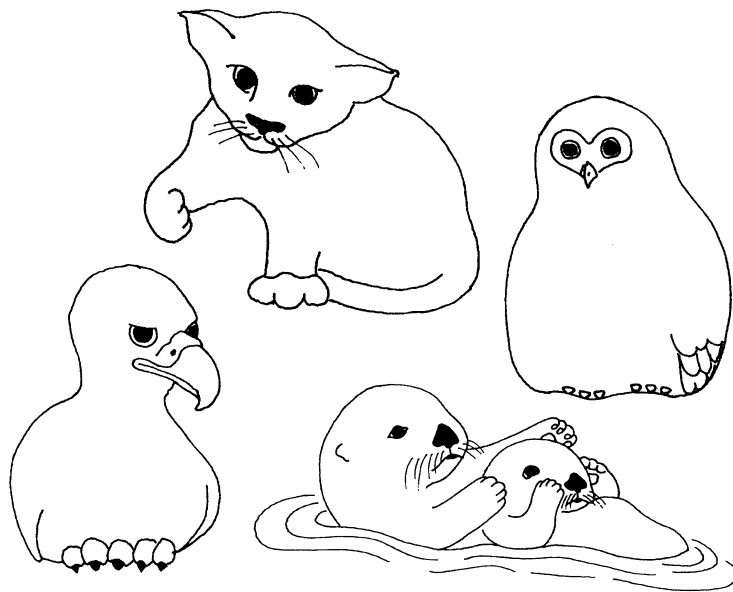


# Endangered Animals

An Environmental Studies Unit  
For Primary Classrooms



**Brenda Boreham**

Pacific Edge Publishing

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# ENDANGERED ANIMALS—An Environmental Studies Unit

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## THE STUDENT BOOKS

This environmental studies unit is based on four children's books by the Canadian author, Victoria Miles. Each book gives a glimpse into the daily life of a baby animal—the sea otter pup, the spotted owl, the bald eaglet and the cougar kitten. These books provide primary teachers with a language based resource from which science can be extended across the curriculum. This teacher's guide ties the four books together in an integrated unit with an endangered animals theme.

## THE TEACHER'S GUIDE

The Teacher's Guide includes:

- activities to introduce the theme;
- detailed lesson plans for each of the student books;
- activities integrating the unit across the curriculum;
- assessment strategies and tools;
- reproducible blackline masters.

## THE EXPERIMENT LOG

The experiment log used in this resource is a helpful tool in guiding scientific problem solving. The steps in the Scientific Method as outlined on the log are described below. The Experiment Log blackline master is provided in **Appendix B**.

**Question** – a clear, simple question is selected for investigation.

**Materials** – all materials needed to test the question are listed.

**Prediction** – before carrying out the experiment, students record their predictions of the results.

**Method** – in a step-by-step sequence, students record their observations of the experiment.

**Results** – using pictures and words, students record their observations of the experiment.

**Conclusion** – students tell what they learned or saw in the experiment.

**Evaluation** – students note how the investigation could have been improved.

## THE SCIENCE LOG

It is recommended that students keep a Science Log throughout the year—a folder, duotang or portfolio in which work related to science units are placed, to assist in evaluation and progress reports. Blackline masters that may be useful for this purpose are provided throughout the resource and in **Appendix A and B**.

## ORGANIZING AN ENDANGERED ANIMALS THEME

### Why teach it?

Many wildlife species in the world today are considered to be at risk. Saving endangered wildlife is critical for each of the species but it also preserves the earth's natural biological diversity. Plants and animals provide us with food, shelter, clothing, medicine, companionship, fuel, cosmetics, recreation and oxygen for us to breathe.

The reasons for the loss of wildlife include toxic chemicals, climate changes, illegal trade in animal parts, and the destruction of natural habitats.

The main idea of this theme is that ultimately everything on our planet is interconnected. The water we drink and the air we breathe is shared by all life forms. Environmental education in our schools is one crucial step towards addressing some of the serious challenges facing us today.

For a current list of endangered species contact The World Wildlife Fund:

The World Wildlife Fund  
90 Eglinton Avenue East, Suite 504  
Toronto, Ontario M4P 2Z7  
416-489-8800  
(toll free outside Toronto 1-800-26-PANDA)  
Fax: 416-489-3611

---

## Designing A Theme

The four children's books can be used independently or together as the core of an Endangered Animals theme. Written to raise environmental awareness among young children, the books are an effective vehicle to introduce abstract concepts in terms that children will enjoy and understand. How long a class spends exploring the theme will depend on the teacher's goals and student interest. A few weeks may be adequate, or several months might be necessary to explore the topic in depth. Students' interest may lead the class to learn about other endangered animals. Activities throughout the guide outline suggestions for extending the learning across the curriculum. The annotated Related Resource List (**Appendix D**) describes additional excellent books for primary grades.

## Wrapping Up A Theme

1. Several wrap-up activities using all four books are outlined starting on page 69.
2. Distribute copies of the evaluation form provided in **Appendix A**. Have the students reflect on what they have learned and record their thoughts.
3. Have the students organize their Science Logs and insert any work that has been on display in the classroom. Distribute copies of the letter provided in **Appendix A**. Have students complete and sign the letter. The letter should be included with the work samples.
4. The Science Logs, work samples and letters can be carried home by the students to their parents, or parents can be invited to visit the classroom to help celebrate. Students could make oral presentations, show completed projects and show their Science Logs at this event. You may wish to present certificates in appreciation of the student's accomplishments (see **Appendix A**). Ask parents to complete and sign the reverse side of the letter after viewing the work samples.
5. Have the students select a favourite draft of any poetry they may have done throughout the theme to create a class booklet.

## Curriculum Integration

Choose from the Extending the Learning activities provided for each book and in the Wrapping Up the Theme section (page 69). Learning Outcomes in Science, Language Arts, Social Studies, Math, Art, P.E. And Personal Planning can be addressed using the activities provided.

**Science:** experimenting, observing, collecting, identifying, classifying, sorting, using magnifiers, researching, comparing, conserving resources, constructing, communicating, measuring, patterning, predicting, formulating models

**Math:** measuring, tallying, computing, estimating, graphing

**Social Studies:** geography, mapping, First Nations culture

**Personal Planning:** careers, personal action for helping to keep the earth healthy, self evaluation

**P.E.:** games

**Language Arts:** reading for information, recording information, sorting information, research writing, poetry writing, letter writing, book making, video reports, brainstorming, vocabulary development, literature appreciation

**Art:** book marks, comic strips, pinwheels, posters, chains, book illustrations, model making, wildlife masks, clay work, puppets, recycled object sculptures, collages, paper making, drawing

**Field Trips:** fish hatchery, aquarium, wildlife reclamation centre, wetland or marsh, recycling centre, wildlife sanctuary, botanical garden, museum

# SETTING THE STAGE

## LETTER TO PARENTS

Make copies of the letter on page 5 to send home when you begin this theme. Parent involvement is a great way to enhance communication.

## VIEWING A VIDEO

A variety of videos and films may be available from your District Teacher's Resource Centre. You could show some appropriate materials, then add to the KWL chart (see page 8). A form is provided on page 6 for student reports after viewing a video.

## K.W.L.

K.W.L. stands for what we KNOW, what we WANT to know, what we have LEARNED.

This is a brainstorming activity designed to elicit information students already know and to encourage them to formulate questions to guide their learning.

Begin by writing facts on chart paper or the blackboard under the headings—

WHAT WE KNOW

WHAT WE WANT TO KNOW

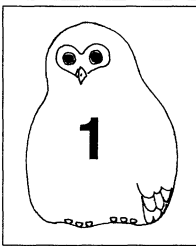
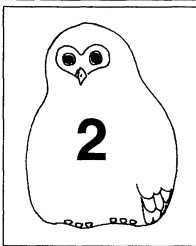
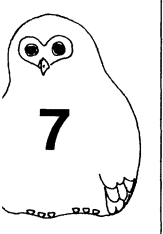
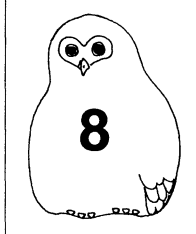
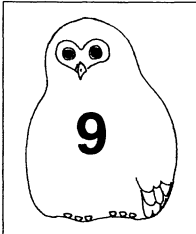
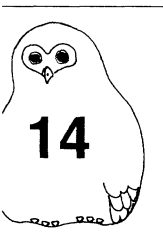
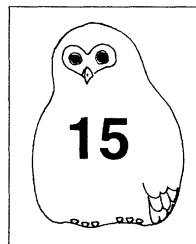
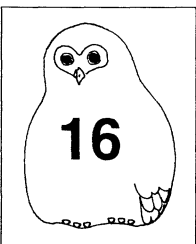
The activity is completed after some teaching/learning has occurred, by writing phrases or sentences under the heading WHAT WE HAVE LEARNED, and by checking to see if the questions posed have been answered. A form is provided on page 8 for small group or individual brainstorming. You may wish to use this strategy frequently throughout the unit.

## PRE-TEST/POST-TEST

A quick, simple way to survey the child's knowledge at the beginning of the unit. It may also be used as a post-test at the end of the unit. The test form is provided in **Appendix A**.

## CALENDAR

Use a spotted owllet pattern for your Endangered Animals theme calendar. Make copies of page 7 on construction paper. Cut out and add numbers.

| SEPTEMBER  |   |   |
|--|---|---|
| Thurs  | Fri   | Sat   |
|  |    |    |
|   |   |   |
|  |  |  |

---

## AN ENDANGERED ANIMALS CENTRE

Set up an endangered species centre in the classroom. Try to include:

- posters (Endangered species posters are available from the World Wildlife Fund for a small fee. The address is provided on page 1.);
- field guides and books;
- a wall map of the world.



Have the class collect and display items that illustrate the theme (calendars, models, posters, postcards, stuffed toys, pictures, T-shirts, books, games, tapes, puzzles, etc.). Other classes might like to be invited to visit the centre.

Date \_\_\_\_\_

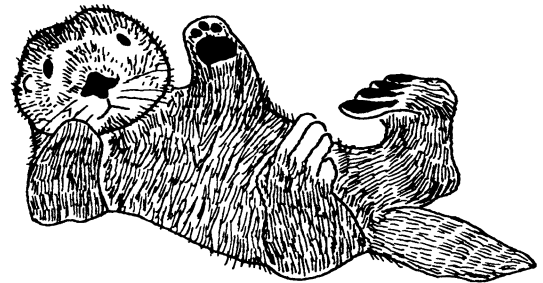
Dear families,

During the next few weeks we will be learning about Endangered Animals. Please take some time to help your child to do an endangered animals search around the house for items to put in our classroom museum—posters, post cards, books, stuffed animals and any other suitable object would be great! Please put your child's name on each item, so that it can be returned at the end of our theme.

If you can help in any other way please indicate below.

Thank you for your support.

\_\_\_\_\_



-----

- \_\_\_\_\_ drive on a field trip      (seatbelts \_\_\_\_\_ )
- \_\_\_\_\_ send display items
- \_\_\_\_\_ share a career or a hobby related to the theme

Child's Name \_\_\_\_\_

Parent/Guardian \_\_\_\_\_

Date \_\_\_\_\_ Name \_\_\_\_\_

---

## Video Review

Title:

---

---

Facts I learned:

---

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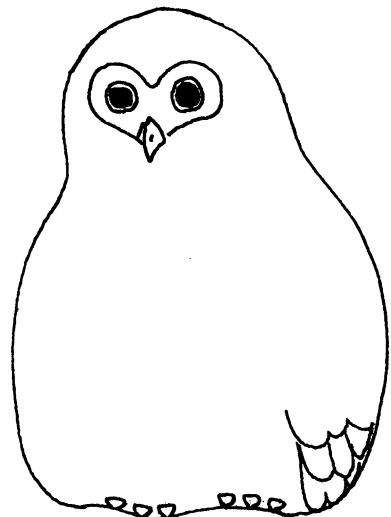
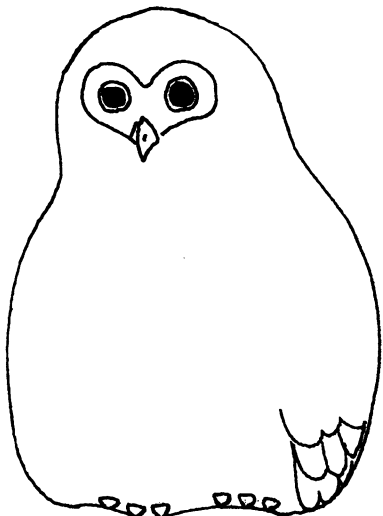
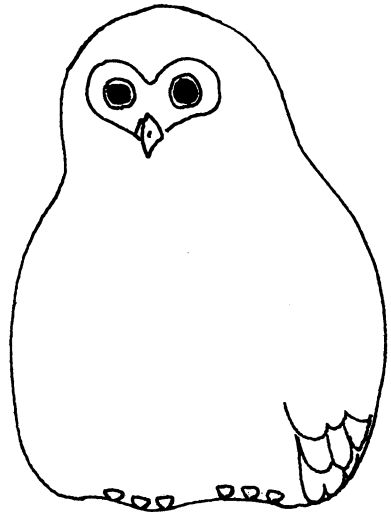
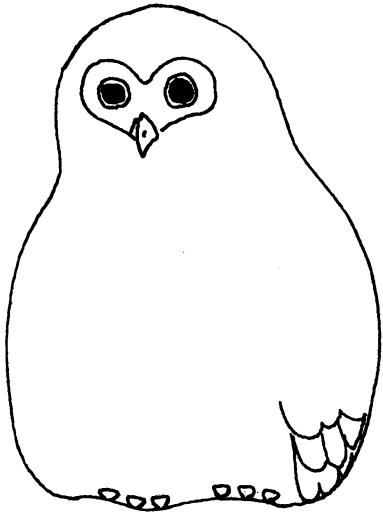
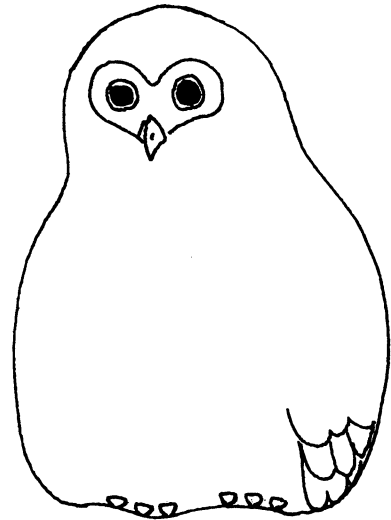
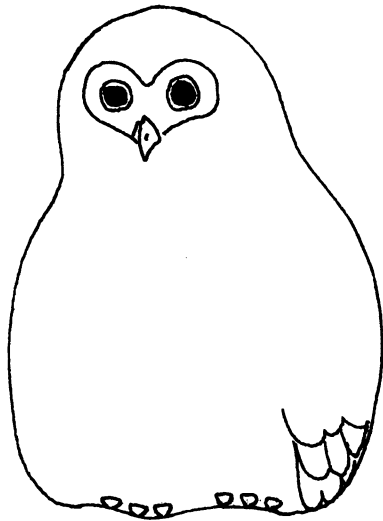
Questions I have:

---

---

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On a scale of 1 to 5 the video was:    1    2    3    4    5



Date \_\_\_\_\_ Name \_\_\_\_\_

**K.W.L.**

Topic: \_\_\_\_\_

**K** – What I KNOW

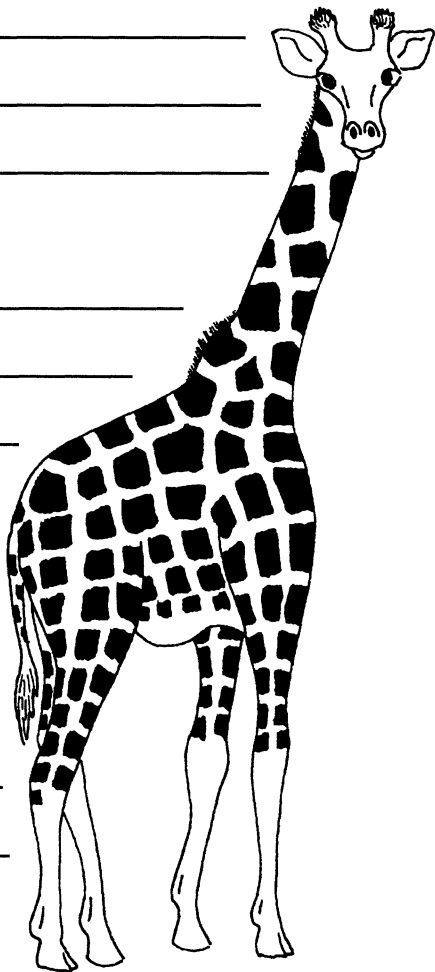
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**W** – What I WANT to know

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**L** – What I LEARNED

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# Introduction to Endangered Animals

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This thematic unit uses four children’s books as age-appropriate vehicles to teach young children about the issues of endangered animals around the world. Before you begin reading the books and using the corresponding activities with your students, it is helpful to introduce five main concepts, using the activities provided, starting on page 11.

**CONCEPT 1: How does an animal become labelled extinct, endangered or threatened?**

The list of species at risk is determined by The International Union For The Conservation of Nature (I.U.C.N.). The list is reviewed annually. The following labels are used to categorize plant and animal species:

**extinct:** a species of plant or animal that no longer exists anywhere in the world. The passenger pigeon, do-do bird, saber toothed tiger and dinosaurs are examples of extinct animals.

**extirpated:** a species of plant or animal that no longer exists in the wild but does exist elsewhere—in zoos, for example.

**endangered:** a species of plant or animal that is threatened with extinction or extirpation. The tiger, giant panda, whooping crane and African elephant are examples of endangered animals.

**threatened:** a species of plant or animal that will become endangered if the factors affecting its survival are not reversed. Examples of threatened animals are the wood bison, the beluga whale, the sea otter and the Peary caribou.

**vulnerable:** a species of plant or animal that is at risk because of low or declining numbers, small range, or for some other reason, but is not a threatened species.

**de-listed:** a species of plant or animal whose status is no longer vulnerable, threatened, endangered or extirpated. For example, designated as threatened from 1976 to 1986, the White Pelican was de-listed in 1987.

**down-listed or up listed:** a species of plant or animal whose status has moved to a less vulnerable or more vulnerable category. For example, designated as endangered from 1977 to 1987, the Wood Bison was down-listed in 1988 to threatened.

**CONCEPT 2: Which animals are on the Endangered Species List?**

The following animals were taken from the current Endangered Species List. For a complete list please contact The World Wildlife Fund (see page 1 for contact information).

---

|                         |             |
|-------------------------|-------------|
| Bald Eagle              | Spotted Owl |
| Eastern Cougar          | Giant Panda |
| African Elephant        | Tiger       |
| Black Rhinoceros        | Sea Turtle  |
| Yellow-eyed Penguin     | Jaguar      |
| West Indian Manatee     | Giraffe     |
| Red Kangaroo            | Dolphin     |
| Vancouver Island Marmot | Sea Otter   |

---

---

**CONCEPT 3: How do species become extinct, endangered or threatened?**

**Human Causes**

Habitat destruction is the major reason for the extinction of plant and animal species today. Logging old growth forests, draining wetlands, farming and increased urbanization are some of the reasons for the encroachment on wilderness areas.

Other ways in which humans have speeded up the rate of extinction include overhunting, pollution, the use of pesticides, depleting ground water resources, and the wasteful use of resources.

**Natural Causes**

The extinction of certain species has been part of the biology of the planet. Climate changes, geological processes (volcanic eruptions, etc.) and even meteor strikes are among the list of causes that scientists speculate about.

**CONCEPT 4: Why should we care about Endangered Species?**

Some people care about wildlife because they believe that all living things should be treated with respect.

By protecting wildlife we also preserve the earth's biological diversity. We rely on this diverse resource for all of our needs—oxygen, food, shelter, clothing, medicine, recreation, etc.

---

*"The worst thing that can happen is not energy depletion, economic collapse, limited nuclear war, or conquest by a totalitarian government. As terrible as these catastrophes would be for us, they can be repaired within a few generations. The one process ongoing that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us."*

*E.O. Wilson, Editor, Biodiversity*

---

**CONCEPT 5: How can we help Endangered Species?**

**A Matter of Attitude**

Teachers can provide experiences that will help their students to develop an appreciation for the natural world and the diversity of its resources. Guest speakers and field trips are two ways in which this can be done.

**Suggested Speakers:** field naturalists, game wardens, foresters.

**Suggested Field Trips:** wetlands, beaches, wildlife sanctuaries, aquariums, marine centers, fish hatcheries, museums of natural history, parks, botanical gardens, wildlife reclamation centres and recycling centres.

**A Matter of Action**

These are some actions that students can take to help slow down the consumption of the resources on our planet.

1. Become educated about the problem. Read, learn and understand how living things are connected and rely on one another.
2. Share the knowledge. Talk to classmates, friends and families about the facts they have learned. Write to government officials.
3. Do not buy items made from endangered species.
4. Encourage their families to recycle.
5. Encourage their families to reduce their consumption of water, fuel and power.

**A Matter of Resources**

There are many agencies and organizations that will provide information or have special projects that may interest young children. Address are provided in **Appendix D**.

---

**CONCEPT 1: How does an animal become labelled extinct, endangered or threatened?**

---

**Activity 1: Going, Going, Gone!**

**Materials**

BLM p. 12  
pencil crayons  
pencils

**Preparation**

1. Locate pictures of animals in the extinct, endangered and threatened categories.
2. Photocopy blackline masters.

**Procedure**

1. Have the children look at posters and pictures of animals in the Endangered Species Center.
2. Teach the students the meaning of the words extinct, endangered and threatened. (See page 9.)
3. Distribute copies of the blackline master on page 12.
4. Have the children match the definitions to the words and colour the pictures. (Answers in **Appendix C.**)

---

**Activity 2: Decoding**

**Materials**

BLM p. 13  
pencils

**Preparation**

Photocopy blackline masters.

