

Animal Sense Stations



Key Concept:

Animals have various body structures that serve different functions for their growth, survival and reproduction.

Grade Level: 5–7

Education Subject:
Science

Success Indicator:

After participating in this activity, learners will be able to relate how an animal uses its senses for survival and reproduction.

Materials and Methods

Preparation Time: 30-60 minutes

Lesson Time: 60 minutes

Space: Any

Materials:

For ALL stations:

Make a sign with instructions specific to each station. Instruction signs will help learners work more independently.

Station 1 – Touch:

- ▶ A box with a hand-sized hole on one side
- ▶ Cloth large enough to cover the box
- ▶ Three items, two with similar textures, one with a different texture (such as an apple and a pear having similar smooth textures versus a golf ball with a dimpled texture)

Station 2 – Smell:

- ▶ Film canisters or other small opaque containers (one per learner)
- ▶ Cotton balls (one per canister)
- ▶ A variety of liquid extracts (such as almond, banana, peppermint, vanilla)
- ▶ Water

Station 3 – Hearing:

- ▶ Wire coat hanger with a rubber band tied to each corner (one for each pair of learners)
- ▶ Plastic coat hanger with a rubber band tied to each corner (one for each pair of learners)
- ▶ Something to hang the coat hangers on (a coat rack or even a string stretched across the room)

Station 4 – Sight:

- ▶ Pirate patch (or a large, dark plastic spoon)
- ▶ Party blowers, preferably the kind that don't make noise (one per learner and teacher)
- ▶ Lightweight plastic or rubber fly or a picture of a fly
- ▶ Styrofoam cup (or paper cup with flat bottom)
- ▶ 10-inch-tall, thin column made of cardboard, paper or wood, anchored to a base
- ▶ Masking tape

Instructions:

Preparation time:

1. Read through the activity and gather the supplies mentioned in the materials list.
2. Set up the four “sense stations.”
3. For **Station 1 – Touch**, place the box on a desk or table and place the three items inside it. Then cover the box with the cloth. Make a sign for the station with the following instructions:

Station 1 – Touch

1. Place your hand through the opening in the covered box.
2. Using only the most sensitive tips of your fingers, gently brush against the three items in the box.
3. Think about what those items could be. Keep your guesses a secret.
4. Once everyone has had a first chance to feel the items in the box, take turns touching the items again, using different parts of your hand.
5. Think about which movements of your hand helped you learn more about the items.
6. Think about what animals are especially good at using their sense of touch.

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Adapted from the 4-H Science Toolkit: Animal Science Lesson Plan series developed by Cornell Cooperative Extension, Ithaca, NY.

Optional:

Smell – Dogs and scents: Place three similarly scented items (such as strawberry-scented candles, soap and shampoo) in separate paper lunch bags. Challenge the group to guess what the items are just by smelling them. Point out that a dog could tell the difference between the items just by scent.

Smell – Find two of the same heavily scented items. Hide one item in a confined area (such as a classroom or a marked-off section of a playground). Place the other one in a lunch bag. Have the learners “scent” the item in the lunch bag by sniffing but not looking into the bag. Then have them use their noses to try to locate the hidden item in the designated area.

Hearing – Have the learners sit in a circle and cover their eyes. Make noises in various areas around them and have them point toward the noise. Next have them cover one ear and try to locate the same noises again.

4. For **Station 2 – Smell**, put a small amount of an extract on a cotton ball and place the cotton ball in a film canister. Repeat until you have at least two canisters for each scent (including the water). (If you have an odd number of learners, make one set of three scent canisters.) Code the canisters so that you know which ones contain which scent, but the learners won't. Place the canisters on the station table.

5. Make a sign for the station with the following instructions:

Station 2 – Smell

1. Pick a canister from those available at the table. Remove the lid and carefully sniff what's inside. **Do not touch** what is in the canister!
2. Try to find another student with the same scent. Be sure to check everyone else's scents. There may be more than one match for you!
3. As a group, discuss the various scents. Can you identify the scents? Could one of the scents be something that humans can't smell but animals can?
4. Think about what animals are especially good at using their sense of smell.

6. For **Station 3 – Hearing**, gather one wire coat hanger and one plastic coat hanger for each pair of learners in your class. Tie rubber bands to both corners of each hanger. Place the hangers on a table, or hang them on a coat rack or on a string stretched across part of the room.

7. Make a sign for the station with the following instructions:

Station 3 – Hearing

1. Work with a partner. While your partner holds the wire coat hanger by the hook, pick up the end of each rubber band, one end in each hand.
2. Hold the ends of the rubber bands to your ear while your partner taps the straight edge of the hanger. Does it make a difference in what you hear if you hold the rubber band loosely or stretch it tight?
3. Repeat the process with the plastic hanger. Were the results different this time? Why or why not?
4. Trade positions and repeat both experiments so your partner can hear what happens.
5. Think about what animals are especially good at using their sense of hearing.

