

 Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold [NICE TO KNOW are italics]	Season	Nehiyaw Ways of Knowing	
SCIENCE INQUIRY				
GENERAL LEARNER EXPECTATION 2-1 Investigate, with guidance, the nature of things, demonstrating an understanding of the procedures followed.				
GENERAL LEARNER EXPECTATION 2-2 Recognize pattern and order in objects and events studied; and, with guidance, record procedures and observations, using pictures and words; and make predictions and generalizations, based on observations.				
Focus	<ul style="list-style-type: none"> ask questions that lead to exploration and investigation identify one or more possible answers to questions asked by themselves and others. Ideas may take the form of predictions and hypotheses 		<ul style="list-style-type: none"> Inquiry, Cross Curricular, LBL 	
Explore and Investigate	<ul style="list-style-type: none"> manipulate materials and make observations that are relevant to questions asked <i>carry out simple procedures identified by others</i> <i>identify materials used and how they were used</i> <i>use, with guidance, print and other sources of information provided. Sources may include library, classroom, community and computer-based resources</i> 			<ul style="list-style-type: none"> Inquiry, listening skills
Reflect and Interpret	<ul style="list-style-type: none"> describe what was observed, using pictures and oral language describe and explain results; explanations may reflect an early stage of concept development <i>identify applications of what was learned</i> <i>identify new questions that arise from the investigation.</i> 			
PROBLEM SOLVING THROUGH TECHNOLOGY				
GENERAL LEARNER EXPECTATION 2-3 Construct, with guidance, an object that achieves a given purpose, using materials that are provided.				
Focus	<ul style="list-style-type: none"> identify the purpose of the object to be constructed: What structure do we need to make? What does it need to do? 		<ul style="list-style-type: none"> Listening, working with others, inquiry 	



Big Idea, Major Concepts, GLOs





Specific Learning Outcomes

ELOs are bold [NICE TO KNOW are italics]

Season

Nehiyaw Ways of Knowing

Explore and Investigate	<ul style="list-style-type: none"> attempt, with guidance, a variety of strategies to complete tasks 		<ul style="list-style-type: none"> Perseverance, working with others, confidence, listening 	
	<ul style="list-style-type: none"> <i>identify steps followed in constructing the object and in testing it to see if it works</i> 			
	<ul style="list-style-type: none"> <i>engage in all parts of the task and allow others to make their contributions</i> 			
	<ul style="list-style-type: none"> <i>identify materials used and how they were used</i> 			
	<ul style="list-style-type: none"> <i>use, with guidance, print and other sources of information provided. Sources may include library, classroom, community and computer-based resources</i> 			
Reflect and Interpret	<ul style="list-style-type: none"> <i>communicate results of construction activities, using oral language, captioned pictures and simple graphs (pictographs and bar graphs)</i> 			
	<ul style="list-style-type: none"> describe the product and describe and explain the processes by which it was made 			
	<ul style="list-style-type: none"> identify applications for the product that was made. 			
ATTITUDES				
<p>GENERAL LEARNER EXPECTATION 2–4</p> <p>Demonstrate positive attitudes for the study of science and for the application of science in responsible ways.</p>			<ul style="list-style-type: none"> Virtues: respect, listening, keen sense of observation, working with others 	
Students will show growth in acquiring and applying the following traits:	<ul style="list-style-type: none"> curiosity 			<ul style="list-style-type: none"> Land based learning, nature walks, bringing exemplars and artifacts in class
	<ul style="list-style-type: none"> confidence in personal ability to explore materials and learn by direct study 	<ul style="list-style-type: none"> See above, confidence 		
	<ul style="list-style-type: none"> inventiveness 	<ul style="list-style-type: none"> Encourage creativity with science projects 		
	<ul style="list-style-type: none"> perseverance: staying with an investigation over a sustained period of time 	<ul style="list-style-type: none"> Patience, calm, tolerance 		
	<ul style="list-style-type: none"> appreciation of the value of experience and careful observation 			
	<ul style="list-style-type: none"> a willingness to work with others and to consider their ideas 			
	<ul style="list-style-type: none"> a sense of responsibility for actions taken 			

 Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold [NICE TO KNOW are italics]	Season	Nehiyaw Ways of Knowing
	<ul style="list-style-type: none"> respect for living things and environments, and commitment for their care 		<ul style="list-style-type: none"> Respect for living things and environments, and commitment for their care
TOPIC A: EXPLORING LIQUIDS			
<p style="text-align: center;">GENERAL LEARNER EXPECTATION 2–5</p> <p>Describe some properties of water and other liquids, and recognize the importance of water to living and nonliving things.</p>			<ul style="list-style-type: none"> In class projects, experimentation
<p style="text-align: center;">GENERAL LEARNER EXPECTATION 2–6</p> <p>Describe the interaction of water with different materials, and apply that knowledge to practical problems of drying, liquid absorption and liquid containment.</p>			<ul style="list-style-type: none"> In class experimentation
	<p>1. Recognize and describe characteristics of liquids:</p> <ul style="list-style-type: none"> recognize and describe liquid flow describe the shape of drops describe the surface of calm water. 		<ul style="list-style-type: none"> Seasonal changes, in class experiments and water stations
<p>2. Compare water with one or more other liquids, such as cooking oil, glycerine or water mixed with liquid detergent. Comparisons may be based on characteristics, such as colour, ease of flow, tendency of drops to form a ball shape (bead), interactions with other liquids and interactions with solid materials.</p>	<ul style="list-style-type: none"> In class experimentation and water stations 		
<p>3. Compare the amount of liquid absorbed by different materials; e.g., students should recognize that some forms of paper are very absorbent but other forms of paper are not.</p>	<ul style="list-style-type: none"> In class experimentation 		
<p>4. Evaluate the suitability of different materials for containing liquids. Students should recognize that materials such as writing paper and unglazed pottery are not waterproof and would not be suitable as containers; but that waxed paper and glazed pottery are waterproof and, thus, could be used in constructing or lining a liquid container.</p>	<ul style="list-style-type: none"> In class experiment; cross curricular with art 		



Big Idea, Major Concepts, GLOs

Specific Learning Outcomes ELOs are bold [NICE TO KNOW are italics]

Season

Nehiyaw Ways of Knowing

5. Demonstrate an understanding that liquid water can be changed to other states:
- recognize that on cooling, liquid water freezes into ice and that on heating, it melts back into liquid water with properties the same as before
 - recognize that on heating, liquid water may be changed into steam or water vapor and that this change can be reversed on cooling
 - identify examples in which water is changed from one form to another.
-
6. Predict that the water level in open containers will decrease due to evaporation, but the water level in closed containers will not decrease.
-
7. Predict that a wet surface will dry more quickly when exposed to wind or heating and apply this understanding to practical situations, such as drying of paints, clothes and hair.
-
8. Recognize that water is a component of many materials and of living things.
-
9. Recognize human responsibilities for maintaining clean supplies of water, and identify actions that are taken to ensure that water supplies are safe.



- Seasonal changes, in class experiments and water stations
-
- In class experimentation
-
- L.B.L.
-
- L.B.L.
-
- L.B.L. nature walk

TOPIC B: BUOYANCY AND BOATS




GENERAL LEARNER EXPECTATION 2-7

Construct objects that will float on and move through water, and evaluate various designs for watercraft.




1. Describe, classify and order materials on the basis of their buoyancy. Students who have achieved this expectation will distinguish between materials that sink in water and those that float. They will also be aware that some “floaters” sit mostly above water, while others sit mostly below water. The terms buoyancy and density may be introduced but are not required as part of this learning expectation.
-
2. Alter or add to a floating object so that it will sink, and alter or add to a nonfloating object so that it will float.



- Nature walk to test materials; youtube videos of canoeing; in class experimentation
-
- In class experiments; hands on demonstrations

 Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold [NICE TO KNOW are italics]	Season	Nehiyaw Ways of Knowing
	3. Assemble materials so they will float, carry a load and be stable in water.		<ul style="list-style-type: none"> In class experiments; hands on demonstrations
	<i>4. Modify a watercraft to increase the load it will carry.</i>		
	<i>5. Modify a watercraft to increase its stability in water.</i>		
	6. Evaluate the appropriateness of various materials to the construction of watercraft, in particular: <ul style="list-style-type: none"> <i>the degree to which the material is waterproof (not porous)</i> <i>the ability to form waterproof joints between parts</i> <i>the stiffness or rigidity of the material</i> 		
	7. Develop or adapt methods of construction that are appropriate to the design task.		<ul style="list-style-type: none"> Virtues; listening, following directions
	8. Adapt the design of a watercraft so it can be propelled through water.		<ul style="list-style-type: none"> Class project; teach patience
	9. Explain why a given material, design or component is appropriate to the design task		

TOPIC C: MAGNETISM

GENERAL LEARNER EXPECTATION 2–8 Describe the interaction of magnets with other magnets and with common materials.			
	1. Identify where magnets are used in the environment and why they are used.		<ul style="list-style-type: none"> Creation Stories, Orienteering (Compass), Cultural Traditions (tipees), Technology (Automobiles, Computers, Junk Yards, metal detectors)
	2. Distinguish materials that are attracted by a magnet from those that are not.		
	3. Recognize that magnets attract materials with iron or steel in them; and given a variety of metallic and nonmetallic objects, predict those that will be attracted by a magnet.		<ul style="list-style-type: none"> Experimentation, Orienteering, bird migration, sharks



