

Tour of the Toronto Zoo for Grade One: “Characteristics & Needs of Living Things”

Grade 1 "Characteristics and Needs of Living Things"

Background

Animal senses and movement: The Indomalaya area is used as an example but the tour principles can be applied almost anywhere in the Zoo.

In this tour the focus is on identifying **how animals sense the outside world** and **how they move in their environment**. For each exhibit questions and answers are provided to draw responses from the students. Careful questioning allows them to discover most of the important principles for themselves.

Introduction

Take a moment before walking to Indomalaya to focus the students' attention. Ask them to think of the different ways they know about the outside world, sight, hearing, taste, smell and touch. You may have to describe one sense before they get the idea... "I know there is a beautiful green flag on top of the Zoo gate because....I see it with my eyes. OK, now I'll say part of the sentence and you fill in the rest."

Even though you can't see them you know that I clapped my hands because... you hear it with your ears.

I know when someone has just made popcorn because ... I can smell it with my nose.

I know that sugar is very sweet because.... I can taste it with my tongue.

I know that a kitten's fur is very soft because... I can feel it with my skin."

Once the 5 senses and the various sense organs have been identified tell them we are going to look for all these senses and sense organs in the animals we see today.

"For animals it is important to be able to move to get the things they need to live. How do we move? " With our arms and hands and legs and feet.

"How do animals move? Do they all move in the same way that we do?"

"We are also going to be looking at how the animals move."

Tour

Lion-tailed macaque

- **How does this animal sense the world?**
- **Can you find the sense organs?**
- **Are they like ours?**
- **How does this monkey move?**
- **Are the hands and feet like ours?**
- **Where are the eyes?** -at the front of the head like our own.

Supplementary points:

Monkeys' hands and feet are very good for climbing because they live in forests and spend most of their time up in trees. Like us monkeys have eyes at the front of the head because

this lets them judge distance very well, which is helpful when jumping from branch to branch.

Great Indian rhinoceros & Malayan tapir

- **What's that smell?**
- **How do you know there's an Indian rhino near by?**
- **Do you think the Indian rhino might use the same sense?**
- **Where are the eyes?** At the sides of the head.
- **How does the Indian rhino get its food?** The upper lip can be used like a hand to collect leaves or grass.

Look at the nose of the Malayan tapir.

- **If I tell you that the tapir escapes from tigers by hiding in the water, how would you think that nose could be helpful?** It can be used like a snorkel.
- **Why do rhinos and tapirs have such thick legs?** They are very heavy animals.

Notice that the ears are good sound collectors and can turn to hear an enemy sneaking up behind.

Supplementary points:

Both of these animals live in very tall grass or thick forest and so cannot see very far. They have to depend on other senses to find food (smell) or warn them of danger (smell and hearing). Like many animals both have eyes at the sides of the head to see anything that may try to sneak up from the side or back.

Malayan Woods Pavilion

Jumbo gourami

- **How does this animal move?**
- **What does it have instead of hands and feet?**
- **Does it have a nose?** Yes.
- **Can you find the nostrils?**
- **Do fish have ears?** Yes, but they are on the inside and help it balance. Fish sense sound vibrations through the lateral line.
- **Can you see the lateral line?** Notice a line through the pattern of scales on each side of the fish from near the gills to the tail.

Supplementary point:

Fish have another sense. Through the lateral line, running down each side of the body they can sense changes in water pressure and some fish can even detect electric currents in the water.

Butterflies (may be seen flying freely in this building from April until November)

- **How do butterflies move?** Fly with wings.
- **Do they have legs?** Yes.
- **How many?** 6.
- **What are those two things sticking out of the head?** Feelers or antennae, used for both touch and smell.
- **Can you see its mouth?** Most butterflies suck nectar or juices from fruit through a long hollow tongue.

Various birds

Great argus pheasant, Mandarin duck, White-crested laughing thrush, etc.

- **How do these animals move?** Fly with wings, run or walk . If possible observe the feet of the Mandarin duck (sometimes found perching over the gourami tank).

Ducks spend a lot of time in water.

- **How do those feet help it in the water?**
- **Do birds have ears?** Yes but they are under the feathers of the head.
- **What is special about a bird's mouth?** It is a beak.
- **How do birds get their food?** Most peck with their beaks and birds' beaks can be many different shapes.

Clouded leopard & Red-tailed green ratsnake

- **Can you find the animals in these displays?**
- **How does the clouded leopard move?**
- **What special things do cats have on their feet to help them climb trees?**
Claws.
- **What are those long hairs on the leopards face for?** Whiskers are long sensitive hairs that help a cat feel things close to its face in very dark places.

