toronto zoo

Self-Guided Tour

Primary

Eurasia Wilds

TABLE OF CONTENTS

To The Educator

The Toronto Zoo's Education Branch is pleased to provide you with **Self-guided Tour: Eurasia Wilds – Primary**, a resource package designed to support the educational component of your self-guided field trip and enhance your students' learning. The questions and information provided in this resource package will help you and your supervisors guide your students' learning and discovery as they explore Eurasia Wilds. The self-guided tour package includes curriculum connections, concepts to review, a tour script, and follow-up questions. It has been designed for students in grades 1-3, with curriculum links to the Understanding Life Systems strand of The Ontario Curriculum, Grades 1-8: Science and Technology 2007.

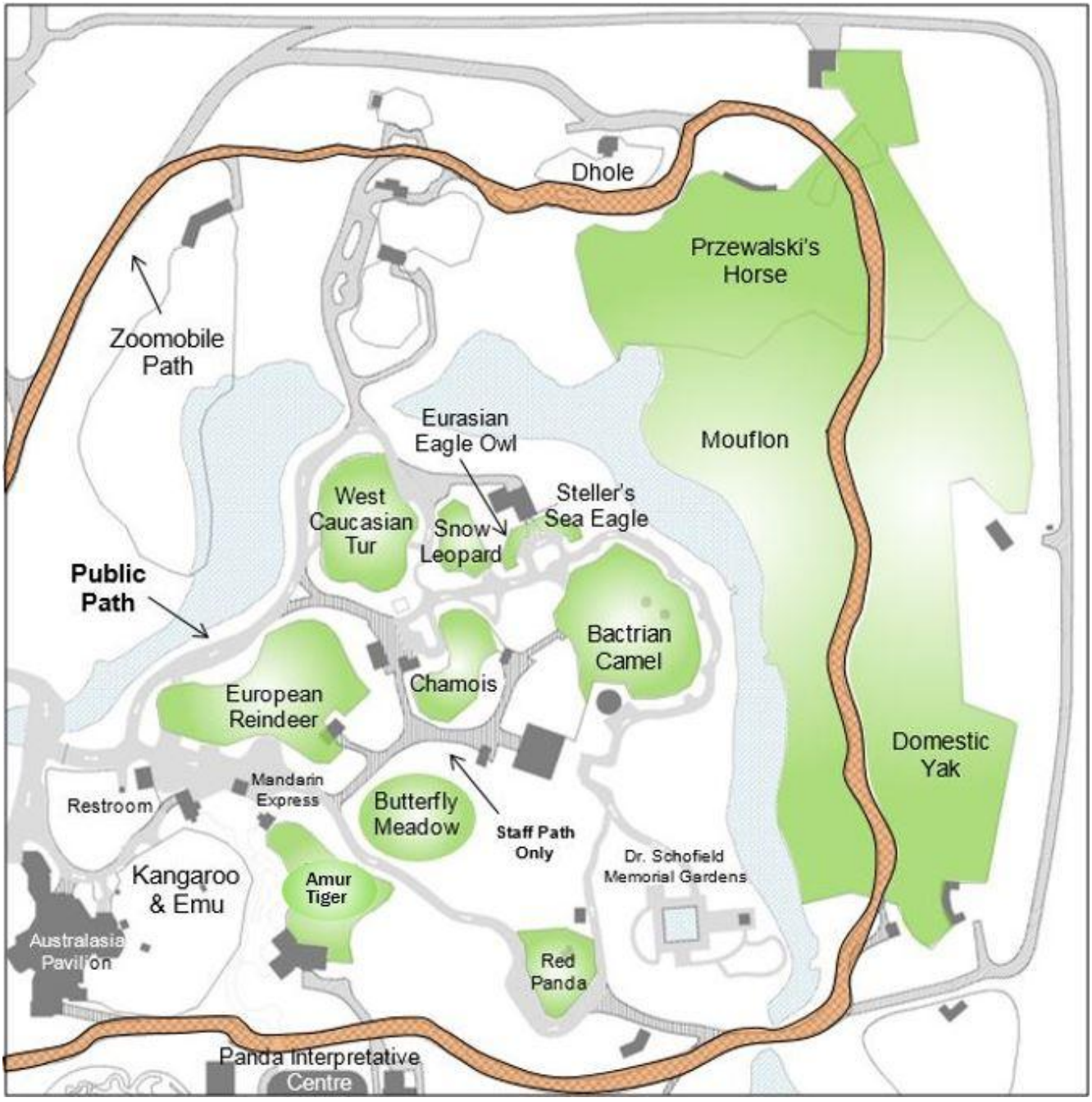
The self-guided tour covers topics across grades 1, 2, and 3, including movement, senses, adaptations, life cycles, classification, seasonal change, and plant and animal relationships. The tour includes a variety of questions (bolded) for each animal, as well as background information, which in combination with exhibit signage, can be used as reference material for you and your supervisors. The questions have been developed not necessarily for students to get the right or wrong answer, but rather to encourage students to draw conclusions from their own observations, prior knowledge, and through discussions with other students. During the tour, students should record any questions they might have or things they would like to learn more about. These can form the basis of a follow-up discussion or inquiry project when students return to the classroom.

Suggestions for how to best utilize this self-guided tour package:

1. Develop learning outcomes or educational goals for the trip.
   → What would you like students to learn during the self-guided tour or Zoo trip in general?
2. Review the entire resource package, including curriculum expectations, concept review, tour script, and follow-up questions.
3. Determine how students will 'show' their learning (e.g. oral discussions at each exhibit, notes and observations recorded in a notebook, etc.).
4. Plan pre-visit activities or a concept review lesson.
   → Visit the Teacher Resource section of torontozoo.com/educationandcamps/schoolprograms/elementary for additional resources, including the Giant Panda Teacher Resource and Activity Guide
5. Print a copy of the tour script (p. 10 - 25) for each supervisor/group and highlight the specific questions you would like covered.
6. Review your expectations of the trip, including learning outcomes and expected behaviour, with your students and all supervisors prior to visit.
7. Plan a follow-up lesson(s) or post-visit activities to wrap-up the Zoo visit and address any questions students may have.