**Procedure**

1. Review the definitions for the words extinct, endangered and threatened.
2. Distribute copies of the blackline master on page 13.
3. Have the children decode the puzzle and colour the picture. (Answers in **Appendix C.**)

## Going, Going, Gone!

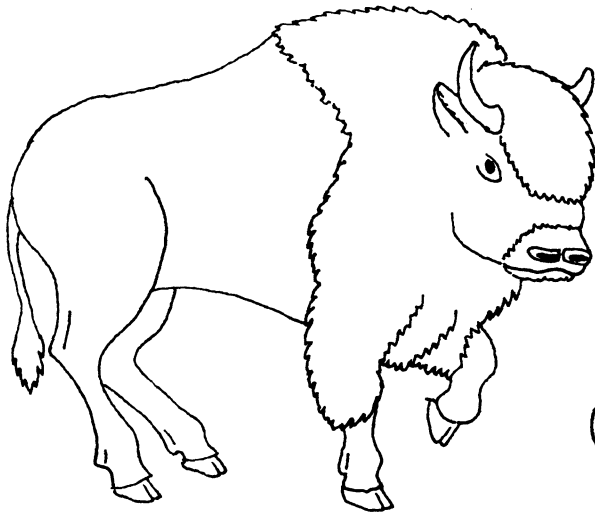
Draw a line from each word to its correct meaning. Colour the pictures.

**threatened**

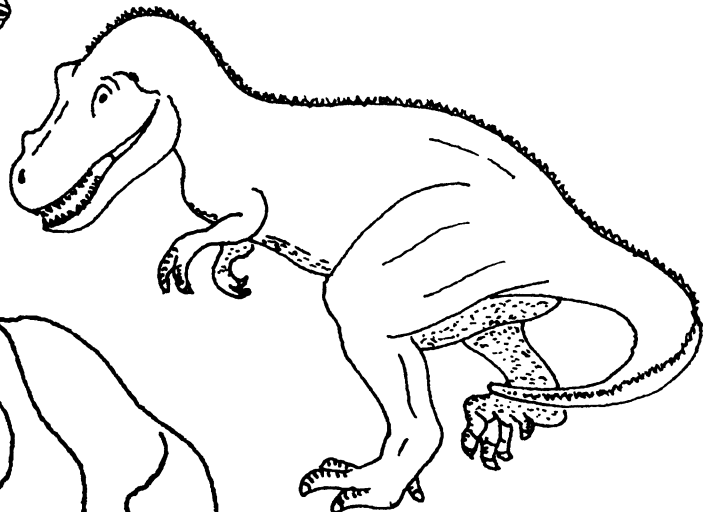
**endangered**

**extinct**

1. a plant or animal that is close to being extinct
2. a plant or animal that is no longer living on the earth
3. a plant or animal that is close to being endangered



**wood bison**  
threatened



**dinosaur**  
extinct



**panda**  
endangered

Date \_\_\_\_\_ Name \_\_\_\_\_

---

## Decoding

Circle the first letter in elephant. Circle the last letter in Trumpeter Swan.  
Follow this pattern to circle all of the letters needed to fill in the blank below.

elephant

Trumpeter Swan

dolphin

panda

Northern Spotted Owl

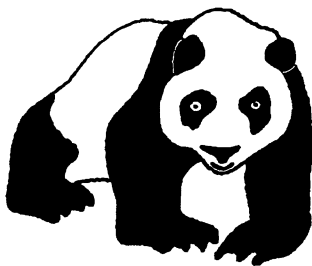
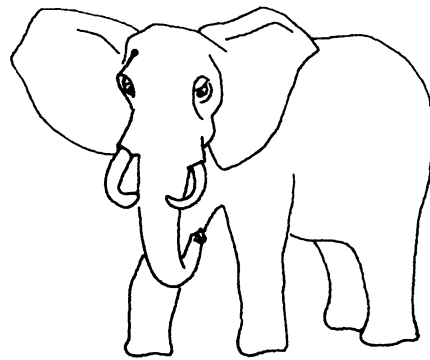
orangutang

eagle

Ivory Billed Woodpecker

Eskimo Curlew

orchid



Animals and plants whose numbers are so low that they are close to being extinct are said to be \_\_\_\_\_.

---

## **CONCEPT 2: Which animals are on the Endangered Species List?**

---

### **Activity 3: It's In The Cards!**

---

#### **Materials**

BLM p. 15 (class set)  
scissors and glue  
construction paper or bristol board

#### **Preparation**

1. Cut construction paper or bristol board into pieces slightly bigger than the animal cards on the blackline master on page 15.
2. Photocopy blackline master.

#### **Procedure**

1. Review the definition of the word endangered.
2. Have the class brainstorm the names of any animals that they know are endangered.
3. Distribute a copy of the blackline master for each child to colour. Have the children read the animal names and identify the animals' continental location.
4. Have the children cut out the cards and glue onto precut pieces of construction paper or bristol board. This will make a set of 16 cards for each child.
5. Instruct the children to work in pairs. Using both decks (32 cards) each pair of children will play a memory game. When the game is finished, the sets of 32 cards could be stored in zip-lock plastic bags for future use.

#### **Game Rules**

1. All cards are placed face down on a table.
2. Player number one turns two cards face up. If the cards match, the child keeps the cards and plays again. If they do not match, player number two takes a turn. The game proceeds until all the cards are picked up. The player with the most cards is the winner.

---

### **Activity 4: A Global View**

---

#### **Materials**

a large wall map of the world  
BLM p. 16 (class set)  
BLM p. 15 (one copy)

#### **Preparation**

1. Photocopy blackline masters.
2. Cut apart the picture cards on a copy of the blackline master on p. 15.

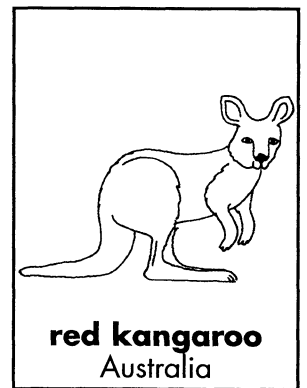
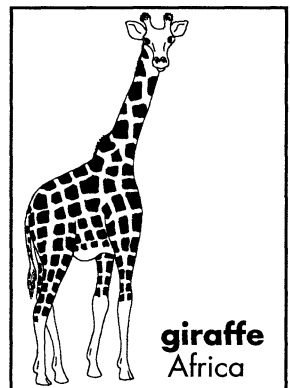
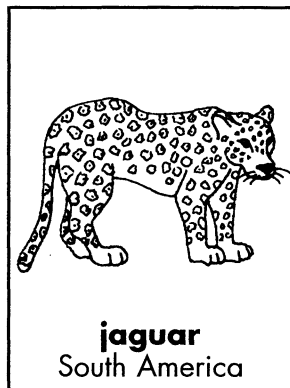
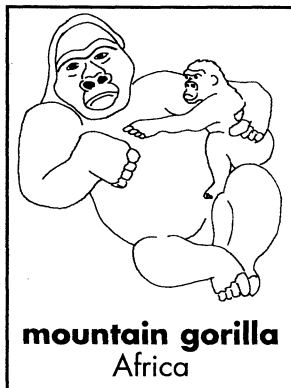
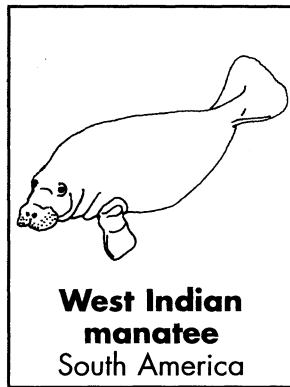
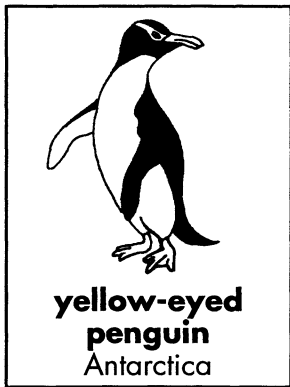
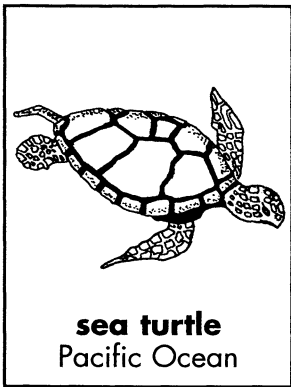
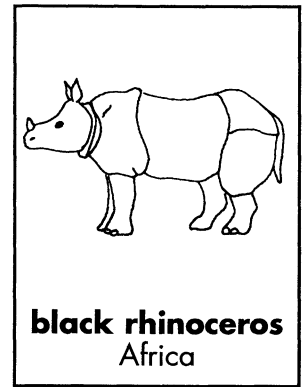
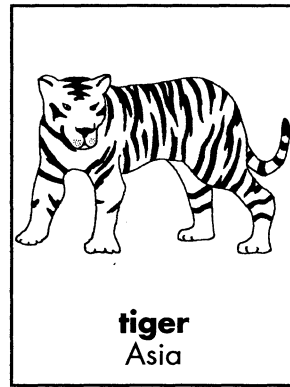
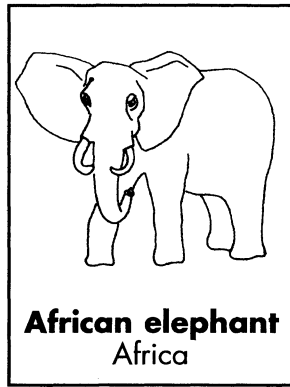
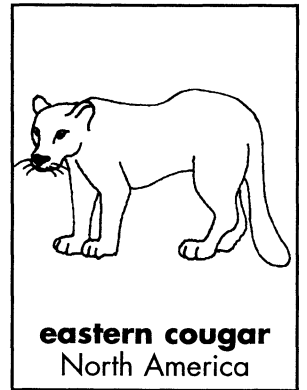
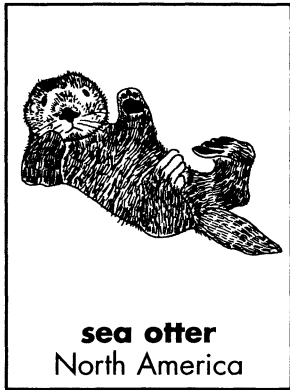
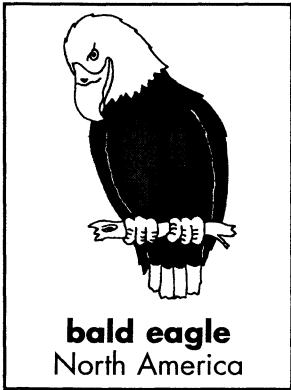
#### **Procedure**

1. Teach the children that there are many endangered species in every ocean and on every continent in the world.
2. Refer to the wall map and have the children name the continents and major oceans.
3. Distribute the copies of the blackline master on page 16.
4. Have the children complete the blackline master.
5. Have the children store the maps in their Science Logs for future reference.
6. Show the picture cards prepared from the blackline master on page 15. Have the children name each animal and find its location on a wall map. Pin or staple the card to the map.

*Note: The map could become a permanent exhibit in the Endangered Species Center. Pictures drawn by the children or cut from magazines could be added as the unit progresses.*

Date \_\_\_\_\_

Name \_\_\_\_\_



Date \_\_\_\_\_ Name \_\_\_\_\_

---

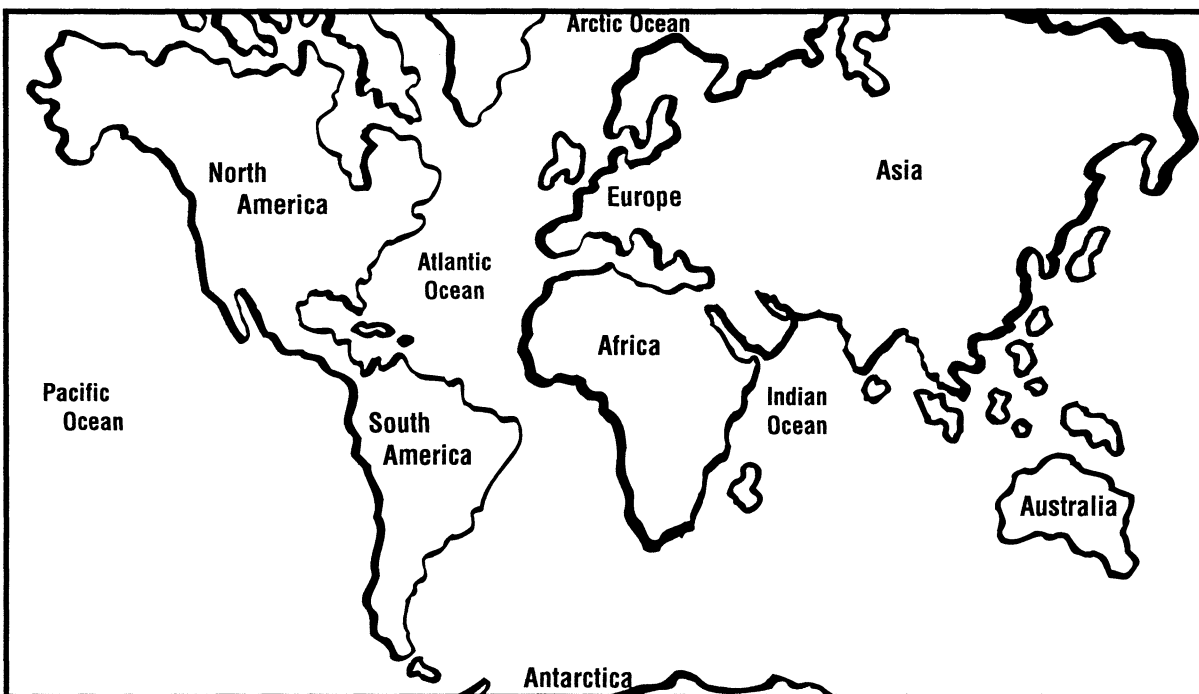
## A Global View

What are the names of the continents?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

What are the names of the major oceans?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



Which continent do you live on? \_\_\_\_\_

Colour your continent green.

---

**CONCEPT 3: How do species become extinct, endangered or threatened?**

---

**Activity 5: Animals in Danger!**

---

**Materials**

BLM p. 18  
pencils

**Preparation**

Photocopy blackline masters.

**Procedure**

1. Have the children recall the animals listed on the cards in Activity 3.
2. Choose one of the animals and brainstorm reasons that may be causing it to become endangered.
3. Distribute copies of the blackline master on page 18.
4. Have the children read the descriptive sentences and match them to the correct animal names. (Answers in **Appendix C.**)

---

**Activity 6: Why Are They Disappearing?**

---

**Materials**

BLM p. 19  
pencils

**Preparation**

Photocopy blackline masters.

**Procedure**

1. Teach the children some of the main reasons for the extinction of animal and plant species: pesticides, habitat destruction, over hunting, pollution and shrinking food resources.
2. Distribute copies of the blackline master on page 19.
3. Have the children look at and discuss the animals pictured in each section.
4. Help them to determine which word in the word bank would be the major factor in causing endangerment. (Answers in **Appendix C.**)

## Animals in Danger!

Match the sentences with the correct pictures.

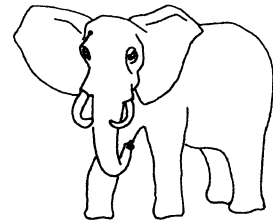
1. \_\_\_\_\_ The chemical DDT got into my food. It made my eggshells so thin that my eggs broke very easily.
2. \_\_\_\_\_ Sometimes plastic bags look like jellyfish floating in the ocean. If I eat one they make me very sick.
3. \_\_\_\_\_ People hunt me for the ivory in my tusks.
4. \_\_\_\_\_ I only live in old growth forests. Many of the forests are being cut down. There are fewer than 100 of us in British Columbia.
5. \_\_\_\_\_ I only eat the stems and leaves of the bamboo plant. In the last 15 years one half of the land that grows bamboo has been destroyed. There are only 1,000 of us left in China.



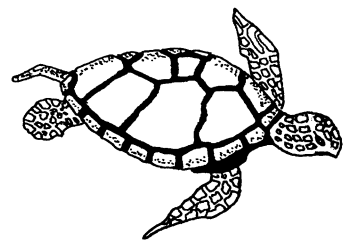
A – panda



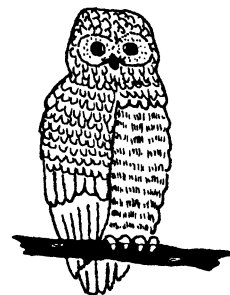
B – bald eagle



C – African elephant



D – sea turtle



E – spotted owl

Date \_\_\_\_\_ Name \_\_\_\_\_

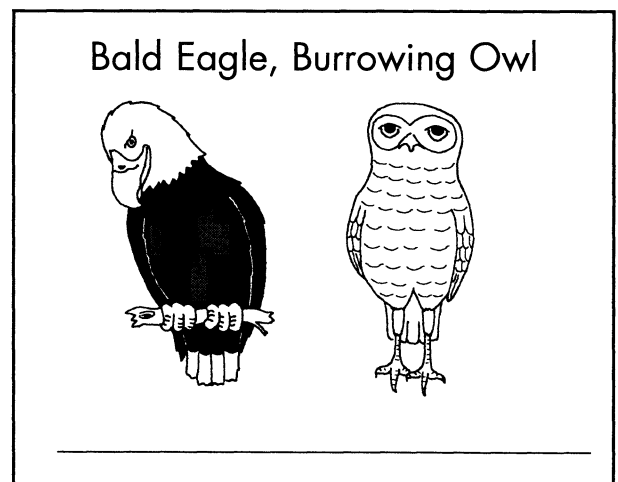
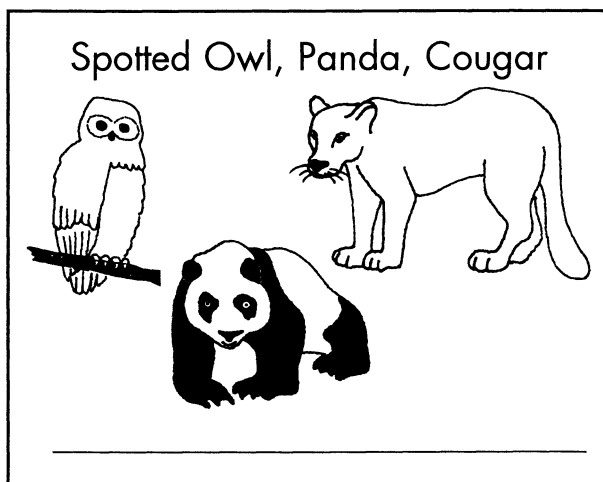
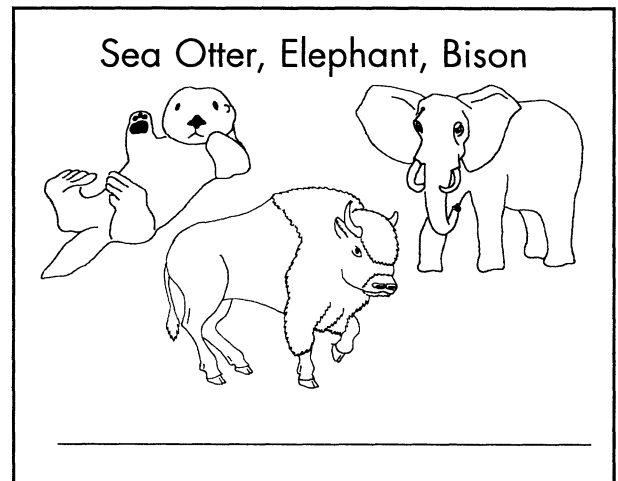
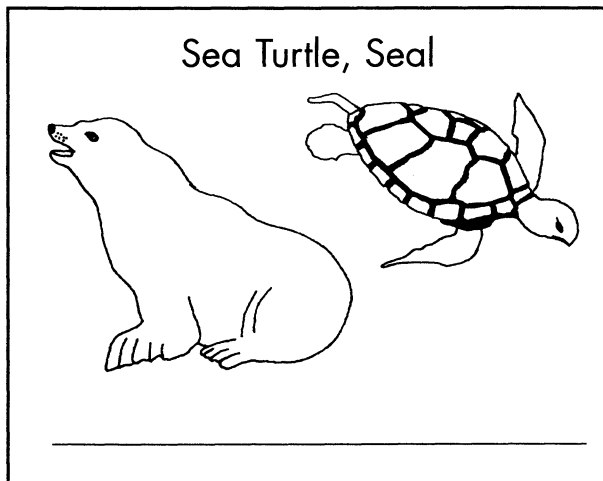
## Why are they disappearing?

Scientists know that there are four main causes for the extinction of animals. Print words from the word bank in each box to tell which cause is the biggest problem for those animals.

### WORD BANK

pesticides  
over hunting

habitat destruction  
pollution



---

**CONCEPT 4: Why should we care about Endangered Species?**

---

**Activity 7: Food Chains**

**Materials**

BLM p. 21  
pencils

**Preparation**

Photocopy blackline masters.

**Procedure**

1. Brainstorm and record reasons why we should care about endangered species.
2. Build the list to include:  
Plants are our source of oxygen.  
Plants and animals are a source of:  
    shelter (lumber)  
    food (meat, fruit, nuts, vegetables, grains)  
    clothing (cotton, wool, leather, rubber)  
    medicine
3. Teach the children that all energy on earth starts with the sun. Plants take energy from the sun and produce their own food. Animals that are plant eaters are called herbivores. Meat eating animals are called carnivores. All species on the earth are part of a food chain. If one link in the chain is lost, the whole chain is at risk. All species on earth are connected and rely on each other for survival.
4. Distribute copies of the blackline master on page 21.
5. Have the children choose words from the word bank to complete the diagram of the food chain.

