toronto zoo

Teacher Resource Booklet

Grade 2

Growth and Change in Animals

TO THE EDUCATOR

Welcome! This resource guide has been designed to help you enrich your students' learning both in the classroom and at the Toronto Zoo. All activities included in this grade 2 booklet are aligned with the Understanding Life Systems strand of The Ontario Curriculum, Grades 1-8: Science and Technology, 2007. The pre-visit activities have been developed to help students gain a solid foundation about biodiversity before they visit the Zoo. This will allow students to have a better understanding of what they observing during their trip to the Toronto Zoo. The post-visit activities have been designed to help students to reflect on their Zoo experience and to make connections between their experiences and the curriculum. We hope that you will find the activities and information provided in this booklet to be valuable resources, supporting both your classroom teaching and your class' trip to the Toronto Zoo.

CONTENTS

CURRICULUM CONNECTIONS – WHERE DOES IT FIT IN?

Strand: Understanding Life Systems
Topic: Growth & Changes in Animals

OVERALL EXPECTATIONS:

1. Assess ways in which animals have an impact on society and the environment, and ways in which humans have an impact upon animals and the places where they live

2. Investigate similarities and differences in the characteristics of various animals

3. Demonstrate an understanding that animals grow and change and have distinct characteristics

SPECIFIC EXPECTATIONS:

Relating Science and Technology to Society and the Environment

1.1. Identify positive and negative impacts that different kinds of human activity have on animals and where they live

1.2. Identify positive and negative impacts that animals have on humans and the environment

Developing Investigation and Communication Skills

2.2. Observe and compare the physical characteristics and behavioural characteristics of a variety of animals

2.3. Investigate the life cycle of a variety of animals

2.5. Investigate the ways in which a variety of animals adapt to their environment, or changes in their environment using various methods

2.7. Use appropriate science and technology vocabulary, including life cycle, migration, adaptation, body coverings, and classify

Understanding Basic Concepts

3.1. Identify and describe major physical characteristics of different types of animals

3.2. Describe an adaptation as a characteristic body part, shape, or behaviour that helps an animal survive in its environment

3.3. Identify ways in which animals are helpful to, and ways in which they meet the needs of living things, including humans

PRE-VISIT ACTIVITIES

1. WHAT DO WE KNOW?

This activity will encourage students to practice making predictions and communicating their ideas. It will also provide the teacher with the opportunity to assess the prior knowledge that students have regarding concepts covered in the workshop.

As a whole class, discuss what students know and would like to know about seasonal change in animals (e.g. physical and behavioural adaptations such as migration, hibernation, molting, dormancy, coat colour, coat thickness, change in diet). Record students' ideas on a large K-W-L chart. After finishing the workshop, revisit and complete the K-W-L chart.

K-W-L Chart:

What We **Know**	What We **Want to Know**	What We **Learned**

Tying It All Together
Language Strand: Oral Communication

1.2. Demonstrate an understanding of appropriate listening behaviour by using active listening strategies in a variety of situations

2.2. Demonstrate an understanding of appropriate speaking behaviour in a variety of situations, including paired sharing and small-and large-group discussions

2. MIND MAP

Use the following questions and statements to prompt students as they discover the concept of adaptation while creating a visual mind map on large chart paper, the blackboard or an interactive white board.

Prompting Script/Questions:
Some animals have behavioural changes. This means that they change what they do or how they act in order to adapt to the world around them.

Q1. What might some animals do to survive being outside in a cold and snowy winter setting?

- ***Migrate*** *– move somewhere else, especially birds because they can fly south to get away from the cold weather*
- ***Hibernate*** *– animals such as raccoons and snakes sleep during the entire winter season to avoid the winter cold*
- ***Dormant –*** *animals that dormant sleeps in the winter time but do wake up during the winter time on nice days to scavenge for food. Animals that dormant include bears and bats.)*

Some animals have special characteristics or "creature features" (things that you can see) that allow them to survive in their habitat.

Q2. Can you think of some ways that animals bodies might change or look differently?

- ***Shed/Grow*** *– Shed some of their fur in the warmer months in order to keep cool & grow more fur back in the cooler months in order* to *keep warm*
- ***Camouflage*** *– some animals have special colourings that allow them to keep hidden from predators and other danger*
- ***Body Features*** *– Animals have adapted certain body features to help them survive, such as the large ears of the elephant that help keep them cool; long tails of giraffes to keep pesky flies away, long fingers of orangutans to help them swing from branch to branch, and beaks used as a tool to feed young)*

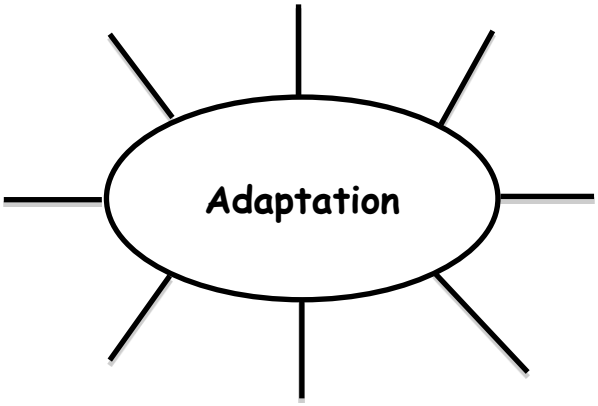
Some animals go through different stages in their lives where they look differently. These are adaptations that allow an animal to survive thorough out different periods of time in their life or life cycle.

Q3. Can you think of some animals that might look differently when they are born from when they are full grown?

- *Butterflies – Caterpillars → cocoon → metamorphosis → butterfly*
- *Snakes shed their skin when they outgrow it*
- *Frogs begin their lives as tadpoles*

Q4. What are the main reasons that animals adapt to their surroundings?