Toronto Zoo Map

Eurasia Wilds Map



***Please Note:** Przewalski's Horse, Mouflon, and Domestic Yak visible from Zoomobile or by looking across river.

Curriculum Connections

The Eurasia Wilds – Primary self-guided tour is intended to assist educators in connecting animals that their students are observing to curriculum expectations from the Understanding Life Systems strand of The Ontario Curriculum, Grades 1-8: Science and Technology 2007.

Big ideas and specific expectations for each grade are listed below.

GRADE 1

Big Ideas

- Living things grow, take in food to create energy, make waste, and reproduce.
- Plants and animals, including people, are living things.
- Living things have basic needs (air, water, food, and shelter) that are met from the environment.
- Different kinds of living things behave in different ways.
- All living things are important and should be treated with care and respect.

Specific Expectations

Relating Science and Technology to Society and the Environment

1.1 Identify personal action that they themselves can take to help maintain a healthy environment for living things, including humans.

1.2 Describe changes or problems that could result from the loss of some kinds of living things that are part of everyday life, taking different points of view into consideration.

Developing Investigation and Communication Skills

2.2 Investigate and compare the basic needs of humans and other living things, including the need for air, water, food, warmth, and space, using a variety of methods and resources.

2.3 Investigate and compare the physical characteristics of a variety of plants and animals, including humans.

2.4 Investigate the physical characteristics of plants and explain how they help the plant meet its basic needs, using a variety of methods and resources.

2.5 Investigate characteristics of parts of the human body, including the five sense organs, and explain how those characteristics help humans meet their needs and explore the world around them.

2.6 Use appropriate science and technology vocabulary, including *investigation, explore, needs, space,* and *food*, in oral and written communication.

Understanding Basic Concepts

3.1 Identify environment as the area in which something or someone exists or lives

3.2 Identify the physical characteristics of a variety of plants and animals.

3.3 Identify the location and function of major parts of the human body, including sense organs.

3.4 Describe the characteristics of a healthy environment, including clean air and water and nutritious food, and explain why it is important for all living things to have a healthy environment.
3.5 Describe how showing care and respect for all living things helps to maintain a healthy environment.
3.6 Identify what living things provide for other living things.
3.7 Describe how the things plants and animals use to meet their needs are changed by their use and are returned to the environment in different forms.

*** When investigating the parts of the body, including the senses, students can use animals as a reference, as well as humans.**

GRADE 2

Big Ideas

- Animals have distinct characteristics.
- There are similarities and differences among different kinds of animals.
- Humans need to protect animals and the places where they live.

Specific Expectations

Relating Science and Technology to Society and the Environment

1.2 Identify positive and negative impacts that different kinds of human activity have on animals and where they live, form an opinion about one of them, and suggest ways in which the impact can be minimized or enhanced.

Developing Investigation and Communication Skills

3.2 Observe and compare the physical characteristics and the behavioural characteristics of a variety of animals, including insects, using student-generated questions and a variety of methods and resources.
3.3 Investigate the life cycle of a variety of animals using a variety of methods and resources.
3.4 Investigate the ways in which a variety of animals adapt to their environment and/or to changes in their environment, using various methods.
3.5 Use scientific inquiry/research skills, and knowledge acquired from previous investigations, to investigate the basic needs, characteristics, behaviour, and adaptations of an animal of their choice.
3.6 Use appropriate science and technology vocabulary, including *life cycle, migration, adaptation, body coverings,* and *classify*, in oral and written communication.

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 a plant or animal survive in its environment.
3.3 Identify ways in which animals are helpful to, and ways in which they meet the needs or, living things, including humans, to explain why humans should protect animals and the places where they live.

GRADE 3

Big Ideas

- Plants have distinct characteristics.
- There are similarities and differences among various types of plants.
- Humans need to protect plants and their habitats.
- Plants are important to the planet.

Specific Expectations

Relating Science and Technology to Society and the Environment

1.1 Assess ways in which plants are important to humans and other living things, taking different points of view into consideration, and suggest ways in which humans can protect plants.

1.2 Assess the impact of different human activities on plants, and list personal actions they can engage in to minimize harmful effects and enhance good effects.

Developing Investigation and Communication Skills

2.2 Observe and compare parts of a variety of plants.

2.4 Investigate ways in which a variety of plants adapt and/or react to their environment, including changes in their environment, using a variety of methods.

2.5 Use scientific inquiry/experimentation skills, and knowledge acquired from previous investigations, to investigate a variety of ways in which plants meet their basic needs.

2.6 Use appropriate science and technology vocabulary, including *stem, leaf, root, pistil, stamen, flower, adaptation,* and *germination*, in oral and written communication.

2.7 Assess the impact of different human activities on plants, and list personal actions they can engage in to minimize harmful effects and enhance good effects.

Understanding Basic Concepts

3.1 Describe the basic needs of plants, including air, water, light, warmth, and space.

3.2 Identify the major parts of plants, including root, stem, flower, stamen, pistil, leaf, seed, and fruit, and describe how each contributes to the plant's survival within the plant's environment.