---

**Activity 8: Who is Missing?**

**Materials**

BLM p. 22  
pencils

**Preparation**

Photocopy blackline masters.

**Procedure**

1. Review the importance of each member of a food chain.
2. Distribute copies of the blackline master on page 22.
3. Have the children use the words from the word bank to complete the food chain. (Answers in **Appendix C.**)

Date \_\_\_\_\_ Name \_\_\_\_\_

## Food Chain

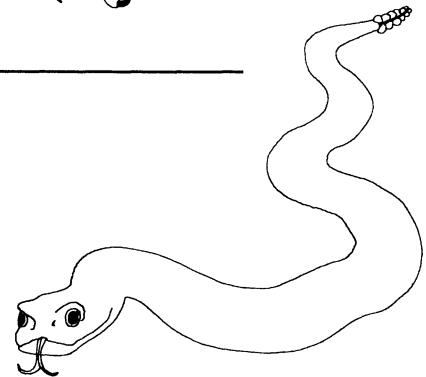
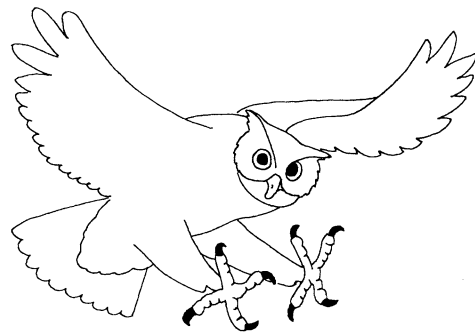
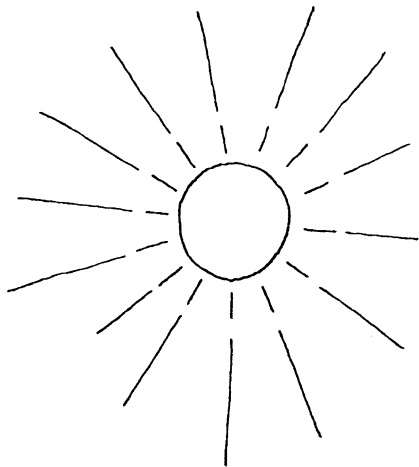
Match each word in the word bank to the correct picture.

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### WORD BANK

grass seeds    sun    snake    mouse    owl

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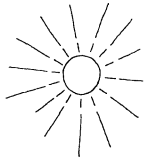


# Who Is Missing?

Use the words from the word bank to finish the food chains.

## WORD BANK

elephant    mouse    sea lion    cougar    grass



1. SUN

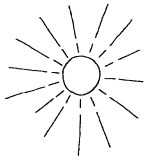
\_\_\_\_\_



MARMOT



OWL



2. SUN

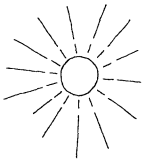


GRASS



RABBIT

\_\_\_\_\_



3. SUN

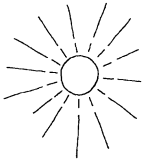


PLANKTON



FISH

\_\_\_\_\_



4. SUN

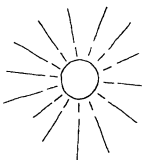


GRASS

\_\_\_\_\_



SNAKE



5. SUN



GRASS

\_\_\_\_\_



TIGER

---

## CONCEPT 5: How can we help Endangered Species?

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### Activity 9: Bird Feeder

---

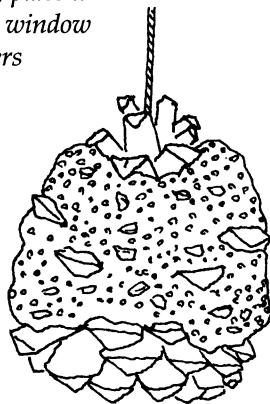
#### Materials

large pine/fir cones (one per child or small group)  
peanut butter  
popsicle sticks or plastic knives  
bird seed  
twine

#### Procedure

1. Review that the destruction of habitat and the shrinking of food sources are the major causes of the accelerated rate of extinction.
2. Brainstorm a list of wildlife (birds and animals) living in your neighbourhood.
3. Try to determine the food sources for these species. Discuss how people can protect these food sources.
4. Have the children spread peanut butter between the woody sections of the cones.
5. Roll the cones in bird seed, so that it coats the peanut butter.
6. String the bird feeders up in the schoolyard or the children could take them home.

*Note: This is a good activity for January. If you had a Christmas tree in the classroom in December, place it outside your classroom window and hang the bird feeders from the branches.*



---

### Activity 10: Board Game

---

#### Materials

dice  
counters (bottle caps, plastic animals, etc. will do)  
game board (enlarged if you wish)

#### Preparation

1. Enlarge the game board and make copies for small groups of students. (optional)
2. Colour and laminate the game boards. (optional)

#### Procedure

1. Review the reasons that animals are becoming endangered and the actions that people can take to help. (See p. 10.)
2. Set up the game in a center or reproduce the board so that the class can play in pairs.

#### Game Rules

1. Roll the dice. The player with the highest score starts first.
2. Place the two counters on the box marked Start. The first player rolls the dice and moves forward. If the player lands on a box marked with instructions, the instructions must be followed before the second player rolls.
3. Play continues until a player reaches the box marked Finish.

# Reading and Responding

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## PREPARATION

1. Locate field guides and books about owls, cougars, sea otters and eagles to have in the classroom for reference. Several good books are listed in **Appendix D**.
2. Gather pictures and posters for display. Outdated calendars are often a good source of wildlife photographs.
3. Photocopy the blackline masters you plan to use during the unit.
4. Plan field trips and invite environmental experts to visit the classroom to show how science is used in the community.

## PRE-READING SUGGESTIONS

1. Distribute copies of the books to the students, if you are working with a classroom set. The following suggestions may be modified if you have only a single copy.
2. Read the title and look at the cover illustration. Discuss the name given to baby animals of the species. Note the author and illustrator's names.
3. Have the students flip through the book and look at the pictures. Discuss how the illustrations were created.

## READING THE STORY

1. Read the text aloud, stopping to clarify vocabulary, to make predictions about what is coming next and to check comprehension.
2. Begin compiling a word bank on chart paper or the board. List words to describe the animal's appearance, actions, etc.
3. After you have read the book aloud, provide opportunities for your students to read silently, with a partner, and to an audience.

## Activity 11: Story Structure

### Procedure

1. Teach or review the following vocabulary: characters, setting, events, ending.
2. Reread the story with the children.
3. Distribute copies of the blackline master on page 27.
4. Read the story structure worksheet with the class. Explain your expectations for completion.
5. Work together as a class or have the children complete the story structure worksheet independently.

## Activity 12: Picture It

This activity can be used during and after reading the story.

### Procedure

1. Check to see that the children understand the following vocabulary: prediction, retell, characters, setting, events, ending.
2. For use while reading the story:
  - a. Distribute copies of the blackline master on page 28.
  - b. Have the children draw interesting events or ideas in the first box while you are reading the story aloud. Stop reading. Have them write a prediction of what will happen next on the lines below that box.
  - c. Continue in the same manner for box two, three and four.
3. For use after reading the story:

Have the children retell the story by writing the most important events on the lines and illustrating the sentences in the four boxes.

Date \_\_\_\_\_ Name \_\_\_\_\_

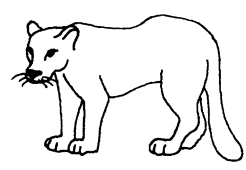
## Story Structure

Title \_\_\_\_\_

Author \_\_\_\_\_

Illustrator \_\_\_\_\_

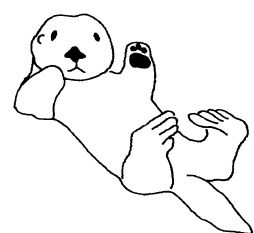
Characters (Colour one and print its name.)



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

Setting (where? when?)

\_\_\_\_\_

Events in the story

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

Story ending

1. \_\_\_\_\_
2. \_\_\_\_\_

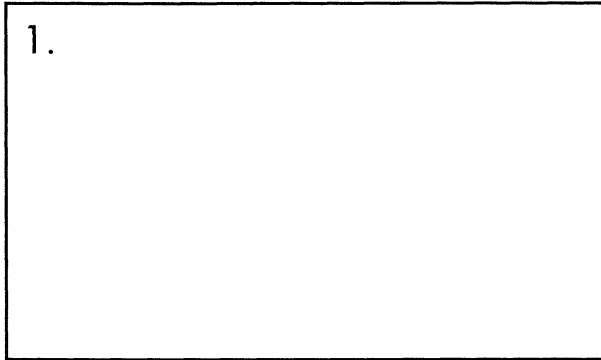
Date \_\_\_\_\_ Name \_\_\_\_\_

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## Picture It

Title \_\_\_\_\_

1.



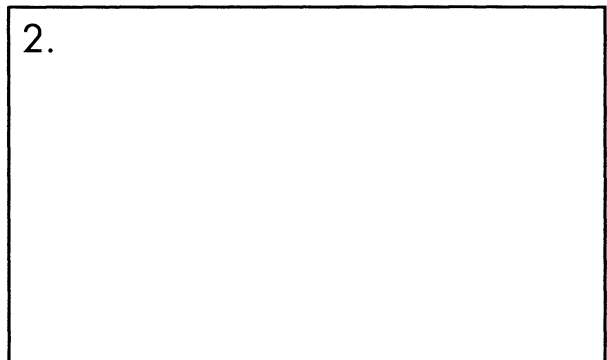
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\_\_\_\_\_

\_\_\_\_\_

2.



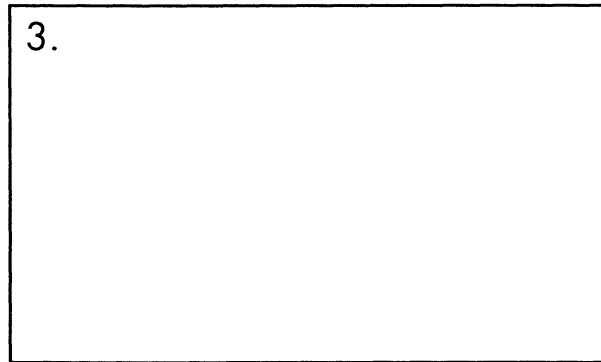
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3.



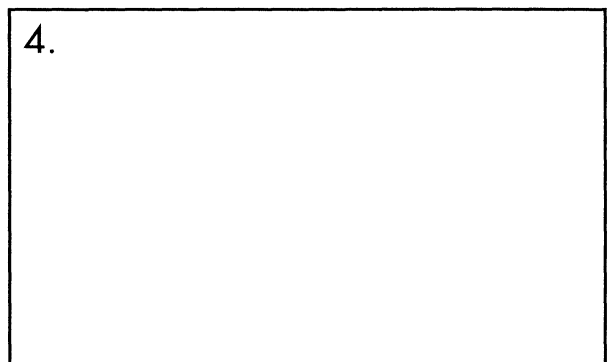
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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Book One: Cougar Kittens

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## BOOK OVERVIEW

---

Cougars live in a habitat that is varied in nature. It usually includes trees, shrubs, rocky cliffs and bluffs. *Cougar Kittens* is a story about three young cougars who are left alone for the day while their mother is hunting. Through rough and tumble play, the kittens learn the survival techniques that will save them from real danger.

## VOCABULARY LIST

---

|         |         |
|---------|---------|
| cougar  | hemlock |
| kittens | tail    |
| deer    | claws   |
| paw     | food    |
| thicket | purr    |
| family  | range   |

## FACTS FOR TEACHERS

---

### Appearance

- Adult body length is 1.5 – 2.75 metres.
- The tail is usually one third of the body length.
- Adult body weight is 60 – 70 for males and 45 – 50 for females.
- Most cougars are tawny brown to grayish brown in colour. The throat and underparts are usually white. The tip of the tail and the back of the ears are black.
- Cougar fur is coarse in texture.

### Range

- The cougar's range was once the most widespread of any North American wild mammal.
- Today healthy populations of cougars exist in British Columbia, Alberta and the western states.

- Eastern cougars (subspecies) were once found across Ontario, Quebec, New Brunswick and Nova Scotia. They were thought to be extinct but occasional sightings have been reported. They are classified as endangered.

### Habitat

- Cougars range through a variety of habitat but prefer areas that afford them cover. Habitat usually includes trees, bushes, shrubs, bluffs and rocky ledges.

### Food

- The cougar's main diet is deer. It will also eat hare, squirrels, moose, mice, birds, beaver, coyotes, foxes and skunks.
- Cougar catch their prey by stalking and then leaping from trees, rocky cliffs and other hiding places.

### Reproduction

- Females are mature at 2 – 2 1/2 years.
- They may breed at any time of the year.
- Litters usually have 2 – 3 kittens but litters as large as 6 have been known.
- Gestation period is 96 days.
- Kittens are light coloured with darker spots or bars which fade at 9 – 12 months.
- Newborn kittens are 30 mm. long and weigh 400 g.
- The eyes are closed until the tenth day.
- Eyes are blue until they change to amber at about 16 months.
- Newborn kittens begin to drink milk at birth. Meat is introduced at about 6 weeks.
- Kittens are dependent on their mother for about 1 1/2 years.

### Threats

- The biggest threat to the Eastern cougar has been habitat encroachment, hunting and road construction into wilderness areas.

---

## CHECKING UNDERSTANDING

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### Activity 13: Truth and Tricks

Distribute copies of the blackline master on page 33. This could be an individual or partner activity. Answers in **Appendix C**.

## THEME ACTIVITY

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### Activity 14: Location! Location! Location!

All species require air, food, water and shelter. These four critical elements must be present in a creature's habitat in a way that is just right for that animal. The loss of habitat is the primary cause of the decline of the Eastern cougar. When human beings encroach on cougar territory, the cougar retreats. Cougars prefer to range over territories free of roads, logging or habitation. Parks do not provide sufficient territory because they are often too small and are frequently visited by large numbers of people. Research by cougar specialists indicates that the minimum requirement for fifty cougars to survive one hundred years, would be a block of 160 500 hectares (620 square miles) of wilderness.

#### Materials

BLM p. 34  
pencils

#### Procedure

1. Teach the children that the loss of habitat is the primary cause of the decline of the Eastern cougar.
2. Have the children brainstorm ways in which cougar territory is encroached on by humans.
3. Distribute copies of the blackline master on page 34. Have the children complete the worksheet individually or as a class.

#### Extending the Activity

Have the class brainstorm ideas to help solve the problem of habitat destruction for the cougar.

---

## EXTENDING THE LEARNING

---

### Activity 15: Cougar Poems

#### Materials

pencils  
paper  
chalkboard

#### Procedure

1. Over a number of days, generate lists of cougar words:  
**actions** – creep, pounce, play, prowl, leap  
**sounds** – whine, growl, purr, shriek, whimper  
**appearance** – sleek, tan, muscular, amber eyes
2. Print one of the following poetry frames on the chalkboard (or use your own). Have the class fill in the frame. The word lists should be available to help to generate ideas.
3. Provide opportunities to read and make changes to the poem.
4. Generate several other poems, until you feel the class is ready to try the assignment independently.

#### Sample poetry frames:

Cougar! Cougar! Cougar!  
Here comes the cougar.  
The mother calls to her kittens to follow  
her to the shady hollow  
where she has hidden another deer.  
Here comes the cougar.

The cougar kittens wandered  
through the bushes  
over the fallen log  
down the trail to the creek  
around the old cedar tree  
and back to the den again,  
when they heard their mother calling.

## Activity 16: Research Skills Activity

This activity teaches the student how to sort and classify facts. This is one of the first steps in writing a research report.

### Materials

BLM p. 35  
scissors  
glue  
pencil  
construction paper

### Procedure

1. Ask the students what they would like to learn about cougars. Make a list of questions.
2. Look at the display of cougar pictures, posters, books, etc.
3. In pairs, or alone, have the students cut apart the boxes of facts on page 35.
4. Have the students sort the facts into categories on a sheet of construction paper—but don't glue them yet! Headings can be provided (e.g. Appearance, Habitat, Young, Food, Enemies, Other) or the students can make up headings to match their sortings.
5. Once the facts are sorted, the students organize the facts from most to least important and glue them down. There is no right answer but students should be encouraged to think about each fact in relation to a given category.

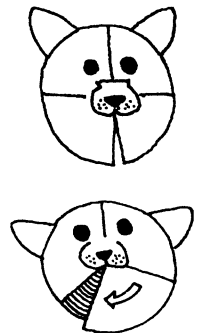
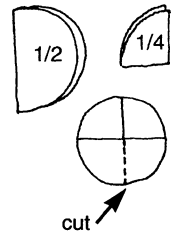
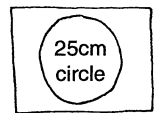
## Activity 17: Masks

### Materials

construction paper (gray, brown and black)  
scissors  
glue

### Procedure

1. Look at pictures of a cougar. Pay particular attention to the positioning of the eyes, ears and nose.
2. Trace a large circle about 25 cm in diameter onto gray or brown construction paper.
3. Cut the circle out.
4. Fold the circle into quarters and then open it flat and cut a line from the edge to the centre.
5. Overlap the two quarters and glue to form a shallow cone.
6. Make ears using rounded triangles about 7-9 cm tall.
7. Make the nose by cutting a rectangle about 15 cm long and 7 cm wide. Round the corners at one end of the rectangle. Fold the snout in half and glue on the face. Glue a black triangle to the end of the snout.
8. Add eyes and whiskers with markers or construction paper.
9. This mask can easily be adapted to the sea otter shape.



finished mask

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## Activity 18: Fact Finder

### Materials

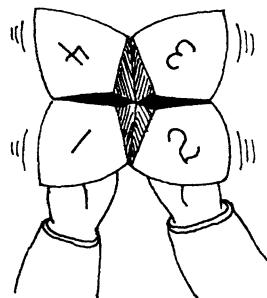
scissors  
pencils  
19 cm x 19 cm (8.5" x 8.5") square sheets of paper

### Procedure

1. Have each child identify four interesting questions about the cougar to which they can give an accurate answer.
2. Have each child make a fact finder:
  - a. Fold square in half, open and fold in half the other way to make fourths. Open.
  - b. Fold the 4 points to the center to form a smaller square.
  - c. Flip over and fold the 4 points to the centre forming an even smaller square.
  - d. Eight right triangles should be showing. The triangles are connected in pairs making four flaps. Write a question or clue on top of each flap. Flip open the flap and write the answer on the underside of the flap.
  - e. Flip the square over to reveal four square pockets for fingers. Number the finger pockets one through four.

### Using the Fact Finder

The child (holder) folds the square in half and puts thumbs and fore fingers into the finger pockets, keeping the fingers together so that the fact finder is closed. Another child (player) selects a number from the finger pockets. The holder pinches the fact finder in and out counting until the number is reached, ending with the fact finder open. The player selects one question or clue and responds to it. The holder looks under the flap to check for correct response.



## Activity 19: First Nations and Cougars

### Materials

large pieces of manila tag or cardboard  
construction paper  
envelopes  
small (playing card size) pieces of manila tag  
felt pens, pencils, pencil crayons  
dice, coloured counters  
BLM p. 36

### Procedure

1. Review the cougar facts that the children sorted in a previous lesson.
2. Have the children look at pictures and posters of the cougar.
3. Distribute copies of the blackline master on page 36. Read the information with the class.
4. Discuss the information and ask students to store the sheet in their Science Logs.
5. Over a period of several days, have the students design and colour a game board on manila tag. Have them plan it so that the players must travel through the cougar's habitat.
6. Have the children use their cougar fast facts and First Nations information to make question cards with answers on the back.
7. The boards could be laminated when finished.
8. Have the students establish rules for the game.
9. Have the children teach their game to a big buddy or another member of the class.

## Truth and Tricks

When you read these sentences you will find that they are trying to trick you! Circle one word in each sentence that is not true. Print a new word in the space to make it true.

1. Cougar kittens have two paws. \_\_\_\_\_
2. The mother hunts for fish. \_\_\_\_\_
3. A kitten's sharp tail helps it to climb trees. \_\_\_\_\_
4. Kittens have stripes to help hide them in the bush. \_\_\_\_\_
5. A cougar's territory is called its bed. \_\_\_\_\_
6. A kitten learns to hunt by reading. \_\_\_\_\_
7. A kitten will fly up a tree when it is afraid. \_\_\_\_\_
8. The mother licks her kittens with a sticky tongue. \_\_\_\_\_

Unscramble the letters to find these words from the story:

cougar    kittens    tail    deer    claws    paw    food    range

agner \_\_\_\_\_

raguco \_\_\_\_\_

lait \_\_\_\_\_

reed \_\_\_\_\_

fodo \_\_\_\_\_

wascl \_\_\_\_\_

sitknet \_\_\_\_\_

wap \_\_\_\_\_

Date \_\_\_\_\_ Name \_\_\_\_\_

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## Location! Location! Location!