Notice how big the cat's eyes are.

- **How do big eyes help the leopard?** It sees well at night. Many animals that are active at night (nocturnal) have large eyes.
- **How do snakes move?**
- **Do they have legs or arms?**
- **Do snakes have ears?** No external ear but they can pick up vibrations through their jaw bones.
- **Why does the snake flick its tongue?** This is how a snake smells.

Indo Malaya Pavilion

False gharial, Malaysian painted turtle, Fire bellied newt, Malayan bony tongue, Clown knife fish

All these animals seem to live in water.

- **How do they move?** They all swim but not in the same way. Turtles paddle with their webbed feet. The false gharial and the newts can crawl along the bottom or move their tails to swim. The fish have fins to move around in the water.
- **Do any of these animals have ears?** No, but some of them can hear because they have internal ears. Look at the mouth of the gharial.
- **Why does it have so many teeth?** These are handy for catching fish, its favourite food. Look at the mouth of the Malayan bonytongue.
- **Where does this fish get its food, on the bottom or the surface of the water?**
Surface, because its mouth points up.
- **Where are the eyes and the noses of the gharial and the turtles?** These are located at the top of the head (false gharial) or at the front of the head (turtle). Maybe we can watch the turtles breathe and see how much of the head has to come out of the water.
- **How does this help the animal?** They only need to expose their nose and eyes above the surface to breathe and rest.

Orangutan

- **Do these animals look like anyone you know?** Although they may look like monkeys they are much more closely related to you.

- **What is special about their hands and feet?** Long fingers and toes are very good for gripping branches. They spend most of their time in trees. Orangutans can hang quite comfortably from a branch by any one of their feet or hands.
- **Can they move very well on the ground?** No, their legs are much shorter than their arms and to walk on the ground they have to fold up their long toes.
- **Are their lips like ours?** Orangutans are adapted to eat fruit. They can hang easily at the end of a branch and have large flexible lips and a big mouth that allow them to pick and hold a great deal of fruit at one time.
The eyes are at the front of the head, like the monkeys we saw earlier, to allow them to judge distance well.

Reticulated python and Tokay gecko

Does the snake have legs? No.

- **How does it move?** Snakes move with their ribs and the scales on their bellies. The reticulated python can grow to be longer than any other snake in the world. This snake likes to eat warm-blooded animals and can find them with some special senses.
- **Why does a snake flick its tongue out and in?** The tongue is used for smelling. Pythons and some other snakes can sense heat from the warm-blooded animals it likes to eat like deer, antelopes and pigs. See if you can spot the pits on its upper lip. This is where it can sense heat.

There is a little lizard in this display that you may be able to see.

- **How does it move?** Crawls
- **Can you see how wide its toes are?** Geckoes can run up sheer walls because they have special gripping pads on their toes.
- **Why are the gecko eyes so large?** They are night hunters and this lets them see well in the dark.
- **Can you remember another night animal that we have seen?** Clouded leopard

Supplementary point:

Can you guess how this snake gets its food? It captures animals like deer, rodents, pigs and monkeys by seizing them with its mouth then quickly coiling around to squeeze the body. The victim dies from not being able to breathe in once it has breathed out.

Sumatran tiger

- **How does the tiger move?** Walks on four feet.
- **Why do you think the fence here is so high?** Tigers are very good jumpers. They sneak up on deer or wild pigs and attack with a couple of great leaps.
- **Can the tiger move its ears?** Yes.
- **How do movable ears help the tiger?** It can listen for sounds in different directions without turning its head.
- **Can you see its whiskers?** We learned about whiskers at the clouded leopard.
- **What does the tiger do with its whiskers?** They help it to feel things close to its face in the dark forests where it lives and hunts. Tigers like to hunt at night and like the clouded leopard they also have large eyes and very good night vision.

Concave casqued hornbill

- **What is the first thing you notice about this bird?** It has a huge beak.
- **Why do you think it has such a large beak?** Although it is very large the hornbill's beak is very light. It is handy for picking fruit in tall trees in the rain forest.

- **Do birds have noses?** No but they do have nostrils in the beak.
- **How does this bird move?** It flies and hops around in branches.

Conclusion of tour:

Who can tell me one really interesting thing they learned from our tour today?

Do animals sense the world the same way that we do? Yes, most animals have similar senses but some can hear, see, smell differently than we can. Many animals can see, hear, smell, taste and feel things that we can't.

What was the most amazing animal sense that you learned about today?

What animal do you think has the most interesting way of moving?