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BASIS Lesson Plan

Lesson Name: Sensing the World Around Us

Grade Level Connection(s)

NGSS Standards: Kindergarten (K-LS1-1)

FOSS CA Edition: Kindergarten, Physical Science

**Note to teachers: Detailed standards connections can be found at the end of this lesson plan.*

Teaser/Overview

The five senses help us do a lot of things in the world! Students will explore the five senses through three hands-on interactive activities that encourage them to think about how each of our senses helps us stay safe and survive!

Lesson Objectives

- Students will understand that the five senses help us understand the world and stay safe every day.
- Students will personally explore the importance of sight, touch, taste, smell, and hearing through inquiry-based activities.

Vocabulary Words

- **Taste:** The way we sense flavor using our mouth
- **Smell:** The way we sense odors using our nose
- **Touch:** The way we sense feelings using our hands and skin
- **Hearing:** The way we sense sound using our ears
- **Seeing:** The way we sense light and colors using our eyes.
- **Senses:** The five senses are, taste, smell, touch, hearing, and seeing
- **Brain:** A part of our body that we use to think, move, and understand senses



Materials

Touch	Paper Bags (5) Hand Warmers, Play-Doh (in plastic bag), Cotton Balls, Smooth Marbles, Sand Paper
Sound	Headphones (4) Small cups with rice, paperclips, coins, cotton balls
Sight	Color photos of different animals (Drab/Camouflage colors; Bright colors; Bold Patterns)

** Students should have clean hands because they will be sharing and touching many items.

Classroom Set-Up

Student Grouping: Tables / Desks should be set up to provide enough space for each station. There will be three stations so students need to be split up into three groups. Students will start at the central rug area, then split into groups and move through stations, then come back to the central rug area at the end. Students should have clean hands at the beginning of the lesson because they will be sharing and touching many items.

Classroom Visit

1. Introduction (8 minutes)

Role Model Introduction:

Being a role model is an important part of being a BASIS volunteer! Begin your lesson by explaining who you are and what you do as a scientist. Feel free to tell your “story” as if giving an elevator pitch to kindergartners: Why did you become a scientist? What questions are you trying to figure out? What do you do in your job? Why should students relate to you? Feel free to bring in photos, specimens, and other props. Don’t forget to let your personality shine through!

Topic Introduction:

After you introduce yourselves as role models, take some time to introduce the topic of this lesson: the five senses. It may be helpful to keep the suggested take-away in the back of your mind throughout the lesson: **We use our five senses to make sense of the world and help us stay safe.**

Your topic introduction should cover, at a minimum, the following information. As much as possible, try to frame this information as questions posed to the class, rather than as a lecture. This helps activate students' prior knowledge and facilitate student-guided conversation.

- Show the class a picture of a skunk. What kind of animal is this?
- What are some words that you would use to describe a skunk? [black, white, small, stinky, smelly, furry, etc]
- How do you know what color it is? [can see it] With what? [your eyes]
- How do you know that it's stinky? [smell it with] With what? [your nose]
- How do you know that it's furry? [could touch it] With what? [your hands]
- If you were in the woods at night and couldn't see, how could you tell if a skunk is around you? [listen for movement] How would you hear that? [with your ears]
- The way we understand the world around us is through our five senses. We just talked four of them [seeing, smelling, hearing, feeling] – anyone know the other one? [Tasting]
- We use our senses and process them through our brains to let us do lots of important things like know which foods are safe to eat, know when it's safe to cross the street, etc.
- We're going to do some fun activities to explore our senses and see how they help us stay safe every day!

