



# A YEAR IN THE LIFE OF A BEAR

**GRADE** Grade 1

**TOPICS** Seasons, wildlife, bears, stewardship

## CURRICULAR CONNECTIONS

Grade 1 Science

Topic B – Seasonal Changes

1-6: Describe seasonal changes, and interpret the effects of seasonal changes on living things

- Identify and describe examples of plant and animal changes that occur on a seasonal basis:
  - Changes in form and appearance
  - Changes in location of living things
  - Changes in activity
  - Production of young on a seasonal basis

## READING LIST

- **Honey Paw and Lightfoot** by Jonathan London
- **Sleepover with Beatrice and Bear** by Monica Carnesi

## OVERVIEW

Students will transform into grizzly bears as they explore the changes that a bear goes through during the year. From their emergence from the den in spring to gorging on berries in late summer, students will understand that bears and other wildlife move between habitats in order to meet their needs.

## OBJECTIVES

- Students will understand that changes in the environment during different seasons correspond with different animal behaviours
- Students will be able to distinguish between the different food sources and habitat requirements of bears through the year
- Students will learn how a greater understanding of seasons can help to keep people and wildlife safe

## KEY TERMS

- **Cub** – a young (carnivorous) mammal, such as a bear or fox
- **Den** – an area used as a hideout or resting place for the winter
- **Habitat** – the place where a plant or animal grows or lives in nature
- **Hibernation** – a long period of deep sleep during cold weather. During this time the breathing, heart rate and the amount of energy the animal needs decreases

## BACKGROUND ESSAY

It is springtime in the Rockies and a grizzly bear family is waking up from its long **hibernation**. Late last fall, mother grizzly dug her **den** into the side of a steep, northeast facing slope in the sub-alpine. She learned from her mother that this provides the best location, because the snow that accumulates over the winter insulates the den from the freezing cold that can persist for up to six months. In late January, the mother gave birth to two bear **cubs**. When they were born, they weighed about 500 grams (1.1 lbs), had a light covering of fur and were barely able to crawl. While she slept, the cubs nursed on her rich, fatty milk. By the time the family came out of the den, the cubs weighed between 4.5 – 8 kg (10 – 18 lbs). When the bears emerge from the den, the amount of milk that they are producing and consuming can increase by 4 times. This is necessary because the cubs are moving about and using far more energy than when they were in the den.

As soon as it leaves the den, this family is on the move. Grizzlies have to travel from seasonal food source to seasonal food source. This journey will take them from high in the alpine – a region of the mountains that is higher than the trees – to low in the valley bottoms where the rivers meet. The different places that wildlife live are called **habitats**. Grizzlies have immense territories, which they defend aggressively. Male territories in the Central Rockies are between 1000 – 2000 km<sup>2</sup>, and female territories are between 200 – 500 km<sup>2</sup>. Female



adult grizzly bears need safe, predictable, quality habitat within their home ranges. The female young of grizzlies establish their home range near their mother, but males usually travel further away.

Early in the spring, the bears will travel into the valley bottoms where the snow has started to melt first. Here they will search for food including the carcasses of animals that died during the winter, dandelions, grass, crisp roots and bulbs that frequently emerge along roadsides, and grain that has been spilled from passing trains. Spring is an important time of year for the family. During this time the mother educates the cubs about everything they need to know to survive in this environment. Very shortly after the cubs emerge from the den, they begin eating solid food and reducing their dependency on their mother's milk. This is partly because the mother is not able to produce enough milk to satisfy the nutritional demands of her litter as well as put on enough weight for hibernation. While the amount of milk a mother produces and provides her cubs decreases over time, she might not completely wean them for a couple of years. This dependency allows the mother to keep her cubs close, protect them and train them.

**DURATION** 5-10 minutes

#### **MATERIALS**

- Season label cards
- Images to correspond with each season
- Grade 2 PowerPoint Presentation

#### **ACTIVITY – IMAGE SORT**

Students will be given an image that corresponds to animals' activities during one season. They will be responsible for assigning this image to the appropriate season.