A cougar needs a habitat that

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Put an x in the box beside the things that might hurt a cougar's habitat.

road building

mining

logging

tourism

dam construction

building cities

farming

water pollution

To protect the cougar's habitat people could

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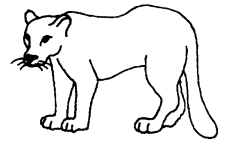
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Date \_\_\_\_\_ Name \_\_\_\_\_



## Cougar Fast Facts

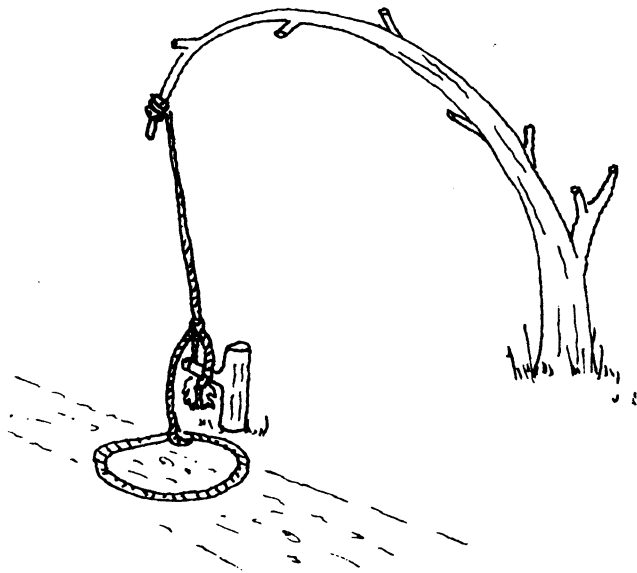
|  |   |  |
|--|---|--|
| found in North and South America       | mammal                                      | short, sharp hooks on the tongue       |
| also called pumas or mountain lions    | carnivore                                   | thick fur                              |
| long black-tipped tail                 | small head                                  | rounded, black-edged ears              |
| its colour blends in with surroundings | thick, muscular legs                        | very large paws                        |
| claws pull in when not needed          | male is about twice as big as the female    | eats mostly deer                       |
| 2 – 4 kittens in a litter              | female raises young by herself for one year | females usually mate every second year |
| females teach the young to hunt        | lives alone                                 | climbs well                            |
| red-brown to blue-grey in colour       | likes rocky, mountainous areas              | sneaks up and pounces on its prey      |
| very keen eyesight                     | special scissor-like teeth to cut food      | large territory                        |

## First Nations and Cougars

The First Nations people of the west coast lived along the water's edge. They gathered food from the beaches. They hunted and fished in the ocean. They rarely entered the forest.

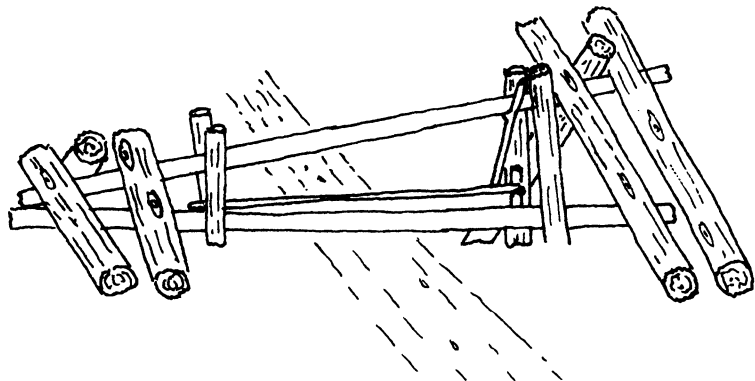
A few men in each village were trained to hunt in the forest. Cougar, and other animals like mink, rabbits, raccoons, bobcats and beaver were caught in traps. Traps were often made along paths that animals used.

The people ate the meat of the cougar but the animal was mostly prized for its hide.



**Spring Trap** – A young, strong tree was bent over an animal trail and held down with a triggering device. A noose was tied to the tree. When an animal stepped into the noose, the triggering device released the tree, jerking the noose tightly around the animal's leg.

**Dead Fall Trap** – Heavy logs were carefully balanced and baited with salmon. When the animal pulled the bait, the heavy logs would fall on the animal, injuring or killing it.



# Book Two: Bald Eaglets

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## BOOK OVERVIEW

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Although Bald Eagles were once widespread throughout North America they are now most commonly found along the west coast. *Bald Eaglets* tells the story of the exhausting process by which two baby eagles are hatched. The eaglets then depend completely on their devoted parents while they grow and gather strength to leave the nest for the first time.

## VOCABULARY LIST

---

|       |          |
|-------|----------|
| bald  | eagle    |
| Sitka | spruce   |
| pair  | nest     |
| eggs  | shell    |
| tooth | pecks    |
| beak  | feathers |

## FACTS FOR TEACHERS

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### Appearance

- Adults have blackish brown bodies, white heads and tails, and a yellow bill. Juveniles are brown without the white markings.
- Males weigh an average of 2.5 kg, and females weigh 3.1 kg.

### Range

- Bald eagles were once widespread in North America. Now they are mostly found along the west coast. They are classified as endangered and threatened in the United States.

### Habitat

- Bald eagles are found in habitats that are close to a water source (large rivers, lakes, and the ocean).

### Food

- The diet of these birds varies according to the habitat. They are scavengers and will eat the carcasses of most fish, birds and mammals. They are also skilled hunters. They catch their prey in the air, on the ground and in the water. They can spot their prey from 3 kilometers away. They can dive at 160 kilometers an hour.

### Reproduction

- Bald eagles usually nest near a water source.
- Nests are constructed from a large mass of sticks. They are usually lined with mosses, grasses or other plants.
- Nests are reused each year by the same breeding pair.
- Clutch usually consists of two white eggs (rarely, three or four).
- Eggs are laid 2 to 4 days apart.
- Incubation is 31 to 36 days.
- Both parents incubate the eggs.
- Eaglets are fed by both parents (usually strips of meat that are torn up).
- Eaglets begin to feed themselves at about 7 weeks.

### Threats

- Habitat destruction.
- Hunting (farmers thought of them as a threat to livestock).
- Exposure to chemical poisons (DDT, PCBs, etc. have killed many eagles and damaged the reproductive systems of many more).

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## CHECKING THE UNDERSTANDING

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### Activity 20: Truth, Tricks and Questions

Distribute copies of the blackline master on page 41. This could be an individual or partner activity. Note: "Write two tricks " means "Write two sentences that are deliberately incorrect." Answers will vary.

## THEME ACTIVITY

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### Activity 21: The Danger of Chemicals

#### Materials

BLM p. 42  
pencils

#### Procedure

1. Teach the children that the bald eagle became threatened when chemicals such as DDT found their way into the eagle's food chain. As a result of the chemical consumption, this bird's eggshells became so thin that the eggs were often crushed and destroyed.
2. In the early 1970s, DDT was banned in North America. The bald eagle population is now making a slow recovery.
3. Review the concept of food chains—that all species rely on other species for food and that food chains are interconnected, creating a web of life that links all species. If one part of the web is damaged, it affects all parts of the web.
4. Distribute copies of the blackline master on page 42.
5. Read the text of the blackline master with the class. Have them label the diagram using the word bank.

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## EXTENDING THE LEARNING

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### Activity 22: Eagles here! Eagles there!

#### Materials

pencils  
paper  
chalkboard

#### Procedure

1. Brainstorm lists of eagle words with the children:

**appearance:** black, white, strong beak, talons, etc.

**actions:** glide, soar, dive, snatch, roost, etc.

**habitat:** tree branch, snag, coastline, beach, nest, etc.

2. Look at pictures, books and posters of bald eagles.

3. Print this pattern on the chalkboard:

Eagles here, Eagles there,

Eagles, Eagles, everywhere!

\_\_\_\_\_ eagles \_\_\_\_\_

\_\_\_\_\_ eagles \_\_\_\_\_

\_\_\_\_\_ eagles \_\_\_\_\_

Eagles \_\_\_\_\_

Eagle \_\_\_\_\_

Eagles! Eagles! Eagles!

4. Using the word lists, have the class fill in the pattern.
5. Provide opportunities to read, reread and change the pattern.
6. Practice the pattern until the children are ready to begin working independently on paper.
7. Have the children read their patterns to older buddies or to their classmates.

---

### Activity 23: Research Skill Activity

This activity teaches students how to sort and classify facts and then to write two sentences about the topic. These are preliminary steps to writing a research report.

#### Materials

BLM p. 43, 44  
pencils  
scissors  
construction paper  
glue

#### Procedure

*This lesson may be taught over several days.*

1. Ask the students what they would like to learn about eagles. Make a list of questions.
2. Look at the display of eagle pictures, posters, books, etc.
3. In pairs, or alone, have the children cut apart the boxes of facts on the blackline master on page 43.
4. Have the students sort the facts into categories on a sheet of construction paper-but don't let them glue them down yet. Headings can be provided (eg. Appearance, Habitat, Young, Food, Enemies, Other) or the students can make up headings to match their sorting.
5. Once the facts are sorted, the students organize the facts from most to least important and then glue them down. There is no right or wrong answer but students should think about each fact in relation to a given category.
6. Distribute copies of the sentence frame blackline master on page 44.
7. Review the elements of a good sentence: capitalization, punctuation, contains one complete thought.
8. Have each student choose a category and write two (or more) sentences using facts from that category (e.g. two sentences about the eagle's appearance), and illustrate their sentences in the box below.

### Activity 24: Eagle Eyes Math

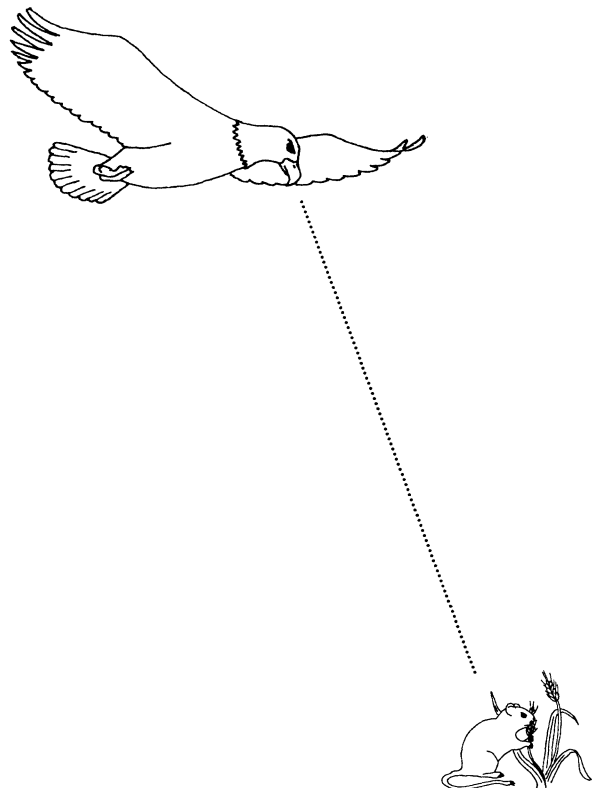
**Math Skills:** measuring, calculating, estimating

#### Materials

gluestick (or any other object of a similar size)  
measuring tape

#### Procedure

1. Teach the students that their eyes' ability to focus on things at a distance is called "resolving power."
2. A Bald eagle has a "resolving power" that is eight times better than a human being's.
3. Set the glue stick down on the ground.
4. Back away from the glue stick until you can no longer see it. This is the limit of your resolving power.
5. Measure the distance.
6. Multiply the distance by eight and you will know how far the eagle can be and still be able to see the glue stick.



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## Activity 25: Drawing an Eagle

### Materials

pencils  
BLM p. 45

### Procedure

1. Have the class look at any available photographs, drawings or paintings of the eagle.
2. Distribute copies of the blackline master on page 45.
3. Have the class examine the half drawing.
4. Instruct the class to complete the other half of the drawing.

## Activity 26: First Nations Awareness – The Eagle Symbol

### Materials

pictures that show the eagle represented in First Nation's art  
BLM p. 46

### Procedure

1. Ask your class to look closely at the pictures depicting eagle that you have available. A characteristic feature of the eagle is a beak with a strong downward curve. The tongue is usually shown within the beak. The "ears" often give the appearance of a crest on top of the head.
2. Draw your students' attention to the basic forms used by coastal First Nations artists—

**Form lines:** define the features and basic shape of the subject. The form line flows and changes in thickness.

**Ovoid:** a rounded rectangle. Ovoids are usually open shapes which vary in proportion and are drawn with lines that vary in thickness.

**Inner Ovoid:** a smaller, more often solid or nearly solid ovoid within an open ovoid.

**U Form:** A line with a U shape. U forms vary in

proportion (wide and flat to tall and thin). U forms are used to represent features like feathers, and to fill in open spaces.

**S Form:** used for filling in spaces, the S form is composed of two halves of a U form joined in opposite directions.

3. Note similarities and differences in the depiction of the eagle by various artists.
4. Focus your students' attention on the pictures of eagle that you have available which are symmetrical in design.
5. Discuss how often symmetry occurs in nature—leaves, flowers, animal bodies, faces. If possible, show pictures or objects that illustrate both lateral and radial symmetry. Discuss how symmetry is seen in man-made objects.
6. Explain that in First Nations culture, symmetry and balance are very important, and that this importance is reflected in the people's art.
7. Distribute copies of the blackline master on page 46.
8. Read the text of the blackline master with the class.
9. Guide your students in creating a symmetrical design depicting eagle using the basic forms characteristic of coastal First Nations art.
10. Have the children store the blackline master in their science logs.

Date \_\_\_\_\_ Name \_\_\_\_\_

## Truth, Tricks and Questions

**Write two facts  
about bald eaglets.**

**1.**

---

---

---

**2.**

---

---

---

**Write two tricks  
about bald eaglets.**

**1.**

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**2.**

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**Write two questions about bald eaglets.**

**1.**

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---

**2.**

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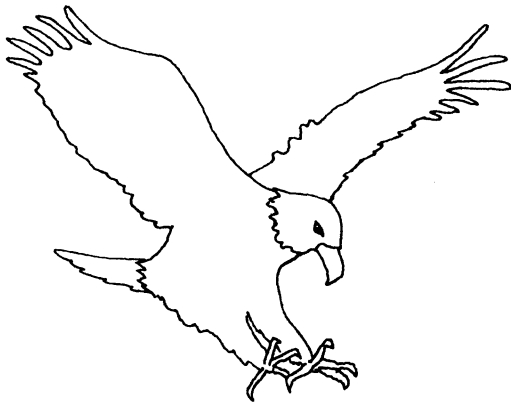
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Date \_\_\_\_\_ Name \_\_\_\_\_

## The Danger of Chemicals

When farmers sprayed DDT on their fields to kill insects, the poison went into the plants, the air, the soil and the water. Most of the insects in the fields died, but some survived. Animals that ate the insects or plants also ate the poison. Their bodies held the poison inside them and it was passed on to the other animals that ate them. When a Bald Eagle ate one of these small animals it also ate the poison. The poison did not kill the eagle but it did make its eggshells very thin. The eggshells often broke before the eaglets were big enough to survive.

Label the diagram with the following: **eagle** **DDT** **rabbit**



Date \_\_\_\_\_ Name \_\_\_\_\_



## Eagle Fast Facts

|  |  |   |
|--|--|---|
| found on the west coast of North America | white head and tail                    | brownish black body                               |
| yellow beak                              | sharp talons                           | females larger than males                         |
| bird of prey                             | 1 to 3 eggs in a clutch                | eggs laid 2 – 4 days apart                        |
| nest is built of twigs and sticks        | nest is lined with soft moss and grass | both parents bring food to the eaglets            |
| eaglets feed on torn up meat             | both parents keep the eggs warm        | the eaglet breaks the eggshell with its egg tooth |
| eaglets leave the nest at 72 – 75 days   | bald eagles live near water            | sharp eyesight                                    |
| skilled hunters                          | dive to capture prey                   | eat fish, birds and small mammals                 |
| endangered                               | threatened by chemicals                | threatened by habitat loss                        |
| parents use the same nest every year     | parents stay together for life         | another name for nest is aerie                    |

Date \_\_\_\_\_ Name \_\_\_\_\_

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## Research Skills: Writing Sentences

I am learning about \_\_\_\_\_

I am writing about \_\_\_\_\_

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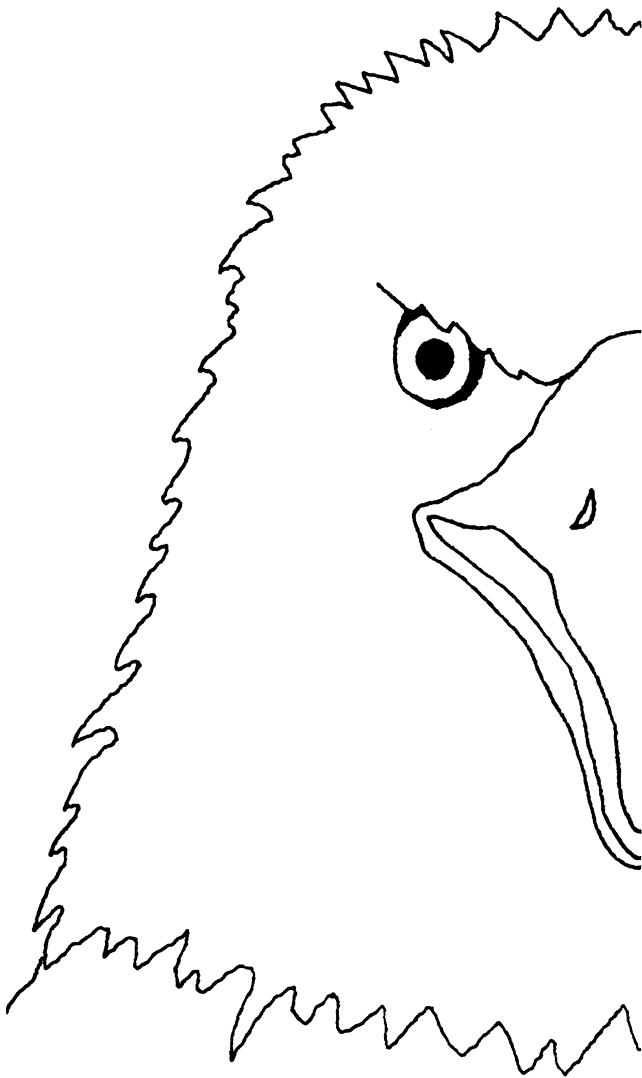
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Date \_\_\_\_\_ Name \_\_\_\_\_

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## Drawing an Eagle

Try drawing the other half of this Bald eagle. When you are finished you may colour it. Remember the head is white. The eyes and beak are yellow.



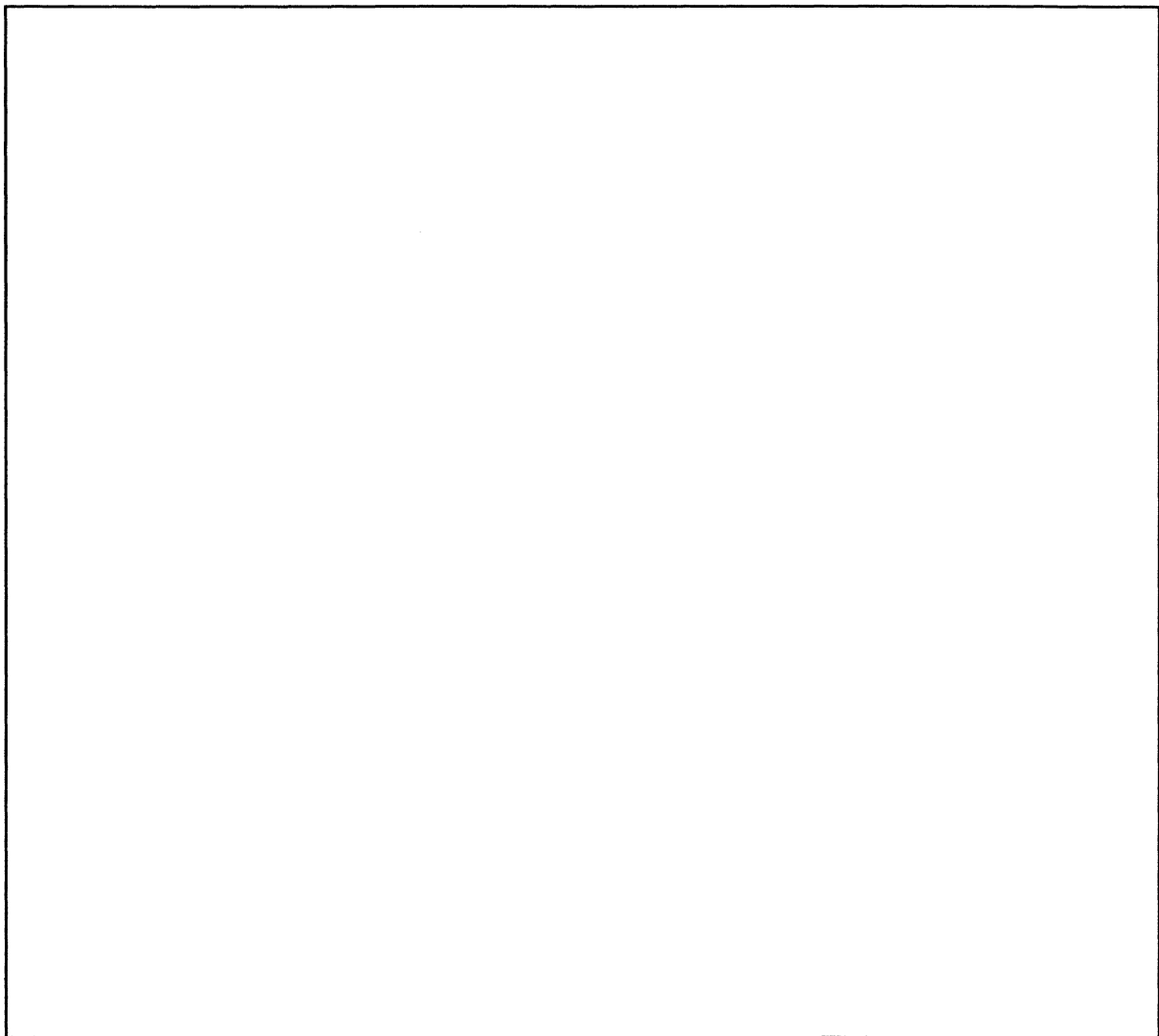
Date \_\_\_\_\_ Name \_\_\_\_\_

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## The Eagle Symbol

The eagle is a symbol of power to the First Nations people. Many stories and legends feature the eagle. The eagle often appears on carvings and paintings.

