# Explore Senses & the Environment

## OVERVIEW

Students will explore their senses, experience how information is gathered by different senses, and discover how our senses provide essential information about the outside world.

**NYS Science Core Curriculum**
**LE 5.2c:** Senses can provide essential information (regarding danger, food, mates, etc.) to animals about their environment.

## BACKGROUND FOR EDUCATOR

Everything we know about the world comes to us through our senses. Our senses of vision, hearing, touch, smell, and taste provide essential information about our environment, such as potential danger and availability of food. Different regions of our brains work together to process and create meaning from this flood of sensory data. This is how we understand what we see, hear, touch, smell and taste.

## BEFORE YOUR VISIT

### Activity: Explore Our Senses

**Part 1: Mystery Bag**
**Prepare the mystery bags ahead of time** (one bag for each group of four students). Each bag should contain different items that require students to use their different senses to identify them. These could be scented objects like candles, round heavy objects like rocks or potatoes, or objects that make noise when rattled, like a bag of pennies.

**Plan how your students will explore *Brain: The Inside Story* using the student worksheets.** You might choose to have students work in groups of two or three as they explore the exhibition.

Distribute copies of the worksheets to students before coming to the Museum. You may want to review the worksheets and the map of the exhibition with them (and their chaperones) to make sure they understand what they are to do.

**Begin the activity by reviewing the five senses (vision, hearing, touch, taste, and smell) with your students.** Then distribute the mystery bags. Have your students explore the bag in stages, using only one sense at a time (smell, hearing, touch) to figure out what's in the bag. Ask them to work in silence and to record their observations during each stage.

**Ask students to share** how their senses helped them figure out what was in the bags. Ask:

- What was challenging about this activity? Why?
  *(Answers will vary. The purpose of this activity is for students to become aware of how much we rely on our vision and how when we do not have it, we use our other senses.)*

**Part 2: Senses We Use Everyday**
**Now that students are aware of their different senses**, have them work in groups of two or three to make a list of the senses that they would use or rely on when they are doing the following activities:

- walking in the dark and in daylight *(Answer: in the dark will rely on sense of hearing, touch, smell, and taste rather than vision. In the light would rely on vision more than hearing.)*
- swimming or playing under water *(Answer: would rely on vision, touch, hearing, and taste rather than smell)*
- playing in the park *(Answer: would rely on vision, hearing, smell, and touch rather than taste)*
- watching television *(Answer: would rely on vision and hearing)*
- playing your favorite sport *(Answers will vary slightly but accept all answers.)*

**Have groups share their responses** with other groups. Provide each group with a picture of a human body and have them label where the senses are located on the body. Have students discuss in their groups the following:

- Where are your senses located on your body? *(Answers will vary.)*
- Why do you think your senses are located where they are? *(Answers will vary.)*
- What do the senses do? *(Answers will vary.)*
- Identify the holes or openings in your head. Pick one of the holes or openings and answer these questions:
    - o What does this opening do?
      *(Answers may include: I breathe through my nose. Air goes in and out of it.)*
    - o Why do you think it is located where it is?
      *(Answers may include: The holes are located here because of the close proximity to the brain.)*
    - o Why do you have so many holes in your head?
      *(Answers may include: All the holes in my head are connected to one of my senses, which are connected to my brain.)*

**Note:** You may wish to save these drawings for after your visit to the Museum. Back in the classroom, students can compare their drawings and the homunculus model to make connections about their senses.

## DURING YOUR VISIT

### *Brain: The Inside Story* Exhibition

**3rd floor (45 minutes)**

Have students use their student worksheets to investigate how we use our senses to process information. You may wish to divide students into groups of two or three. Students in K–2 will visit four locations in the exhibition to identify the senses that they use to do each activity. Students in 3–5 will visit two locations to explore in depth their sense of touch and how their sense of hearing and vision work together.

### Milstein Hall of Ocean Life

**1st floor (20 minutes)**

Visit the different ecosystems and dioramas in this hall to explore how different animals rely on different senses, depending on where they live (e.g. dark/light, land/nature, cold/warm). You may wish to have students draw an animal, and to describe how its senses may provide essential information for survival.