Teaching Tip: Say, Write, Show

- Bring in photos and props to illustrate the topic intro
- Write new vocabulary words, key terms, and brainstorm lists on the board
- Refer back to the board to engage visual learners and English Language Learners

2. Learning Experience (36 minutes)

Students will be split into three groups. Each group will head to one of three stations set up around the room. At each station, they will interact with a new BASIS volunteer and explore a new way of using their senses for information intake and survival. One BASIS volunteer will keep time; every 10 minutes the groups will rotate to a new station. Remember that all three of these stations are designed to address the takeaway in a particular way: **We use our five senses to help us stay safe.**

Station 1: Touch

1. Engage students in a conversation about how we use the sense of touch
 - a. Students may think about texture or temperature.
 - b. Introduce the idea that touch is a sense that we use to help us understand the world around us and stay safe. We use our hands (and more generally our skin) for touch.
2. Do the Touch activity



- a. Distribute knit gloves (one glove for each student). Have them put the glove on their **right hand**. They should not have a glove on their left hand.
 - b. Set up paper bags (one for each student) each filled with one item. Start with bag "A". Distribute one bag per student.
 - c. Instruct student to close their eyes and reach inside the bag with their **right hand (glove)** only. No peeking! They should only be using their sense of touch!
 - d. Have the students make a prediction about what the object is in bag "A". No peeking! Collect responses from students.
 - e. Now have students close their eyes again and this time reach inside the bag with their **left hand (no glove)** only.
 - f. Discuss if their prediction was correct or not. Why or why not? How does the sense of touch help us to understand the world? Was it easier or harder to figure out what was in the bag with or without the gloved hand?
 - g. Repeat steps c through f with bag "B", bag "C", and bag "D" (if time).
 - h. How they were able to identify and describe the texture and temperature of the objects. Were some of the objects easy to identify? Which ones were difficult to figure out?
3. Connect the activity to the big picture
- a. Invite students to reflect on the importance of our sense of touch. What happens when you touch something really hot? Really cold?
 - b. Emphasize the overall takeaway of the lesson: **We use our five senses to help us stay safe: for example, by touching and then pulling away from a hot object so we don't burn ourselves!**

Teaching Tips: Guide Discussion with Kindergarteners

- Start with something all students can relate to, so everyone can start on the same page: eg, what are some smooth objects you've touched before? Rough objects? Spikey objects?
- Be explicit about new vocabulary so that all students can follow along
- Guide students to figure things out together by turning your statements into questions
 - Instead of saying: "We need our sense of touch so that we can detect when something is too hot so we don't get burned!"
 - Try: "Why is it important to know if something is really hot? What about if something is really cold? What would happen if we couldn't tell if something was really hot?" etc.



Station 2: Hearing

1. Engage students in a conversation about how we use the sense of hearing
 - a. Students may think about loud sounds (bangs), soft sounds (whispers), human language, other animal sounds (lion roars, owl hoots).
 - b. Introduce the idea that hearing is a sense that we use to help us understand the world around us and stay safe. We use our ears for hearing.
2. Do the Hearing activity
 - a. Students will be grouped into pairs for this activity. Have one pair go through the activity while the other pairs observe.
 - b. One student in the pair will be given a container filled with an item that makes a specific sound (you can use rice, beans, or beads). The other student will be instructed to stand facing with their back to their partner.
 - c. The student with the container then approaches their partner, making sure to shake the container and create a sound. The partner will raise his/her hand whenever he/she hears the sound of the student approaching. Use a piece of bright, removable tape on the ground to mark where the student with the container was.
 - d. Repeat the experiment, but this time the student listening for their partner must wear headphones (or just place their hands over their ears). Mark the place on the ground again. Was there a difference?
 - e. Switch roles and repeat. Repeat for all of the student pairs.
 - f. Discuss how they were able to identify when their partner was approaching. What about when they covered their ears? Was there a difference in the distance?
3. Connect the activity to the big picture
 - a. Invite students to reflect on the importance of our sense of sound. What happens when you hear a sound behind you? What if you tried crossing the street without being able to hear? Would it be easier or more difficult?
 - b. Emphasize the overall takeaway of the lesson: **We use our five senses to help us stay safe: for example, by hearing the sound of someone (or something) coming up behind us!**

Classroom Management Tips: Station Rotation

- Keep students from getting too restless by moving them through stations
- It helps to keep things orderly. When it's time to rotate, have the leader announce that all students should stand up in place and NOT MOVE until you say so; point out where each group will move to; confirm that everyone understands; THEN instruct students to move to the next station.
- Have a volunteer keep time and tell station leaders to wrap up at 9 minutes.
- Ask the teacher if you need help!
- Remember that students might visit your station first, second, or third: don't assume prior knowledge from another station!

