
Grade 1

Cluster 4: Daily and Seasonal Changes

Overview

By observing their environment, students become aware of changes that can occur within it, such as changes in temperature, wind, and light, and in plant and animal life. Through observations and investigations, students learn that changes often occur in cycles, including the relatively short cycle of day and night and the longer cycle of the seasons. Recognizing these cyclical patterns prepares students to deal with daily and seasonal changes. Particular attention is given to studying ways in which humans are able to live comfortably throughout the seasons.

PRESCRIBED LEARNING OUTCOMES	SUGGESTIONS FOR INSTRUCTION
<p><i>Students will...</i></p>	
<p>1-4-01 Use appropriate vocabulary related to changes over time. Include: Sun, light, heat, day, day time, nighttime, morning, afternoon, days of the week, yesterday, today, tomorrow, seasons, shadow, characteristic, behaviour, living things, cycle. GLO: C6, D4, D6</p>	<p>➤ Introduce, explain, use, and reinforce vocabulary throughout the cluster.</p>
<p>1-4-02 Recognize that the Sun is a source of light and heat. GLO: D4, E4</p>	<p>➤ A Walk in the Sun Take the class for a walk on a warm, sunny day. Stop in the Sun and have the children describe how the Sun feels on their skin. Ask the following questions:</p> <ul style="list-style-type: none"> • How do you feel after a few minutes in the Sun? • Does your skin feel cool, warm, or hot? • Why does your skin feel warm in the Sun? • When you stay in the Sun for a long period of time on a hot summer day, what happens to your body? Why? • Will it feel the same if you go into the shade? Why or why not? <p>Once the students have predicted what will happen when they go into the shade, have them move into a shaded area and spend a few minutes there.</p>
<p>1-0-1b. Make predictions based on classroom experiences. GLO: A1, C2</p>	
<p>1-4-03 Recognize that a day is divided into day time and night time based on the presence or absence of sunlight. GLO: D6</p> <p>1-4-04 Sequence and record events and activities that occur over the course of a day, a week, or a year. GLO: C2</p>	<p>➤ Day or Night? Have students divide a page of paper in two. Students should draw things that they do during the day on one side and things that they do during the night on the other. Discuss what causes day and night (presence or absence of sunlight) and have students draw a Sun on the side with the daytime activities.</p> <p>➤ Joan’s Mixed-Up Day Provide students with a set of cards with pictures of a fictional character named Joan showing her activities over the course of one day. Tell them that Joan wants to record in her diary what she did but she has mixed up the cards. Have students work in cooperative groups to sequence the activities properly. Have them post their results on a diary sheet divided into morning, afternoon, and nighttime sections.</p>
<p>1-0-4f. Work in cooperative partnerships and groups. (ELA 5.2.1) GLO: C7</p> <p>1-0-7e. Describe, in a variety of ways, what was done and what was observed. <i>Examples: concrete materials, drawings, oral language...</i> (ELA 4.1.2, 4.1.3) GLO: C6</p>	

(continued)

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Caution: Ensure that students wear hats and use sunscreen when going on walks or field trips.

Paper and Pencil Task: A Walk in the Sun

Ask the student: How does the Sun help us? Draw a picture to show at least two different ways. Label your picture.

Look for

- provides heat
- provides light

Interview: Day or Night?

Before the interview, gather the following materials: pictures depicting night and day; pictures showing the activities of a child over the course of a day; days of the week printed on cards; a picture book that follows an animal or insect through a weekly pattern; pictures showing things that take a long time (tree through the seasons, baby to child) and those that take a short time (brushing teeth, skipping); and cards with the months of the year printed on them.

1. Look at the pictures. Some show things that happen in the daytime and others show nighttime activities. Sort the cards into day and night.

The student

- sorted correctly
- explained reasons for placement

(continued)

PRESCRIBED LEARNING OUTCOMES

SUGGESTIONS FOR INSTRUCTION

Students will...

