A Teacher's Guide to **Animal Senses**
Grades PreK-2

Description: Our five senses help us interpret the world around us. Senses also allow animals to see, feel, hear, taste, and smell. Information from these senses is transferred to the brain, allowing reaction and interpretation of external stimuli. This guide is intended to help students better understand their senses, leading to a better appreciation of the various ways animals utilize their senses.

Outcomes: Students will learn about the five senses and the organs used to perceive these senses. From this they will learn how animals survive by using their senses.

Suggested Activities Before Your Visit:

- Discuss your upcoming trip to the Academy. Have your students brainstorm a list of good rules to follow while at the Academy.
- Learn about the five senses and the organs associated with each by doing activities in this guide.
- Locate sense organs on animals and have a basic understanding of special animal sense adaptations.
- Explore animal sensory adaptations.

Suggested Activities After Your Visit:

- Have the students do a small project on an animal—you or the students can choose—and write about its senses and how those senses help it survive in the wild.

Vocabulary

Smell
Taste
Touch
Hear
Vision
Adaptation
Senses

Pennsylvania PreK and K Standards
- 3.1.A, 3.3.A, 4.1

Pennsylvania Academic Standards in Environment and Ecology
- 4.1

Pennsylvania Academic Standards in Science and Technology
- 3.1.A, 3.1.C

New Jersey Core Curriculum Content Standards
- 5.1, 5.3.A, 5.3.B, 5.3.C, 5.3.E

Let's Talk About the Five Senses

Definition: We need our five senses to help us investigate the world around us. Each sense has an associated organ that allows us to detect different types of stimuli.

Getting Started:

Why do we need the five senses?

Examples the students may include: helps us see where we are going; to taste good or bad things; to hear sirens for danger or to hear other people; to feel if something is cold or hot; to smell something such as a fire.

Why do other animals need senses?

For the same reasons as we do. Senses help all animals orient themselves in their environments, to find food, to escape from danger, and to find others of their own kind. Nonhuman animals may have senses that humans do not have. For example, most birds can see ultraviolet light while humans cannot. On the other hand, humans have a better sense of smell than most birds.

How do the five senses work?

The sensory organs take in information and send it to the brain, which interprets the information.

Have the students point to the organs associated with each sense.

- We see with our eyes
- Hear with our ears
- Touch with our skin
- Taste with our tongue
- Smell with our nose

The Sense of Vision

Activity: What is Missing?
Purpose: Show students how they use their sense of vision to interpret the physical environment, and allow the students to practice their observational skills.

What you need: any object that is fairly large that you can move in the classroom or an object on yourself such as a pin, scarf, or tie that you can remove.

How do the activity:

- First, place a new item in the classroom but do not discuss it with the class. Or wear a unique piece of clothing or jewelry on yourself.
- Leave it there for a few days until the class becomes accustomed to it.
- Next, remove the object from the class or yourself and ask the class what is missing. You could also wait to see if any of your students notice that the object is missing before you say anything. You may also consider removing more than one object for a challenge.

Reviewing the Activity:
Once the class figures out what is missing, ask them how they knew it was not there. Explain to them that our eyes sent a picture to the brain. The brain then helps us to remember what was missing.

For extra fun with vision, check out these eye puzzle web sites:

- **vision3d.com**
- **scientificpsychic.com/graphics**
- **michaelbach.de/ot**

Fun Facts:

- Many birds and insects can see ultraviolet light, which is invisible to humans.
- Humans have an excellent sense of sight compared to most animals.
- Most nocturnal animals only see in black and white.

The Sense of Hearing

Purpose: Allow the students to practice using their sense of hearing, to identify a sound, and to discuss what the sound means to them.

Materials: Worksheet, pen or pencil, recordings or sound clips from the internet—some suggested sounds: siren, animal sounds, nature sounds, maybe a unique human noise for a funny sound, or if you want, use sounds around the classroom—drop a book, shut door, etc.

How to do the activity

- Hand out the worksheet and make sure each child has a pencil or pen.
- Tell the students to close their eyes or put their heads down—no peaking!
- Play or make the first sound.
- After the sound is done playing, ask the students to fill out the Sound One section on the worksheet.
- Then repeat the following steps for each of the sounds. The worksheet allows up to three sounds but feel free to do more than that.

