GRADE-LEVEL COORDINATOR NOTES

LABORATORY OBJECTIVES

Students will explore...

- Four of the five senses: sight, hearing, touch, and smell
- How we use our senses to investigate
- Making predictions and testing those predictions

LOGISTICS

- Run this lab in "stations", with each of the 4 senses being the focus of a single station, and a parent volunteer at each station (table). Each parent will stay at the same station throughout the lab, while the students rotate through the stations.
- You will need 4 parent volunteers for this lab. If more parents want to help, Smell and Hearing stations could use a second parent to help with distributing/collecting materials. As the Kindergarten Coordinator, you may do the introduction & act as timekeeper (or recruit another volunteer to do this).
- When you coordinate with the Kindergarten teachers, let them know that this lab has four stations; ask if they would like to create the groups ahead of time or have us divide the kids.
- Need to check with school nurse to see if any kids have allergies/issues with food dyes (for the Smell activity).
- If you have 30 minutes for the lab, allow 6 minutes per station with 1 minute in between for changing tables; this leaves 2 minutes for the introduction.
- If you have 45 minutes for the lab, allow 9 minutes per station with 1 minute between; can use up to 5 minutes for introduction.
- At the end of the first class, need parents to pick up materials and load onto the cart to bring to the next class.

MATERIALS THAT REQUIRE ADVANCE PREPARATION:

SIGHT:

- Check the trays to be sure the items on them are still in good condition; cover with the hand towel (there are extra items in the supply bin)

HEARING:

- May need to re-wrap tubes with additional foil
- Be sure the test tube trays have one of each test tube, numbers 1-5
- Check the tubs to be sure objects are separated correctly (no beads in the rubber band tub, etc.)

TOUCH:

- Check paper bags to be sure there is one of each shape inside: diamond, hexagon, square
- Check the mystery bags to be sure items are still in good condition

SMELL:

NOTE: This section may need to be tweaked. The 2014 notes indicated that students had trouble distinguishing between the Jello flavors, so they added cinnamon as one of the scents. In 2015, we added coffee as one of the scents as well. Also, we did not have enough time to do the artistic nameplates.

- Fill test tubes ahead of time - - or may wish to gather materials ahead of time and fill the test tubes the morning of the lab to ensure stronger scents.
- You may wish to change up the scents – 1 or 2 Jello flavors, plus cinnamon, evergreen sprig, cut lemons, etc.

LAB INSTRUCTIONS

INTRODUCTION
Done by coordinator (5 min).

Hello and Welcome to Science Action! Today we are going to learn about our senses. Who can raise their hand and tell us what one of our senses is? (*seeing, hearing, touching, smelling, tasting*) What do we use our senses for? (*to learn about the things around us*) Today we are going do some fun activities that involve using our senses to investigate the things around us. We just have one important rule in science lab: we don't put anything in our mouths.

Suggestion: Have the introducer come into the classroom dressed with lots of accessories that can be described or distinguished using our senses. Examples include:

- **TOUCH:** Wearing multiple fabrics that are smooth (leather), rough (wool sweater), soft (fleece or angora sweater), feathery (boa), etc.
- **HEARING:** Having things hanging from body/clothing that make noise, such as bells on shoes, something jingly hanging on neck, etc.
- **SMELL:** Wearing strongly-scented perfume, or even 2 different perfumes on 2 different spots. Choose smells that they will recognize, such as strawberry or fruity (Bath & Body Works has scents like these).
- **SIGHT:** Wearing bright colors or geometric shapes that the kids can describe.

SIGHT

Objectives
- Identify and describe objects on a tray using students' sense of sight.

Materials
- 2 baking trays (with sides, not flat)
- 2 hand towels (large enough to cover the baking trays)
- Objects for Trays. Use items the kids will easily recognize, and that can also be distinguished or identified using the senses other than sight. Examples include:

cars	Golf tees	buttons
Jacks	Bottle caps	Shells
Keys	Marbles	Paper clips
Beads	Letters	Shapes
barrettes		

Advance Preparation
1. Place 5 objects on one of the baking trays and cover with a towel.
2. Place 20 objects on the other baking tray and cover with a towel.