3.3 Describe the changes that different plants undergo in their life cycles.

3.4 Describe how most plants get energy to live directly from the sun.

3.5 Describe ways in which plants and animals depend on each other.

3.6 Identify examples or environmental conditions that may threaten plant and animal survival.

Concept Review – Grade 1

Review the 5 Senses – sight, hearing, taste, smell, and touch

- ***Sight:*** We can **see** that a lemon is yellow using our **eyes**.
- ***Hearing:*** We can **hear** when the dog is barking using our **ears**.
- ***Smell:*** We can **smell** when someone is making dinner using our **nose**.
- ***Taste:*** We can **taste** that chocolate is sweet using our **tongue**.
- ***Touch:*** We can **feel** that a kitten is soft using our **skin**.

Review Movement

- ***How do we move from place to place?***
  - People move around using their legs and feet, and sometimes hands and arms.
- ***Why do humans/animals move?***
  - Movement is vital for an animal's survival – to find food, water, shelter, and space.
- ***How do animals move?***
- ***Do all animals move in the same way that humans do?***
- ***How does an animal get to where it needs to go?***
- ***How do animals sense the environments around them? How do these characteristics help them to fulfill their basic needs?***

Concept Review – Grade 2

Review Classifying Creatures

- ***Classifying:*** grouping similar animals together based on characteristics/features they share
- ***Vertebrates vs. Invertebrates:***
    - Spine/backbone: reach around and feel the bumpy bones running along your back
    - Do all animals have a backbone?
        - *Vertebrates:* animals with a backbone; mammals, fish, reptiles, birds, & amphibians
        - *Invertebrates:* animals without a backbone; insects (over 1 million species!), spiders, worms, jellyfish, anemones, octopus, etc.

Classifying Vertebrates

- ***Mammals:***
    - Have hair or fur
    - Most give birth to live babies, instead of laying eggs (few exceptions)
    - Produce milk to feed to their young
    - *Warm-blooded:* bodies produce heat; stay warm even if temperature around them decreases
    - Most live on land and have four legs, while some live in the water
- ***Birds:***
    - Have feathers and wings
    - Lay eggs
    - Warm-blooded
    - Two legs
- ***Fish:***
    - Have scales or fins
    - Lay many eggs
    - Most live and breathe underwater using gills
    - *Cold-blooded:* depend on other sources (e.g. the Sun) to warm their bodies
- ***Reptiles:***
    - Have dry skin and scales
    - Lay eggs or have live births
    - Cold-blooded
    - Four legs or no legs
- ***Amphibians:***
    - Have smooth, moist skin
    - Live on land and in water
    - Lay many eggs
    - Cold-blooded
    - When legs are present, usually have webbed feet

Classifying Invertebrates

- Insects:
  - *Exoskeleton:* hard outer layer
  - Three attached body divisions: head, thorax, & abdomen
  - Six legs and zero, two, or four wings
  - Most change in shape/structure/behaviour as they grow (*metamorphosis*)
- Arachnids:
  - Two body sections: cephalothorax and abdomen
  - Eight legs and lack wings and antennae that most insects have
  - Spiders & scorpions
- Marine Invertebrates

Review Growth & Change

- ***Life Cycle:*** the stages of life that an animal goes through from birth to adulthood.
- ***Metamorphosis:*** the changes an animal's body structure goes through from one stage of its life cycle to another (e.g. egg → caterpillar → pupa → butterfly)
- ***Adaptations:*** physical or behavioural characteristics that help animals survive in their habitats
- ***Behavioural Adaptations:***
  - *Migration:* when an animal move from one area to another; some migrate to warmer areas in the winter, some migrate to find food, and others migrate to raise their young; examples: monarch butterflies traveling to Mexico, salmon migrating from open water to streams to lay eggs, and caribou migrating seasonally to give birth and find food.
  - *Hibernation:* animals becoming inactive and sleeping through colder months; examples: ground hogs and most insects
  - *Dormancy:* similar to hibernation, however, the animal is not completely inactive and may occasionally rise and forage for food; examples: black bears, grizzly bears, and rabbits
- ***Physical Adaptations:***
  - How do people stay warm in winter? Warm clothing, eat warm food, & stay indoors
  - Thicker coats of fur to keep some mammals warm in winter months and lighter coats to keep them cool in the summer (e.g. Bactrian camel)
  - Emperor penguins have a dense layer of tightly packed feathers to keep them warm and waterproof and have a thick layer of blubber for warmth
  - ***Camouflage:*** the ability of an animal to blend in with its surroundings through its colour and patterning, allowing it to hide from sight (e.g. Arctic fox has a white coat in the winter to blend with snow and a dark coat in the summer when snow has melted

Concept Review – Grade 3

Review people depending on plants

- Why do we need plants?
  - Plants produce food for energy, shelter, medicine, clothing, and oxygen for breathing
- Have you eaten a plant today? What did you have for breakfast?
  - Toast, juice, jam, fruit, and cereal are all made from plants
- How do people use plants? Think about a farmer
  - Help keep the soil in place, preventing erosion
  - They are used for food (e.g. orchards (apple), crops, etc.) both for people and for animals (e.g. cows)
  - Used to make material for clothing (cotton fields)
- Why do we need to eat plants?
  - Plants convert energy from the sun

Review animals depending on plants

- How do animals use plants?
  - Similar to how people depend on plants
  - Food for energy
  - Shelter (e.g. nests)
  - Medicine
  - Oxygen for breathing

Review plants depending on animals and people

- Do plants depend on people? Yes!
- How?
  - Animals disperse pollen and seeds to new areas (think of burrs clinging to people or animals passing by or squirrels hiding seeds)
  - Animals produce waste that fertilizes the soil
  - People and animals breathe out carbon dioxide, which plants use to make energy
  - Respect and protection

Review plants and their major parts

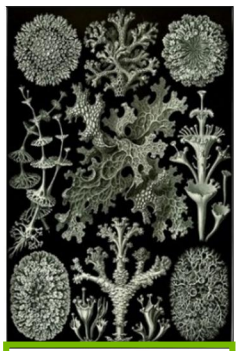
- What are the basic needs of plants?
  - Air (carbon dioxide), water, light, and space
- What are the major parts of a plant?
  - Root
  - Stem
  - Leaf
  - Flower
  - Seed
  - Pollen
  - Fruit

SELF-GUIDED TOUR

EUROPEAN REINDEER (ALSO KNOWN AS **CARIBOU** IN NORTH AMERICA)

- ***What are a reindeer's basic needs?***
  - Food, water, shelter, space, and air.