Reviewing the activity:

- Go over the worksheet and talk about how some people thought of different answers and how using the sense of hearing tells us what is going on around us.
- Relate the discussion to animals and how they use their sense of hearing. For example: if they hear another animal making noise, they might run if the sound is that of a predator. Or they can use the sound to find their family group or mate.

Fun Facts:

- As humans get older, their ability to hear high-pitched sounds begins to fade.
- Low pitched sounds travel farther than high-pitched sounds.
- Sound travels farther through water than on land.

The Sense of Taste

Purpose: To use the sense of taste to identify flavors that taste bad or good

Materials: Jelly Belly Gourmet Jelly Beans—recommended because they have the most flavors, and/or Bernie Bott's Jelly Beans if your students like gross stuff, paper, and a pen or pencil.
Warning: Check for food allergies. Do NOT do this activity if food is not allowed in your classroom. Also, if using Bernie Bott's Jelly Beans have tissues or a trash can available. Some of the flavors like pepper, vomit, sardine, etc. are really strong and the kids will want to spit them out.

How do to the activity:

- Separate jelly beans into flavors. Keep the jelly bean bag or box; it will help in identifying the flavors.
- Write the flavors of the jelly beans you want to use on the board.
- Have the students take out some paper and list one though five.
- Pass out the jelly beans and give each student ten jelly beans total; 2 of each flavor of five different flavors.
- The students will only be eating **one** of each bean pair. The other bean will be used to identify the flavor afterwards.
- Have the students describe what the bean looks like.
- Next tell the students to eat one of the flavors and have them predict what each flavor will be based on their observations for each bean.
- Continue to let them eat until they have tasted each of the five different flavors.
- Then with your help, have them identify the flavors of the remaining jelly beans. Allow the students to see if their predictions were correct.

Review of the Activity:

- Ask the students if their predictions match with the flavors. What methods did they use to determine the flavors of the jelly beans?
- Explain that our tongue has taste buds on it. Those taste buds send signals to the brain, which interprets the taste of food. We then decide whether that food is good or bad for us to eat.
- Animals in the wild do the same thing we do when trying new foods; they try a little bit of it. But if the taste disagrees with the animal, they will spit it out. This protects them from eating bad food.

Fun Tongues: Here are some interesting facts about tongues:

- Snakes, some lizards, and cats can smell with their tongues. They have what is called a Jacobson's organ on the roofs of their mouths. When the tongue is brought back into the mouth, it is placed on the Jacobson's organ and interpreted by the brain as a smell.
- The forked tongue of snakes and some lizards helps them pick up scent molecules to find the direction of a scent.
- Some invertebrates, such as butterflies, taste with different sense organs that are located on their feet.
- Frogs have long, sticky tongues that help capture prey.
- Cats and some other animals have little hairs on their tongues that help them to groom themselves.

The Sense of Smell

Purpose: To allow students to use their sense of smell and understand how it helps us to understand our environment.

Materials: Use small paper bags, jars, film canisters, or pill bottles as scent holders, and scents like perfume, grass, chocolate, peppermint, cinnamon, BBQ sauce, etc. Liquid scents can be dropped on a cotton ball.

How to do the Activity

- Before class, place each scent in its own holder.
- Take the items around to each student and allow them to smell the contents with their eyes closed.
- Tell them to write down what they think the smell is, so each student can make their own conclusion.
- Once done with the first scent, have the class guess what it may be. Extension: Smells are powerful triggers of memory. What do the smells **remind** the students of?
- Continue to do the same with the rest of the scents.
- At the end of the activity, tell the class what each scent was. Allow the students to see if their predictions were correct.

Reviewing the Activity

- Explain to the students that they used their sense of smell to help them find out what was in the bag.
- Many animals use their sense of smell to find food and each other and to explore their environment.

Fun Facts:

- Some reptiles and cats can smell with their tongues (as described in taste section).
- Many animals rely on their sense of smell to survive.
- Dogs have an excellent sense of smell. That is one reason they are used to find bombs, drugs, and missing people.