Describe & Remember 5 Items on Tray
1. Uncover the tray containing 5 objects. Ask students to name the objects they see and describe them. Encourage them to use lots of details and describing words (adjectives).
2. Cover the tray with the towel and ask students what the five objects on the tray were. Ask them to describe the objects using as many details as they can remember seeing.
3. Uncover the tray and see how they did.

Which Item is Missing?
4. Now, remove one object from the tray - but don't let the students see which object you've removed.
5. Show them the tray and ask them which object is missing.

Describe and Remember 20 Items on a Tray
6. Repeat steps 1-3 above with the tray containing 20 items.

Which Items are Missing?
7. Remove 3-5 items from the tray without letting the students see which objects were removed.

8. Show them the tray and have them determine which objects (and how many) are missing.

Follow-Up
Emphasize the importance of sight and how much we rely on it everyday. Ask the students what would it be like if they couldn't see. Ask them how they could have identified the objects on the tray without seeing them. (Answer: They could have touched the objects to determine their shape, texture, size, etc. They could also smell or listen to the objects.)

Ask the students to use describing words to distinguish 2 objects on the tray from each other. For example, a cotton ball and a rubber ball. (Answer: The cotton ball is soft, squishy, white, can be pulled apart, etc. The rubber ball is firm, bouncy, colorful, solid, etc.).

HEARING

Objectives
- Predict what sound an object will make when shaken.
- Predict which objects will be quieter or louder when shaken.

Materials
- Plastic test tubes with lids, 3 per student plus more for parent volunteer
- Test tube racks, 1 per student
- Test tubes wrapped in foil, with caps, filled with objects for "mystery" sounds.
- Objects for students to fill test tubes with and shake (place a collection of each type of item in its own small plastic container).

Feathers	Cotton balls	Marbles
Rubber bands	Magnetic poker chips	Paperclips
Pennies	Buttons	Beads
Jingle bells		

Advance Preparation
1. For mystery tubes: Wrap approx 10 test tubes with aluminum foil, so that students cannot see the inside of the test tubes. Fill the tubes with different items, such as those listed in the materials list, and put on the caps. Only fill the tubes about half-full, or whatever amount enables a clear, distinguishable sound to be produced when shaken.

Listening to Sounds Produced by Shaking Various Objects
1. Demonstrate to students what happens if you fill the test tubes with different objects and shake them. You may have the students choose which items you demo, but make sure that you demonstrate a "quiet" object and a "louder" object so that they realize that some objects will be quieter when shaken and some will be louder.
2. Ask them to describe the sounds they hear (jingly, loud, soft, clinky, etc.)
3. Show 2 tubes: Ask the children to predict which will be louder. Shake them to test their predictions.

Students Make Their Own Sounds
4. Give each student 2 test tubes with caps and a test tube rack.

5. Now tell the student to choose different objects to put in their test tubes, so that one tube will be quieter and one tube will be louder when shaken. Have them predict (before actually shaking them) which one will be quieter and which one will be louder.
6. Have the students test their predictions by shaking the tubes and determining which is louder.
7. Repeat with different objects if time permits.

"Mystery" Test Tubes - Matching Sounds

8. Tell students to listen carefully as you shake one of the "Mystery" Test Tubes. Ask them to predict which object is inside the Mystery test tube.
9. Don't look inside the Mystery test tube! Instead, have them test their prediction by placing the item they think is in the Mystery test tube inside one of their test tubes and shaking it. Do the sounds match?
10. Try out various objects until they think they have found a match. Then, reveal the contents of the Mystery Test Tube.

Note: If your tube is half-full, but their tube is nearly full or almost empty, then sound produced will be different. Tell the students to fill the tubes to the same volume as the Mystery test tubes to make this activity easier.

