Look Closely!

Science Concept

Inquiry skill of observation
Communication skills (written and verbal)

Special Instructions

This activity may be completed using a variety of objects. Objects that work the best are ones that initially all look very similar, but have slight distinguishing features (color, size, shape, pattern, distress marks, etc.). Select an object that fits your classroom needs and adapt the instructions accordingly.

Materials

- One object per student
    - Suggested objects:
        - Rock
        - Leaf
        - Pine cone
        - Lima bean
        - Seed- larger seed such as pumpkin
        - String bean
        - Penny
        - Peanut in the shell (be aware of allergies)
        - Pencils or pens from the students
        - Glass marble
- Notebooks and pencils
- Clock or stop watch

What to do

1. Students should be seated in a circle with open space in the middle.
2. Hand out one rock (or object of your choice) to each student.
3. Challenge students to make careful observations about their rock for 2 minutes. Students should notice at least 2 characteristics that might make their rock unique.
4. Encourage students to use their senses to observe how the rock looks, sounds, smells, and feels like. It may be helpful to provide a list of suggested properties to notice such as shape, size, color, pattern, length, markings, distress marks, etc.
5. Students should record their observations in a notebook through writing and/or drawing. Descriptions should be as specific as possible.
6. Students should not alter their rock (i.e. do not mark or scratch the rock).
7. Now that the students are very familiar with their rock, have the students place all of their rocks into a pile in the center of the group. While students close their eyes, mix up the rocks.
8. Ask for one volunteer to try to find his/her own rock.

9. If the student successfully locates his/her rock, ask the student to share with the group the unique characteristics they noticed that allowed the student to find the correct rock out of the pile.
10. If the student does not find their rock, ask "why is this task challenging". What observations did the student record that could be helpful to identify the rock?
11. Repeat step 8-10 as time allows.
12. Lead a group discussion with the class.
    a. Why is this activity challenging?
    b. What was surprising about this activity?
    c. What would make this activity easier?
    d. What tools could you use to help you make better observations?
    e. What else could you notice about your rock that you didn't think of the first time?
    f. What would you do differently the second time? Why?
13. Repeat the activity. Students will make more careful observations the second time!

Activity Variations

- Provide tools to help students make better observations (i.e. magnifying lens, scale, ruler, etc.).
- Allow students to work with a partner to make observations as a team and to verbally communicate their observations.
- Complete the activity in smaller groups instead of the entire classroom together.

So What?

Observation is the cornerstone of the scientific method. Scientists always start an experiment by making careful observations. Through the process of examining things closely, we begin to wonder about the object and start asking questions. When the question is testable- you have started a scientific investigation!

Another part of the scientific method is to analyze the collected data. It is essential that scientists accurately record their detailed observations in order to have valid data to evaluate. The final step is to communicate your results. Clearly communicating your results will allow others to learn from your experiment.

During your visit to the Mid-America Science Museum, you will have the opportunity to make lots of observations and ask lots of questions as you explore the hands-on exhibits. The Museum is a perfect place to use your observation skills and begin asking questions about what you notice. Be sure to slow down and take a closer look at the exhibits. Ask yourself the following questions to help you make great observations:

- What did I notice?
- What can I do with these?
- What happens when ….?
- Why do I think that happened?
- How could I find out about that?
- Where else have I seen something like this?