➤ **By the Week**

Make an accordion book for each student. The booklet should have seven pages. Have students keep track of the things they do and the things that happen throughout the week. Have them share their books with the class. Math Link: Use the information for graphing.

➤ **By the Month**

Divide students into pairs. Have each pair take a month of the year and create a word splash of events, typical activities, words, etc., for that month.

October: Halloween, Thanksgiving, first snowfall, leaves change colours, pumpkins, jackets, Jack Frost, harvest
Have students create posters that illustrate their word splash. The posters can be used to sequence the months of the year. Discuss with the class the activities that occur each month.

➤ **Months of the Year: Wipe Out**

Have students play this game with a partner. Make a chart with the months of the year and their numeric equivalents (1-12). Using two dice, students take turns rolling the dice with their partner. If a 6 is rolled, June is crossed out; if a 2 is rolled, February is crossed out, and so on. Students may switch to using one die, as necessary (for the months January to June). The first player to wipe out the 12 months wins the game.

Use 12-sided dice if you have them. Students may also play **Wipe Out** with the days of the week and the numbers 1 to 7.

1-4-05 Recognize that shadows are caused by blocking light.

GLO: D4, D6

1-0-1b. Make predictions based on classroom experiences. GLO: A1, C2

1-0-7e. Describe, in a variety of ways, what was done and what was observed. *Examples: concrete materials, drawings, oral language...*

(ELA 4.1.2, 4.1.3) GLO: C6 (continued)

➤ **What's a Shadow?**

Have students experiment with flashlights and a stationary object such as a small teddy bear to observe how shadows are made, how they move, and the changes in size when the light source moves. Ensure students know that shadows are caused by an object blocking light. Extension: Trace the shadows made or have students develop theatrical performances utilizing a variety of shadow techniques.

(continued)

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

2. Look at the pictures. These pictures show how “Mikhail” spent his day. Order the pictures so that they show his day from morning until night.
The student
 - sequenced correctly explained reasons for the order
3. What are the names of the days of the week?
 - Sunday Monday Tuesday
 - Wednesday Thursday Friday
 - Saturday names them in order
4. Look at the pictures. These are pictures showing what happened in the book that we read. Match the day of the week card with the picture that shows what happened on that day.
The student
 - matched the cards with the picture independently
 - required reading assistance but matched correctly
 - was unable to match the card and the picture
5. What are the months of the year? How many can you name?
 - January February March
 - April May June
 - July August September
 - October November December
 - named them in order named them out of sequence
6. Look at the pictures. Some of the pictures show something that would take a long time to happen and some show something that would take a short time to happen. Sort the pictures into long time and short time.
The student
 - sorted correctly gave reasons for placement

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>1-0-8a. Recognize that learning can come from careful observations and investigations. (ELA 3.3.4) GLO: A1, A2, C2</p> <p>1-0-9b. Willingly observe, question, and explore. GLO: C5</p>

SUGGESTIONS FOR INSTRUCTION

➤ **Predict-a-Shadow**

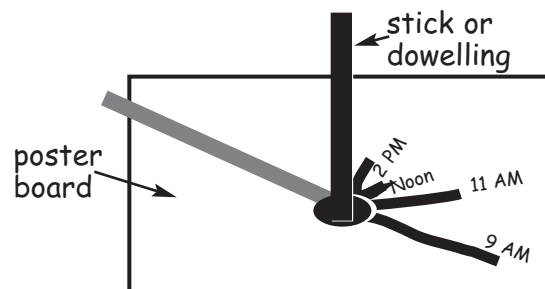
Have students discuss, as a class, the shapes of shadows observed outside and inside the classroom. Discuss what causes the shape of the shadow. The light source? The object? Or both? Use the overhead projector to demonstrate shadows. Have the students predict what shape they will see on the screen when a box, a glass, a book, a stapler, etc., is placed on the overhead in turn. Have students compare their predictions to the shape they actually see when the objects are placed on the overhead. Discuss why these shadows occur.