- ***How do reindeers meet their basic food needs year round? Think about what food they eat and the different seasons they might experience.***
  - Reindeer eat a variety of plants.
  - In the winter, their choices are limited, so they often eat moss and lichen by digging craters in the snow.
  - ***How do they know where to find the moss and lichen?***
    - They have an excellent sense of smell which helps them locate the plants under the snow.
    - ***What makes moss and lichen unique? Can you find any moss or lichen close to the reindeer exhibit? Compared to other plants (e.g. trees, flowers, and grass), how are moss and lichen the same and how are they different?***
      - Both species can survive in extreme environments.
      - Answers for the comparison will vary, but keep in mind that lichen aren't actually plants. They are a partnership between algae and fungus.



Lichen

- ***How does a reindeer move? Why do they move?***
  - Reindeer move by walking or running on all four legs. They are also excellent swimmers and can swim across lakes. Reindeer travel together in large herds.
  - Reindeer move in order to find food, water, and shelter. They also move to escape from predators.
  - In the winter, reindeer migrate (travel) south to the warmer evergreen forests where there is more food and water, as well as shelter from storms.
  - In the spring after the snow has melted, they travel back to the tundra where the plants have started growing again.
  - They travel up to 5000 km a year, which is more than any other migrating land mammal. It would be like you walking from Toronto to Vancouver.

- ***In the winter, we put on winter coats to keep warm. How does a reindeer stay warm?***
  - Their fur coat gets thicker to provide more warmth. It is shed in the spring.
  - The fur coat also turns a lighter, whitish colour in the winter, while it is dark brown in the summer. ***Why?*** Camouflage!

- ***Identify one physical characteristic or adaptation. What function does it serve?***
  - Their antlers! Unlike deer, both male AND female reindeers have antlers.
  - Protection from predators, to settle disagreements, to find a mate, and to determine who is most dominant (or the boss!).

MEADOWS – INVERTEBRATES AND PLANTS

- ***Most of the animals at the Zoo have a backbone. Are they classified as a vertebrate or invertebrate?***
    - Vertebrates have backbones, which provide strength and structure.
    - With your hand, feel up and down the back of your neck. Those 'bumps' are the bones or 'vertebrae' they make up our backbone. Almost all mammals have 7 vertebrate in their neck, they are just different sizes – from tiny bones in a mouse to the large and long bones in a giraffe's neck.

- ***Without a backbone, what gives an invertebrate their support and protection?***
    - *An exoskeleton, which is an outer covering.*
    - *In order to grow, invertebrates must grow new exoskeletons and molt or shed their old exoskeleton.*

- ***Can you find any insects or invertebrates in the meadow? Does the season change what you might find? Why or why not?***

    - Allow students time to explore and search the meadow. As a group, discuss the students' discoveries. **Look, but don't touch if you find any.**
    - Possible findings include: caterpillar, butterfly, moth, dragonfly, ant, grasshopper, beetle, fly, stick insect, spider, praying mantis, bee, wasp, ladybug, spittlebugs (insects that are found in the frothy 'spit' on plants).

- **What are some physical characteristics of insects?**
    - Exoskeleton (outer covering), antennae, 3 body sections, 3 sets of legs.

- ***Which animal in the above list is an invertebrate, but not an insect?***
    - Spider (arachnid) – 8 legs and 2 body sections

- ***How is the life cycle of an insect different from the life cycle of a mammal, bird, reptile, or amphibian? How is it the same? Can you act out the life cycle of a butterfly?***
    - Think about eggs vs live young and metamorphosis (e.g. caterpillar to butterfly).

- ***Why are insects important? Why would it be difficult for plants to survive without insects?***
    - Insects are important because they pollinate plants (transfer pollen from one plant to another which allows the plant to make fruit/seeds).
    - Other animals will then eat the fruit to meet their basic needs.

- ***Other than insects, are there other animals that pollinate plants? Think about mammals, birds, reptiles, and amphibians.***
    - Bats, monkeys, humans, hummingbirds, and lizards are all pollinators.

- ***How many different types of plants can you find in the meadow?***
    - Allow students to explore the meadow and surrounding area. As a group, discuss the variety of plants found, which will inlcude grasses, bamboo, flowers, shrubs, and both decidious trees (lose leaves in winter) and coniferous trees (keep needles in winter).

- ***Choose two plants – how are they the same and how are they different?***

- ***How do animals help plants survive?***
    - Answers may include pollination, seed disperal, poop fertilizes the soil plants grow in, animals breathe out carbon dioxide that plants need.

- ***Can you find any bamboo in the meadow? What type of plant is bamboo?***
    - Bamboo is a hard, tall grass. It's not a tree, but it can grow as tall as a tree.
    - Some types of bamboo can grow 3 to 4 feet in a day! That's about the size of a gr 2 or 3 student (*Point to someone who is about 3 to 4 feet and say that bamboo can grow as tall as_____in a single day)*.

- ***Explain the life cycle of a plant. Can you find plants in different stages of the life cycle in the meadow?***
    - Seed → Seedling → Small and growing plant → Mature Plant with flowers and/or fruit with seeds → Seeds dispere from mature plant

- ***Choose one plant in the meadow and identify its different parts. How does each part of the plant contribute to its survival?***
    - ***Root*** (bring up water and nutrients, anchor plant in ground), ***stem*** (carries water & food to rest of plant), ***leaf*** (make food for the plant using the sun), ***flower*** (grow fruit and seeds for new plants).

