GRADE 7 SCIENCE AND TECHNOLOGY UNITS

Nelson Science & Technology is a comprehensive set of resources for students and teachers. The instructional design promotes strong contextualization of scientific and technological concepts, solid skills development, and real-world application of concepts and skills.

Each of the Science Units contain the following resources

25 Unit Specific Student Text
1 Skills Handbook
1 Unit Specific Teacher Resource Binder
1 Saskatchewan Learning – Grade 7 Science Curriculum DRAFT

INTERACTIONS WITHIN ECOSYSTEMS

Ecologists define ecosystems as natural systems that are comprised of living (e.g., animals, plants, micro-organism) and non-living (e.g., soil, water, air, nutrients) factors and the interreationships among those factors, including the flow of energy and nutrients. In this unit, students will observe and document the ways in which living and non-living factors interact within local ecosystems. These interactions include the flow of energy and the cycling of matter and nutrients through complex biogeochemical cycles (water, nitrogen, carbon). Using this knowledge, students will examine cases of human impact on ecosystems and propose courses of action to maintain and enhance diversity within local ecosystems by protecting the local habitat of a particular organism.

No organism lives alone, closed in its own little world. On Earth, every living thing interacts with other living things. Every living thing must deal with changes in its environment, such as the amount of sunlight, the temperature, or the quality of the soil. Living things must adapt to their environment, and the environment may change because living things are there. Humans' actions have an impact on other living things. How does your presence change the world? What factors in the environment can change the way you and other living things behave? How do other living things affect you? In this unit you will explore some of these questions.

HEAT

Students are introduced to the particle theory of matter as means of explaining changes in state of matter due to the addition or removal of heat. Students will investigate the means by which heat is transmitted and absorbed by various substances and will investigate the use and impact of heating and cooling technologies on self and society.

You use and control heat every time you cook food, or change the temperature of the room you are in. Your body works hard to prevent or encourage heat transfer so your internal temperature is constant. The weather outside depends on heat transfer from the sun to the atmosphere and water. The steel in the spoon you used for your last meal was made using huge quantities of heat. The electricity you use to dry your hair or drive your games may have been generated using heat from fossil fuels. In this unit, you will learn about the many ways we depend on and control heat.

PURE SUBSTANCES AND MIXTURES

Students continue their exploration of classification systems by observing and classifying matter as mixtures and solutions. Students are introduced to the particle theory of matter and use that theory to provide explanations for the classification of matter. Students will also conduct experiments to determine characteristics of mixtures and solutions and processes for separating various types of mixtures.

Matter is all around us: the air we breath, the lakes and oceans, and Earth itself are all made of matter. To manufacture things or make them useful to us, we work with matter in all sorts of ways: we purify matter to obtain metals, mix up other types of matter to make foods or drinks, and we separate manufactured items to recycle the parts. But how do we know which substances will mix well for a particular purpose? Can we classify matter in a way that will help us make predictions?

THE EARTH'S CRUST

Students study geological processes that influence the structure and characteristics of the Earth's crust, including the formation of rocks and minerals. Students examine evidence that supports plate tectonics theory as an explanation for the movement of continental plates. Students will also consider personal, societal, economic, and environmental factors that influence and have influenced land use decisions in Saskatchewan.
Rocks hold clues to a mystery that is slowly being unravelled. The mystery is how the Earth came to be as it is, and the rocks in your neighbourhood had a role. Those rocks could be millions of years old, and may have travelled thousands of kilometres from where they were first formed. What events are part of their story? What can we learn from that story to help us survive and live in harmony with our ever-changing planet.