<p>1-4-06 Observe and describe how the Sun appears to change position over the course of a day.</p> <p><i>Examples: track the location of the Sun using shadows...</i></p> <p>GLO: C2, D6</p>
--

➤ **Sun Shadows**

Have students work in small groups of three to four to record shadows throughout the day. Each group will need a piece of white poster board and a stick or dowelling. Have students make a hole in the middle of a piece of white poster paper and place the paper on the ground outside where the Sun will shine on it. A stick or a dowel is placed through the hole in the poster paper. Throughout the day, students should colour the shadow cast by the stick, making sure to record the time beside the mark. They should also observe where the Sun is in relation to each shadow.

Students can compare the marks on their poster board with those of other groups.



Use the following questions to reflect on the activity with the students:

- Do all groups' posters look the same? Why or why not?
- What made the shadows?
- What shape was the shadow?
- Why did the lengths of the shadow change?
- When did the longest shadow occur? The shortest?
- What other observations did you discover about the shadows made by the sticks?
- Do you think the same shadows will occur at the same time tomorrow? Why or why not?

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Have students use Blackline Master 1: Scientific Inquiry Recording Sheet: Grades 1 and 2.

Peer Assessment (Group Work): Sun Shadows

Answer Yes or No. (Teachers may choose to read these items to the class.)

Our group
followed directions _____
shared the work _____
took turns _____
listened to each other _____
recorded the shadow _____
recorded the time _____
helped each other _____
shared with other groups _____
One thing we did well was _____.
One thing we could do better next time is _____
_____.

Observation Skills Checklist : Sun Shadows

- The student
- follows simple directions to construct “sundial”
 - works cooperatively
 - records observations accurately
 - labels observations accurately
 - measures with care
 - describes what was done and observed both orally and in pictures/words
 - expresses enjoyment of the activity

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>1-4-07 Record, describe, and compare changes in temperature at different times of the day. GLO: C2, D4, E3</p>
<p>1-0-5b. Use, with guidance, appropriate materials and tools to measure and construct. <i>Examples: use paper clips to measure the width of a desk...</i> (Math SS-IV.1.1) GLO: C2, C3, C5</p> <p>1-0-5e. Record observations using drawings and tally charts. (ELA 4.1.2., 4.2.5; Math SP-II.1.1) GLO: C2, C6</p> <p>1-0-6b. Compare data using quantitative terms, and ask questions about the data gathered. (Math SP-IV.1.1) GLO: A1, A2, C2, C5</p> <p>1-0-9d. Take the time to measure with care. GLO: C5</p>
<p>1-4-08 Investigate and describe changes that occur in characteristics and behaviours of living things throughout a day. <i>Examples: some flowers open in the morning, some animals are active at night...</i> GLO: D1, E3</p>
<p>1-0-7d. Connect new experiences and information with prior knowledge. (ELA 1.2.1) GLO: A2</p>

SUGGESTIONS FOR INSTRUCTION

➤ **How Hot Is It?**

Brainstorm with the class a list of words to describe temperature. Examples include hot, warm, cold, freezing, mild, etc. For a period of several days and at different times of the day, have students describe and record outdoor temperatures, using a class chart.

Monday

9 a.m.	12 p.m.	3 p.m.
chilly	warmer	warmest

Ask the students the following questions:

- Are the morning temperatures similar?
- When does the warmest temperature of a day usually occur? Explain your thinking.
- When are the coldest temperatures of a day recorded? Why?
- Why is it important to know when the warmest and coldest temperatures in a day usually occur?

➤ **Night and Day Animals**

Read a variety of books about animals to the class. Include animals that are active during the day (diurnal) as well as those that are active at night (nocturnal). Have students use the following chart to record information discovered.

Animal
Active day/night
What it eats
Where it goes when not active

As a class, select one animal that is active at night and one that is active during the day. As a group, write a story that follows the activities of each animal over a 24-hour period.