Big Idea, Major Concepts, GLOs

Specific Learning Outcomes ELOs are bold [NICE TO KNOW are italics]

Season

Nehiyaw Ways of Knowing

4. **Recognize that magnets have polarity, demonstrate that poles may either repel or attract each other, and state a rule for when poles will repel or attract each other.**



- Experimentation, Orienteering, bird migration, sharks

5. Design and produce a device that uses a magnet.

6. *Demonstrate that most materials are transparent to the effects of a magnet. A magnetic field will pass through such materials, whereas other materials interact with a magnet.*

7. Compare and measure the strength of magnets.

TOPIC D: HOT AND COLD TEMPERATURE

GENERAL LEARNER EXPECTATION 2–9

Recognize the effects of heating and cooling, and identify methods for heating and cooling.



- Cross-curricular in the way that there can core subject connection, Cree Natural Law. Water importance, Seasonal Rounds

1. **Describe temperature in relative terms, using expressions, such as hotter than, colder than.**



- LBL, weather effects

2. *Measure temperature in degrees Celsius (°C).*

3. **Describe how heating and cooling materials can often change them; e.g., melting and freezing, cooking, burning.**



- LBL; cross-curriculum, weather effects, Seasonal Rounds

4. **Identify safe practices for handling hot and cold materials and for avoiding potential dangers from heat sources.**





5. **Recognize that the human body temperature is relatively constant and that a change in body temperature often signals a change in health.**

6. *Identify ways in which the temperature in homes and buildings can be adjusted; e.g., by turning a thermostat up or down, by opening or closing windows, by using a space heater in a cold room.*

7. *Describe, in general terms, how local buildings are heated:*

- identify the energy source or fuel
- recognize that most buildings are heated by circulating hot air or hot water
- describe how heat is circulated through the school building and through their own homes.

- LBL shelters

 Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold [NICE TO KNOW are italics]	Season	Nehiyaw Ways of Knowing	
	<p>8. Describe the role of insulation in keeping things hot or cold, and identify places where some form of insulation is used; e.g., clothing, refrigerator, coolers, homes.</p> <p>9. Identify materials that insulate animals from the cold; e.g., wool, fur and feathers; and identify materials that are used by humans for the same purpose.</p> <p>10. Design and construct a device to keep something hot or cold.</p> <p>11. Describe ways in which temperature changes affect us in our daily lives.</p>		<ul style="list-style-type: none"> • LBL camp • Using Cree names for elements, stewardship • LBL camp 	
TOPIC E: SMALL CRAWLING AND FLYING ANIMALS			<ul style="list-style-type: none"> • L.B.L 	
GENERAL LEARNER EXPECTATION 2-10 Describe the general structure and life habits of small crawling and flying animals; e.g., insects, spiders, worms, slugs; and apply this knowledge to interpret local species that have been observed.				<ul style="list-style-type: none"> • Nature walk; L.B.L, animals local to their community; using Cree names for animals; stewardship
	<p>1. Recognize that there are many different kinds of small crawling and flying animals, and identify a range of examples that are found locally.</p> <p>2. Compare and contrast small animals that are found in the local environment. These animals should include at least three invertebrates—that is, animals such as insects, spiders, centipedes, slugs, worms.</p> <p>3. Recognize that small animals, like humans, have homes where they meet their basic needs of air, food, water, shelter and space; and describe any special characteristics that help the animal survive in its home.</p> <p>4. Identify each animal's role within the food chain. To meet this expectation, students should be able to identify the animals as plant eaters, animal eaters or decomposers and identify other animals that may use them as a food source.</p> <p>5. Describe the relationships of these animals to other living and nonliving things in their habitat, and to people.</p>			<ul style="list-style-type: none"> • Nature walk; L.B.L, animals local to their community; using Cree names for animals; stewardship • Cree names for homes; L.B.L nature walks • Story telling, stewardship, cross-curriculum

2



Big Idea, Major Concepts, GLOs

Specific Learning Outcomes ELOs are bold [NICE TO KNOW are italics]

Season

Nehiyaw Ways of Knowing

6. Identify and give examples of ways that small animals avoid predators, including camouflage, taking cover in burrows, use of keen senses and flight.



- **Story-telling, stewardship, senses**

7. Describe conditions for the care of a small animal, and demonstrate responsible care in maintaining the animal for a few days or weeks.

8. Identify ways in which animals are considered helpful or harmful to humans and to the environment.