Unit 1

Scientific Investigation

Introduction

Preschoolers are naturally curious about the world around them. The centers in this unit provide opportunities for them to:

- **make observations**
- **use their senses**
- **ask questions**
- **improve language**
- **increase vocabulary**

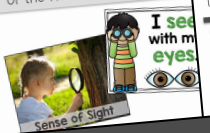
Scientific Investigation #1

Sense of Sight

From birth, young children learn about the world around them by seeing things. This center will help them develop the language to describe their eyes and their sense of sight.

Learning Objectives:
- The student will make observations using the sense of sight.
- The student will identify the parts that correspond with each of the five senses.

Recommended Supplies:
kaleidoscope, mirror, magnifying glasses, eye glasses, 3D glasses, sunglasses, binoculars, flashlight, microscope, Mr. Potato Head eyes



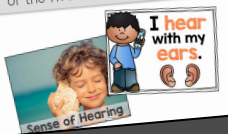
Scientific Investigation #2

Sense of Sound

Even in utero, babies respond to sounds. They begin to learn about the world through hearing. Continue to develop the sense of hearing with this sound discovery center.

Learning Objectives:
- The student will make observations using the sense of hearing.
- The student will identify the body parts that correspond with each of the five senses.

Recommended Supplies:
bells, shakers, stethoscope, conch shell, telephone, microphone, tambourine, Mr. Potato Head ears



Scientific Investigation #3

Sense of Touch

Young children have a hard time "keeping their hands to themselves" because they learn about the world through their sense of touch! They will discover more about touch at this center.

Learning Objectives:
- The student will make observations using the sense of touch.
- The student will identify the parts that correspond with each of the five senses.

Recommended Supplies:
silky fabric, cotton, wool or felt, pipe cleaners, slime, bubble wrap, corrugated cardboard, sticky tape, ice pack, aluminum foil

Scientific Investigation #4

Sense of Smell

The sense of smell can tell us if there are cookies in the oven, or a skunk in the forest nearby! Invite students to explore their sense of smell at this discovery center.

Learning Objectives:
- The student will make observations using their sense of smell.
- The student will identify the body parts that correspond with each of the five senses.

Recommended Supplies:
Fill small film containers or plastic salt shakers with cotton balls. Add a drop of scent onto each one to make a "smell bottle."
lemon juice, orange juice, vanilla, maple syrup, peppermint extract, baby powder, cinnamon, cocoa powder

Scientific Investigation #5

Sense of Taste

Our tongue helps us determine if something tastes sweet or salty, sour or spicy. Young children can explore their sense of taste and expand their vocabulary at this center.

Learning Objectives:
- The student will make observations using the sense of taste.
- The student will identify the body parts that correspond with each of the five senses.

Recommended Supplies:
- mini marshmallows or chocolate chips (*sweet*)
- saltine crackers or pretzels (*salty*)
- broccoli florets or baking chocolate (*bitter*)
- lemon or lime slices (*sour*)

Procedure:
1. This "tasting" center might be best done in small groups, especially with younger children. Please be cognizant of food allergies and adapt the activity as necessary for your students.
2. Invite students to look at their tongues in a mirror. What do they see? Discuss what they know about their tongues.
3. Share that the tongue can taste different flavors. Give each student a mini marshmallow and ask them to describe what it tastes like. Repeat for each of the other foods, describing the flavor of each one.

Book Recommendations:
Mmmm, Cookies! by Robert Munsch
Pancakes, Pancakes by Eric Carle
The Very Hungry Caterpillar by Eric Carle
Dragons love Tacos by Adam Rubin

Scientific Investigation #6

Rocks & Shells

Although rocks and shells have similar physical properties, upon closer observation young children will begin to notice the differences between them.

Learning Objectives:
- The student will observe and describe similarities and differences.
- The student will separate objects into 2 groups, based on their properties.

Recommended Supplies:
rocks – Go on a nature walk to gather small rocks, stones, and pebbles. (Alternatively, provide river rocks or small stones.)
shells – Invite students to bring in seashells or purchase a variety of seashells from the craft store or discount store (in the floral aisle).
magnifying glasses

Procedure:
1. Take the students on a nature walk to collect a variety of rocks.
2. When you get back to the classroom, place the rocks at the science center, along with a variety of seashells.
3. Mix up the rocks and shells. Have to trays (or separate the table into 2 parts). Label each one with the "I can sort rocks" and "I can sort shells" cards.
4. Encourage students to observe and sort them.

Book Recommendations:
Pete the Cat – Pete at the Beach by James Dean
Biscuit's First Beach Day by Alyssa Capucilli
A Rock Can Be by Laura Purdie Salas
If you Find a Rock by Peggy Christian
Stick and Stone by Beth Ferry & Ton Lichtenheld

Scientific Investigation #7

Pine cones

If you live in an area with conifer trees, your children have likely seen pine cones on the ground. They may not know where they come from or what their purpose is, though. Set up this center so that they can explore them!