➤ **Plant Activities**

Divide the class into partners. Have partners find out about the activities of a plant throughout the course of a day. Provide books that describe plants such as sunflowers, morning glories, etc.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

--

Paper and Pencil Task: Night and Day Animals and Plants

Have students use words/pictures to answer the following questions.

Night and Day

1. What do animals do during a day? Label your drawings.

2. What do plants do during a day? Label your drawings.

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>1-4-09 Compare characteristics of the four seasons. <i>Examples: length of day, type of precipitation, temperature...</i> GLO: E1, E3</p> <p>1-4-10 Describe how humans prepare for seasonal changes. <i>Examples: put up snow fences, take out winter clothes...</i> GLO: B1, C1</p>
<p>1-0-4e. Respond to the ideas and actions of others in building their own understandings. (ELA 1.1.2) GLO: C5, C7</p>

SUGGESTIONS FOR INSTRUCTION

➤ **Knowing the Four Seasons**

Use a Think-Pair-Share (McTighe and Lyman, 1992) to determine what students know about the seasons. The following questions can help stimulate discussion:

- What are the four seasons?
- What type of weather do we have in each season?
- What activities do you do in each season?

Note: Think-Pair-Share is discussed in *ELA, Strategies*, p. 15.

➤ **Representing the Seasons**

Give each student a sheet of unlined paper. Tell students to fold the paper in half, and fold it in half again, labelling the sections spring, summer, fall, and winter. Ask them to colour a deciduous tree (e.g., crabapple) and a child in each box based on how the child would look in each of the seasons. Have students include the type of weather present in that season, what the child would wear and be doing. (Spring: buds on tree, rain falling, a child with rubber boots playing outside, etc.)

➤ **Preparing for the Seasons**

Working in pairs, have students draw and label the things that people do to prepare for each season.

Winter

- put up snow fence
- weather-proof house
- sharpen skates
- get out toboggan

Spring

- get out raincoats
- put in sump-pump
- wash windows

Summer

- buy sunscreen
- get out tent

Fall

- rake leaves
- clean eavestroughs

Have students share their projects with the class.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Science Journal Entry: Seasons

Ask the student: What is your favourite season? Why is it your favourite? Tell how you get ready for this season.

Look for

- appropriate preparations for the season selected
- appropriate activities for the season selected

PRESCRIBED LEARNING OUTCOMES

SUGGESTIONS FOR INSTRUCTION

Students will...

1-4-11 Identify people who help us prepare for and deal with seasonal changes.
Examples: meteorologists, snow plough operators, reporters...
GLO: B4

1-4-12 Identify features of buildings that help keep humans sheltered and comfortable throughout daily and seasonal cycles.
Examples: furnace, lights, air conditioners, fans, windows, blinds, walls, roof...
GLO: B1

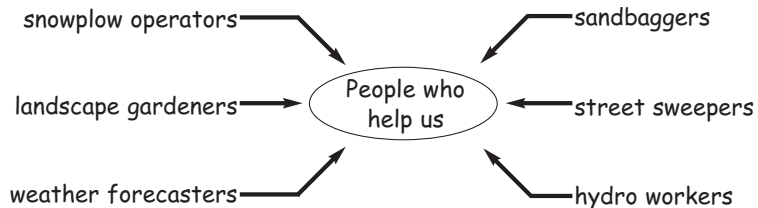
1-0-4g. Verbalize questions and ideas during classroom learning experiences. GLO: C6

1-4-13 Sort clothing to suit each season, and justify their decisions.
GLO: B1, B3, C3, C4

1-0-6c. Place materials and objects in a sequence or in groups using a single, given attribute or a single, self-determined attribute. (Math SP-IV.2.1) GLO: C2, C3, C5

➤ **People Who Help**

Working in pairs, have students develop a mind map of people who help us prepare for or deal with seasonal changes.