TOUCH

Objectives
- Discover how sensitive touch is by identifying objects through touch only.
- Match objects using sense of touch.
- Compare sensitivity of touch with and without socks on hands.

Materials
- Paper lunch bags, 5-6
- Small wooden blocks of different shapes, such as hexagons, triangles, rhombi, squares, etc.)
- Socks, 1 per student
- Mystery Boxes, 4
- Objects for Mystery Boxes, such as large round bell, big shell, wind tube, stuffed animal, bean bag, balloon, action figure/barbie doll, etc.

Advance Preparation
1. Load paper sacks with wooden shapes, putting a collection of different shapes in each bag, and making sure that there are at least 2 of several of the objects (for matching).
2. Load different items into each of the 4 Mystery Boxes. Suggestions for items include: large round bell, big shell (from animal coverings lab), wind tube, stuffed animal, bean bag, balloon, etc.

Exploring Objects Using Sense of Touch
1. Provide each student a paper lunch bag filled with a variety of small wooden blocks of different shapes.
2. Ask the students to find (1) triangle, (2) hexagon, (3) etc. (without looking).
3. Ask the students: is it easier to find the hexagon than the triangle? Why? How does your sense of touch help you to find the hexagon and the triangle? How does your sense of touch help you to find a triangle or a rhombus? What are you feeling for? (The triangle has three similar points and three sides, whereas the rhombus has four points two sharper than the others and four similar sides.)
4. Now challenge the students to find two matching shapes by feeling the shapes without looking.

Comparing the Sensitivity of Touch
5. Now put a sock on the student's hand and repeat the activities comparing how easy it is with and without a sock. (Use thick socks to make the effect more striking.)

MYSTERY BOXES
(Note: Students can choose to feel inside the Mystery Boxes either with or without a sock on their hand)

6. Have the student reach into a Mystery Box and describe what they feel. (Hard, round etc.) Ask the student to predict what item is inside the box.
7. Have the student shake the item that is inside the box. Does it make a sound? Does shaking the item change their prediction of what it is? Can they name the object?

Follow-Up
In the Mystery bags what sense(s) can you use? (touch and hearing).

If needed, place different objects in the boxes being careful not to let the student see what they are.

SMELL

Objectives
- Learn that colors are associated with smells (and tastes).
- Make an artistic nameplate

Materials
- Small opaque containers bearing different powdered gelatin flavors: lemon, grape, blue raspberry, strawberry, lime.
- Cardstock, 1 piece per student
- Glue, in squirt bottle
- Pencils, 1 per student
- Shakers (test tubes with holes punched in caps, plus a second set of caps without holes for storage)

Advance Preparation
1. Cut cardstock to appropriate size for students to write their name in glue.
2. Fill shakers with gelatin powder and seal with solid cap.
3. Punch holes in a second set of caps to make shakers to use during the lab.

Investigating a Colored, Scented Powder
1. Have students smell the various containers (colors) of gelatin powder without letting them see what the color of the powder. Demonstrate how to properly waft to smell the powder. Ask the students to name the scents they smell.
2. Have students predict what color they think the gelatin should be based upon its scent.
3. Let them look. Are there any surprises?

Making An Artistic Nameplate
4. Give each student a piece of cardstock.
5. Let the student write his/her name on the card with a pencil.
6. Give each student some glue.
7. Have the student use the glue to trace the name on the card.
8. Have the student select a scent/color for his/her name and sprinkle that powdered gelatin on his/her card. Make sure that the namecard is on a cookie sheet or paper to collect the excess powder.
9. Remove the excess powder by tapping the card over a wastebasket or other waste container.

Discussion

10. Was anyone surprised by the color paired with a smell?
11. What other senses can you use to "read" your name? (touch, sight)
12. How useful is your sense of smell? (can smell smoke in case of a fire, can smell cookies baking in the oven etc.)
13. Tell students that we NEVER eat in science lab. But, ask the students to predict what they think something might taste like - like the gelatin. If the color is orange, and it smells like oranges, do they think it will taste like oranges or apricots or carrots (or something else that is orange)?