## BACK IN THE CLASSROOM

### Activity: Sensing the Outside World

**Talk about the Museum experience with your class.** Ask: What did you learn about your senses? *(Answers will vary.)*
Then have students work in pairs to discuss one of the following:

- If you had to give up one of your senses—which one would you pick? How do you think that would affect the other senses? *(Answers will vary.)*
- Pick a job. Make a list by importance of the senses that are needed to do this job. *(Answers will vary.)*

**Next, write on the board:** "How do our brains integrate information from the outside world?" Divide the students into five groups. Assign one of the following senses to each group: vision, hearing, touch, taste, and smell. Distribute a big piece of paper and a picture of the sense organ to each group. Ask each team to review the worksheets they completed in the Museum. Then have them provide examples on the big piece of paper about how this sense tells us information about the outside world, and present it to the class.

### Activity: Taste a Smell Test

**amnh.org/ology/brain/jellybeantest**

In this short hands-on activity, students will use jellybeans to explore two senses that were not examined in the exhibition. They will find out the importance of smell in their ability to taste food. Tell students that at the Museum, we learned about our sensing brain from seeing, hearing, and touching, and now we will do an activity using our sense of taste and see how it is connected to our other senses. After you do this jellybean activity, ask students: What does this experience demonstrate about the senses? Have students write a creative response using what they learned about their senses at Museum and in class to give advice to someone who has to eat soggy cold green vegetables.

## ONLINE RESOURCES

### Brain OLogy

**amnh.org/ology/brain**

Hands-on activities and online games help students explore how the brain enables us to sense the world around us.

### Tasty Visions Activity

**faculty.washington.edu/chudler/chtaste.html**

### Teachers Guide to Animal and Senses

**ansp.org/education/pdf/pre_post/Animal_Senses_teacher_guide.pdf**

# STUDENT WORKSHEET

Grades 3–5

## 1 Explore Your Sense of Touch

**Find the homunculus model** in the *Your Sensing Brain* section.

**Test your own skin.** Touch the skin on your elbow with a finger. Now touch your lips with the same finger. How sensitive are they? Describe the differences.

**Look at the elbows, lips, and hands on the homunculus.** Are these parts bigger or smaller than the rest of the body? What does this tell you about how sensitive they are?

## 2 Explore How Your Senses Work Together

**Turn around and find the picture of a woman holding an umbrella.**

Stop and listen. What do you hear?

Go around the corner to the left and "look inside" the circle. Now what do you hear?

What two main senses did you use to figure out the sound?

☐ hearing ☐ smell ☐ taste ☐ touch ☐ vision

**Talk about it.** What does this experience tell you about the senses?

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**ANSWER KEY**

## 1 Explore Your Sense of Touch

**Find the homunculus model** in the *Your Sensing Brain* section.

**Test your own skin.** Touch the skin on your elbow with a finger. Now touch your lips with the same finger. How sensitive are they? Describe the differences.

*(Answer: My lips feel more sensitive than my elbow.)*

**Look at the elbows, lips, and hands on the homunculus.** Are these parts bigger or smaller than the rest of the body? What does this tell you about how sensitive they are?

*(Sample answer: The lips and hands are very big because they're very sensitive areas. They detect many different sensations. The elbows are small because they are less sensitive.)*

## 2 Explore How Your Senses Work Together

**Turn around and find the picture of a woman holding an umbrella.**

Stop and listen. What do you hear?

*(Answer should be: raindrops)*

Go around the corner to the left and "look inside" the circle. Now what do you hear?

*(Answer: sizzling bacon)*

What two main senses did you use to figure out the sound?

- [X] hearing
- [ ] smell
- [ ] taste
- [ ] touch
- [X] vision

**Talk about it.** What does this experience tell you about the senses?

*(Answer: Our brain works to understand what is around us by combining information from all of our senses. So if I see a rainy scene, what I hear might sound like a downpour. But with a different visual cue, I may recognize the sound for what it is: the sizzle of frying bacon.)*