- ***Why are plants important?***
    - Food source for animals and humans, provide oxygen, provide homes for wildlife, used in many items (lumber, paper, medicine, clothing), trees provide shade, etc.

- ***How can you help protect plants?***

RED PANDA

- ***What are some similarities and differences you can see between the red panda and the giant panda?***
    - **Similarities:** pseudo-thumbs, 4 legs, 2 eyes, 2 ears, a nose, a mouth, fur, claws, both eat bamboo.
    - **Differences:** size, colour, tail, whiskers, red pandas also eat berries, small insects, and bird eggs.
    - ***What animal does the red panda look like?*** Hint: you might find one in your backyard.
        - A raccoon!
        - Research by scientists has shown that red pandas are not related to giant pandas or raccoons.

- ***Is a red panda a mammal, bird, fish, reptile, or amphibian? How do you know?***
    - The red panda is a mammal because it has fur, gives birth to live young, and feeds its babies milk.

- ***How are the front legs of the red panda different from the back? How does this adaptation help them move?***
    - Their front legs curve in a little. This curve and their sharp claws help them climb up and down trees head first
    - Can you think of another animal that also climbs up and down trees head first?
        - Squirrels!

- ***How do you think the red panda's tail helps them survive?***
    - Their long tail helps them balance when they are jumping and climbing from branch to branch, just like you use your arms to balance when you are on a balance beam so you don't fall!
    - Red pandas can also wrap their tails around their bodies to keep warm, similar to a blanket.

- ***Why are plants important to red pandas?***
    - Food - red pandas eat bamboo and berries.
    - Shelter and protection - red pandas spend a lot of their time in trees away from predators.

- ***Which sense do you think is the most important for a red panda?***
  - Taste!
  - Red pandas use the sense of taste (instead of sight or smell) to sense other red pandas.
  - They have an adaptation called the Flehmen (fle-men) response that allows them to taste the air when they pull up their upper lip and inhale air with their nostrils closed. The scents go into a special organ (Jacobson's /vomeronasal organ) located above the roof of the mouth where they can figure out what the scent is.
  - Several other animals, including cats, giraffes, rhino, and horses all exhibit the flehmen response
  - ***Try it yourself! Can you taste the air?***
  - ***Which of the 5 senses is most important in your life? Why?***

Quick Activity!

Red pandas can jump **1.5 m** in a single leap! That's like the length of 3 desks placed end to end.

Can **you** jump like a red panda?

DOMESTIC YAK (LOOK ACROSS THE RIVER TO SPOT THE YAKS. IF YOU CANNOT SPOT THEM, CHECK OUT THE YAK SIGN)

- ***How does a yak move? Is it quickly or slowly?***
  - Yaks often move slowly and carefully because of their short legs, big humped shoulders, and rounded hooves.
  - But watch out! If they sense danger, they will charge.
  - ***Can you move like a yak?***

- ***Yaks live high up in the mountains. How do they stay warm? Think about how you stay warm in the winter (warm clothing, stay inside, huddle close to other people).***
  - Yaks have thick, shaggy fur that helps keep them warm, just like a winter jacket.
  - They have adapted their heart and lungs to be larger in size so that it is easier to breathe the cold air in the mountains.

- ***What do you think a yak's favourite food is?***
  - Yaks eat plants, including grasses and moss, and lichen that are found in meadows and mountains.
  - ***Do you know what the special name is that we give to animals that just eat plants?***
    - Herbivore.
  - Yaks' teeth are specially adapted to help them grind up and eat plants.
    - The flat teeth in their mouth are called molars.
    - You have flat teeth called molars too – ***Can you feel them at the back of your mouth with your tongue?***

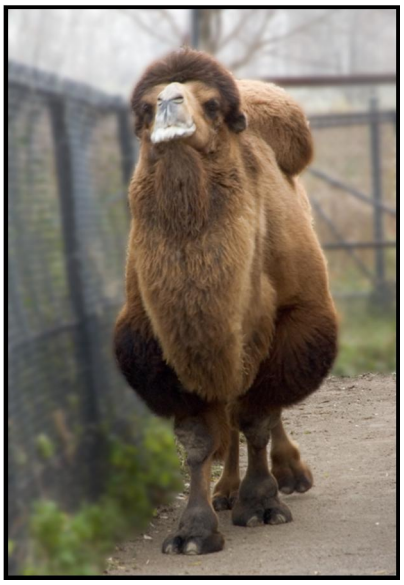
- ***How do yaks meet their basic needs in the winter?***
  - Like all animals, yaks need water and food to survive. In the winter, yaks will migrate (travel) in a herd (group) to an area that has more grass and plants.
  - If their water source is frozen, yaks will eat snow and ice to stay hydrated.

- ***What class of animal does the yak belong to? How do you know?***
  - Yaks are mammals because they have fur and their babies are born live, drink milk, and look just like their parents.
  - A human baby takes a year to learn how to walk. ***How long do you think it takes a baby yak to learn how to walk? Why is this important to their survival?***
    - Yak calves can usually walk 10 minutes after they are born, so that they are able to keep up with the herd and escape predators).

Manure for Heat

Did you know that Tibetans that live in the mountains with the yaks collect their manure (poop) for fuel to heat their homes? It's true!

BACTRIAN CAMEL



- ***What physical characteristic is unique to camels? How does it help them camels survive in the desert?***
  - Their **humps**! While most people think the humps store water, they actually store fat, which provides them with nutrition/energy when food and water are hard to find in the deserts of Central Asia.
  - Camels also don't sweat, which means they aren't losing water in the heat.