Have students choose one helper and draw that person preparing for seasonal change. Students may write sentences or label their drawings. Students may share their mind maps with the class and discuss what people do to help prepare and deal with seasonal changes.

➤ **Keeping Us Comfortable**

Ask students the following question: To keep us comfortable, what features do our homes and other community buildings have that are similar to the school's? Different from the school's?

With the class, brainstorm a list of features or aspects of technology in buildings that keep people comfortable throughout daily and seasonal changes.

Have students use these words to write a poem or paragraph about: being comfortable, life without a furnace, left in the dark, etc.

Art Extension: using a variety of magazines, newspapers, and other print and visual media, have students make a collage of these building features.

➤ **What Am I Wearing?**

As children enter the classroom, tape a picture of a type of clothing on each of their backs. Use a variety of pictures that include items of clothing from each season. Students are to ask each other questions that can be answered by yes or no to discover the season in which they would wear "their" piece of clothing. As they find out what the items are, students should place themselves in groups according to the season in which the illustration on their backs belong.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Catalogues and sales flyers are good sources of pictures of different types of clothing. Saving catalogues or flyers all year will help ensure that pictures of clothing from the different seasons are available.

Performance Assessment: Seasonal Clothing

Before the assessment, gather articles of clothing related to the different seasons. Ask the students to sort the clothes according to the appropriate season and justify their placement.

Look for

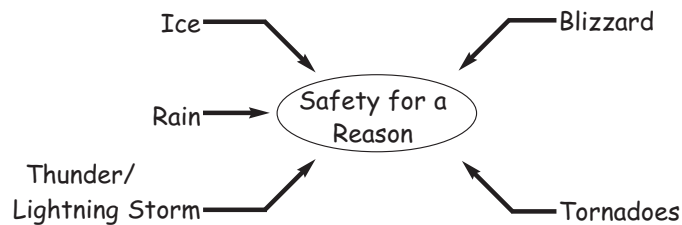
- sorts the clothing into appropriate seasons
- justifies the placement of clothing

PRESCRIBED LEARNING OUTCOMES
<p><i>Students will...</i></p> <p>1-4-14 Describe safety precautions related to daily weather, the changing of the seasons, and weather extremes.</p> <p><i>Examples: wearing a raincoat if rain is expected, staying indoors during a blizzard, staying off thin ice in the spring and fall...</i></p> <p>GLO: B3, C1</p>
<p>1-0-4h. Follow given safety procedures and rules. GLO: C1</p> <p>1-0-4i. Recognize safety symbols in their surroundings. GLO: C1</p>
<p>1-4-15 Describe how humans are able to participate in non-seasonal activities.</p> <p><i>Examples: use indoor sport centres to swim in the winter and skate in the summer...</i></p> <p>GLO: B1, B3</p>
<p>1-0-4a. Follow simple directions while undertaking explorations. GLO: C2</p> <p>1-0-6c. Place materials and objects in a sequence or in groups using a single, given attribute or a single, self-determined attribute. (Math SP-IV.2.1) GLO: C2, C3, C5</p>

SUGGESTIONS FOR INSTRUCTION

➤ **Safe Practices**

As a class, create a mind map about safety precautions related to the weather or changing season that students should practise. Create categories such as the following to direct their thinking.



Have students add information about the type of warning, symbol, or announcement associated with each of the hazards.

➤ **Safety Posters**

Working alone or in pairs, have students design a safety poster to encourage other children to be safe during daily and seasonal weather changes. Put the poster up in the school and/or community to promote personal safety.

➤ **Staying Active All Year Long**

Have pairs of students develop lists of sports/activities associated with specific seasons. Have each student choose a sport/activity and draw and label it on an index card. Place labels of the four seasons on the bulletin board. Students must place their card with the season most commonly associated with that sport. Discuss the choices with the students.