- *E.g. To survive, to avoid danger from predators, to stay warm or cool in certain times of the year, to camouflage*



3. READ A BOOK!

The following reading list is designed to enhance student reading and literacy skills while they are learning about specific animals and their respective adaptations. The reading list combines both stories and fact-based books to reach all reading interests and abilities. It is suggested that multiple books are read before the visiting the Zoo; this can be done as a class, with reading centres, or individually according to reading abilities.

Reading List:

- **Animal Camouflage.** McDonnell, Janet, 1962-Year/Format: 1998, Book, 32 p.
  This book describes physical and behavioural adaptations of animals (specifically camouflage and communication). It is divided into small chapters making it accessible to young readers.

- **Animal Adaptations for Survival.** 1st ed. Rose, Elizabeth, 1970-Year/Format: 2006, Book, 24 p.
  This book looks at various physical, behavioural, and seasonal adaptations that are used as methods for survival.

- **Amazing Armour.** Pryor, Kimberley Jane. Year/Format: 2009, Book, 32 p.
  This book describes how animals use their adapted body coverings as protection from danger.

- **Carry me! : Animal babies on the move.** 1st ed. Stockdale, Susan. Book, 2005. 1 v.
  This colourful book focuses on life cycle adaptations of many animals. It shows various behavioural and physical adaptations that animals have developed in order to carry their young.

- **Questions and Answers About Animal Camouflage.** 1st ed. – Ganeri, Anita, 1961- Book, 1991. 30 p.
  This book looks at the physical, behavioural, seasonal, and life cycle adaptations of various animals.

- **Teeth and Tusks.** Thomson, Ruth, 1949-Year/Format: 1989, Book, 32 p.
  This book centres on how different animals have adapted their behaviour based on their physical adaptations.

- **What Do You Know About Animal Adaptations?** 1st ed. Slade, Suzanne. Book, 2008. 24 p.
  This non-fiction book contains photographs, as well as drawings, to enhance student learning and understanding. With vibrant colours and large type, this book is well suited for young readers.

- **What is Migration?** Crossingham, John, 1974- Book, 2002. 32 p.
  This book follows many animals along their great migrations explaining seasonal and life cycle adaptations along the way. Real life images of animals make understanding fun and colourful.

- **What is Hibernation?** Crossingham, John, 1974- Kalman, Bobbie Year/Format: 2002, Book, 32 p.
  This book explains hibernation and its link to adaptations. Real life images of animals make understanding fun and colourful.

Tying It All Together

Language Strand: Oral Communication

1.4. Demonstrate an understanding of the information and ideas in oral texts by retelling the story or restating the information, including the main idea and several interesting details

1.6. Extend understanding of oral texts by connecting the ideas in them to their own knowledge and experience; to other familiar texts, including print and visual texts, and to the world around them

4. THE THICKET GAME

(adapted from Project Wild 2010. Council for Environmental Education: Canada. Pg. 137)

1. Take the class to a "thicket", any area with lots of shrubbery and/or trees.

2. Blindfold one student who will be the "predator" (or simply have them close their eyes). The predator counts to 15 slowly while the others hide. The students hiding must be able to *see the predator at all times*.

3. After counting, the predator removes the blindfold and looks for "prey". The predator can turn around, squat, and stand on tiptoes but cannot walk or change location. The predator should see how many students he or she can find, identify them out loud and describe where they are. When identified, they come to the predator because they have now been "eaten". These prey now become predators.

4. When the original predator cannot see any more students, all the predators now put on blindfolds. The original predator counts aloud to 10. All the remaining prey are to move in closer, but still try to be "safe" and hidden. They must still be able to *see the predator at all times*. All the predators remove their blindfolds and take turns naming the students they can see.

5. Repeat the process if several students are still hidden. When only one or two are left hidden, have them stand up and identify themselves; it may be surprising how close these prey were to the predators – an example of successful adaptation because of how well they blend with their environment in order to survive.

6. Discuss what would have made it easier to be the last one or to get very close to the predators. Some ideas that may come out are: changing colours (clothes); wearing clothing that doesn't stick to plants; being of smaller size; climbing a tree.

7. Ask students to summarize what they have learned. See if the students can think of other examples of adaptations in animals. Generalize that all animals are adapted to survive.

Tying It All Together

Health and Physical Education Strand: Movement Competence: Skills, Concepts, and Strategies

B1.1 Perform a variety of static balances using different body parts at different levels and making different body shapes

B1.3 Perform a variety of locomotor movements travelling in different directions and at different speeds, and suing different pathways

5. PHYSICAL CHARACTERISTICS OF ANIMALS

Students are to cut out the images of the animals and organize them according to body coverings by pasting the cut-out image into the appropriate category.

Templates and images for the student activity are provided on next page.