- ***What other physical characteristics do you notice?***
  - Students will have a variety of answers.
  - Fur coat that grows thicker in the winter to keep warm and is shed in the summer to stay cool.
  - A groove above their lip directs liquid that drips from their nose into their mouth.

- ***Why do camels have such large hooves? Think about where camels live.***
  - Their large, wide hooves help camels cross the rocky desert and they make it easier to walk on the sand and snow.
  - The wide hooves help to spread out their body weight so that they don't sink – just like how snowshoes work.

- ***Take a close look at their eyes – Can you spot their eyelashes? Why are long eyelashes important to their survival?***
  - Two set of long eyelashes help to protect their eyes from the sand in the desert when it gets windy!
    - Think about what it's like at the beach when it's windy out...you need to squint/close your eyes to keep the sand out.
  - Camels are also able to pinch their nostrils closed when they want so that the sand can't get in!

- ***Bactrian camels are mammals. How are they different from other classes of animals (bird, fish, reptile, and amphibian)?***
  - Answers will vary, but may include: have fur, give birth to live young, live on land, and cannot fly.

- ***How are plants that grow in the desert different than plants that grow in a forest? Why do they need to be different? Why are plants important to camels?***
  - Cactus and low lying shrubs grow in desert. Cacti have thickened fleshy parts that store water, have lost true leaves, and have spines/thorns. Their adaptations help them survive in an environment with little water.
  - Camels only eat plants. Without plants they would die. Thick skin in their mouths let them eat cacti with thorns.

MOUFLON (LOOK ACROSS THE RIVER TO SPOT THE MOUFLON. IF YOU CANNOT SPOT THEM, CHECK OUT THE MOUFLON SIGN)

- ***What animal does a mouflon remind you of?***
    - Sheep! Mouflon are Europe's only true wild sheep species.

- ***What physical characteristics or adaptations do you see?***
    - Their large, curved horns.
        - The horns are used to protect their heads, similar to a helmet, when they charge at one another. Charging is one way that mouflon settle their disagreements, just like humans use the game 'Rock, Paper, Scissors'.
        - The horns are also used to defend themselves against predators.
        - While male mouflon can grow horns that are up to 85 cm long (almost 7 cans of pop stacked end to end!), most females do not have horns. ***Are the mouflon at the Zoo male or female? How do you know?***

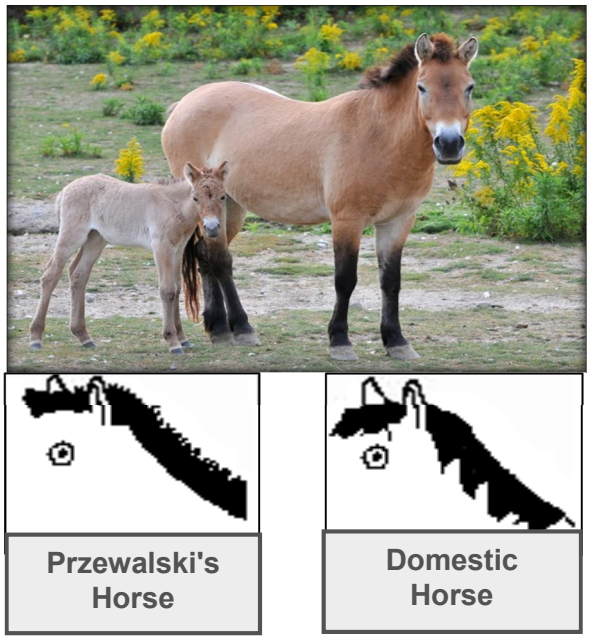
- ***What do you think horns are made of?***
    - Horns are bony-like structures that are covered in a protein called **'keratin'** (which also makes up your hair and fingernails)
    - Horns continue to grow throughout the animal's life.
        - This is different from antlers (deer, moose), which an animal grows and loses each year.

- ***From the animals you've already seen today, which one had hooved feet and lived in the mountains?***
    - Yak
    - ***After observing the mouflon, do they move similarly to the yak or differently? Why would that be?***
        - Faster because they are smaller in size and more agile.
        - Their powerful hooved legs allow them to move quickly on the rocky mountains. Like other hooved animals that live in the mountains, their specially designed hooves help them to be surefooted on the uneven rocks and climb the steepest ledges with ease.

- ***How are baby mouflon (lambs) different than human babies?***
    - Females (ewe) usually give birth to one or two offspring at a time. The lambs become independent very quickly and are able to scale their surroundings within a few hours of being born and nurse from their mothers.
    - Being able to move around the mountains shortly after birth allows the babies to escape from predators.

PRZEWALSKI'S HORSE (PRONOUNCED SHEH-VAL-SKEE)

(LOOK ACROSS THE RIVER TO SPOT THE PRZEWALSKI'S HORSE. IF YOU CANNOT SPOT THEM, CHECK OUT THEIR SIGN)



- ***This is not your regular horse!! Let's play a game. How many differences can you spot between the Przewalski's horse and a domesticated horse?***
  - Smaller due to shorter legs.
  - A bigger head and a 'pot-belly'.
  - Their mane is short in length and sticks straight up instead of falling down to the side like a domesticated horse's mane. Unlike a regular horse, this animal sheds its mane and tail annually!
  - Przewalski's also grow a thicker fur coat then domesticated horses in the winter time to help keep them warm.

- ***Why are plants important to the survival of Przewalski's horses?***
  - Przewalski's horses rely on plants for food.
  - Przewalski's horses eat wild grasses, leaves, shrubs, and roots. They have adapted to eat hard, tough plants that grow in the desert that other animals cannot eat.
  - They often eat from dusk (evening) until dawn (morning) when plants retain the most moisture so that get enough water.

