

Peanut Pals!

<p>Topic: Investigation Skills</p>	<p>Overview: Students practice observation skills and data collection to study a peanut pal and try to identify it among other peanuts.</p>
<p>Standards: K.1 a, b, c, d, f; K.4 c, d; K.6 a 1.1 a, b, c, d, e; 1.4 a, b 2.1 c, e</p>	<p>Objective: The students will:</p> <ul style="list-style-type: none"> • Use senses and simple tools to enhance their observations of physical properties • Classify and arrange objects according to attributes so that similarities and differences become apparent • Communicate observations made and data collected orally and with pictures and simple statements
<p>Materials: Peanuts, magnifying/hand lens, flexible metric ruler (mm) or index card as nonstandard measuring tool, zip lock bags</p>	<p>Cooperative Learning: Pair Discussion Round Robin Rally Coach Round Table Think-Write/Draw-Pair-Share Mix-Think-Pair-Share</p>

CAUTION: Do not use real peanuts if you have students who are allergic to them! You might consider candy or find other items that will challenge their identification skills, such as glass marbles (different sizes, patterns, and colors) or rocks (bags of "river rock" or other types used for landscaping).

Content Information:

We use our five senses to learn more about the world around us. Our eyes are our most used sensory organs. We depend on them every day in a variety of ways. People use their eyes to see colors, shapes, sizes, and all types of actions. There are two important parts to our eyes. The cones tell our brain about colors and bright light; the rods tell about dim light. These receptors collect information and send it to the brain so we can see both in the light and in the dark. This is an excellent time to talk about eye safety. Many people wear goggles or special glasses to protect their eyes from harm. Carpenters, engineers, lumbermen, sports stars, and scientists all wear protection to keep their eyes safe. Scientists use magnifying glasses and microscopes. These tools help our eyes see things we cannot see with our natural vision.

We use our ears to hear the world around us. Many people live without being able to hear sounds. Ask students: What would you miss if you could not hear sounds? What sounds are out there? Brainstorm some other sounds that you might miss.

- Music
- Phone ringing
- Birds chirping

Our ears are sound catchers! They are shaped round so they can catch sounds and send them down a tunnel, the ear canal, to our eardrum. Our eardrum is a piece of skin stretched across this tunnel. It sends vibrations to our brain. Our brain senses these vibrations and can tell what sounds make them.

One of our strongest senses is our sense of smell. We use our nose to smell. Smells can change our attitude about a place or situation. Smells can make us cringe or even bring back memories. Some animals use their sense of smell to locate their babies.

Safety Note: Teach children to waft — wave the smell from a canister. Smelling directly from a canister can be dangerous; wafting is a safer way to smell odors.

Our hands and fingers do most of our feeling. The nerve endings in our hands and fingers send messages to our brain. These nerves tell our brain whether something is *hot, cold, smooth, rough, sharp, dull, soft, and hard*. Although we can “feel” with many parts of our body, our fingers are the most sensitive. Our feet are also more sensitive than other parts.

We use our mouth and tongue to taste foods. Our tongue has taste buds all over it. Taste buds are tiny receptors that send messages to the brain. The buds in the front of our mouth taste sweet things; behind them is where salty things are tasted. Next is where sour things register, and finally we recognize bitter things with the taste buds in the back of our mouth. These receptors also tell us if things are too sharp, too hot, and too big to swallow.

Safety Note: Remind students that normally we do not taste science materials without the direction from the teacher.

Students of all ages need to be able to measure linearly. Young children begin making comparisons at an early age. They come to Kindergarten with a sense of knowing, “I have more. My pencil is longer than hers.” We need to transition these comparisons into beginning measurement skills. Students need to see where we get our measuring tools and how they are useful. In this activity, we will take a common item — an index card — and use it as a nonstandard measuring tool.

Plants can be a lot of fun to study. With a minimum amount of preparation, experiments can be set up to help students truly experience scientific investigation. To prevent over-watering plants, consider using a measuring tool to predetermine and control the amount of water provided to a plant. Also, set up a schedule to determine the times for watering. When conducting experiments, only one variable may change at a time in order to make the results valid; keep all other variables (e.g., type of soil, type of container, position of plant, and so forth) constant.