Eagle feathers were used in ceremonies. They were used on ceremonial headdresses and masks. Eagle down also decorated ceremonial clothing. Down was often sprinkled during ceremonies and dances as symbols of peace.



# Book Three: Spotted Owlets

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## BOOK OVERVIEW

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Northern Spotted Owls live in old-growth forests of the Pacific Northwest. *Spotted Owlets* is a story about these rare birds written for young children. The tale relates how an owlet emerges from its nest and perches precariously—sometimes falling and laboriously climbing back up—on a branch of a Douglas Fir until he learns to fly.

## VOCABULARY LIST

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|               |             |
|---------------|-------------|
| forest        | Douglas fir |
| Spotted owlet | nest        |
| talons        | beak        |
| perch         | trunk       |
| fly           |             |

## FACTS FOR TEACHERS

---

### Appearance

- This owl has a round head and black eyes.
- The feathers are brown with white spots on the head and neck.
- It has white bars on the breast and abdomen.
- The male weighs approximately 637 grams. The female weighs 637 grams.

### Range

- The Spotted owl lives in old growth forests from southwest British Columbia to southern California; and from central Colorado to Arizona, New Mexico, Texas and central Mexico.
- It is not migratory.

### Habitat

- The spotted owlet lives in old growth forests.
- This bird has been known to make hunting trips into second growth forests.
- It roosts in the deep shade of the forest canopy.

### Food

- These owls hunt small mammals such as mice, rats and squirrels.

### Reproduction

- The nest is built in a hole in a tree in the dense forest, close to a water source.
- They mate with the same partner for life.
- They breed at about 2 years.
- The breeding season is March to September.
- There are 2 – 3 eggs in a clutch.
- The eggs are incubated for 30 days by the female.
- The male feeds the female during the incubation time.
- When the owlets are 2 weeks old the mother begins to help forage for food.
- The owlets are independent by the end of the summer.

### Threats

- The biggest threat to this owl is loss of habitat due to logging.
- The last confirmed sighting in British Columbia was in 1993.
- It is very close to extinction and is on the endangered list.
- Other threats include pollution, natural predation, urbanization and forest fires.
- Natural predators include the great horned owl, the red-tailed hawk and the raven, which destroys the eggs.

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## CHECKING UNDERSTANDING

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### Activity 27: Fill in the Blanks

Distribute copies of the blackline master on page 50. This could be an individual or partner activity.

## THEME ACTIVITY

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### Activity 28: Going, Going, Gone!

#### Materials

a piece of play equipment for each child  
cones  
a large playing area (either outside or in the gym)

#### Procedure

1. Teach the students that the Spotted Owl lives only in the depths of old growth forests. Its biggest threat is loss of habitat due to logging. It is very close to extinction. The last confirmed sighting in British Columbia was in 1993.
2. Discuss reasons why this owl is affected by habitat destruction: loss of safe nesting sites, loss of protective cover food sources .
3. Using the cones as a perimeter line, define a playing area on the playground or in the gym.
4. Have the children each choose a piece of equipment and move to a spot inside the area.
5. Allow the children to play until you sound a pe-determined signal (e.g. whistle, hand clap). At this time, reduce the play area by one third and remove some of the play equipment.
6. Repeat the above procedure.
7. Discuss how it felt to have the playing conditions become so crowded. Have the children give feedback on how it felt to have a reduced amount of playground equipment.
8. Have the children imagine the playing area is the owl's habitat, and the equipment is food sources. Consider the implications for the owl's survival.

---

## EXTENDING THE LEARNING

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### Activity 29: Owl Poems

#### Materials

chalkboard  
pencils

#### Procedure

1. Brainstorm a list of owl words:  
**appearance:** talons, beak, downy, spotted, brown, feathers  
**action:** swoop, fly, glide, climb, hunt, snatch  
**habitat:** forest, nest, tree, branch
2. Teach the class the following poetry frame:  
animal name (1 word)           owlet  
describing words (2 words)   downy, soft  
action (3 words)               perching flapping  
  calling  
habitat (4 words)               close to the nest  
animal name (1 word)           owlet
3. Have the class create several of the frames on the chalkboard.
4. Provide opportunities for the class to read and change the frames.
5. When the children are ready they can print their own poetry frames.

### Activity 30: Talking Owlets

#### Materials

pencils  
BLM p. 51

#### Procedure

1. Distribute copies of the blackline master on page 53.
2. Have the students fill in the balloons with conversation that makes sense and demonstrates their knowledge about owls.

---

### Activity 31: Research Skills Activity

This activity reinforces how to sort and classify facts and introduces simple paragraphs. These are preliminary steps to writing a research report.

#### Materials

BLM p. 52, 53  
scissors, glue, pencil  
construction paper

#### Procedure

1. Ask the students what they want to learn about the Spotted Owl. Make a list of questions.
2. Look at a display of owl pictures, posters, books etc.
3. In pairs, or alone, have the students cut apart the boxes of facts on page 52.
4. Have the students sort the facts into categories on a sheet of construction paper—but don't glue them down yet. Headings can be provided (eg. Appearance, Habitat, Young, Food, Enemies, Other) or the students can make up headings to match their sorting.
5. Once the facts are sorted, the students organize them from the most to least important and glue them down. There is no right answer but students should be encouraged to think about each fact in relation to a given category.
6. Before a paragraph is written the students must plan what is to be said. Teach the following steps:
  - a. Write a topic sentence.
  - b. Write three descriptive sentences containing facts about the owl.
  - c. Write a closing sentence.
7. Distribute copies of the blackline master on page 53. Go over your expectations for this worksheet.
8. Have the children complete the assignment.

### Activity 32: Art Activities

#### Materials

pictures, posters and books about owls  
manila tag  
2 brass fasteners for each child  
hole punch  
felt pens or paints  
scissors  
BLM p. 54, 55

#### Procedure

1. Look closely at pictures of the Spotted Owl. Notice the shape and colouring.
2. Distribute copies of the blackline master on page 54 and have the children study the drawing of an owl. Guide them to observe the drawing in relation to the grid. Have the children copy the drawing in the box below using the grid for guidance.
3. Use the black outline drawing on page 56 to make a tracing form for the students. Have the class trace the owl's body and wing shapes onto manila tag, colour and cut out the pieces.
4. Punch a small hole at the shoulders and the top of the wings with a hole punch. Attach the wings to the body with the fasteners. The owls may be hung or stapled to a bulletin board for display.

### Activity 33: First Nations Owl Symbols

#### Materials

BLM p. 56  
pictures of Owl by First Nations artists

#### Procedure

1. Show pictures of Owl created by First Nations artists. Review the basic components used by coastal First Nations artists (see page 40).
2. Distribute copies of the blackline master on page 55. Read and discuss with the class.
3. Ask your students to create a picture of owl using the basic forms characteristic of coastal First Nations art.

Date \_\_\_\_\_ Name \_\_\_\_\_

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## Fill in the Blanks

Use the following words to fill in the blanks. You may not need all of the words.

beaver    ancient    Sitka    mice    owlets    Douglas    climb  
feathers    young    father    jump    day    night    talons

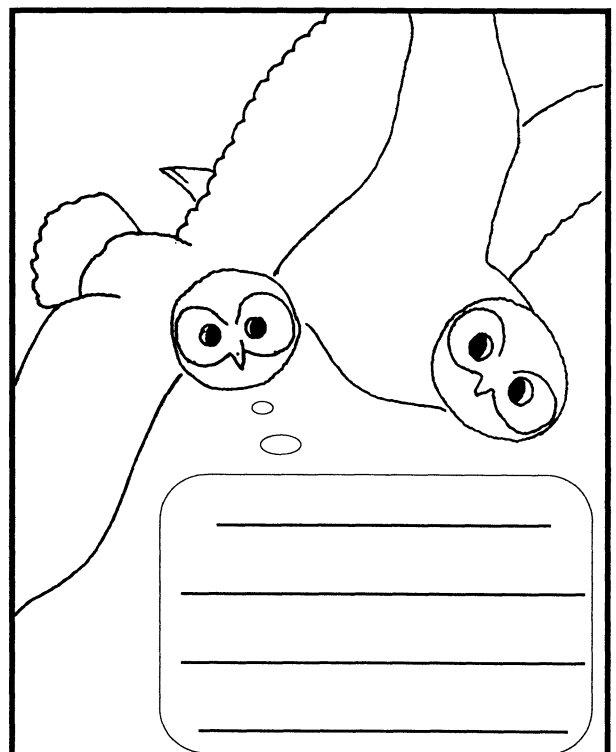
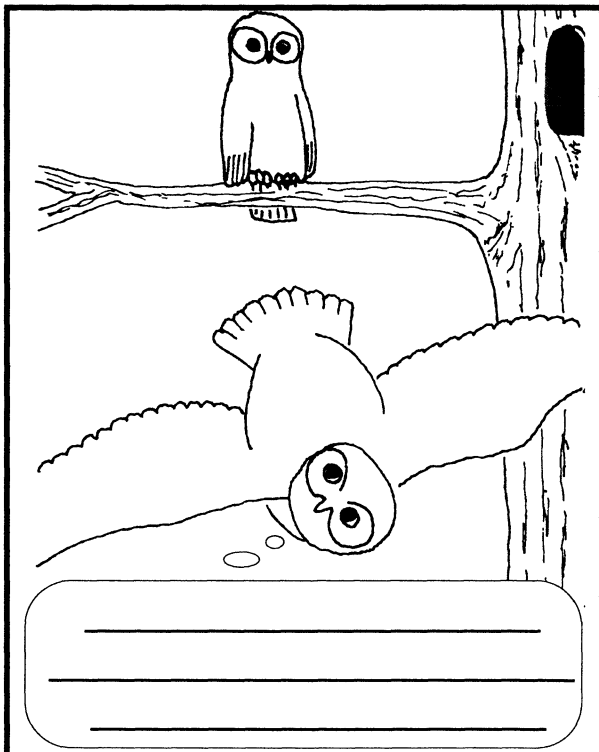
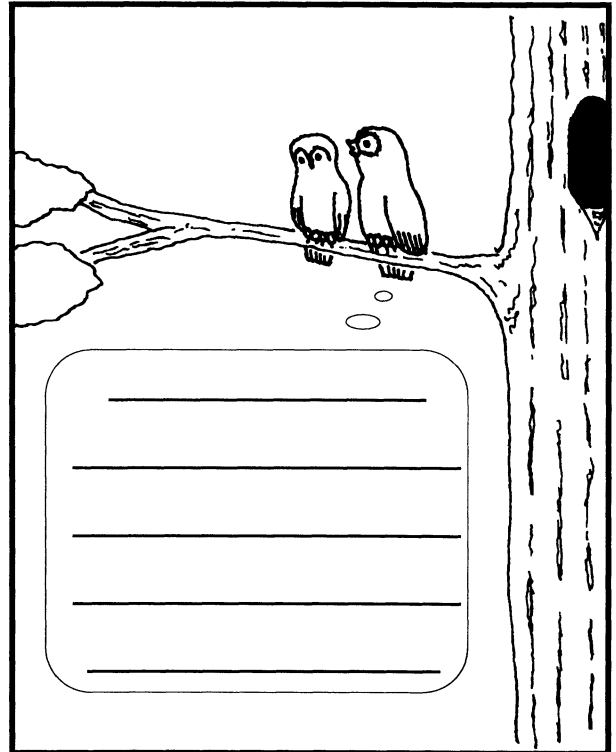
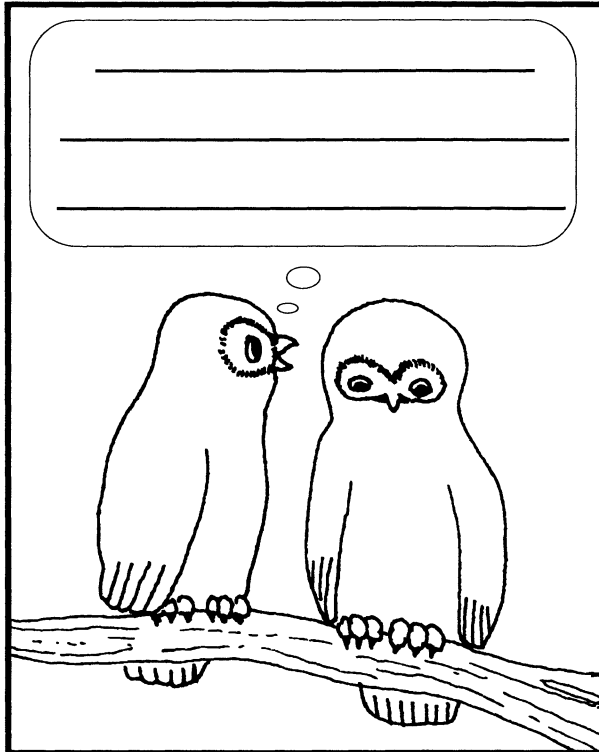
1. There were two \_\_\_\_\_ in the nest.
2. The nest was in a \_\_\_\_\_ fir tree.
3. \_\_\_\_\_ owl is hunting for the family.
4. Owls hold onto tree branches with their \_\_\_\_\_.
5. If an owlet falls to the ground it will \_\_\_\_\_ back up.
6. Spotted owlets are nocturnal. This means that they fly at \_\_\_\_\_.
7. Spotted owls eat \_\_\_\_\_.
8. Spotted owls only live in \_\_\_\_\_ forests.

Draw a Spotted Owl.



Date \_\_\_\_\_ Name \_\_\_\_\_

## Talking Owlets



Date \_\_\_\_\_

Name \_\_\_\_\_



## Spotted Owllet Fast Facts

|  |   |  |
|--|---|--|
| round head                                     | black eyes  | brown feathers                             |
| white spots on the head and neck               | barred breast and abdomen                                       | female larger than the male                |
| does not migrate                               | lives in old growth forest                                      | nocturnal                                  |
| hunts small mammals                            | hunts mice, rats and squirrels                                  | endangered                                 |
| roost in the deep shade during daytime         | predators are the horned owl, the red tailed hawk and the raven | nests are in tree holes deep in the forest |
| mate for life                                  | breeding season from March to September                         | 2 – 3 eggs in the nest                     |
| skilled hunters                                | incubates eggs for 30 days                                      | male feeds female during incubation        |
| owlets are independent by the end of summer    | largest threat is habitat destruction                           | last seen in B.C. in 1993                  |
| protected by the British Columbia Wildlife Act | avoids open areas   | both parents feed the owlets               |

Date \_\_\_\_\_ Name \_\_\_\_\_

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## Research Skills: Writing a Paragraph

Topic \_\_\_\_\_

Topic Sentence

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Three describing sentences

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Closing Sentence

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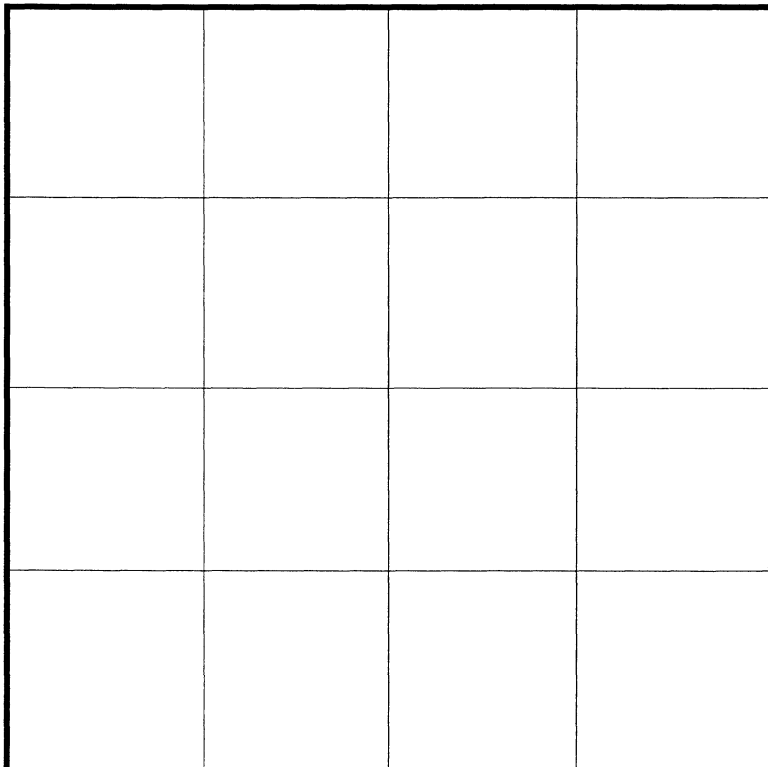
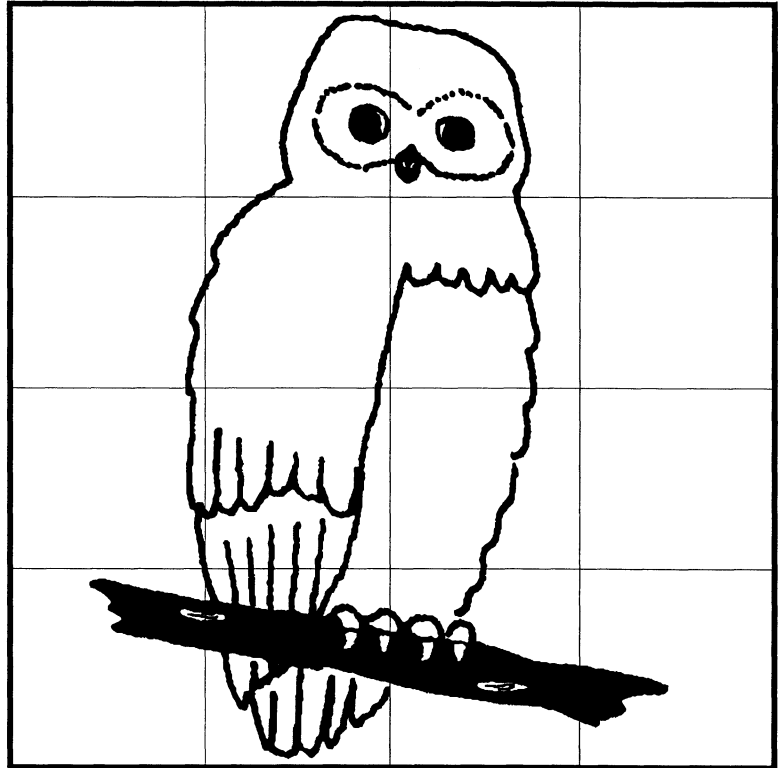
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Date \_\_\_\_\_ Name \_\_\_\_\_

## Drawing an Owl

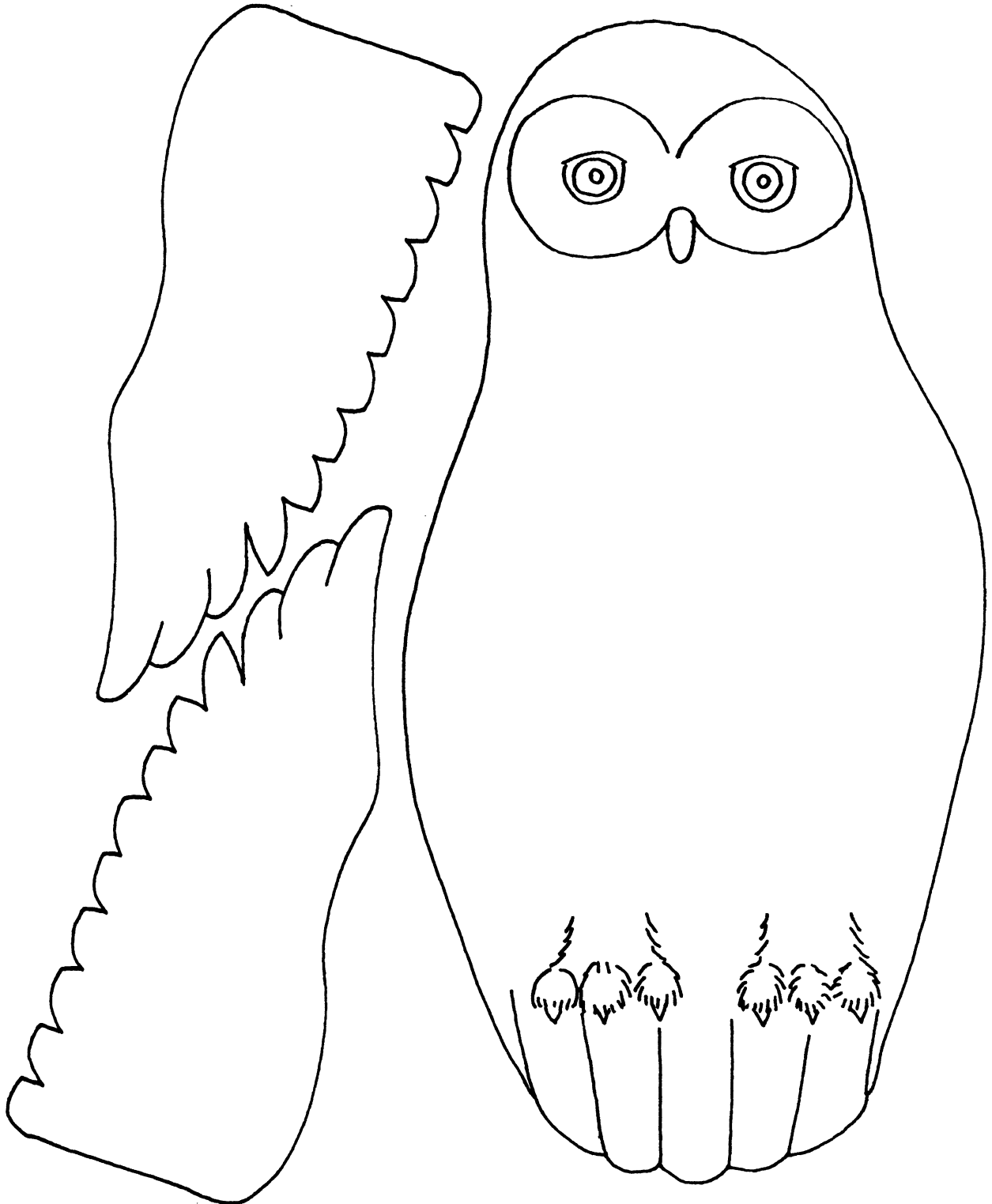
Draw this owl in the box below.