Station 3: Sight

1. Engage students in a conversation about how we use the sense of sight
 - a. Students may think about colors, brightness, darkness, patterns, etc.
 - b. Introduce the idea that sight is a sense that we use to help us understand the world around us and stay safe. We use our eyes for sight.
2. Do the Sight activity
 - a. Color Sorting activity: Students will be given a set of cards with animal pictures [these should consist of some drab colored animals, some brightly colored animals, and some with distinct color patterns. Ask students to sort the cards into two categories – animals with bright colors VS animals without bright colors. Demonstrate with one card so that all students understand the categories and the directions.
 - b. Discuss which animals the students put into each category.
 - c. Repeat the activity, but this time have the students sort the cards into two different categories – animals that are okay to touch vs animals that are not okay to touch.
 - d. Discuss which animals the students put into each category. How did you use sight to determine which animals are okay to touch, and which are not? Were some animals more difficult to place into a category? Why?
3. Connect the activity to the big picture
 - a. Invite students to reflect on the importance of our sense of sight. How do you use colors or patterns to keep you safe? How do you know when it's safe to cross the street? How do you know when a banana is delicious and ready to eat? Is it green, yellow, brown?
 - b. Emphasize the overall takeaway of the lesson: **We use our five senses to help us stay safe: for example, by seeing the black and white colors of a skunk and avoiding it so we don't get sprayed!**

3. Wrap Up: Review and Discuss the Learning Experience (6 minutes)

Have students rejoin you on the carpet for a wrap-up discussion.

- What are the five senses? Review of vocabulary words.
- What did we learn at station 1, 2, & 3?
- Invite students to share other ways that using our senses can help us stay safe.
 - E.g. why is color important for us? When you eat bananas, what color are they? [yellow], why don't you eat green bananas? [They aren't ripe] Do you eat brown bananas? What about smell? Would you eat a banana that's really stinky? [No, it's rotten!]
- Prompt students to think about what other questions they would investigate in the future to better understand how senses help us stay safe.

4. Connections & Close (6 minutes)

Draw in connections to the real world around students:

- How do we use our senses in this classroom to help us stay safe and make sure that we're safe every day?
- What happens when one of our senses doesn't work or doesn't work very well? [When you're sick and have a stuffy nose, how does this affect how your food tastes?]
- If possible, tie lesson back into your job or role model story

Close:

- Reiterate for students that science helps us learn about our senses and also helps us understand how our brain helps us process this information
- Ask students if they have any questions about science or being a scientist
- Close with a good bye and a thank you, and encourage the kids to keep thinking about ways they use their senses every day to help them stay safe!
- Don't forget to help clean up!

Follow Up: After the Presentation

Teachers who wish to extend the impact of this lesson may find the following CRS web pages useful:

- <http://www.crscience.org/educators/helpfulreports>
- <http://www.crscience.org/educators/treasuretrove>

Standards Connections

NGSS:

- Connections by topic
Life Science: K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment
- Connections by disciplinary core ideas:
Life Science: K-LS1 From Molecules to Organisms: Structures and Processes
- Connections by scientific & engineering practices
 1. Asking questions & defining problems
 3. Planning and Carrying Out Investigations
 8. Obtaining, evaluating, and communicating information
- Connections by crosscutting concepts
 1. Patterns: Organization & classification



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- 2. Cause and effect: Mechanism and explanation
- 6. Structure and Function: Determine properties of things
- Connections by performance expectation:
 - K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.