PHYSICAL CHARACTERISTICS OF ANIMALS

PHYSICAL CHARACTERISTICS

FEATHERS

MOIST SKIN

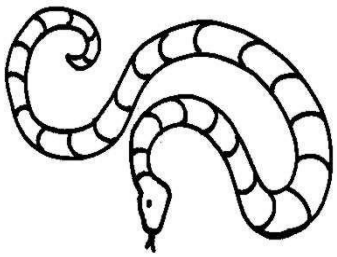
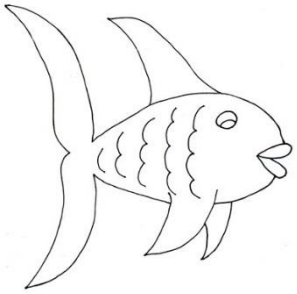
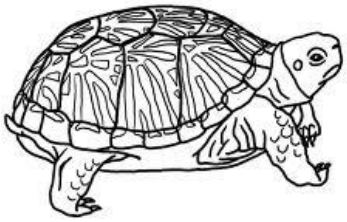
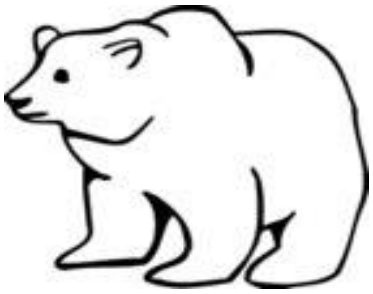
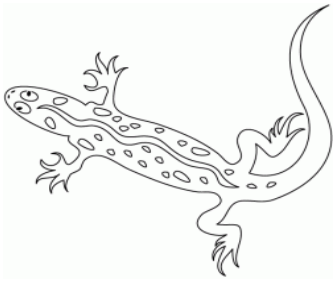
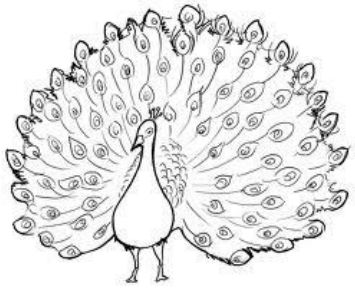
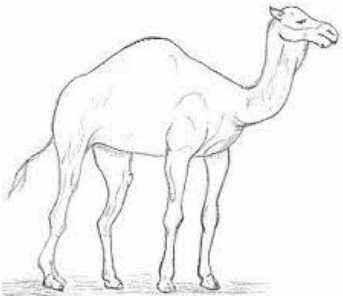
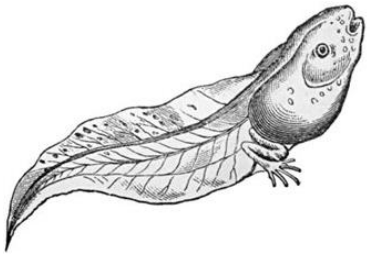
FUR

SCALES

WET

DRY

PHYSICAL CHARACTERISTICS OF ANIMALS

6. CREATURE FEATURES

This activity will allow students to learn about different animals and their adaptations.

1. For this activity, students will need to match the corresponding adaptations *(right column)* to the animals *(left column).*

2. Students can draw a line to connect the two images or colour code to indicate their relationships (Figure 2).

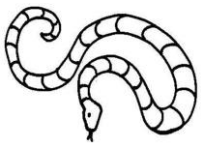
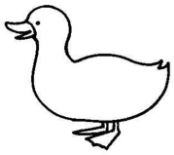
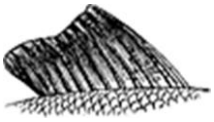
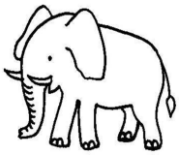
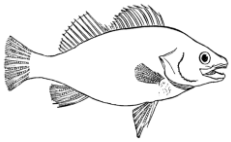
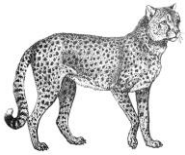
3. Once students have completed the worksheet, take up the activity with the class.

4. Students are responsible for making necessary changes.

5. To conclude this activity, students will pair up in partners with their neighbours and each student will choose a favourite animal from the chart and think about why their adaptations are necessary. Students will be given an opportunity to discuss with their partners and then present to the class.

6. Provide students with examples of what to include in their presentation. For example: name the animal, adaptation, and describe the purpose of the adaptation.

Creature Feature

Animal	Adaptation
 Snake	 Wings
 Duck	 Fins
 Elephant	 Web Feet
 Fish	 Camouflage
 Cheetah	 Trunk
 Bird	 Fork Tongue

POST-VISIT ACTIVITIES

1. WACKY ANIMALS

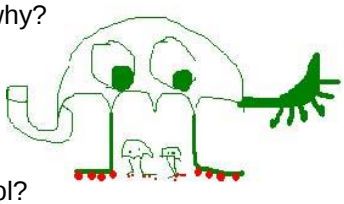
This activity will allow students to produce pieces of work to show their understanding of how animals physically adapt to their environment.

Divide the class into three groups and assign each group one habitat/environment:

a) Dark, cold, mountainous/rocky, rainy
b) Dry, hot, flat, very sandy, sunny
c) Wet, hot, covered by forests, rainy

Within each habitat/environment group, students will individually write a description of their imaginary animal. The animal should be well-adapted to the assigned habitat, and should consider at least two of the following elements:

- What does it look it and why?
- How big/small is it?
- What does it ear?
- How will it get food?
- How will it get water?
- How will it keep warm/cool?
- How will it defend itself from attackers?



RAINFOREST ANIMAL

Umbrella-shaped head for protection from rain and shelter for its babies, big eyes to see in the dark rainforest, elephant-like nose to drink while standing (so babies remain protected), a spiky tail for defense, and suction cups on its feet to walk up trees in the forest.

Once their descriptions are complete, students will create an illustration of their animal (using markers, pencil crayons, etc). In groups of six (two students from each habitat), students will present their animal and describe their adaptations.

Tying It All Together

Language Strand: Writing

1.1 Identify the topic, purpose, audience, and form for writing
1.2 Generate ideas about a potential topic using a variety of strategies and resources
2.3 Use a variety of sentence types
3.2 Spell unfamiliar words using a variety of strategies that involve understanding sound-symbol relationships, word structures, word meanings, and generalizations about spelling

Language Strand: Oral Communication

2.3 Communicate ideas, opinions, and information orally in a clear, coherent manner using simple, but appropriate organizational patterns

The Arts Strand: Visual Arts

D1.1 Create two-and three-dimensional works of art that express feelings and ideas inspired by activities in their community or observations in nature

Feeling Bold?