Date \_\_\_\_\_ Name \_\_\_\_\_

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## Owl Shape



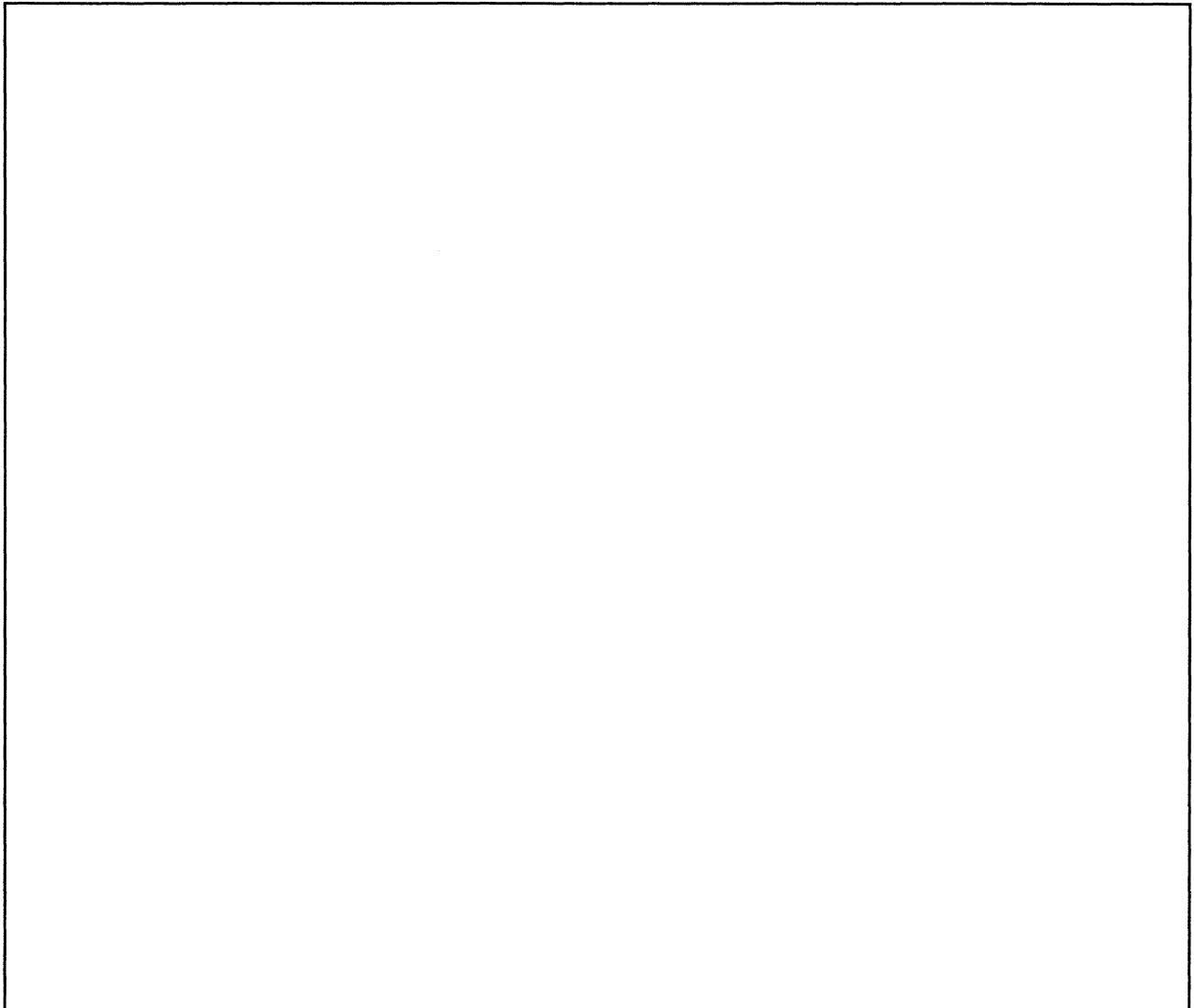
Date \_\_\_\_\_ Name \_\_\_\_\_

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## **First Nations Owl Symbols**

The owl is a character in many stories and legends of the First Nations who lived along the west coast. The owl is also found in carvings and pictures. In artists' designs the owl has round eye sockets and a short curved beak.

Some First Nations people believed that a person who is soon to die will hear an owl call his name. In many groups the owl was the shaman's helper.



# Book Four: Sea Otter Pup

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## BOOK OVERVIEW

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Sea otters once populated the northern rim of the Pacific Ocean. By 1900 the Canadian species had been hunted to extinction. In 1971 the otter was reintroduced to the waters off Vancouver Island. *Sea Otter Pup* describes a day in the life of a young sea otter as he is fed and groomed by his mother, learning the skills he will need to survive on his own.

## VOCABULARY LIST

---

|          |       |
|----------|-------|
| seaweed  | kelp  |
| otter    | pup   |
| flippers | water |
| urchin   | wash  |
| groom    | dive  |
| paw      | chest |

## FACTS FOR TEACHERS

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### Appearance

- The sea otter is a marine mammal—a member of the weasel family.
- Male sea otters weigh about 34 kg. and females weigh about 20 kg.
- The large flipper-like hind feet are used for swimming. The front paws are used for holding food and grooming.
- The thick flat tail is used for steering.
- The eyes and nose are high on its head for ease of breathing and seeing when floating on its back. There is a thin film over the eyes to keep out sea water.
- They use their whiskers to search for food.
- The thick brown fur has two layers. The long guard hairs are very dense. Only the tips get wet. The short underfur is protected from the water. Air trapped between the layers keeps the otter warm.

- The nose, ears, lips and bottoms of the paws are not covered with fur. The otter floats on its back and keeps these parts out of the water.

### Range

- Sea otters once ranged around the northern rim of the Pacific Ocean. By 1900 the otter was extinct in Canada due to hunting.
- In 1971 otters were reintroduced off the coast of Vancouver Island. Small colonies are now well established.
- The sea otter was down-listed in 1996 from endangered to threatened.

### Habitat

- Sea otters live among kelp beds along rocky coastlines. They usually stay close to shore but rarely leave the water.

### Food

- Sea otters are carnivores. Food includes: mussels, crabs, sea urchins, clams, limpets, snails and fish. They mainly feed on sea urchins, consuming 35 – 40 a day.
- The otter has the ability to use tools. It floats on its back, props a stone on its chest, and bangs the shellfish against the stone until it splits open.

### Reproduction

- Sea otters gather in groups—pods or rafts.
- Females breed at 4 years.
- Pups are born year round, usually one at a time. Pups are born on shore then taken to the water. They are born with teeth and with their eyes open. Mothers hold the pups on their chests as they cannot swim. Pups are weaned at 2 months.

### Threats

- In the past the greatest threat was over hunting. In 1911 they were protected by Canadian Federal and Provincial Fisheries and Wildlife Acts.
- Present threats include habitat destruction and pollution.

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## CHECKING THE UNDERSTANDING

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### Activity 34: True and False

Distribute copies of the blackline master on page 62. This activity could be done together or in pairs.

### THEME ACTIVITY

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### Activity 35: Otterly Amazing

#### Materials

BLM p. 63  
pencils

#### Procedure

1. Teach the children that the sea otter originally inhabited the coast of the Northern Pacific Rim from Japan to California. People started to hunt them for their thick glossy fur in the 1700s. By 1911, the Canadian sea otter was extinct and only 2,000 along the rest of the coast remained. An international treaty, passed in 1911, made it illegal for anyone to kill a sea otter. In 1971 some sea otters from Alaska were introduced to the west coast of Vancouver Island. The small colony has flourished. They were recently down-listed to threatened. Today the sea otter's greatest threats are oil spills and chemical pollution. Many are also accidentally drowned when they are caught in fishing nets.
2. Brainstorm ways that we can help the sea otter.
3. Distribute copies of the blackline master on page 63.
4. Have the class write letters to either of the following addresses to request further information and ways to help:

**Friends of the Sea Otter**  
2150 Garden Road  
B-4  
Monterey, California 93940

**World Wildlife Fund**  
90 Eglinton Avenue East, Suite 504  
Toronto, Ontario M4P 2Z7

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## EXTENDING THE LEARNING

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### Activity 36: Pattern Writing

#### Materials

pencils  
paper  
chalkboard

#### Procedure

1. Brainstorm lists of words to describe the sea otter.

**appearance:** brown, thick fur, whiskers, webbed back feet.

**actions:** swims, dives, rolls, plays, floats, rolls.

**habitat:** west coast, salty, water, kelp beds.

2. If you have a copy of *The Important Book* by Margaret Wise Brown, read this to the class.
3. Print a blank form of the pattern onto the chalkboard. Have the class complete the form using words from the lists, or they can use their own words. Example:

The important thing about a sea otter pup is that it learns from its mother.

It is small and soft.

It floats on its back. It snuggles close to its mother.

It cries when it is hungry.

But the important thing about a sea otter pup is that it learns from its mother.

4. When the children are familiar with the pattern format they can begin to write their own on paper.

## Activity 37: Research Skill Activity

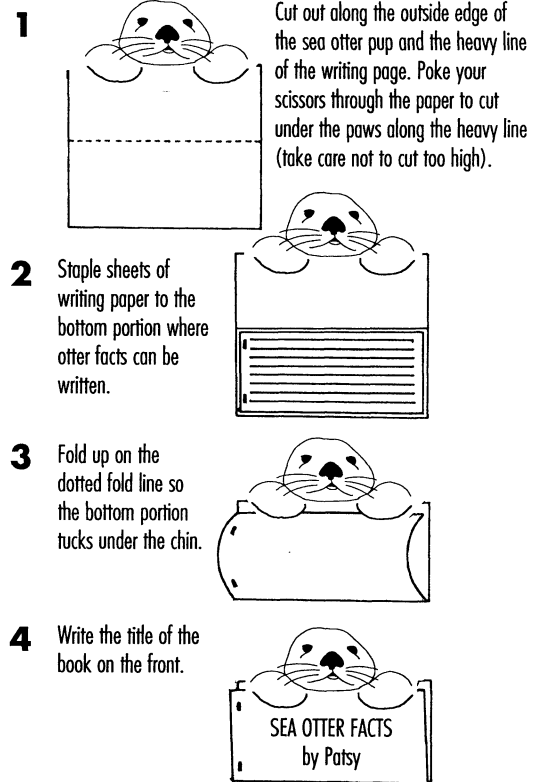
This activity builds on and extends the research skills taught in previous lessons.

### Materials

BLM p. 64 Fast Facts  
BLM p. 65 Paragraph Format  
BLM p. 66 Sea Otter Pup Cover  
scissors, glue, pencil  
construction paper

### Procedure

1. Ask the students what they would like to learn about the sea otter. Make a list of questions.
2. Look at the display of otter books, pictures and posters that you have collected.
3. In pairs, or alone, have the students cut apart boxes of facts on page 64.
4. Have the students sort the facts into categories on the sheets of paper as they did in previous research skills lessons.
5. Once the facts are sorted, the students organize the facts from the most to least important and glue them down.
6. Review the components of a paragraph: topic sentence, describing sentence, closing sentence.
7. Distribute copies of the blackline master on page 65. Have the students choose one category and write a paragraph. Continue until they have written a paragraph for each category.
8. After the paragraphs have undergone the proofing and editing process the final copies could be stored in booklet form with a fold over cover provided on the blackline master on page 66.



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### Activity 38: Ottermobile

This activity will show how a sea otter is able to use its front paws to handle its food and care for its young.

#### Materials

pictures, posters, and books about sea otters  
BLM p. 67  
BLM Experiment Log (**Appendix B**)  
1 sock for each student  
pencils

#### Procedure

1. Have the students look at a picture of a sea otter holding something in its front paws. Discuss how easily the otter can grip things.
2. Distribute copies of the blackline master on page 67 or make a transparency and present the information using an overhead projector. Read the top section and discuss.
3. Have the students fill out the Experiment Log to the end of the Prediction section. Have them ask the question, "Can a sea otter grip things easily?"
4. Ask the students to pick up a pencil and print their names on scrap pieces of paper. Ask them to notice how well they can control their pencils.
5. Ask the students to put socks over their dominant hands and print their names again. Ask them to notice how well they could control the pencils even though their hands were covered. A sea otter can manipulate objects just as easily, even though its fingers are covered with a mitt of skin.
6. Have the students complete the Experiment Log.

#### Extending the Activity

Have the students play or invent a game where they need to pick up playground equipment using a sock covered hand.

### Activity 39: A Coat That Floats

This activity demonstrates how a sea otter's coat helps it to float in the cold ocean water.

#### Materials

BLM p. 67  
dry sponge  
a sink or tub full of water  
Experiment Log (**Appendix B**)  
pencil

#### Procedure

1. Brainstorm everything that the children know about sea otter fur.
2. Have the students generate questions about the way the fur enables the sea otter to survive in such a cold, wet environment.
3. Read the bottom section of the blackline master on page 67.
4. Have the students fill out the Experiment Log to the end of the Materials section. Have them ask the question "How does the sea otter's fur help it to float in the cold ocean water?"
5. Have them predict how they think the fur helps an otter to float. Have them record their predictions.
6. Fill a sink or tub with water.
7. Push a dry sponge below the surface. Have the students record their observations in words and pictures. (they should see bubbles coming out of the sponge as it fills with water, when it becomes waterlogged it should barely float).
8. Squeeze the water out of the sponge. Place the sponge on top of the water. Have the students record what they see in words and pictures (it floats higher on the water surface).
9. Have the students discuss what they have learned and fill out the Conclusion section of the log. (When the sea otter grooms himself he replaces the water with air bubbles. The air bubbles help him to float higher in the water.)
10. Have the students complete the rest of the Log.

---

## Activity 40: Otterly Oily

This activity demonstrates how pollution affects the sea otter.

### Materials

two clear glass bowls  
water  
motor or cooking oil  
measuring spoons  
leaves and feathers  
BLM Experiment Log (Appendix B)

### Procedure

1. Have the students recall the threats to sea otter survival (hunting, habitat destruction and pollution).
2. Have the students brainstorm what the affects of an oil spill would be on the sea otter.
3. Distribute copies of the Experiment Log to the students. Have them fill in to the end of the Prediction section.
4. Fill a clear glass bowl 3/4 full of water. This represents clear sea water.
5. Fill another clear glass bowl 3/4 full of water. Add four tablespoons of oil to the water. This represents polluted sea water. Note how the oil floats on the surface of the water.
6. Dip leaves and feathers into the clean water and note how water runs off the objects and leaves them clean. Repeat with a piece of fur (if this is not available, try some synthetic fur).
7. Have the students record their observations on the Experiment Log, both in words and pictures.
8. Have the students predict what will happen when the procedure is repeated in the oily water.
9. Repeat step 4 in the oily water. Note how the oil coats the objects.
10. Have the students record their observations on the Experiment Log both in words and pictures.
11. Discuss how oil from the spills affects the sea otter.

Oil forms a thick layer on the sea otter's fur. It prevents air bubbles from staying next to the skin. The otter loses its body heat and becomes ill. When the sea otter tries to groom the oil out of its fur, it swallows some of the oil and becomes sick and dies. Wave action mixes the oil with the water. This kills the plankton. A chain reaction affects marine food chains.

12. Have the students complete the Experiment Log.

## Activity 41: First Nations and the Sea Otter

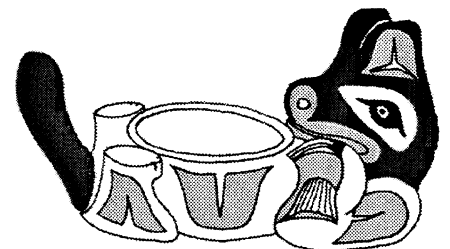
This activity explains what part the sea otter played in the life of the west coast people.

### Materials

BLM p. 68  
clay (or plasticine or playdough)  
toothpicks, plastic forks, etc. for applying texture  
pictures of First Nations sea otter designs

### Procedure

1. Have the students look closely at the pictures of the sea otter.
2. Distribute copies of the blackline master on page 68.
3. Read the text with the children. Have them store the paper in their Science Logs.
4. Have the students fashion a pinch pot from the clay. Make sure that the bottom is flat. The walls of the pot should be sturdy.
5. Using the texturing tools have the students add details to their pots.
6. Bisque fire clay pots to your kiln's specifications (usually cone 05).
7. When dry the pots could be painted.



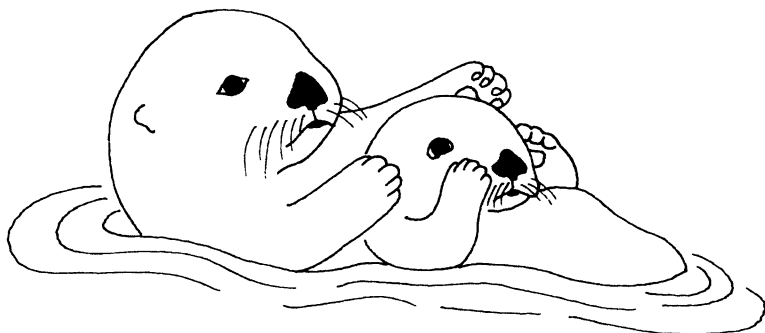
Date \_\_\_\_\_ Name \_\_\_\_\_

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## True and False

Read the sentences carefully. Print true (T) or false (F) on the lines.

1. \_\_\_\_\_ The mother sea otter wraps her pup in kelp so that he doesn't drift away.
2. \_\_\_\_\_ Purple sea urchins are a favourite food of the sea otter.
3. \_\_\_\_\_ The mother gathers seaweed to feed her baby.
4. \_\_\_\_\_ Sea otters wash after every meal.
5. \_\_\_\_\_ Pups learn by copying their brothers and sisters.
6. \_\_\_\_\_ Mother grooms her pup by combing him with her claws and fluffing him all over.
7. \_\_\_\_\_ Sea otters hold their paws out of the water to keep them dry.
8. \_\_\_\_\_ The pup rides on his mother's back.
9. \_\_\_\_\_ Sea otters sleep in the water.
10. \_\_\_\_\_ Sea otters search for food on the ocean bottom.





Date \_\_\_\_\_ Name \_\_\_\_\_



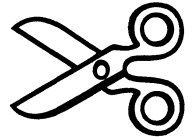
## Sea Otter Fast Facts

|   |  |   |
|---|--|---|
| mammal                                      | holds breath for 5 minutes                       | steers with its tail                              |
| hind flippers used for swimming             | front paws used for finding food                 | floats on its back                                |
| two layers of fur: guard hairs and underfur | cleaning and fluffing the fur is called grooming | use kelp as an anchor                             |
| carnivore                                   | sea urchins are the main food                    | groups of sea otters are called rafts             |
| babies are called pups                      | pups born on land                                | holds paws up out of water to keep them dry       |
| use rocks to break shells open              | eats 35 – 40 sea urchins a day                   | brown fur   |
| hunted to extinction in Canada by 1900      | reintroduced in Canadian waters in 1971          | down-listed from endangered to threatened in 1971 |
| a good swimmer and diver                    | pups drink milk                                  | pups eat meat at 2 months                         |
| lives close to rocky shores                 | eat crabs, limpets, snails and fish              | predators are orca whales, sharks and humans      |

Date \_\_\_\_\_ Name \_\_\_\_\_

## Paragraph Format

Use the following templates for writing information about sea otter pups.  
Cut and paste onto covers.