Have students reclassify the pictures based on the existence of an indoor sports complex where one could swim, play hockey, play soccer, etc., all year round. Use the following questions for reflection:

- How have the indoor sports complexes changed our seasonal activities?
- Why are indoor sports complexes so important in Manitoba, as compared to places like California? (Teachers will need to choose geographic reference points with which their students are familiar.)

Math Link: Make a class graph of those who take swimming lessons during winter, play indoor soccer during the winter, skate/play hockey during the summer, etc.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

It is important to discuss why students should practise the safety rules. Every year, children and adults in Manitoba die from walking/skating on thin ice in the fall or spring and remaining in the open during a thunderstorm or blizzard.

PRESCRIBED LEARNING OUTCOMES

SUGGESTIONS FOR INSTRUCTION

Students will...

1-4-16 Identify physical and behavioural changes that occur seasonally among Manitoba plants and animals, and discuss possible reasons for these changes.

Examples: thicker fur, migration, dormancy...

GLO: D1, E3

1-0-1a. Ask questions that lead to explorations of living things, objects, and events in the immediate environment. (ELA 3.1.2, 3.1.3) GLO: A1, C2, C5

1-0-2a. Access information using a variety of sources. *Examples: picture and concept books, people, excursions, camps, CD-ROMs...* (ELA 3.2.2, Math SP-II.1.1, TFS 2.1.1) GLO: C6

1-0-2b. Recognize when information answers the questions asked. (ELA 3.2.3, 3.2.5) GLO: C6, C8

➤ **Manitoba Plants and Animals**

Ask the class the following focus question:

- What kinds of changes do you see happening to animals and plants as the seasons change?

Working in pairs, have students choose a Manitoba plant or animal for further research. Have students gather information from books, CD-ROMs, and videos. Students could fax, call, or e-mail wildlife and horticultural organizations to ask questions about changes that occur in the plant or animal during the different seasons. Have students present their findings in pictures or in words, using accordion books or quadoramas. Have students explain why the plant or animal responds to the seasonal changes as it does. For example, ducks migrate in the fall because there is no food for them when the water freezes. They lay their eggs in spring so the ducklings can grow strong enough to migrate in the fall.

Following the student presentations, use these questions to stimulate discussion:

- Why do animals migrate or hibernate in the fall or winter?
- What happens to most plants during the winter?
- Why is spring a good time of year for plants to bud? Baby animals to be born?

TEACHER NOTES

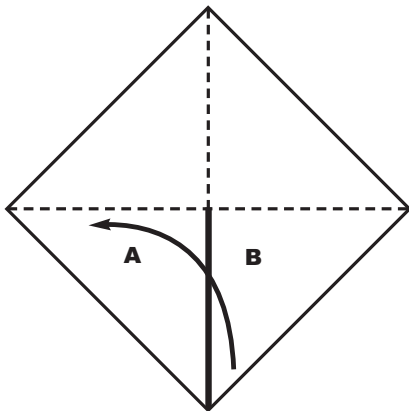
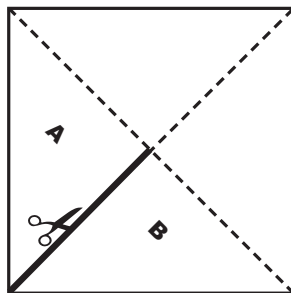
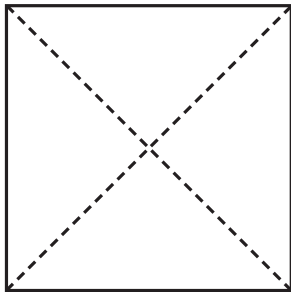
SUGGESTIONS FOR ASSESSMENT

Quadorama directions

Materials: four square pieces of paper (preferably manila tag)

Fold each square into quarters by folding on the diagonals. Cut one of the diagonals from the outside corner to the middle. Overlap the A and B. Glue them together.

Repeat for the remaining squares. When complete, glue the triangular pieces together to form a quadorama.