If you would like to link this activity to the Social Studies curriculum (where students must learn about different countries and climates) you can have students make predictions of where their imaginary animal would live in the world. When they have achieved a better understanding of location and climate, students can check the accuracy of their predictions.

Assessment

When assessing this activity, you may consider the following:

- ❑ Students considered the required elements in their design (e.g. size, diet, shelter)

- ❑ The characteristics are appropriate for the assigned habitat
- ❑ All students contributed
- ❑ Ideas clearly communicated
- ❑ Appropriate vocabulary used

2. WHAT ANIMAL AM I?

This activity will help students practice their questioning skills, knowledge of animal adaptations, and develop an awareness of details.

Choose six designated areas in the room and label each area one of the main classes of animals (mammals, birds, reptiles, amphibians, fish, or insects). Tape the name/picture of an animal that belongs to one of the six classes on each student's back. The group will begin to mingle. Students must guess the animal that they have 'become' by walking from person to person and asking each person yes or no questions based on distinguishing characteristics of animals in each class (e.g. Do I have fur, scales, feathers. Am I warm-blooded, cold-blooded etc.). Once students have discovered who they are, they must decide which class their animal belongs to and go to the respective corner of the room. Students in each corner will discuss why their animals need the adaptation. Each corner will present their main points to the class.

Tying It All Together
Language Strand: Oral Communication

- **2.2** Demonstrate an understanding of appropriate speaking behaviour in a variety of situations, including paired sharing and small-and large-group discussions
- **2.4** Choose a variety of appropriate words and phrases to communicate their meaning accurately

3. CHANGING SEASONS

This activity will revisit and reinforce how animals respond to seasonal changes. Before beginning the activity, create a large chart with three headings: season, influences on humans, and animal adaptations. As a whole class, generate ideas for each heading and fill out the chart.

Students will then be given the option to:

a) Working with a partner, select an animal and either illustrate or write about the changes that occur in the animal as a result of seasonal changes. They can organize their work by folding a paper into fourths, with each fourth representing a different season.

b) In groups of three, select an animal and create a series of tableaux (i.e. frozen scenes) highlighting the changes that occur in the animal as a result of seasonal changes. One student should narrate the series while the rest present the tableaux.

Once completed, students will present their products.

Tying It All Together

Social Studies: Canada and World Connections

- Identify factors that influence choice of clothing -interpret data and draw simple conclusions
- Construct and read a variety of graphs, charts, diagrams, maps, and models for specific purposes
- Communicate information, using media works, oral presentations, and written notes and descriptions

Language: Writing

1.1. Identify the topic, purpose, audience, and form for writing

3.2. Spell unfamiliar words using a variety of strategies that involve understanding sound-symbol relationships, word structures, word meanings, and generalizations about spelling

The Arts Strand: Dance

A1.1 Develop short movement phrases inspired by a variety of activities in their community

The Arts Strand: Drama

B1.2 Demonstrate an understanding of the element of role by communicating thoughts, feelings, and perspectives appropriate to the role being

The Arts Strand: Visual Arts

D1.1 Create two-and three-dimensional works of art that express feelings and ideas inspired by activities in their community or observations of nature

Assessment

When assessing this activity you may consider the following:

- ❑ Student demonstrated an understanding of differences between the four seasons
- ❑ Student worked cooperatively in a group
- ❑ Student used appropriate vocabulary
- ❑ Presentation clearly illustrated the seasonal changes in their animal (e.g. physical and behavioural adaptations)
- ❑ Student shows an understanding of animal adaptations
- ❑ Student used class time effectively

4. LIFE CYCLE OF A BUTTERFLY: DRAMA & ART!

This activity is designed to introduce students to the life cycle of butterflies through fun Visual Arts and Drama concepts.

Materials

- Eric Carle's *The Very Hungry Caterpillar*
- Small pasta (egg)
- Spiral pasta (caterpillar)
- Crayons / pencils
- Shell pasta (chrysalis)
- Glue
- Bow tie pasta (butterfly)

Begin this activity by reading Eric Carle's *The Very Hungry Caterpillar* to your students, as this is a great way to introduce them to the four main stage of a butterfly's life cycle. After reading the book have them describe what they saw in the book making sure to highlight the egg, caterpillar, chrysalis and butterfly stages. Have your students chant egg, caterpillar, chrysalis, butterfly a few times before moving onto the drama activity. This is where students will physically act out the stages of a butterfly's life cycle through movement. They will begin as an egg crouched on the floor with their arms tightly wrapped around themselves. They will then crawl out of this egg and, lying on their backs or stomachs with their arms at their sides, wriggle around on the floor as a caterpillar. Next comes the chrysalis where they will stand up as tall as they can, clasping their hand together and reaching up the ceiling. They can sway a little from side to side when they are in this form. Finally students will transform into butterflies and will flap their arms like wings as they 'fly' around the classroom. After you have practiced this movement with your students, have them perform them on their own as you call out the different stages.

Now that students are familiar with the four stage of a butterfly's life cycle, they can represent them in a fun art activity using pasta. Give each student a piece of blank paper and show them how to fold it so it is divided into four equal parts. In the top left box have students glue a small piece of pasta and label it EGG. Then show them how to draw an arrow pointing to the top right box where they will glue a piece of spiral pasta and label it CATERPILLAR. Show them how to draw an arrow pointing from the top right box to the bottom left box. This is where they will glue a piece of shell pasta and label it CHRYSALIS. Finally, have students draw and arrow from the bottom left box to the bottom right box where they will glue a piece of bow tie pasta and label it BUTTERFLY. Students should write the title "Life Cycle of a Butterfly" at the top of their page and may decorate it with crayons to make it more colourful, their final pieces can then be displayed on walls and referred to later on in the unit.