8. For **Station 4 – Sight**, you'll need to try out the fly zapping yourself to estimate how far back to place the mark that the learners will stand behind as they try to knock the fly off its perch. The goal is to make it challenging but possible for the learners to zap that fly!

Try it first with the cup on the ground and the fly on top of it, then with the fly on top of the column.

9. Place masking tape X's on the floor where the flower and the column will sit and a masking tape line behind which the learners should stand.
10. Make a sign for the station with the following instructions:

Station 4 - Sight

1. Use the pirate patch to cover one eye. Stand at the mark and bend or squat (do not lean forward) so that you can use the party blower to knock the fly off the Styrofoam cup.
2. Now try it again with the other eye covered.
3. Next, try it with both eyes uncovered. Which way was it easiest for you?
4. Finally, use your least successful strategy and try to knock the fly off the tall, skinny column. Was it easier or harder to knock the fly off the column than off the Styrofoam cup? Why?
5. Think about what animals are especially good at using their sense of sight.

Lesson time:

1. Read aloud or paraphrase the following:

Today you will be asked to solve some mysteries. At each of four stations, you'll complete an activity and unravel clues to determine which animal the activity relates to, the same way investigators do who use clues to solve crimes or figure out what happened at an accident scene. Your goal will be to explore animal physiology by using skills of observation (that is, watching) and inference (that is, coming to a conclusion by deductive reasoning from a set of facts instead of from observation). Physiology is how all the parts of living bodies (such as organs, tissues and cells) function.

2. Next, ask the group the following questions:

Do you think animals have the same senses as other animals or the same senses that humans have?

Do they all hear the same, smell the same and see the same?

What differences have you noticed in various kinds of animals' eyes, ears, noses and tongues?

3. Review the instructions at each station and answer any questions the learners may have. Split the class into four stations and send each group to one of the stations. Tell them they'll have 10 minutes to complete the tasks at each station.
4. After 10 minutes, or if all of the learners seem to have completed the tasks at a station, have the groups move on to the next station.

Vocabulary:

Senses: The method animals use to detect what is going on in their environment: seeing, hearing, touching, smelling and tasting.

Physiology: The study of how living bodies function; how organs, tissues, cells and body parts work together.

Inference: The act of drawing a conclusion by deductive reasoning from given facts, instead of from direct observation.

5. After each group has visited each station, bring the large group back together.

Check for Understanding:

- ▶ What do you think the three things in the box are? Why do you think that?
- ▶ Which movements of your hand helped you learn more about the items?
- ▶ Can you name one of the scents you smelled in the canisters?
- ▶ Could one of the scents be something that humans can't smell but animals can? What might that be?
- ▶ How were the sounds you heard different when you held the rubber band loosely or stretched it tight?
- ▶ How were the sounds you heard different when you did the experiment with the wire and plastic hangers?
- ▶ Was it easier for you to knock the fly off the flower with your left eye covered, your right eye covered or both eyes uncovered? Why do you suppose that is?
- ▶ Was it easier to knock the fly off the cup or off the column? Why do you suppose that is?
- ▶ What animals are especially good at using their sense of touch? Smell? Hearing? Sight?
- ▶ How might an animal use its senses to help it survive? To help it reproduce? To help it grow?

Remind the group that you told them at the start of the activity that each station represented a different animal. Write a list of potential answers (such as dog, cat, turtle, lizard, fish) on the board or newsprint. Have the learners each find a partner and tell them they'll have three minutes to decide which animals best match which stations. Tell them there can be multiple answers.

Once the discussion dies down, bring the group back together and ask for volunteers to share the animals they think match each station and why. Record their answers on newsprint or on the board.

Michigan Grade Level Content Expectations:

Grades 5-7: Generate scientific questions based on observations, investigations and research (S.IP.05.11, S.IP.06.11, S.IP.07.11); communicate and defend findings of observations and investigations using evidence (S.IA.05.13, S.IA.06.13, S.IA.07.13).

Grade 5: Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory and reproductive) (L.OL.5.41); describe the physical characteristics (traits) of organisms that help them survive in their environment (L.EV.05.12).

References:

- ▶ *PAWSitively Youth: A Guidebook About Dogs for Community Outreach Leaders.* (2008). D. Palmer, E. Noble and B. Wiesen. Ithaca, N.Y.: Natural Resources, Agriculture and Engineering Service. Available online at nraes.org.
- ▶ *Animal Senses: How Animals See, Hear, Taste, Smell and Feel.* (1999). P. Hickman (author) and P. Stephens (illustrator). Tonawanda, N.Y.: Kids Can Press.
- ▶ *4-H Skills for Life: Pet Pals Series.* (2001). Chevy Chase, Md.: National 4-H Council.
- ▶ *Neuroscience for Kids.* (Updated April 2011). E.H. Chudler. Seattle: Washington State University. Accessed from <http://faculty.washington.edu/chudler/neurok.html>.