocket);
- design and construct a system that controls the flow of water and/or air using a variety of mechanisms (e.g., a musical instrument, a fountain, valves, a dam);
- ask questions about and identify needs and problems related to the use of wind and moving water as energy sources, and explore possible answers and solutions (e.g., describe how moving water is used to produce electricity; describe how windmills were used to grind grain into flour);
- plan investigations to answer some of these questions or solve some of these problems, and describe the steps involved;
- use appropriate vocabulary in describing their investigations, explorations, and observations (e.g., use terms such as renewable and movement when describing energy);
- record relevant observations, findings, and measurements, using written language, pictures, and charts (e.g., draw a diagram of their device; prepare a chart to present data on the distance travelled by their device over time);
- communicate the procedures and results of investigations and explorations for specific purposes, using drawings, demonstrations, and oral and written descriptions (e.g., prepare a showcase of different devices that are propelled by wind energy; explain the effect of wind direction and speed on the displacement of wind-propelled devices).

Relating Science and Technology to the World Outside the School

- *identify* devices that use moving air and moving water as energy sources (e.g., windmills, water wheels), and describe what happens to these devices when the air or water is still;
- list activities that are affected by moving water and wind (e.g., fishing, sailing, flying a plane);
- recognize that moving air and moving water can be sources of energy for electrical power;
- describe how gravity and the shape of different structures affect the behaviour and use of moving water (e.g., water in waterfalls, taps, fountains).