Tying It All Together

The Arts Strand: Drama

B1.1 Engage in dramatic play, with a focus on exploring main ideas and central characters from diverse communities, times, and places

The Arts Strand: Visual Arts

D1.1 Create two-and three-dimensional works of art that express ideas inspired by activities in their community or observations of nature

5. MY ANIMAL SHELTER

This activity will allow students to apply what they have learned about how animals use their environment to meet their needs.

Divide students into groups of four. Each group will be given a different set of materials. Each set should contain materials of a variety of textures, colours, shapes and sizes. Students must use the materials provided to create a shelter for an animal that lives in either a hot or cold climate. Groups will present their shelters to the class. As a class students can discuss their favourite shelter characteristics, the importance of shelters, and the differences between shelters of warm and cold climates. Suggested materials include: plasticine, yarn, popsicle sticks, toothpicks, recycled paper, foil, wax paper, etc.

Tying It All Together

Visual Arts

D1.1 Produce two and three-dimensional works of art that express feelings and ideas inspired by activities in their community or observations of nature

D1.4 Use a variety of materials, tools, and techniques to respond to design challenges

Language: Oral Communication

1.2 Demonstrate an understanding of appropriate listening behaviour by using active listening strategies in a variety of situations

2.2 Demonstrate an understanding of appropriate speaking behaviour in a variety of situations, including paired sharing and small-and large-group discussions

Feeling Bold?

Students can create and advertisement for their shelter. This could take the form of either a commercial or a poster.

Language Strand: Media Literacy

1.1 Identify the topic, purpose, and intended audience of some simple media texts

3.4 Produce media texts for specific purposes and audiences, using a few simple media forms and appropriate conventions and techniques

Assessment

When assessing this activity you may consider the following:

- ❑ Student worked effectively within their group
- ❑ Student demonstrates an understanding of the needs of animals living in either warm or cold climates
- ❑ Student understands the difference between warm and cold climates
- ❑ Student used at least two elements of design in their shelter
- ❑ Shelter is three-dimensional
- ❑ Student able to explain the choices they made in planning and producing their shelter

6. MIGRATING MONARCHS

This activity will help students better understand the behavioural characteristics that enable animals to survive (e.g. migration). As a class, read a picture book about migration. Discuss why migration is important (why animals such as birds and butterflies need to migrate). Introduce monarch butterfly migration to the students (see resource list for migration websites) and on a large map, locate the countries that the monarchs pass along their migration route. Mark the routes with yarn.

Materials

- Picture book (see Resource List for a list of relevant books)
- Large world map
- Yarn
- Tape

Tying It All Together

Social Studies: Canada and World Connections

- Demonstrate an understanding that the world contains many countries including Canada
- Locate their local community, as well as Toronto, Ontario, Canada, and the various countries studied on a globe or map

Language: Oral Communication

1.2 Demonstrate an understanding of appropriate listening behaviour by using active listening strategies in a variety of situations

2.2 Demonstrate an understanding of appropriate speaking behaviour in a variety of situations, including paired sharing and small-and large-group discussions **adaptation** a process by which an animal becomes better suited to its environment

7. MATH AND GRAPH

This activity allows students to use and expand on their data management abilities while continuing to learn about the different animal classes.

1. Review with students about the different characteristics of each class of animal. *(e.g. mammals have fur or hair, have live births and breathe through their lungs.)*

2. Students will count the number of animals within each classification category from their picture sheet (Figure 1- A). They will record their findings within the table provided (Figure 1 – B). Once students have recorded their findings, as a class review the findings together.

3. Next students will cut out the animal pictures for the pictograph and paste them in the appropriate category on the graph chart (Figure 1 – C). The students will be able to make connections between adding and graphing their results in an explicit and simplistic fashion.

4. Have students label the axes, write a title for their pictograph and include their name.

5. Post pictographs around the classroom.

Extension: the students can transfer their results to a bar graph.