1. Place the season label cards in four different locations around the playing area.
2. Hand out image cards to students (one image per 1 or 2 students). Ask the students to study their image for one minute. If they are in partners, they can have a discussion with each other about what is happening in their image.
3. Ask the students to match their image to the corresponding season. These images can become visual aids if you choose to follow the activity with the Grade 2 PowerPoint.
4. *Variation: After students have had time to study their photos, ask the students to keep them safe for the remainder of the presentation. The students will reveal their images to the class when they come up in the presentation, at which time you can collect the image.*

#### **BACKGROUND ESSAY**

Through the summer, the bears travel back up the mountainsides, following changing food sources as they emerge. Bears – like humans – eat both meat and vegetation. Grizzly bears in the Canadian Rockies are very skilled at digging up ground squirrels. In the Rockies, buffaloberries are the main source of food for bears. About 15% of their diet comes from meat and the remaining 85% comes from plants.



When the berries ripen in the late summer, bears will almost exclusively eat these berries. These berries have a bitter taste when consumed directly by humans, but many First Nations peoples in Canada mix them with other sweeter berries such as raspberries to make a treat called sxusem (also spelled sxushem, xoosem or hooshum).



### CASE STUDY

As long as humans and bears have lived on this landscape, they have found ways to coexist with one another. For many First Nations, bears have great spiritual significance. Elder Virgle Stevens teaches us that in Stoney Nakoda culture it is understood that bears have the ability to hear the words of humans and for this reason it is important not to speak negatively about them. We seek to carry this legacy of respect for these magnificent creatures forward in all seasons so that we can continue to see them thrive on this landscape.

With the arrival of fall, the bears will massively increase the amount they are eating in order to prepare for hibernation. Normally, a bear consumes about 8000 calories a day (the equivalent of 90 bananas) but during this time it can increase to 20 000 to 35 000 calories a day (225 – 400 bananas, or 65 Big Mac hamburgers). During this time of year bears will eat for 20 – 23 hours a day. It is important to give bears lots of space any time of year, and especially so during the late summer and fall. Some of the best foods for bears – including buffaloberries – grow in the valley bottoms and along trails where people like to go hiking and biking. This means that humans are likely to share the same spaces with them. Bears that spend large amounts of time avoiding throngs of people will not be able to spend as much time putting on the much needed weight for hibernation. A mother bear will only have cubs if she stores enough fat and nutrients through the summer and fall to survive through the winter as well as provide milk for her cubs. How do other animals survive the winter?

A healthy cub can weigh 45 kg (100 lbs) by the time the family enters the den after its first year. The cubs will stay with their mother for up to three years before branching off to establish their own territory. It may be between 3 and 5 years from the time the mother grizzly gave birth to these cubs to when she gives births to a new litter. Learning about the different habitats that wildlife require and the times of year that are most important for them is one way that we can help to keep people and wildlife safe.

**DURATION** 10-15 minutes

### MATERIALS

- Books
- Puppets

### ACTIVITY – STORY READING AND RESPONSE

Preface this activity by asking students to think about what bears are doing this time of year. Are they hibernating? Or are they bulking up for the long winter ahead? Invite all of the students to become grizzly bears. Like all wildlife, they will need some space for this activity. Students will act out what the bears are doing as you read a story from the Grade 1 reading list.

Follow-up questions:

- What did you think of the story?
- Did you enjoy being a bear?
- What was your favourite season?
- Do you think that it is easy or difficult to be a bear?



**DURATION** 10-15 minutes

**MATERIALS**

- Season label cards
- Statement cues

**ACTIVITY – BEAR CRAWL**

Students will be challenged to see what they remember from the lesson by ‘bear-crawling’ to the season that corresponds to a variety of statements.

1. Place the season cards in four different locations around the playing area.
2. Have students start by sitting in the middle of the playing area. Each student is a grizzly bear. Read out a sentence about what the bears are doing.
3. Students need to decide in which season the activity/behaviour takes place, then ‘bear crawl’ to the corresponding part of the playing area. Once all the students have reached their chosen season, the correct answer will be revealed.
4. Statements to read:
  - a. You crawl out of your den for the first time after several months of deep sleep (**SPRING**)
  - b. You are busy digging a den into the side of the mountain (**FALL**)
  - c. You find a large patch of buffalo berries and eat as many berries as you can! (**SUMMER**)
  - d. While you are cozy sleeping inside your den, a raging blizzard is happening outside! (**WINTER**)
  - e. You enjoy digging up and eating the roots of the beautiful yellow glacier lilies – some of the first flowers to bloom after the snow has melted (**SPRING**)
  - f. You and your newborn grizzly sister drink your mothers’ milk while you are warm and cozy inside your den (**WINTER**)
  - g. You see a lot of humans trying to get close to you to take photos (**SUMMER**)
  - h. The weather is getting colder and you are trying to eat enough food before the big snow fall comes (**FALL**)