Instructional Sequence:

Introduction:

1. For each pair of students, place 10 peanuts in a zip lock bag. Ask students to make observations about their peanuts. “What are some ways that your peanuts are alike and different?”
2. **PAIR DISCUSSION:** Shoulder partners put their heads together to discuss topic for 1-2 minutes. Monitor discussions carefully to ensure that students are on-task. Listen to what students are saying. Redirect or build background knowledge as necessary.
3. Randomly call on students to share their responses with the class.

Procedure:

1. Tell students that they are going to use all of their senses to make observations and if they follow your directions very carefully, they will make a new friend.
2. **ROUND ROBIN:** Tell each student to take one peanut out of the bag and instruct them to remove the shell. Allow students to slowly eat the peanut, savoring the flavor. Ask: “How does the peanut feel in your mouth?” and “What flavor does it remind you of?” When they are finished chewing, ask student to **ROUND ROBIN** words that describe the flavor and texture of their nut. As you listen, make a list of student responses.
3. **RALLY COACH:** Distribute the *Peanut Pals* handout. With the remaining 8 peanuts in the bag, tell students to work with their shoulder partner and take turns lining up peanuts by length, measuring each peanut, and answering the questions. Both students should record responses. Monitor students to ensure accuracy of measurement.
 - a. Line up the peanuts from largest to smallest. The smallest will be #1 on the table below. The largest will be #8.
 - b. Measure each peanut in three ways: length, around the middle, and around the end. All measurements need to be to the nearest millimeter. Record measurements on data table.
 - c. At the completion of this activity, students return peanuts to bag.
4. **ROUND TABLE:** Distribute magnifying hand lenses. Designate one student from each table of 4 to select one peanut from the bag. Students pass the peanut around the table, using all of their senses to observe the peanut. As the peanut is passed, each student names something they observed about that peanut. Responses might include, “It rattles.” “It rolls.” “It’s rough.” “It has a long crack on one side.” “It’s as long as my little finger.”
5. **THINK-WRITE/DRAW-PAIR-SHARE:** Tell students to select one peanut from the bag. This peanut is their new pal and they must spend time getting to know it by making careful observations. Students should give their peanut a name.
 - a. **THINK:** With a magnifying lens, ask students to examine their new friend from every angle. Model for students how they should look at side, top, and bottom. Make sure each student has a ruler to use for measuring. Balances should be available for students to measure mass.
 - b. **WRITE/DRAW:** Have students write observations and/or draw their peanut from various views (model) including many fine details. Many

students will only list observations that they see with their eyes. Remind them to use ALL of their senses (except taste).

- c. **PAIR:** Partner A introduces his/her peanut pal to Partner B using all of their detailed observations.
- d. **SHARE:** Partner B introduces Partner A's peanut to the teammates across the table. Repeat c and d switching responsibilities.

Observations and Conclusions:

1. Students say good-bye to their peanut and return it to the bag with the other peanuts.
2. Have students shake the bag to mix the peanuts.
3. Then have students pour the peanuts onto the center of the table.
4. Challenge students to find their Peanut Pal as quickly as possible. Allow them to use their notes and drawings.
5. **MIX-THINK-PAIR-SHARE:** When everyone is finished, have students stand with their peanut and MIX around the room until you signal (say "FREEZE," stop the music, ring the bell, etc). Ask each student to **THINK** about how they knew their peanut. Then have them **PAIR** with the person nearest to them to discuss the identifying characteristic. Randomly select students to **SHARE** their strategies.

Sample Assessment:

- Students draw a detailed picture of their peanut. They write responding to the following questions:
 - Which of your five senses did you use during this activity? Explain with the descriptive words used for each sense.
 - How did you know your peanut from all of the others in the bag?
 - Describe your peanut so that anyone in the class could read your description and find your peanut in the bag.

Extension:

- Students plant a raw peanut (soak peanuts overnight) in a large clear cup filled with sandy soil. Peanuts are planted 2 inches deep. The cups must have drainage holes. Students create a journal to record the growth and life of their peanut. The plants need to stay warm and in direct sunlight as much as possible. The plant should sprout within 2 to 3 weeks. Approximately two weeks after sprouting, the plant will need to be transplanted into a larger pot. Approximate Growth:
 - Sprout 14 days
 - Bloom 45 days
 - Peanut 90 days