- ***What are different movements that Przewalski's horses make? Can you mimic them? Why do they need to move?***
  - Trotting, galloping, stamping foot, rolling in dirt, moving their ears.
    - Moving their ears allows them to hear sounds coming from different directions without moving their whole body. ***Why is that important?*** To avoid predators.
    - They also use their ears to communicate with each other (along with different sounds- neighs, nickers, snorts, grunt, and squeal). When their ears are lying backwards, they are angry.

Did You Know?

Przewalski's horses have NEVER been tamed for riding. They are truly the LAST species of wild horse!

STELLER'S SEA EAGLE

- ***Steller's sea eagles spend a lot of time near the water. Why?***
    - Like all animals, they need water to drink
    - They need to be close to a body of water to hunt for fish, which are their main food source.

- ***Other than fish, what else might a Steller's sea eagle eat? Think of where they live.***
    - Steller's sea eagles are ***opportunistic*** – they will eat anything they find that looks tasty.
        - Crab, shellfish, squid, small animals, ducks, gulls, carrion (dead animals).
        - Like most birds, Steller's sea eagles don't have teeth. They swallow their food whole after they tear the food into smaller pieces using their sharp beaks and talons.

- ***If sea eagles eat meat, are plants important to them? Why or why not?***
    - Plants are an important source of building materials for their GIANT nests. Their nests can weigh several hundred pounds (approximately the weight of 10-15 grade 2 students). ***Can you spot the nest in the Steller's sea eagle exhibit?***
    - They also need strong and tall trees to make their giant nests in.

- ***What special creature features or adaptations do Steller's sea eagles have? Why are they important?***
    - **Amazing eye sight:** Just like us, this eagle has binocular vision, which allows it to judge distances and determine how far something is from it. But their vision is much better than ours!
        - If we stand at one end of a soccer field, we can see the goal posts at the other end. Eagles and owls can spot the tiny mouse at the other end of the field and tell how many whiskers it has.
    - **Sharp beak and talons:** Birds that have hooked beaks, razor sharp talons, and excellent eyesight are known as raptors. Raptors usually use their talons to snatch or seize their prey and then hold on to it while it uses the beak to tear it.
    - **Giant wings:** This eagle has a wingspan of over 2 m - that's wider than most the height of most adults!
        - **Check out the large sign Steller's sea eagle sign and have the students compare their arm length to the eagle's wingspan.**

Can you sound like a Steller's sea eagle?

The Steller's sea eagle has a deep, loud call that sounds like this:

Ra – Ra – Ra – Raurau

EURASIAN EAGLE OWL

- ***The Eurasian eagle owl is a raptor, just like the Steller's sea eagle. What physical characteristics do raptors have?***
    - Raptors have strong, hooked beaks, razor sharp talons, and excellent eye sight.
- ***What physical characteristics do most birds have?***
    - Birds have wings, a beak, feathers, lay eggs, and can fly.
    - ***Hmmm, not all birds can fly. Can you think of any? Why might they not fly?***
        - Penguins have adapted to swim
        - Ostriches and emus are too large and have adapted to run fast.
    - Owls also have specially adapted feathers that are designed to make no sound when they are flying. ***Why is this a good adaptation to have?***
        - It allows owls to sneak up on its prey without being heard or noticed.

- ***All of the mammals we've seen today have backbones. Do birds have backbones?***
    - Yes- birds are vertebrates and have backbones.
    - Most mammals have 7 vertebrate in their neck. ***Do owls have more, less, or the same number? Why might they have a different number?***
        - Owls generally have more vertebrae in their neck then humans because they can do something that we cannot – Rotate their head ¾ of the way around in either direction. The extra vertebrae allow this rotation to happen.

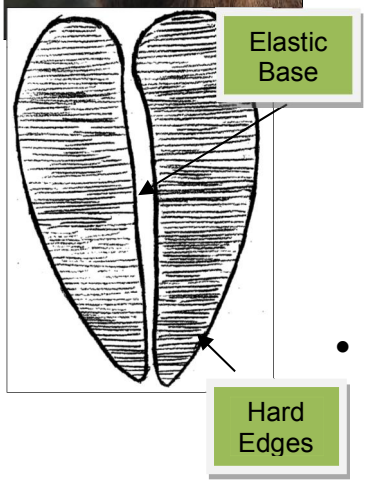
- ***What senses do owls depend on?***
    - These owls are nocturnal, which means they are active during the night and asleep during the day. They need excellent night vision in order to hunt – their night vision is about 10 times better than humans and can see small things move in the dark!
    - Owls also have a keen sense of hearing. They can determine another animals' location in the dark just by listening to their movement.

- ***How is the life cycle of a bird different than the life cycle of a mammal?***
    - Baby birds hatch from eggs.
    - They are born without feathers and don't have a lot of strength to move around.
    - Adult birds often sit on the nest to keep the baby birds warm and feed them with regurgitated food (food they've already eaten and swallowed).
    - Once their feathers grow in, the birds will learn how to fly and find food.

Quick Fact!

Baby eagle owls are called owlets. Unlike mammals, the baby owlets look quite different than their parents, as they are white and fluffy when they first hatch.

CHAMOIS



- ***Look at the chamois' exhibit. Where do you think they live in the wild?***
  - Chamois live on steep cliffs located in Europe and Asia. When the weather is warm in the summer, they move higher up the cliffs. When the weather gets colder, they move down the cliffs where there is less snow and more food available.

- ***Chamois are excellent climbers. Why don't they fall off the rocky ledges when they are climbing?***
  - Specially adapted hooves and strong hind (back) legs allow the chamois to easily run, jump, and climb up the rocky and steep ledges they call home. The middle of their hooves is soft and flexible while the outer edge of the hoof is thin and hard. This helps their feet to mold to the rocks and prevents slipping.
  - Try out the climbing rock (located between the chamois and snow leopard exhibit). ***Can you keep your balance?***

- ***Chamois are also amazing jumpers. Can you jump as high as a chamois? Why is being a good jumper important to their survival?***
  - Chamois can jump almost 2 m (6 ft) high and 6 m (almost 20 ft.) in length which allows them to escape from predators, like the snow leopard.
  - While holding your hand up high as a reference to 2 m (6 ft.), ask the students to see if they can jump as high.

