



## Long Range Grade 2 Science and Technology Plan

### **Term 1: Matter and Materials – Properties of Liquids and Solids**

#### **Specific Expectations**

##### *Understanding Basic Concepts*

- describe the properties of liquids and solids, using their observations;
- distinguish between solids that dissolve in water (e.g., sugar) and solids that do not (e.g., sand);
- describe, using their observations, the characteristics of the three states of water, and identify the conditions that cause changes from one state to another (e.g., water turns to ice when placed in a freezer);
- recognize that the states of liquids and solids remain constant in some circumstances (e.g., solids remain solid when broken; liquids remain liquid when poured), but may change in other circumstances (e.g., liquids may freeze when the temperature drops; solids may melt when heated);
- identify reversible changes in materials (e.g., the changing of ice to water);
- identify, through observation, various substances that are buoyant (e.g., wood, oil), that can absorb another substance (e.g., paper towel), and that can dissolve another substance (e.g., water);
- evaluate the appropriateness of the materials chosen in the design and used in the construction of a structure that is intended to float (e.g., polystyrene, paper, metal, wood).

##### *Developing Skills of Inquiry, Design and Communication*

- design and assemble, using given materials, an object that is buoyant and able to support a given mass, and identify and describe the materials and tools they used;
- ask questions about and identify needs and problems related to the use of liquids and solids, and explore possible answers and solutions (e.g., devise and explain a plan to build a model raft; predict changes that will occur when ice or water is heated or cooled);
- 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 such words as clear, runny, and greasy when describing liquids, and granular, hard, and opaque when describing solids);

- record relevant observations, findings, and measurements, using written language, drawings, charts, and concrete materials (e.g., record data from experimentation with liquids and solids on a chart; list characteristics of different liquids that they have observed);
- communicate the procedures and results of investigations for specific purposes, using demonstrations, drawings, and oral and written descriptions (e.g., write a booklet for the school library describing class experiments in investigating liquids and solids).

### *Relating Science and Technology to the World Outside the School*

- compare the properties of liquids with those of solids to determine which materials take the shape of their container (e.g., water will fill a margarine container completely but ice cubes will leave spaces);
- compare different materials with respect to their capacity to absorb, and identify ways in which this capacity
- determines how these materials are used (e.g., bond paper, paper towels, cotton, linen, wood, plastic);
- describe, using their observations, the behaviour of various liquids (e.g., water, oil) when poured on different surfaces (e.g., rough wood, smooth wood, cloth), when combined with solids (e.g., powdered milk), and when combined with other liquids (e.g., vinegar), and explain how the reactions they observe determine the uses of these liquids and solids;
- compare the properties of water with the properties of at least one other liquid (e.g., detergent, oil, molasses);
- identify liquids used in the home and describe how they are used (e.g., milk for drinking and cooking; detergent for cleaning);
- describe, using their observations, some ways in which solids and liquids can be combined to make useful substances (e.g., flour and water make paste);
- identify objects in the immediate environment as solids (e.g., sand, ice, rocks) or liquids (e.g., milk, vinegar, water);
- recognize international symbols that give us information on the safety of substances (e.g., household cleaners, cleansers, bleaches) and Canadian Safety Association signage when working with liquids and solids.