Learning Objectives:
- The student will identify properties of an object using direct observation.
- The student will describe an object and ask questions about it.

Recommended Supplies:
pine cones, pine needles, magnifying glasses, tweezers, small bowl of water

Procedure:
1. When possible, go on a nature walk to look at conifer trees and collect pine cones. Notice the cones that are still in the tree and how they are different than the ones on the ground.
2. Display the cones at the science center. Encourage students to explore them with the magnifying glasses and tweezers. Talk about what they notice.
3. Place a pine cone in a small bowl of water. Wait 15-20, then observe it again. What happened? Why do the students think that happened?

Book Recommendations:
Penguin and Pinecone by Salina Yoon
The Pinecone Walk by Barbara Springfield
From Cone to Pine Tree by Emma Berne
Evergreens are Green by Susan Canizares

Scientific Investigation #1

Sense of Sight

From birth, young children learn about the world around them by seeing things. This center will help them develop the language to describe their eyes and their sense of sight.

Recommended Supplies:

kaleidoscope
mirror
magnifying glasses
eye glasses
3D glasses
sunglasses
binoculars
flashlight
microscope
Mr. Potato Head eyes

Procedure:

1. Show the posters and ask the students, "What do your eyes do?"
2. Invite students to observe their classmates' eyes or their own eyes with mirror. Ask, "What do you see?"
3. Display the supplies at the science center. Encourage the students to use their sense of sight and talk about what they see at the center.

Learning Objectives:

- The student will make observations using the sense of sight.
- The student will identify the body parts that correspond with each of the five senses.

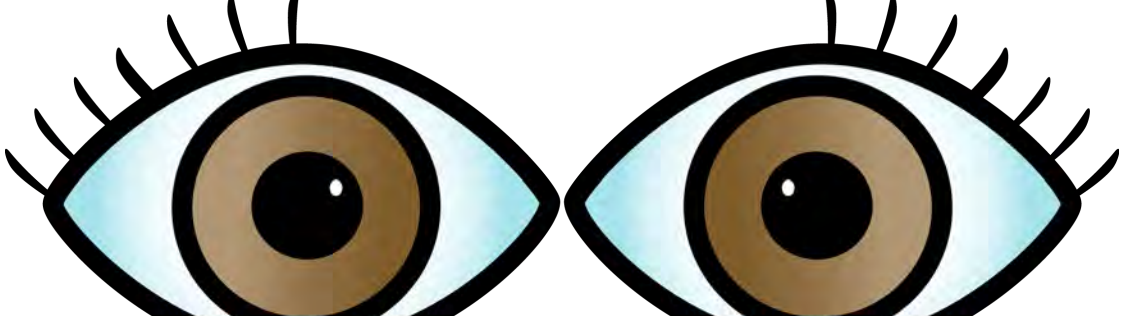
Book Recommendations:

The Eye Book by Dr. Seuss

I Spy series by Jean Marzollo

Brown Bear, Brown Bear, What do you See by Bill Martin, Jr. &Eric Carle

I see with my eyes.



Sense of Sight

Scientific Investigation #2

Sense of Sound

Even in utero, babies respond to sounds. They begin to learn about the world through hearing. Continue to develop the sense of hearing with this sound discovery center.

Recommended Supplies:

bells
shakers
stethoscope
rain stick
walkie talkies
conch shell
telephone
microphone
tambourine
Mr. Potato Head ears

Procedure:

1. Show the posters and ask the students, "What do your ears do?"
2. Invite students to be very quiet and listen to the sounds around them. Play sound effects and ask them to describe each one. Is it loud? Soft? Calm? Exciting?
3. Display the supplies at the science center. Encourage the students to use their sense of hearing to explore them.

Learning Objectives:

- The student will make observations using the sense of hearing.
- The student will identify the body parts that correspond with each of the five senses.

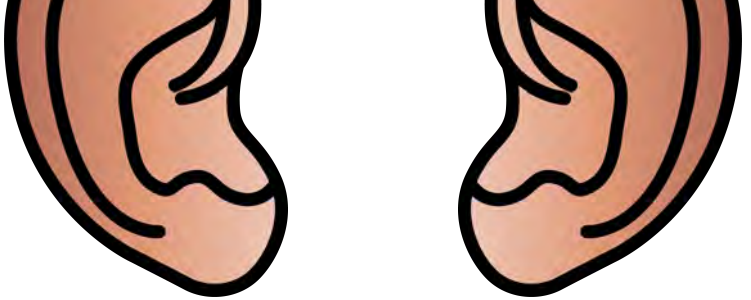
Book Recommendations:

Polar Bear, Polar Bear, What do you Hear by Bill Martin, Jr. & Eric Carle

Mr. Brown Can Moo! by Dr. Seuss

Froggy Plays in the Band by Jonathan London

I hear with my ears.