PICTURES FOR PICTOGRAPH

Grizzly Bear

Pufferfish

Striped Skunk

Malayan Leaf Frog

Sumatran Tiger

Fairy Blue Bird

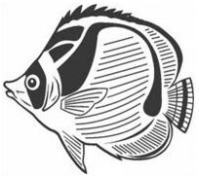
Spiny Softshell Turtle

Wrinkled Hornbill

Frilled Lizard

Moon Jelly

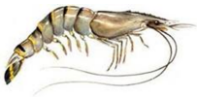
Butterfly Fish



Sumatran Orangutan

Dwarf Crocodile

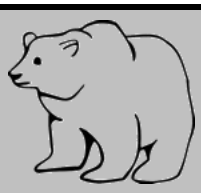
Blue Shrimp



Reticulated Python

Tree Kangaroo

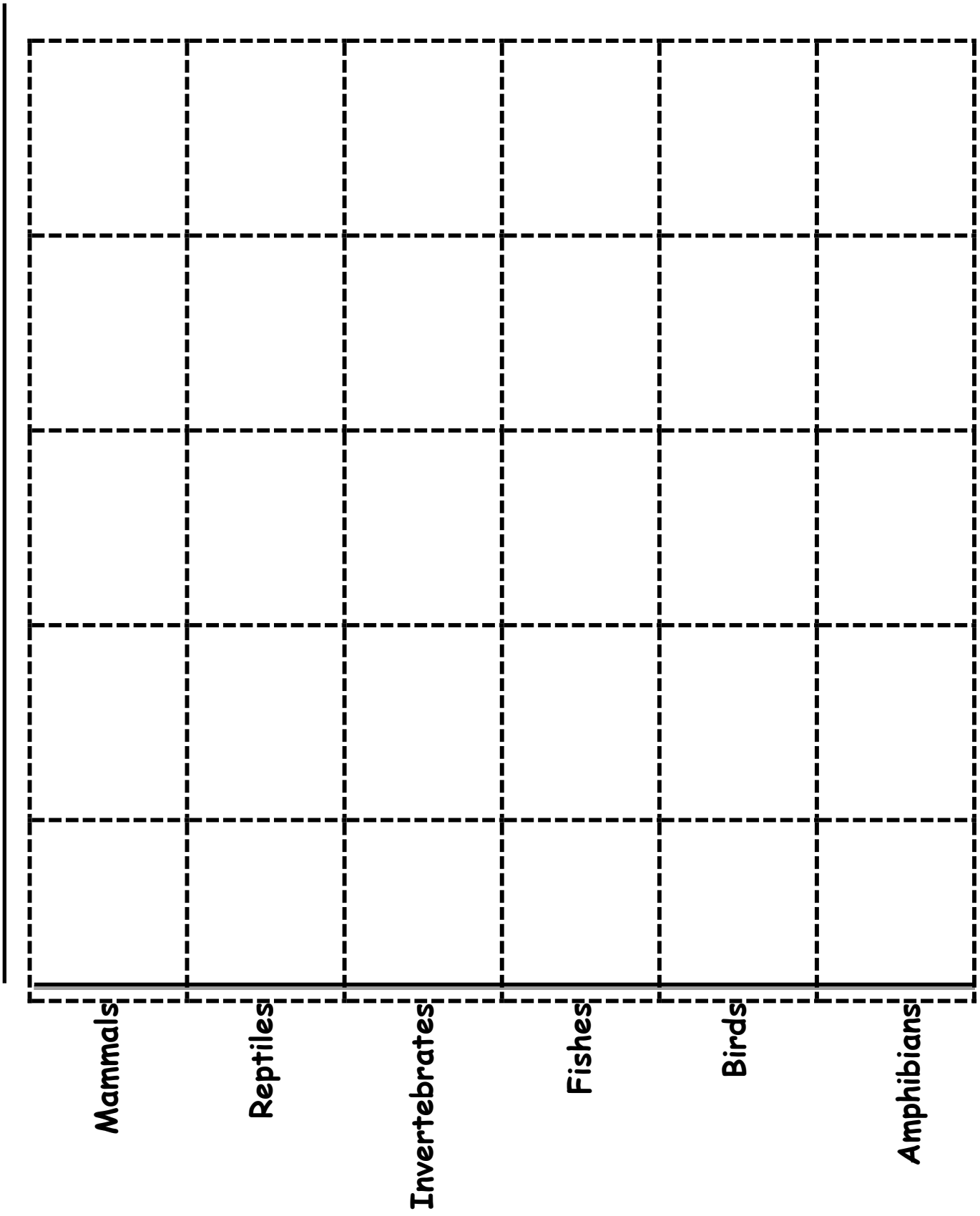
How many animals in each class did you find?

CLASS OF ANIMAL	HOW MANY DID YOU FIND?
 **MAMMALS**	
 **BIRDS**	
 **REPTILES**	
 **AMPHIBIANS**	
 **FISH**	
 **INVERTEBRATES**	

Next, let's work on your pictographs using the pictures of the animals!