Topic Sentence: \_\_\_\_\_  
\_\_\_\_\_

Three Sentences:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Concluding Sentence: \_\_\_\_\_  
\_\_\_\_\_

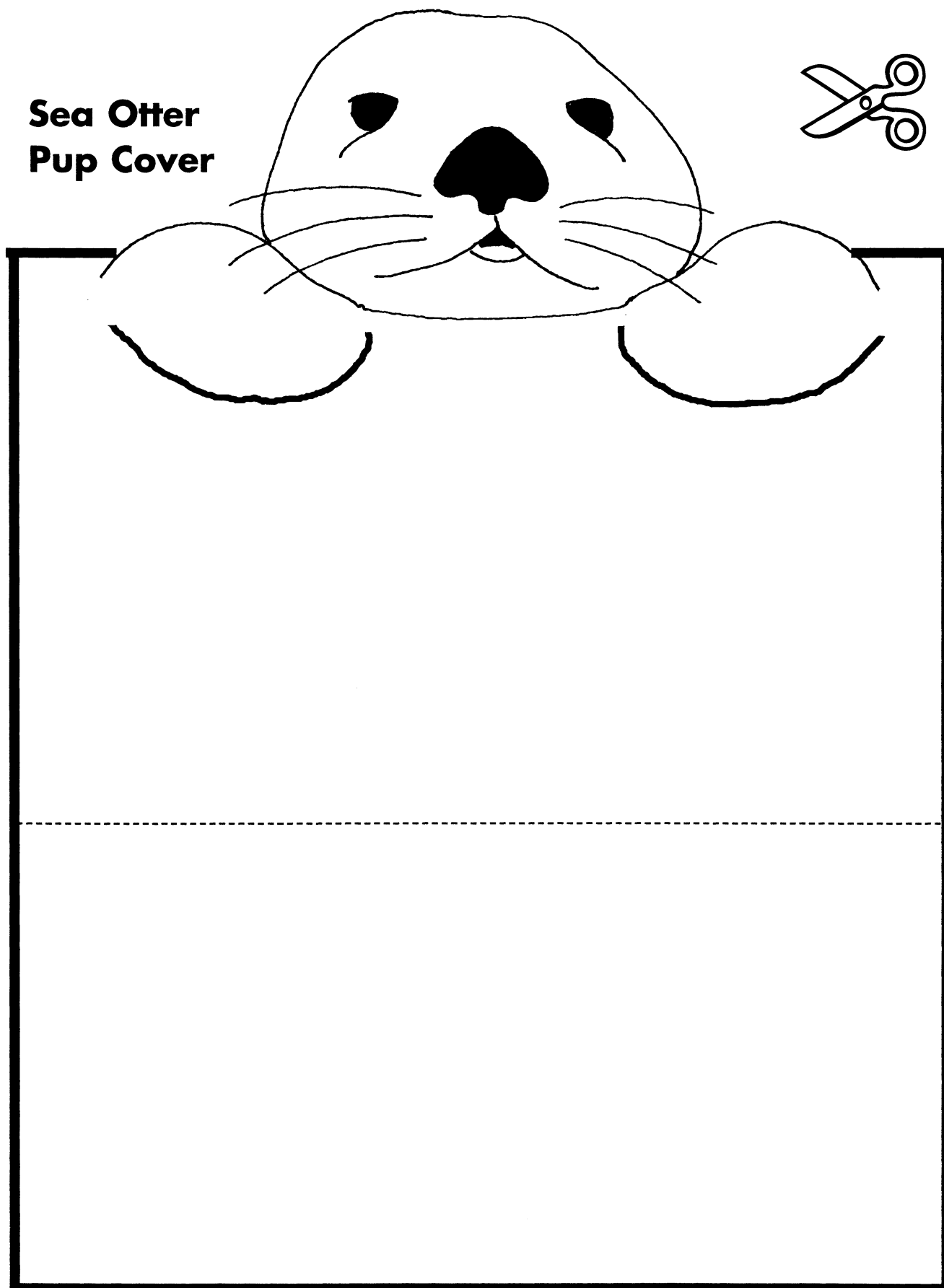
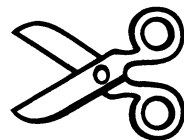
Topic Sentence: \_\_\_\_\_  
\_\_\_\_\_

Three Sentences:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Concluding Sentence: \_\_\_\_\_  
\_\_\_\_\_

**Sea Otter  
Pup Cover**



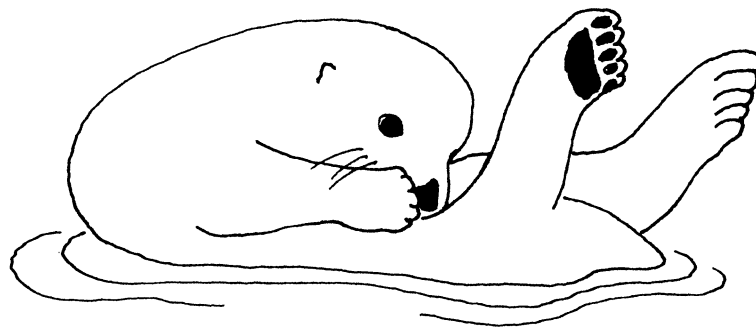
Date \_\_\_\_\_ Name \_\_\_\_\_

## Amazing Adaptations

A sea otter's forepaw is very sensitive. They have short sharp claws. They have tough pads on their paws to help them grip things. Their forepaws are not used for swimming. They use them to pick up and carry their food and to groom themselves. Their paws are one of the few areas on their bodies not covered with fur. When floating on their backs, they hold their paws out of the water to keep them dry. Inside their paws, they have five fingers, similar to a human being's hands.



Sea otters do not have blubber. Their fur keeps them warm. Sea otter fur is the thickest of any animal in the world. There are two layers of fur. The outer layer is made of long, coarse **guard hairs**. Short, fine hairs next to the body are called **underfur**. A pocket of air at the base of the fur acts as **insulation** against the cold. Sea otters use their forepaws to groom and rub air into their fur. They also blow air into their fur to get it next to their skin.



Date \_\_\_\_\_ Name \_\_\_\_\_

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## First Nations and the Sea Otter

Many sea otters lived in the waters along the Pacific coast before the explorers arrived from Europe and Asia. First Nations people used sea otter fur to trim the edges of cedar bark clothes worn on special occasions. Sometimes it was used as a head band. Sea otter fur was thought to be very valuable. A rich person might trade two slaves for one sea otter pelt.

When people began arriving on the Pacific coast from other parts of the world, they wanted the thick sea otter pelts. The pelts could be sold in their home countries for high prices. First Nations people hunted the sea otter and traded the pelts for metal tools and other things they wanted. Sea otters were hunted almost to extinction.

Draw a sea otter.



# Wrapping Up the Theme

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## Activity 42: Word Search

One way to increase the students' sight vocabulary is to change the context in which the words are encountered. Using the words in a word search is one way of doing this.

### Materials

BLM p. 72  
BLM p. 73  
pencils

### Procedure

1. Distribute copies of the word search on page 72. This activity could be done individually or in pairs.
2. Review the list of words orally with the students. Clarify spellings and meanings if necessary.
3. Demonstrate the word search strategy by solving several examples with the class. One easy way to do this is to make a transparency of the word search for the overhead projector.
4. When the students are finished they could compare results. The word "endangered" appears 3 times.

### Extending the Activity

When the students are familiar with the strategy, have them create their own puzzles using vocabulary from the four books. A blank word search form is provided on page 73. The puzzle could be exchanged with another student or photocopied and distributed to the entire class.

## Activity 43: Animal Life Cycles

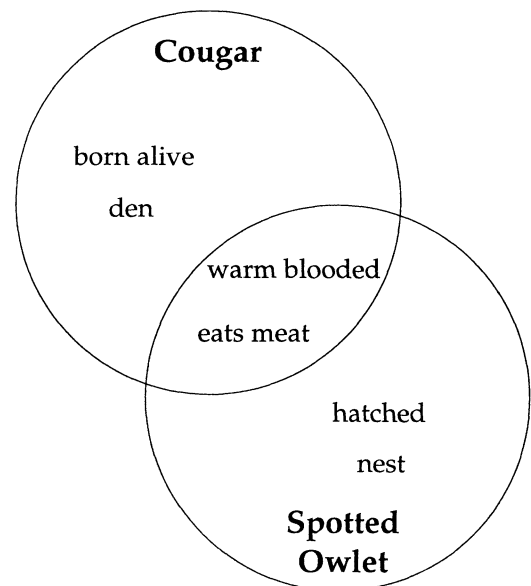
This activity can be used to compare the life cycles of any two of the cougar, bald eagle, sea otter and spotted owl.

### Materials

BLM p. 74  
pencil  
chalkboard

### Procedure

1. Through discussion, establish a definition for the term "life cycle" (the series of changes in the life of an organism).
2. Choose two animals to compare.
3. Discuss the stages in the life cycles of the animals.
4. Draw a Venn diagram on the chalkboard.
5. Discuss similarities and differences in the two life cycles and record the information on the chalkboard.
6. Distribute copies of the blackline master on page 74 and have the class copy the information from the chalkboard.



### Extending the Activity

Have the class compare a different combination of animals.

## Activity 44: Home Coming

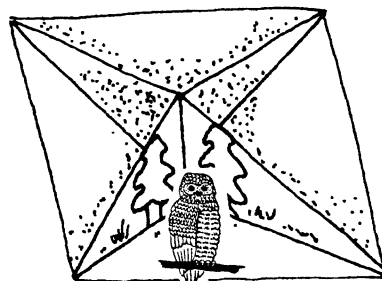
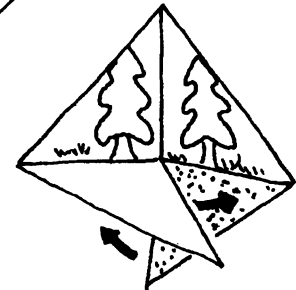
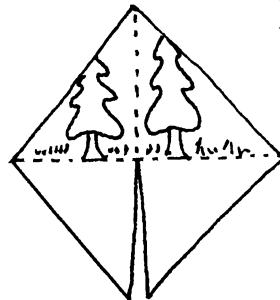
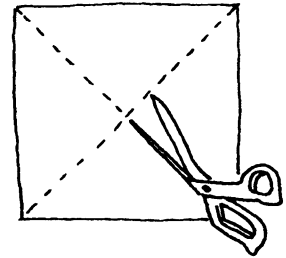
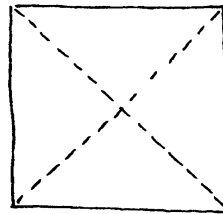
This project could be used to summarize habitat information as the study of each animal is completed. It could also be used at the end of the unit as a concluding activity.

### Materials

construction paper or manilla tag squares ( 23 cm by 23 cm )  
construction paper scraps of different colours  
glue, scissors, crayons, felt pens, pencils  
plasticine or playdough  
twigs, small pebbles  
other suitable found objects

### Procedure

1. Look closely at the pictures of the spotted owl in *Spotted Owlets*. Take special note of its habitat.
2. Have the students pay attention to body proportions.
3. Review with students the basic needs of an animal to ensure its survival (water, air, food, shelter).
4. Fold the construction paper squares in half on the diagonal. Open, and fold on other diagonal.
5. Lay flat and cut from one corner to the centre.
6. Use scraps of construction paper or crayons to create a forest scene on the top half of the paper (the cut line dissects the bottom half).
7. Overlap the two bottom triangles and glue.
8. Make a model of an owl using plasticine or playdough.
9. Place the owl on the model and add items that complete the habitat, including moss, twigs, etc.).
10. If scenes for all four of the animals are completed they can be glued together to make a four part model. Students can compare the different habitats and food of the creatures.



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## Activity 45: Food Chains

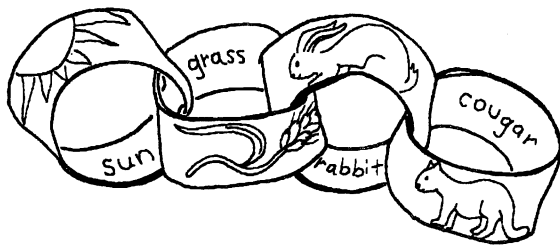
### Materials

scissors

paper strips 5cm x 30cm

### Procedure

1. Discuss food chains with your students and emphasize the important role of each member of the chain. Choose one animal and establish the links in the food chain on both sides of the animal.
2. Brainstorm things that can influence the food chain such as destruction of habitat, extinction of particular food chain members, poisons in the water supply.
3. Introduce the terms:  
herbivore—an animal that feeds on plants  
carnivore—an animal that feeds on animals  
omnivore—an animal that feeds on both plants and animals
4. Discuss how poisons travel up the food chain and become concentrated in animals at the top of the chain.
5. Have the students choose one of the four animals and make chains from paper strips to represent a food chain that includes that animal. Information about each link in the chain can be written or drawn on paper strips and then glued or stapled together. Challenge the students to make food chains as long as they can.



Date \_\_\_\_\_ Name \_\_\_\_\_

## Word Search

- |            |            |             |           |
|------------|------------|-------------|-----------|
| 1. otter   | 6. cougar  | 11. owl     | 16. dive  |
| 2. eagle   | 7. hemlock | 12. fir     | 17. beak  |
| 3. spruce  | 8. kelp    | 13. extinct | 18. talon |
| 4. kittens | 9. claws   | 14. pup     | 19. fly   |
| 5. fur     | 10. egg    | 15. nest    | 20. swim  |

How many times does the word **endangered** appear? \_\_\_\_\_

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| h | e | m | l | o | c | k | c | l | a | w | s |
| b | n | l | a | w | o | w | l | p | e | e | m |
| e | d | v | e | l | c | o | u | g | a | r | e |
| a | a | g | p | g | l | e | m | n | d | k | n |
| k | n | s | p | r | u | c | e | f | i | r | d |
| p | g | e | k | t | h | e | x | b | v | r | a |
| n | e | g | e | t | k | i | t | t | e | n | n |
| e | r | g | l | e | t | o | i | a | r | s | g |
| s | e | l | p | e | a | r | n | i | f | w | e |
| t | d | r | u | f | l | y | c | r | u | i | r |
| p | u | p | v | a | o | t | t | e | r | m | e |
| p | e | n | d | a | n | g | e | r | e | d | d |

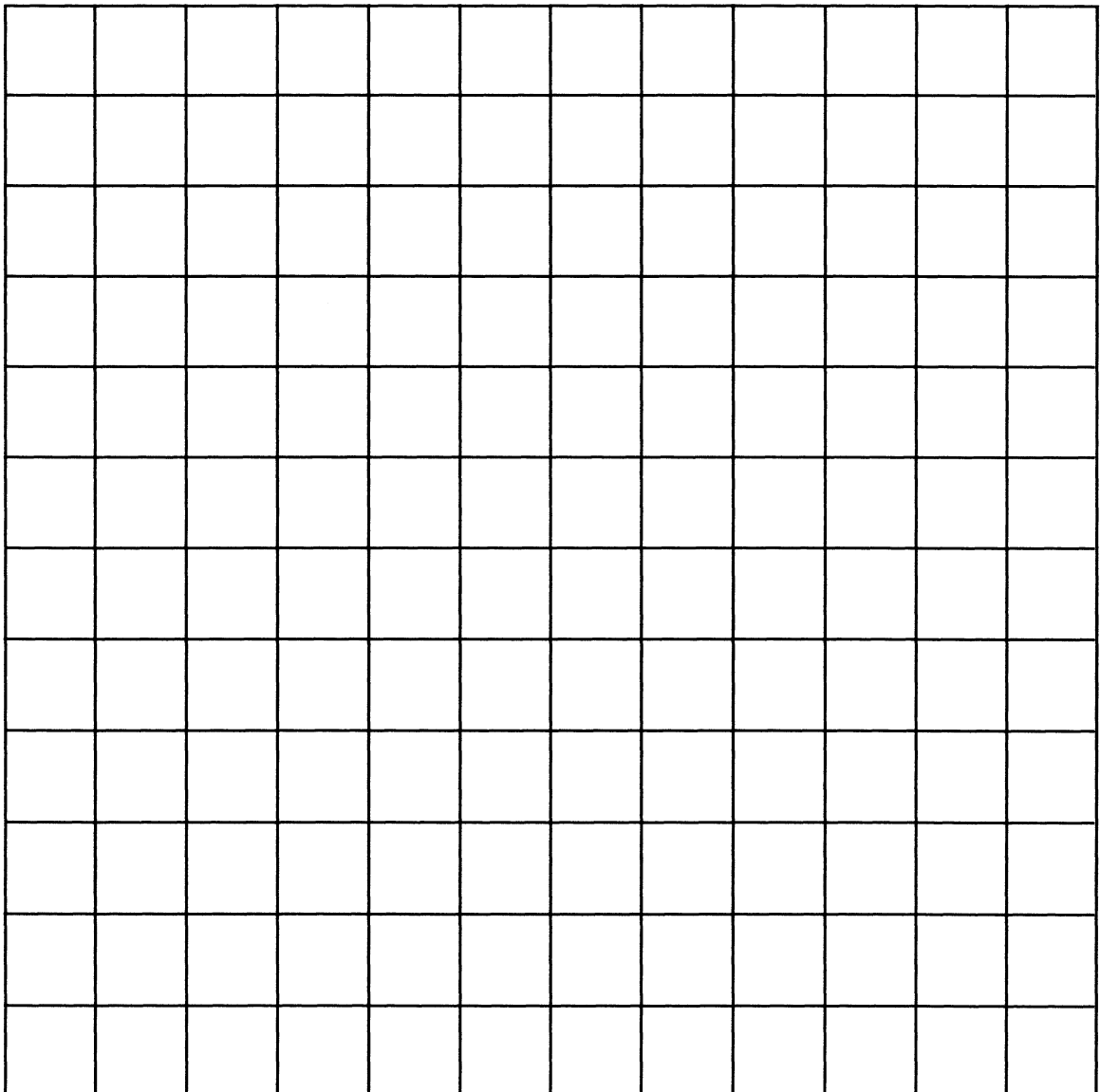
Date \_\_\_\_\_ Name \_\_\_\_\_

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## Word Search

- |          |           |           |           |
|----------|-----------|-----------|-----------|
| 1. _____ | 6. _____  | 11. _____ | 16. _____ |
| 2. _____ | 7. _____  | 12. _____ | 17. _____ |
| 3. _____ | 8. _____  | 13. _____ | 18. _____ |
| 4. _____ | 9. _____  | 14. _____ | 19. _____ |
| 5. _____ | 10. _____ | 15. _____ | 20. _____ |

How many times does the word \_\_\_\_\_ appear? \_\_\_\_\_



Date \_\_\_\_\_ Name \_\_\_\_\_

## Same and Different

A Venn diagram consisting of two overlapping circles. The left circle is larger than the right circle. Both circles are filled with horizontal lines for writing. The lines in the overlapping region are shared by both circles. There are 10 lines in the left circle, 10 lines in the right circle, and 10 lines in the overlapping area.

Date \_\_\_\_\_ Name \_\_\_\_\_

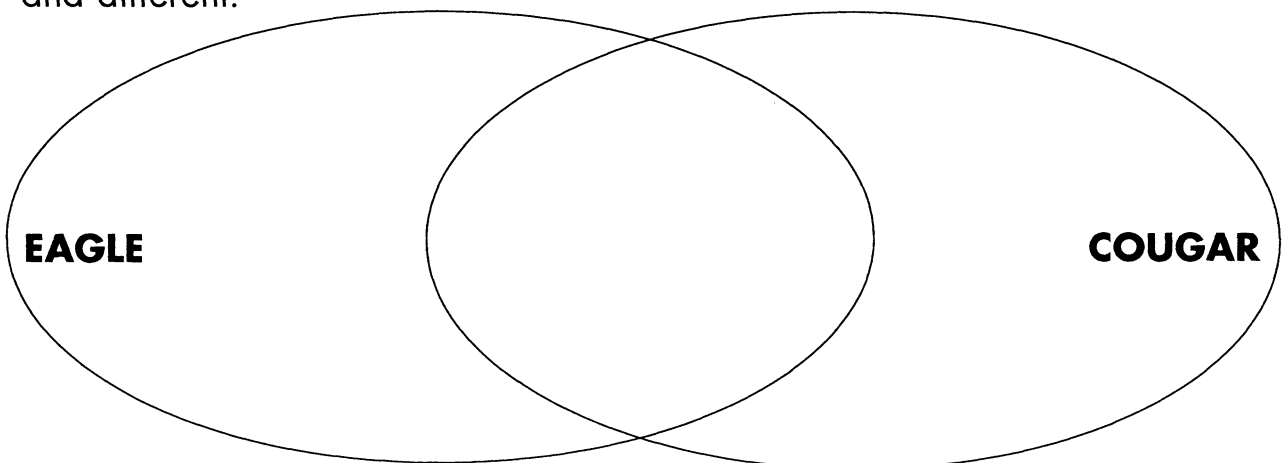
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## Endangered Animals Pre-test/Post test

Print true (T) or false (F) beside each statement.

1. \_\_\_\_\_ An animal that is gone forever is said to be extinct.
2. \_\_\_\_\_ Eastern cougars are extinct.
3. \_\_\_\_\_ We can help endangered animals by hunting them.
4. \_\_\_\_\_ If an animal is close to extinction we say it is endangered.
5. \_\_\_\_\_ Dinosaurs are extinct.
6. \_\_\_\_\_ Some problems need to be solved to save threatened animals.
7. \_\_\_\_\_ The spotted owl is endangered.
8. \_\_\_\_\_ We can help endangered animals by keeping our air and water clean.
9. \_\_\_\_\_ Recycling paper will help endangered animals and plants.
10. \_\_\_\_\_ Many animals are endangered because their habitat is being destroyed.

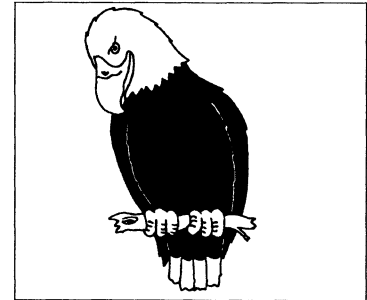
Print words in the circles to show how a cougar and an eagle are the same and different.



## Missing in Action

Draw a line to match the picture of the animal to the correct statement.

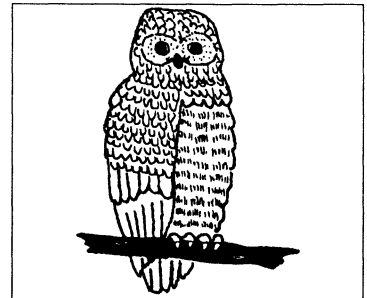
1. I am on the endangered species list. I need large areas of wilderness to roam and find food. People are taking over more and more of my habitat.



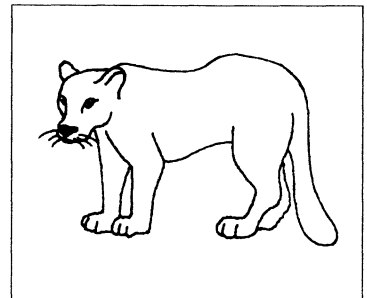
2. I am on the endangered species list in the United States. I have to keep moving to new places to make room for more people. Chemicals are making the shells of my eggs very thin.



3. I was downlisted to the threatened listing in 1996. In the past humans overhunted me until I was almost all gone. They liked me for my soft warm fur.