Sense of Hearing

Scientific Investigation #3

Sense of Touch

Young children have a hard time "keeping their hands to themselves" because they learn about the world through their sense of touch! They will discover more about touch at this center.

Learning Objectives:

- The student will make observations using the sense of touch.
- The student will identify the body parts that correspond with each of the five senses.

Recommended Supplies:

silky fabric
cotton
wool or felt
pipe cleaners
slime
sandpaper
bubble wrap
corrugated cardboard
sticky tape
ice pack
aluminum foil
plastic wrap

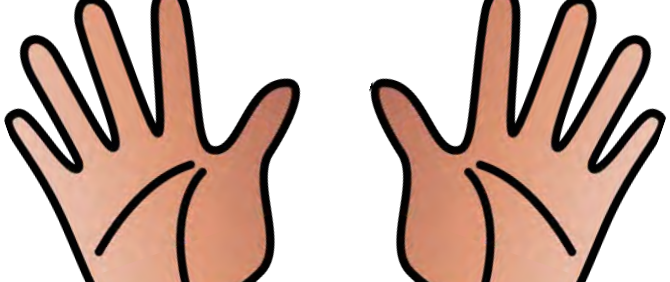
Procedure:

1. Place each of the recommended supplies into a brown paper sack (or small empty box) to create "feely bags".
2. Invite children to reach their hands into the bags and describe what they feel. Encourage them to use adjectives such as "smooth, silky, sticky, bumpy, scratchy, cold, etc.)
3. Display the bags at the science center for the students to explore.

Book Recommendations:

Don't Touch this Book by Bill Cotter
Touch & Feel books by DK Publishing
Pat the Bunny by Dorothy Kunhardt

I touch with my hands.



Sense of Touch

Scientific Investigation #4

Sense of Smell

The sense of smell can tell us if there are cookies in the oven, or a skunk in the forest nearby! Invite students to explore their sense of smell at this discovery center.

Learning Objectives:

- The student will make observations using their sense of smell.
- The student will identify the body parts that correspond with each of the five senses.

Recommended Supplies:

Fill small film containers or plastic salt shakers with cotton balls. Add a drop of scent onto each one to make a "smell bottle."

lemon juice
orange juice
vanilla
maple syrup
peppermint extract
baby powder
cinnamon
cocoa powder

Procedure:

1. Ask the students, "What does a skunk smell like?" and "What do cookies smell like?" Encourage them to talk about how they use their noses and their sense of smell.
2. Place the smell bottles at the science center. Invite the students to smell them and try to figure out what it smells like.

Book Recommendations:

David Smells! by David Shannon
The Little Red Hen by Lucinda McQueen
Smelly Socks by Robert Munsch

I smell with my nose.

Scientific Investigation #5

Sense of Taste

Our tongue helps us determine if something tastes sweet or salty, sour or spicy. Young children can explore their sense of taste and expand their vocabulary at this center.

Recommended Supplies:

- mini marshmallows or chocolate chips (*sweet*)
- saltine crackers or pretzels (*salty*)
- broccoli florets or baking chocolate (*bitter*)
- lemon or lime slices (*sour*)

Procedure:

1. This "tasting" center might be best done in small groups, especially with younger children. Please be cognizant of food allergies and adapt the activity as necessary for your students.
2. Invite students to look at their tongues in a mirror. What do they see? Discuss what they know about their tongues.
3. Share that the tongue can taste different flavors. Give each student a mini marshmallow and ask them to describe what it tastes like. Repeat for each of the other foods, describing the flavor of each one.

Learning Objectives:

- The student will make observations using the sense of taste.
- The student will identify the body parts that correspond with each of the five senses.

Book Recommendations:

Mmmm, Cookies! by Robert Munsch

Pancakes, Pancakes by Eric Carle

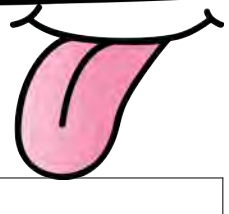
The Very Hungry Caterpillar by Eric Carle

Dragons love Tacos by Adam Rubin

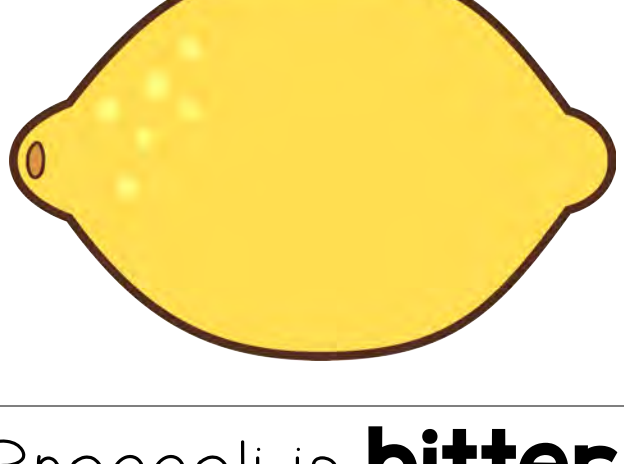
I taste with my tongue.