MATH AND GRAPH FIGURE 1 - C

Title: _____



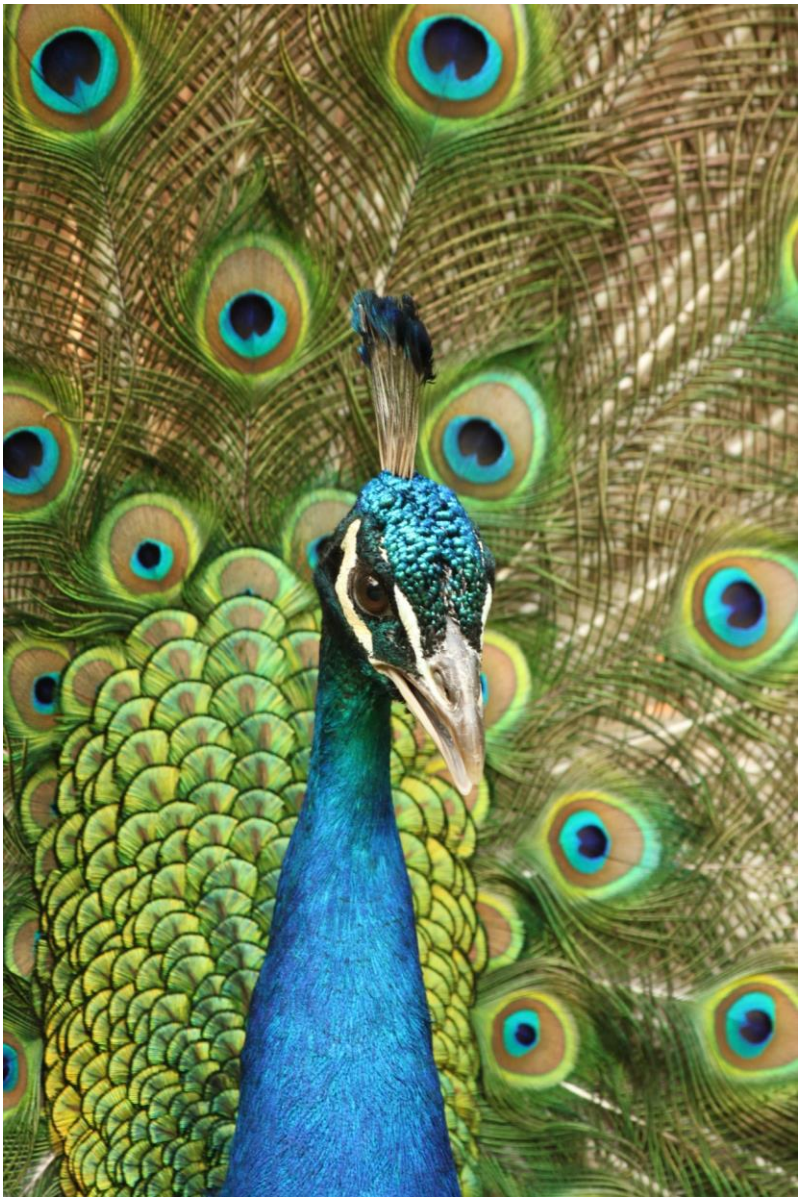
8. ANIMAL SURVEY

Assign each student an animal from an animal class by providing an image for each student (Figure 2 - A).

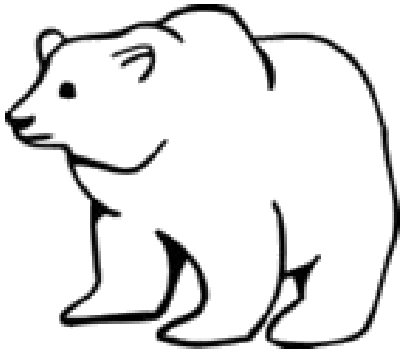
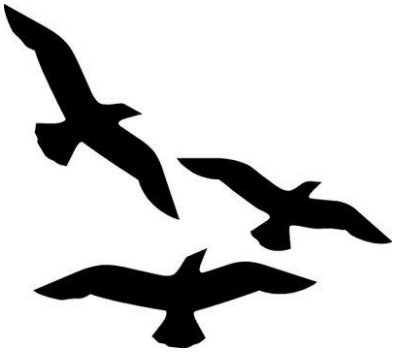
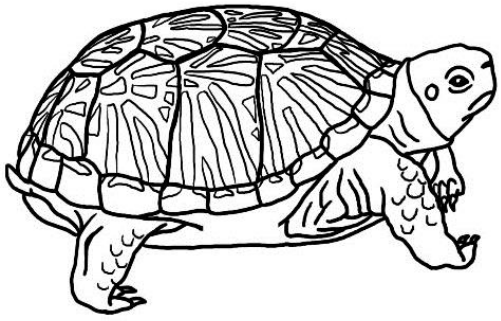
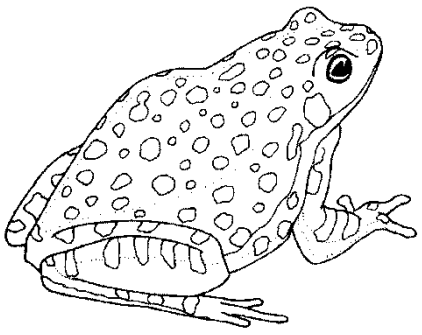
Students will survey their classmates and record their findings for the number of animals that belong to each class in a tally chart (Figure 2 - B).

Remind students only to ask each classmate once for this activity. Once students have gathered their information, go over the answers, making sure that each student has the correct number of results for each category.

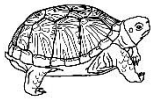
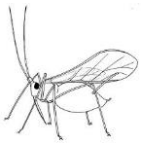
Once the data is reviewed, students can graph their results in a bar graph (Figure 2 - C).



ANIMAL SURVEY FIGURE 2 - A

 **INVERTEBRATE**	 **FISH**
 **MAMMAL**	 **BIRD**
 **REPTILE**	 **AMPHIBIAN**

ANIMAL SURVEY FIGURE 2 - B

Animal Classes	Number of Students	Total
Fish 		
Bird 		
Mammal 		
Reptile 		
Amphibian 		
Invertebrate 		

ANIMAL SURVEY FIGURE 2 – C

Title: _____

10						
9						
8						
7						
6						
5						
4						
3						
2						
1						
	Fish	**Bird**	**Mammal**	**Reptile**	**Amphibian**	**Invertebrate**

9. ANIMAL ADAPTATION PHYSICAL EDUCATION GAME

This physical education activity consists of students acting out different characteristics and movements of the animals that they have visited at the Zoo.

Call out a series of statements relating to the animal adaptations. Many of the animals in the descriptions below were visited by the students on their tour of the Toronto Zoo. The students will follow the teacher's instructions and perform the actions that go along with the statement. For this activity, have a bin of rubber balls available to students - the rubber balls will represent food.

Some suggested statements:

- You are a black bear (*what class do you belong to? Mammal*) and you are dormant for the winter. You will need to gather some food (rubber balls) and hide them in a corner of the gym for the winter. On your way you need to walk like a bear *(demonstrate broad shouldered walking while taking large strides).*

- You are an Indian rhinoceros *(what class do you belong to? Mammal*) and you need special protection from the sun and also from insects that might like to bite you. Roll around on the ground to get *(pretend)* mud all over you for sun protection.

- You are a babirusa *(what class do you belong to? Mammal)* and you have a long nose to dig and find your food. Your long nose also helps you to detect predators. Walk all around the whole gym once using your long nose to find food (rubber balls) and to find your way around.

- You are a lion-tailed macaque. You love to swing around all day high up in the trees away from predators. Stretch out those long arms. Swing both your arms in forward circles for 30 seconds. Now swing your right arm backwards while you swing your left arm frontwards. Now switch.