4. I am on the endangered species list. People keep cutting down my old growth forest and I am running out of places to live.



# Appendix A: Assessment and Evaluation

## INDIVIDUAL STUDENT ASSESSMENT

Student Name \_\_\_\_\_

A four point scale is suggested.

3 – mastered    2 – competent    1– developing    0 – undeveloped

DATES OBSERVED

| <b>Attitudes</b>            |  |  |  |  |  |  |  |  |
|-----------------------------|--|--|--|--|--|--|--|--|
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
| <b>Skills and Processes</b> |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
| <b>Knowledge</b>            |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |  |  |

Date \_\_\_\_\_ Name \_\_\_\_\_

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## My Thoughts About Endangered Species

Before we studied about endangered species I knew:

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---

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Some new things that I learned are:

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---

I still wonder about:

---

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---

Something we are doing to help endangered species in our classroom is:

---

---

---

If I met a \_\_\_\_\_ I would ask

---

---

---

---

Date \_\_\_\_\_ Name \_\_\_\_\_

---

## Learning Activity Evaluation

Name(s)

---

---

My/Our Goals Were:

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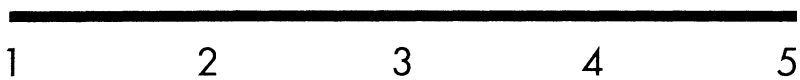
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How I/we did:



Next time I/we could:

---

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---

---

---

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---

---

Dear \_\_\_\_\_,

We have been working on an endangered species theme. These are some samples of the work I did for this theme.

I would like you to notice \_\_\_\_\_

---

---

---

I have been trying to \_\_\_\_\_

---

---

This is important because \_\_\_\_\_

---

One thing I did well is \_\_\_\_\_

---

---

One thing I need to work on is \_\_\_\_\_

---

---

Love from,

---

---

Dear \_\_\_\_\_,

I enjoyed seeing your work samples. I really liked \_\_\_\_\_

---

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---

---

---

---

One thing I would like you to work on is \_\_\_\_\_

---

---

---

---

---

---

---

---

Love from,

---

# EXPERIMENT LOG

Date \_\_\_\_\_

Scientist(s) \_\_\_\_\_

Title of the experiment \_\_\_\_\_

**QUESTION** – What do you want to find out?

---

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**MATERIALS** – Things you will use.

---

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**PREDICTIONS** (Hypothesis) – What do you think you will find out?

---

---

---

---

**METHOD** – What did you do?

---

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---

---

**RESULTS** – What did you observe?

Date: \_\_\_\_\_

Observations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Illustration

Date: \_\_\_\_\_

Observations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Illustration

Date: \_\_\_\_\_

Observations: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Illustration

**CONCLUSION** – What did you learn?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**EVALUATION** – How could you have improved this experiment?

\_\_\_\_\_  
\_\_\_\_\_

Date \_\_\_\_\_ Name \_\_\_\_\_

---

## Endangered Animals Report

The name of this animal is the \_\_\_\_\_.

This animal is a    mammal    bird    fish    reptile    amphibian.

Its endangered species listing is    extinct    endangered    threatened.

The \_\_\_\_\_ lives \_\_\_\_\_.

Four words that tell what it looks like are:

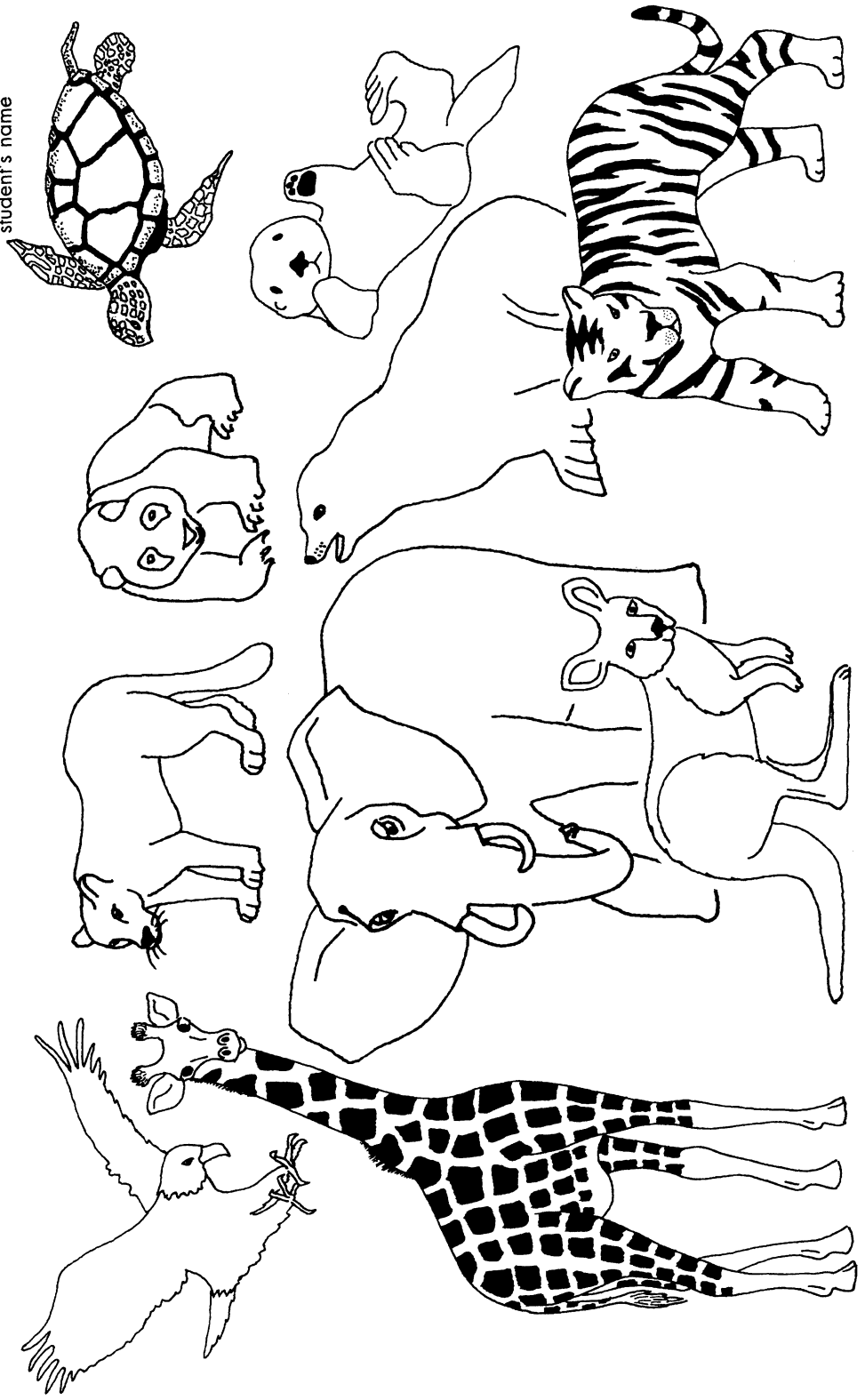
|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |

Four facts about this animal:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

# A FRIEND OF ENDANGERED ANIMALS AWARD

student's name \_\_\_\_\_



accomplishment \_\_\_\_\_

date \_\_\_\_\_

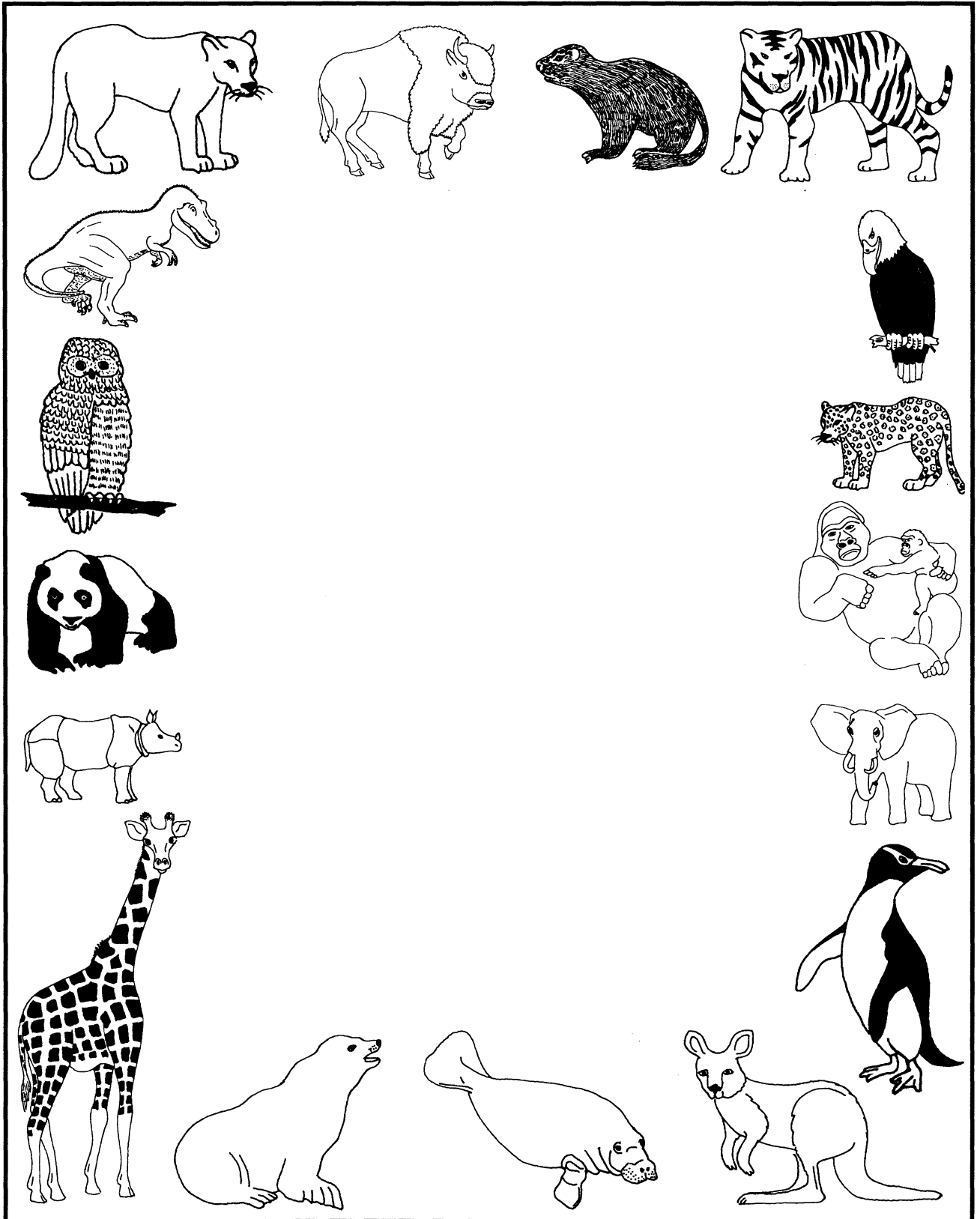
teacher's signature \_\_\_\_\_

Date \_\_\_\_\_ Name \_\_\_\_\_

A grid of animal illustrations for a coloring or identification activity. The grid is 6 rows by 4 columns. The animals are: Row 1: Panther, Buffalo, Marmot, Tiger; Row 2: Dinosaur, blank space, Bald Eagle; Row 3: Owl, blank space, Leopard; Row 4: Panda, blank space, Gorilla; Row 5: Rhinoceros, blank space, Elephant; Row 6: Giraffe, blank space, Penguin. The blank spaces are intended for writing the names of the animals.

Date \_\_\_\_\_

Name \_\_\_\_\_





## Appendix C: Answer Key

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### PAGE 12: GOING, GOING, GONE!

1. endangered
2. extinct
3. threatened

### PAGE 13: DECODING

endangered

### PAGE 18: ANIMALS IN DANGER!

1. B
2. D
3. C
4. E
5. A

### PAGE 19: WHY ARE THEY DISAPPEARING?

sea turtle, seal – pollution  
sea otter, elephant, bison – over hunting  
spotted owl, panda, cougar – habitat destruction  
bald eagle, burrowing owl – pesticides

### PAGE 22: WHO IS MISSING?

1. grass
2. cougar
3. sea lion
4. mouse
5. elephant

### PAGE 33: TRUTH AND TRICKS

1. ~~two~~ four
2. ~~fish~~ deer
3. ~~tail~~ claws
4. ~~stripes~~ spots
5. ~~bed~~ range
6. ~~reading~~ playing
7. ~~fly~~ climb
8. ~~sticky~~ rough

range  
cougar  
tail  
deer  
food  
claws  
kittens  
paw

### PAGE 34: LOCATION! LOCATION! LOCATION!

is free of human encroachment  
All boxes should be marked with an x.

### PAGE 51: FILL IN THE BLANKS

owlets  
Douglas  
father  
talons  
climb  
night  
mice  
ancient

### PAGE 62: TRUE AND FALSE

- |          |          |
|----------|----------|
| 1. true  | 2. true  |
| 3. false | 4. true  |
| 5. false | 6. true  |
| 7. true  | 8. false |
| 9. true  | 10. true |

### PAGE A-75: PRE-TEST/POST-TEST

- |          |          |
|----------|----------|
| 1. true  | 2. false |
| 3. false | 4. true  |
| 5. true  | 6. true  |
| 7. true  | 8. true  |
| 9. true  | 10. true |

### PAGE A-76: MISSING IN ACTION

1. cougar
2. eagle
3. sea otter
4. spotted owl



## Appendix D: Related Resources

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*Carving a Totem Pole* by Vickie Jensen  
Douglas and McIntyre, 1994, \$13.95

The process of carving a totem pole is clearly described for elementary school readers. Writer/photographer Vickie Jensen documented the entire sequence of the creation of a totem pole in simple text and striking photographs. This is a useful resource for teaching about traditional or contemporary First Nations people and their use of the cedar tree.

*Cedar* by Hilary Stewart  
Douglas and McIntyre, 1984, \$24.95

The traditional First Nations uses of the cedar tree are documented and illustrated in this excellent resource.

*Eagles* by Lucy Baker  
Kids Can Press, 1990, \$4.95

The life cycle of the eagle is clearly recorded for elementary school readers. This book is full of colourful photographs and drawings. The text is simple and full of useful information. Also included are games, puzzles, quizzes and a story.

*Eagle Dreams* by Sheryl McFarlane  
Orca Book Publishers, 1994, \$14.95

Eagle Dreams is the story of a young boy who finds an injured Bald eagle and eagerly plans to nurse it back to health. His father is reluctant to allow him to take on this project. The boy is determined to succeed while he continues to maintain his other farm chores. When the eagle is ready to return to the wild, it is a more mature and responsible boy who watches it fly free. This delightful book is illustrated by award winning illustrator Ron Lightburn.

*How Eagle Got His Good Eyes*  
by the fifth grade students at Oscar Blackburn School in South Indian Lake, Manitoba  
Willowisp Press, 1995, \$7.95

The traditional Cree way of storytelling inspired this grade five class to write their own eagle legend. The book's colourful illustrations were a project of the grade seven class.

This book was published as the result of the Kids Are Authors competition. The winning books in the annual competition are published by Willowisp Press. For more information:

*Trumpet Book Fairs*  
Kids are Authors Competition  
257 Finchdene Square, Unit 7  
Scarborough, Ontario M1X 1B9

*In Like A Lion* by Julie Lawson  
Northwinds Press/Scholastic, \$17.99

Although the narrator of *In Like A Lion* is fictional, this story is based on an incident that occurred on the night of March 3, 1992. Late that evening, a cougar was sighted wandering into the underground parking lot of the The Empress Hotel in Victoria. Beautifully illustrated with watercolour paintings, this book lends itself well to an endangered species theme.

*Jason and the Sea Otter* by Joe Barber-Starkey  
Harbour Publishing, 1989, \$10.95

One day, while Jason was out in his canoe, he spotted a dark furry head with black eyes and a grey whiskery muzzle bobbing among the weeds. Jason paddled back to the traditional Nootka winter camp where he was living. When he told his grandfather about the creature the old man told him that it was a sea otter. After that he spent many days out in the canoe watching the otter. One day Jason fell into the ocean and the sea otter came to his rescue. Jason now had an exciting story to tell his own grandchildren when he grew up.

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***Legends from the Chemainus Tribe***

by Donna Klockars and Brenda Boreham  
Chemainus Tribe Council, 1992, \$29.95  
(extra copies of the picture books \$4.00 each)

This kit contains two picture books and a teacher's guide. The stories were told to Donna and Brenda (both classroom teachers) by elders of the Chemainus people. They were written to retain the style of the telling and then read back to the elders for approval. The two teachers then worked together to develop a set of activities that would facilitate integration of themes across the curriculum. This is a valuable resource for teachers wanting to integrate First Nations awareness into their classrooms. Each story introduces a few Coast Salish words and much about the culture of the people. Classroom tested activities and blackline masters are included.

***Mirrna and the Marmots*** by Peggy Capek  
Theytus Books, \$7.95

Mirrna is a lonely faery who leaves her coastal home on southern Vancouver Island because pollution has driven her animal friends away. She is befriended by Vancouver Island marmots when strong winds break her wings. In the faery tradition she leaves them a gift before she resumes her journey. This is a gentle story with an environmental message. The issues of coastal pollution and the destruction of wildlife habitats are subtly introduced.

***Sea Otters*** by Bobbie Kalman  
Crabtree Publishing, 1997, \$7.95

Essential information about sea otters is paired with colour photographs in this excellent non-fiction book for primary children. Glossary, Index.

***Oil Spill!*** by Melvin Berger  
Harper Trophy, \$6.75

This "Let's-Read-And-Find-Out" Science book is one of a series of science books written for children aged 5 – 9. It talks about the causes and effects of oil spills. It concludes with some ways that we can help to prevent future spills.

***The Book of Eagles***

Beautiful British Columbia magazine

This book is about the Bald eagle population of Brackendale, B.C.

This eagle population is at risk due to habitat encroachment. This book was conceived by the Nature Conservancy of Canada as one way of taking action on behalf of these birds. This book contains interesting research information for the teacher, along with many beautiful photographs.

***The Nature of Sea Otters—A Story of Survival***

by Stefani Paine  
Douglas and McIntyre, 1993

The author worked for twenty years at the Vancouver aquarium as a staff biologist and manager of public affairs. In this book, the text and stunning wildlife photography by Jeff Foott, combine to capture the beauty and power of the west coast and the endearing qualities of the sea otter. It also emphasizes that we must take part in helping to ensure the survival of this creature. The text is written at an adult level, making this book useful for teacher reference, but children will love and learn from the photographs.

***The Princess and the Sea-Bear*** by Joan Skogan  
Polestar, 1990, \$6.95

This book contains nine legends set on British Columbia's north coast, around the village of Metlakatla near Prince Rupert harbour. One of these stories, Foam Woman and the Sea Otter Hunters, relates to this theme.

***Totem Poles*** by Pat Kramer  
Altitude Publishing, \$14.95

This book is written as a guide book and reference for the many totem pole locations in western Canada. The section on identifying totem pole figures contains information and stories about the many animals incorporated into the carvings. The eagle and owl are among the prominent birds mentioned. The book is full of colourful and detailed photographs.

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*Welcome to the World of Otters*  
*Welcome to the World of Eagles*  
*Welcome to the World of Owls*  
by Diane Swanson  
Whitecap Books, 1996, \$6.95

Award-winning children's author, Diane Swanson, brings the exciting world of animals alive with interesting facts and stunning colour photographs. These are beautiful and informative books, well suited to primary children.

*Who* by Richard Thompson  
Orca Book Publishers, 1993, \$14.95

This is an original myth written with young children in mind. The story tells the events that take place after an owl names his young owlets after the gods of the forest. This book is capably illustrated in pencil crayon drawings by Martin Springett.

*Zebo and the Dirty Planet* by Kim Fernandes  
Annick Press Ltd., 1991, \$4.95

Kim's concern for the future for all of the animals of the world led her to write this story. Brightly illustrated with molded phemo pictures and simple text, this is a book that primary children can read for themselves.

#### **Nature Detectives-The Living World Series**

*The Cedar Club Forest Detectives*  
by Diane Swanson  
Pacific Edge Publishing, 1996, \$9.95

*The Sixth Street Wetlands Detectives*  
by Diane Swanson  
Pacific Edge Publishing, 1996, \$9.95

*The Central School Seashore Detectives*  
by Diane Swanson  
Pacific Edge Publishing, 1997, \$9.95

*The Gibson Park Grasslands Detectives*  
by Diane Swanson  
Pacific Edge Publishing, 1997, \$9.95

*The Kingfisher Camp River Detectives*  
by Diane Swanson  
Pacific Edge Publishing, 1998, \$9.95

Each of the five titles in the "Nature Detectives—The Living World Science Series" tells the story of a group of adventurous nature detectives who discover the life in one of five different ecosystems—forest, seashore, wetland, river and grassland. These fascinating books provide primary teachers with a language based resource from which science can be extended across the curriculum.

#### **Teacher's Guides**

by Brenda Boreham, Jane Carroll, Darlene Davis and Diana Mumford

Pacific Edge Publishing, 1996, \$39.95

The teacher's guides for the four texts in the "Nature Detectives—The Living World Science Series" contain detailed lesson plans, Hands-On Science activities, and suggestions for extending the learning and linking science to other curriculum areas. Blackline masters and evaluation tools are included.

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## ADDRESSES

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Cousteau Society  
930 W. 21st Street  
Norfolk, VA 23517  
U.S.A.

The National Geographic Society  
17th and M Streets, N.W.  
Washington, D.C. 20036  
U.S.A.

Friends of the Sea Otter  
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B-4  
Monterey, California 93940  
U.S.A.

Adopt-a- Marmot Programme  
web site: [www.islandnet.com/~marmot](http://www.islandnet.com/~marmot)