The Sense of Touch

Purpose: To have the students use their sense of touch to identify objects.

Materials: small boxes or brown paper bags with single holes large enough for the students to put one hand in, various objects that have different textures, for example: fur, metal, rock, sponge, hand warmers that are not hot enough for burns, or something slimy like Gak.

How to do the activity

- Before class, place the objects into the bags or boxes.
- Write the words like smooth, hard, soft, rough, etc. on the board so the students can describe what the object you choose feels like.

- Take the first bag or box and allow each student to reach their hand inside and feel the object inside.
- Once they are finished touching the object, ask them to record what the object felt like and have them make a guess as to what the object may be. Alternatively, have them draw what they believe the object to be.
- Do the same with the rest of the objects.

Reviewing the activity

- Go through each of the objects and ask the students what the object felt like and what they think it is, and then uncover the object.
- Explain to them that their sense of touch helped them to identify the objects in the box or bag.
- Animals use their sense of touch like we do. However, they have special features such as whiskers, which allow them to use their sense of touch further away from their bodies.

Fun Facts:

- Our sense of touch can be easily fatigued. That is why you don't notice the pencil behind your ear after it sits there for a short while.
- Whiskers on mammals such as cats and dogs help them feel very slight movements, such as the direction of a breeze.

Suggested Activities to Do While at the Academy

Ask the students the following questions in the appropriate exhibit space:

Outside In

Have the children touch one of the animals in the space.
What animal was it?
Ask the students how it felt. Was the animal hard or soft? Rough or smooth? Hot or cold?

Lunchroom

What did you eat?
Before eating your lunch did it smell good or bad?
Did it taste good or bad?
Would it taste good if you put pepper on your lunch? How about chocolate?

Live Animal Center

What animals did you see?
What kind of noises did they make?
Why do you think they made those noises?

North American Hall, Asian and African Halls

What types of colors and patterns do you see on some of these animals?
Find the noses, ears, whiskers, and eyes on different animals and have the kids compare them to themselves or another animal.

Feel free to add more questions!

Web Sites and Links

- urbanext.illinois.edu/nibbles/succeed-senses.html
- lessonplanspage.com/LAScienceSenses1.htm
- faculty.washington.edu/chudler/chsense.html
- sedl.org/scimath/pasopartners/senses/focus.html

Suggested Books and Literature about the five senses for the classroom

My Five Senses by Aliki
Knots on a Counting Rope by Bill Martin Jr.

Works Citied

Baynum, Lynn F. Science and Children Magazine. May 2004 ed. 18-20pp.
Damonte, Kathleen. Science and Children Magazine. February 2005 ed. Pages 47-48

Name: _____

Date: _____

Worksheet #1

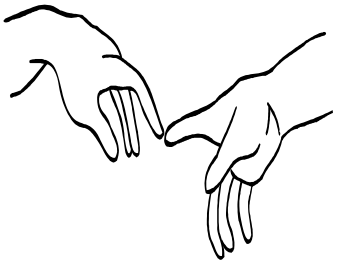
Match the senses to the organs and color them in.

Smell

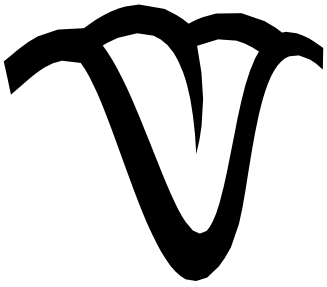
Taste

Hearing

Touch



Vision



Worksheet for What is That Sound?

Name:_____ Date:_____

Sound 1

- What do you think made the sound you heard?
  _____
- What did it make you think of?
  _____
- How did the sound make you feel? (circle one word)

Happy Scared Relaxed Silly Something else

Sound 2

- What do you think made the sound you heard?
  _____
- What did it make you think of?
  _____
- How did the sound make you feel? (circle one word)

Happy Scared Relaxed Silly Something Else

Sound 3

- What do you think made the sound you heard?
  _____
- What did it make you think of?
  _____
- How did the sound make you feel? (circle one word)

Happy Scared Relaxed Silly Something else