- You are a red-tailed green ratsnake (*what class do you belong to? Reptile*) and you have scales that are just right for moving around high up in trees. The branch that you would like to rest in is at the end of the gym. Slither all the way to the end of the gym to get to your favourite tree branch. Don't forget to hiss and stick out your tongue like a snake on the way!

- You are a caterpillar *(what class do you belong to? Invertebrate).* Crawl like a caterpillar half way down the gym, and then curl up into a cocoon before you emerge like a butterfly and fly to the end of the gym.

- You are a Jumbo Gourami *(what class do you belong in? Fish)* and you breathe through your gills (Have students put their hands up near their faces and flap them back in forth in a gill like fashion). Jumbo Gourami's also periodically come up for air, so in between swimming to the end of the gym, jump up for air by doing a jumping jack.

- You are a Chinese gliding frog. (*What class do you belong in? Amphibian)* leap frog all the way around the whole gym!

- You are a Canada goose (*what class do you belong to? Birds*) and you adapt to the seasons by flying from Ontario down South where it is warm to escape the cold winter weather. Now flap your wings, fly and honk like a Canada goose from one end of the gym to the other. Now it is the end of winter and the weather is warming up back home in Ontario. Migrate back North for the summer. Flap your wings and honk all the way back home.

Health and Physical Education: Movement Competence: Skills, Concepts, and Strategies

- Perform movement skills, demonstrating awareness of the basic requirements of the skills and applying movement concepts as appropriate, as they engage in a variety of physical activities
- Apply movement strategies appropriately, demonstrating an understanding of the components of a variety of physical activities, in order to enhance their ability to participate successfully in those activities.

10. PREDATOR VS. PREY PHYSICAL EDUCATION GAME

This outdoor physical education activity helps students to understand the difference between animals that are predators and animals that are prey. As this activity is a tag game, students will surely get a chance to run and let loose!

For this activity a large open indoor or outdoor space is required. Materials needed include hula hoops, rubber balls, bright coloured ribbon or pinnies for distinguishing the "predator" animals.

Review the terms and concepts of *predator* and *prey*.

Predator: an animal that eats other animals for food.
Prey: an animal that is eaten by another animal.

1. Place hula hoops around a large area. These are "safe" places for prey animals to hide. Place "food" items around the area for the prey animals to eat (we suggest rubber balls), have them far enough away from the hula hoops (safe areas) that the prey animals will have to venture out of their safe spot to get them. Prey can only be in the safe spot for a short period of time (Have students count "1 Toronto Zoo, 2 Toronto Zoo, etc. until 10 and then they must leave the "safe" area).
2. Assign 5 students to be predator animals.
3. The goal of the prey animals is to not get eaten and gather at least three food items (there needs to be adequate rubber balls or reduce the amount needed to be eaten by the prey).
4. Predators will run around the area trying to find prey to eat (tag). If the prey animal is tagged it has been eaten by the predator and that student is out (or see alternative in step 5).
5. Predators need to tag at least two prey animals. Prey animals may go into the hula hoops to avoid the predators and communicate with other animals by making noise. Students can be rotated through the roles of predator and prey OR students that are prey and have been tagged by the predator can become predators as well.

Extension:

In class, hold a discussion about the prey becoming predators once they were tagged. An explanation of this is that since the predators have "eaten" (tagged) the prey they can afford to feed more predators or have predator offspring. Once the whole group is predators it can be explained that animal life cycles involve other animal life cycles as well. So, if there is not enough food for one population to be able to eat, they will start to die off and reduce numbers. Once this happens and the population of the animal returns to a point that they can eat enough food, it will repeat. It is also worth mentioning that prey cycles usually ebb and flow in conjunction with predator cycles. For example, owl (predator) populations flourish when there are seasons of plentiful moles, voles and field mice (prey populations). When the prey populations diminish, owl populations decrease – fewer young are hatched).

11. ANIMAL BOOKLET

This activity will allow students to create an animal of their choice including special adaptations. Prior to the activity, review existing adaptations with the students verbally. For example, tail, claws, long neck, forked tongues, beak, etc.

On a large piece of paper, students will draw their animal with its special adaptations and complete the following sentences:

My animal is the _____.

It`s special adaptations are _____ and _____.

Students are encouraged to indicate an already existing adaptation, and as well a new invented adaptation of their choice. This activity could be implemented as an option in classroom literacy centres. Once students have completed their drawing, together as a class students may share their drawings with the rest of the class. Have students describe the animal and the adaptations.

As an option, using the student's work, drawings could be used to create a classroom storybook.

VOCABULARY

Adaptation	A process by which an animal becomes better suited to its environment
Behavioural Adaptation	A process where an animal changes their behaviour in order to survive its environment
Classify	Arranging animals in classes or categories according to shared qualities or characteristics
Conservation	The protection of wildlife and their habitats
Dormancy	A state of reduced physiological activity, such as that occurring in seeds and buds; a seasonally recurring period in the life cycle of an organism during which growth, development, and reproduction are supressed; aestivation- summer; autumnal dormancy- fall; hibernation- winter vernal dormancy- spring
Environment	The area in which something or someone exists or lives
Habitat	The place where an organism normally lives, or where individuals of a population live and can obtain food, water, shelter, and space
Hibernation	A dormant state in which some animals spend the winter
Life Cycle	A series of stages that an animal undergoes during its lifetime
Migration	The seasonal movement of some animals from place to place in response to environmental conditions
Physical Adaptation	A characteristic or change in an animal`s body that helps it survive its environment
Shelter	Something that provides protection or cover (e.g. from weather, from predators)
Wetland	A general term used to describe areas that are neither fully terrestrial nor fully aquatic