Sense of Taste

My tongue can taste different flavors.



Lemons are **sour**.



Marshmallows are **sweet**.

Broccoli is **bitter**.

Crackers are **salty**.

Scientific Investigation #6

Rocks & Shells

Although rocks and shells have similar physical properties, upon closer observation young children will begin to notice the differences between them.

Recommended Supplies:

rocks – Go on a nature walk to gather small rocks, stones, and pebbles. (Alternatively, provide river rocks or small stones.)
shells – Invite students to bring in seashells or purchase a variety of seashells from the craft store or discount store (in the floral aisle).
magnifying glasses

Procedure:

1. Take the students on a nature walk to collect a variety of rocks.
2. When you get back to the classroom, place the rocks at the science center, along with a variety of seashells.
3. Mix up the rocks and shells. Have to trays (or separate the table into 2 parts). Label each one with the "I can sort rocks." and "I can sort shells." cards.
4. Encourage students to observe and sort them.

Learning Objectives:

- The student will observe and describe similarities and differences.
- The student will separate objects into 2 groups, based on their properties.

Book Recommendations:

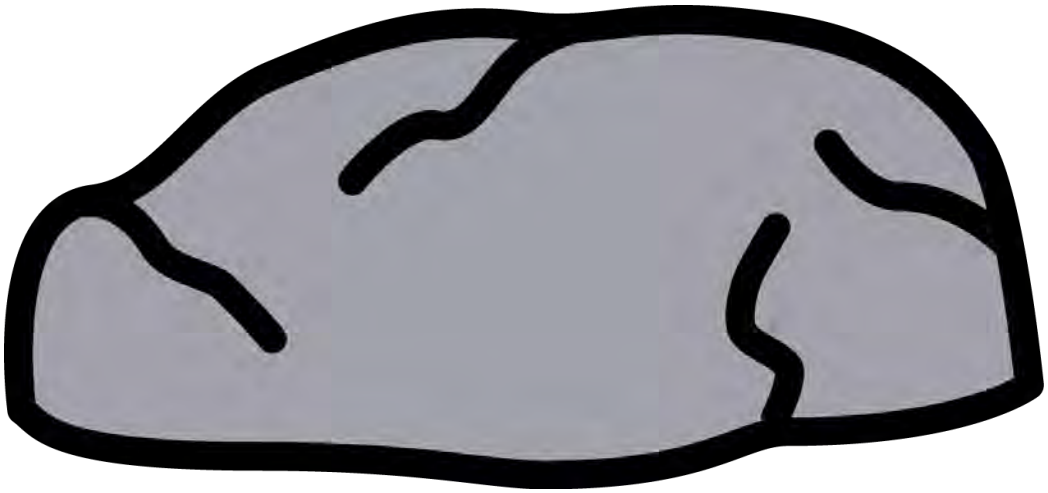
Pete the Cat – Pete at the Beach by James Dean
Biscuit's First Beach Day by Alyssa Capucilli
A Rock Can Be by Laura Purdie Salas
If you Find a Rock by Peggy Christian
Stick and Stone by Beth Ferry & Ton Lichtenheld

Rocks

Shells

I can sort

Rocks



I can sort

Shells

Scientific Investigation #7

Pine cones

If you live in an area with conifer trees, your children have likely seen pine cones on the ground. They may not know where they come from or what their purpose is, though. Set up this center so that they can explore them!

Learning Objectives:

- The student will identify properties of an object using direct observation.
- The student will describe an object and ask questions about it.

Recommended Supplies:

pine cones
pine needles
magnifying glasses
tweezers
small bowl of water

Procedure:

1. When possible, go on a nature walk to look at conifer trees and collect pine cones. Notice the cones that are still in the tree and how they are different than the ones on the ground.
2. Display the cones at the science center. Encourage students to explore them with the magnifying glasses and tweezers. Talk about what they notice.
3. Place a pine cone in a small bowl of water. Wait 15-20, then observe it again. What happened? Why do the students think that happened?

Book Recommendations:

Penguin and Pinecone by Salina Yoon
The Pinecone Walk by Barbara Springfield
From Cone to Pine Tree by Emma Berne
Evergreens are Green by Susan Canizares

Pine cones grow on pine trees.

Seeds grow inside pine cones.