- A neat behavioural adaptation or creature feature that the females display is their willingness to adopt other chamois babies. If a mother chamois dies or gets sick, then another female in the herd will take care of her calf. Not all animals are willing to do that!

- ***If chamois live on rocky mountains, how are plants important to their survival?***
  - Chamois are herbivores and eat flowers, moss, and other small plants that grow on the mountains.
  - In the winter, chamois will eat lichen (see the European Reindeer section for more details) when most plants aren't available.
  - Chamois, like camels, can survive up to two weeks without eating.

Did You Know?

Chamois have large ears that they can move around to pinpoint where sounds are coming from. Can you move or wiggle your ears?

SNOW LEOPARD

- ***Snow leopards have many physical adaptations that help them survive in the high rocky mountain ranges they call home. Which ones can you identify?***
    - Large paws covered in fur at the bottom help snow leopards keep warm, as well as stay on top of the snow without sinking into it (just like snow shoes!).
    - A specially-adapted nose allows them to warm up cold air before they breathe the air into their lungs.
    - Big, strong tails help them to move, making sure they stay balanced when running and leaping. Their tails are actually almost as long as the rest of their body!
    - Their tail also acts as a scarf when the snow leopard is curled up to help keep it warm!

Fun Fact!
Snow leopards can travel up to 40 km in one night! That's the distance from the Toronto Zoo to the CN Tower!

- ***Snow leopards prefer to live in steep cliff areas with lots of rocky ledges so that they camouflage with their surroundings. What animals might a snow leopard hunt? Can you demonstrate how a snow leopard might sneak up and ambush their prey?***
    - This carnivore (eats meat) preys mostly on animals in the goat and sheep families, but will also hunt smaller animals like rodents, rabbits, and birds.

- ***Which senses and adaptations help snow leopards hunt their prey?***
    - A great sense of smell helps them track their prey far distances.
    - Short and stocky front legs help them climb, while their back legs are long and powerful, which helps them to quickly leap up to 15 m (50 ft) - that's like **3 car lengths!!**
    - Sharp teeth and claws allow them to capture and eat their prey more easily.

- ***Do you think that you can move like the snow leopard?***
    - Check out the mountain mound beside the snow leopard display. Students can climb on the mound and try out their mountain feet or paws!!

Did You Know?

Unlike tigers and lions, snow leopards are unable to roar, and have green or grey coloured eyes instead of yellow or gold colour.

WEST CAUCASIAN TUR

- ***What type of animal is a tur? How do you know?***
  - West Caucasian tur are mammals, specifically a type of goat.
  - Tur usually live in large male- or female-only herds, with up to 500 individuals, for most of the year until it's time to mate.
    - Babies or "kids" stick close to the mothers to nurse and drink milk for about a month before they can eat regular food.

- Both male and female goats grows horns, although males usually have longer and thicker horns. ***What do you think they are used for?***
  - Protection from predators, dominance.

- **What do you think adult tur eat?** ***How does changing seasons affect what they eat?***
  - Tur are known to eat over one hundred different species of plants, but tend to eat mostly grasses.
  - In the winter, finding food is difficult due to snow, so they act differently **(behavioural adaptation)** in order to locate their food.
    - They will use their hooves to scrape away snow in order to reach the plants buried below.
    - When it is cold, they will also migrate (move) down the mountain to find food and as it warms up, they move back up to the mountain to eat the growing vegetation.

    - **Can you think of any local species that migrate in the winter?** *Monarch butterflies and Canadian geese*
    - Depending on the season, their fur changes between a thick, light grey colour to a dark reddish brown that is thinner. ***What colour do you think they would have in the winter? Why?***
      - Light grey when it is thicker to camouflage with the snow and keep warm.

- **Tur are amazing climbers? How can you tell?**
  - Students will be able to visually see them climbing with ease all the rocky ledges in their exhibit.
  - Tur need to be excellent climbers as they live in the mountains. Tur can run, jump, and climb using their short, but strong legs.
  - **Fun fact:** Tur like to travel in single file, so let's line up and pretend to travel like tur as we head to the next animal exhibit!

Follow-Up Questions

Possible discussion questions/activities for Grade 1

- All of the animals we saw today have their own ways of sensing the world around them, and using their abilities to fulfill their needs. What are the needs of living things?
- Do animals sense the world in the same ways that we do?
- What animal do you think has the most interesting way of moving? Why?
- Would you want to move or sense like a certain animal? What would it be?
- Why are senses so important to animals?
- As a group, move like each of the animals you saw.

Possible discussion questions/activities for Grade 2

- Discuss and sort the animals found in Eurasia Wilds into six categories: mammal, bird, fish, reptile, amphibian, and invertebrate. Describe some of their characteristics. Why is their more of one type of animal than the others?
- Describe the similarities and differences between the life cycles of two of the animals you saw today.
- The Steller's sea eagle and the Eurasian eagle owl are both birds. How do we know this?
- What was the most interesting animal adaptation that you learned about today? Why?
- How have some of the animals adapted to changing seasons?

Possible discussion questions/activities for Grade 3

- What were some of the plants you saw today?
- All plants need sunlight to survive. How do the plants we saw today get enough sunlight?
- Why do animals need plants? (food, water, shelter, oxygen)
- Why do herbivores have to find new food resources in the winter?
- Identify the function of the major parts of a plant.
- Why do we need to protect plants?
- How can you help protect plants?