Learning Log Entry: Manitoba Plants and Animals

Three things I learned about how animals prepare for a change in seasons are:

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>1-4-17 Use the design process to construct a device or structure that helps a Manitoba animal adjust to seasonal changes.</p> <p><i>Examples: winter birdfeeder, dog house, dog “booties” for winter...</i></p> <p>GLO: B5, C3</p>
<p>1-0-1c. Recognize a practical problem in a given context. GLO: C3</p> <p>1-0-2a. Access information using a variety of sources. <i>Examples: picture and concept books, people, excursions, camps, CD-ROMs...</i> (ELA 3.2.2, Math SP-II.1.1, TFS 2.1.1) GLO: C6</p> <p>1-0-3a. Brainstorm, with the class, possible solutions to a practical problem, and reach consensus on a solution to implement. (ELA 1.1.3, 3.1.3) GLO: C3, C7</p> <p>1-0-3b. Create, with the class, a plan to solve a problem or meet a need. Include: identify simple steps to follow. (ELA 1.2.3) GLO: C3, C7</p> <p>1-0-3c. Develop, as a class, limited criteria to evaluate an object or device based on its function. GLO: C3, C7</p> <p>1-0-3d. Identify materials to be used, and explain their choices. GLO: C2, C3, C4</p> <p>1-0-4b. Construct an object or device to solve a problem or meet a need. GLO: C3</p> <p>1-0-4c. Test, with guidance, an object or device with respect to pre-determined criteria. GLO: C3, C5</p> <p>1-0-4d. Identify and make improvements to an object or device with respect to pre-determined criteria. GLO: C3</p> <p>1-0-5b. Use, with guidance, appropriate materials and tools to measure and construct. <i>Examples: use paper clips to measure the width of a desk...</i> (Math SS-IV.1.1) GLO: C2, C3, C5</p> <p>1-0-7b. Propose a solution to the initial problem. GLO: C3</p> <p>1-0-7c. Identify new problems that arise. GLO: C3</p> <p>1-0-8b. Recognize that tools are developed in response to human needs. GLO: A3</p>

SUGGESTIONS FOR INSTRUCTION

➤ **Adjusting to Seasonal Change: Designing a Structure**

Say to students: We studied the seasons and the ways in which humans, animals, and plants prepare; we discovered that people have used technology in order to be more comfortable throughout the seasons. Unfortunately, animals cannot change their surroundings in the same way as humans can. We need to help them to survive. We are ready to design a device or structure that can help a Manitoba animal adjust to the seasonal changes.

The following questions can be used to help students identify a specific problem to address:

- How do humans help wild animals in the winter? In summer?
- How do we help our pets stay warm in the winter?

Working in pairs or small groups, have students research a variety of sources to help them decide what they will make to help a Manitoba animal.

Students should gather information by asking questions, using pictures, and their senses to develop a design that is appropriate for the animal they have chosen. Students will:

- ❶ design the device
- ❷ select and use appropriate tools and materials from the supplies provided by the teacher
- ❸ follow given safety procedures and rules
- ❹ share and explain their design to others

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Have students use Blackline Master 3: Design Process Recording Sheet: Grades 1 and 2.

Design Process Checklist

The student

- understands the problem
- contributes to class brainstorming for solutions
- contributes to the creation of a plan
- contributes to the development of limited criteria
- identifies materials to be used
- explains the choice of materials
- constructs a device or structure
- tests the object
- identifies and makes improvements to the object
- proposes a solution to the problem
- works cooperatively
- assumes group responsibilities
- presents his/her device or structure to the group

Self-Assessment of the Design Process

Answer Yes or No. (Teachers may choose to read these items to the class.)

1. I helped brainstorm a solution.
2. I helped develop a plan.
3. I helped develop criteria.
4. I made my device or structure.
5. I worked carefully and did my best.
6. I tested my device/structure.
7. I made changes/improvements to my device/structure.
8. I shared my device/structure with the class.

Next time _____
_____.

NOTES