Observation Boxes

Lesson Concept Matter has physical properties (e.g., color, relative size, shape, texture, composition, patterns, odor) that can be observed, described, and used to identify matter.

Link First lesson after the pre-assessment.

Time 3 class periods

Materials

Whole class

4 balloons (2 not inflated and 2 inflated with air) or 4 playground balls (2 not inflated and 2 inflated with air)

2-3 water bottles with water

1 large empty water bottle (e.g., 5 gallon)

Observation Set #1

2 boxes (observation boxes)

2 balls of different sizes (relative size)

2 balls of the same color made of different materials (composition)

2 pieces of graph paper with different sized squares (patterns)

2 pieces of cloth (different textures)

2 air fresheners with different scents (smell)

2 paper clips of different colors (color)

Observation Set #2

2 boxes (observation boxes)

2 pens of different colors (color)

2 small erasers with slightly different shapes (shape)

2 red balls, rubber and styrofoam (size/composition)

2 jars made of different materials (composition)

2 pencils of different colors (color)

2 air fresheners with different scents (smell)

2 pieces of graph paper with different sized squares (patterns)

Individual

Science notebook

2 different colors of pencils (blue and red)

5 sticky-notes

Jamie Persoon 5/10/11 7:39 PM
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Advance Preparation

1. Gather materials.

Procedure:

Engage ***(Day 1, 1 class period of 45 minutes) Almost everything is matter. Matter is stuff. Energy (light) is not matter. Matter is around us. Matter can be touched, smelled, tasted, seen, and heard.***

1. Model how to construct a circle map. Have students draw a circle map in their science notebooks. Ask the students, "What is matter?" Have students use a blue pencil to record responses on the circle map in their science notebooks. Ask students to pair-share. Then, whole group, record student responses on a class circle map.
2. Matter Scavenger Hunt: Distribute 5 sticky-notes per student. Instruct students to write their first name and the word "matter" on each of their 5 sticky-notes. Ask students to place their sticky-notes on anything that is matter in the classroom. Model for students. Explain to students that once a piece of matter has a sticky-note on it, they must find another one. Only one sticky-note per piece of matter.

Teacher Note: Be sure to have an inflated/deflated balloon, or an inflated playground ball in the room to provide an example that air is matter. Also have water bottles in the room to provide an example that water is matter.

3. Ask students, "What around us do you think is matter?" (Expected student response: Just about everything in the room!) Return to the circle map. In a different color, add to the circle map. Students will also add to the circle maps in their science notebooks. (The two colors serve to clearly and identify prior knowledge and new knowledge.)
4. Have students begin a glossary index on the last pages of their science notebook. Have students add the word "matter."

Explore ***(Day 2, 1 class period of 45 minutes) Matter has physical properties by which it can be observed (color, size, shape, texture.)***

5. To hook the students, tell students you have a water bottle under the desk and have them imagine what it looks like. Then have students draw a picture of what

they think it looks like. Tell students you will show the water bottle to them after the activity and the person whose picture is the closest will win a prize.

6. Activity: Place students into 6 groups and have each group pick one person to be the group observer.
7. The observers from the groups move to the other side of the room and look at what is in the observation box for 2 minutes and then report back to their group what they saw.
8. Call on a group member from group one and ask them to name one item in the box.
9. Hold up either the actual item or the similar item from the other observation box and ask students if that is it.
10. Explain what was important to notice (properties) about that particular object.
11. Continue through the other groups in the same fashion until you are finished with all 8 objects. Then go through each property again: color, relative size, shape, texture, composition, patterns, odor.
12. As students are sharing out, have them use three column notes to record findings (See worksheet: Observation Boxes-What do you see?)

Physical Property	Definition	Example
relative size	how large or small something is compared to something else	2 playground balls

13. Repeat the activity above with a second set of objects with new observers. Now students will be taking notes in three-column format modeled above. Students should be pay closer attention to the object's properties.

Explain ***(Day 2, 20 minutes) Matter has physical properties by which it can be described and identified.***

14. Provide the following sentence frames and have students respond orally, in a think-pair-share, and then in science notebooks:
    a. "When I observe matter, I can describe its _____"
    b. "I can more accurately identify the matter if I _____ (expected responses include: observe more details, take more time to describe, use more senses, use tools).

Extend ***Matter has physical properties by which it can be described and identified.***

15. Use Mystery Bags with objects provided by students to practice and extend student understanding of how to make accurate observations of the physical properties of matter.

Evaluate ***(20 minutes) Matter has physical properties by which it can be described and identified.***

16. Display two objects (labeled A and B) that are almost the same (e.g., color, relative size, shape, texture, composition, patterns, odor). Use a document camera or trays on tables to display objects, Have students observe the objects and write detailed and accurate descriptions of objects A and B.
17. Descriptions have enough detail that a reader could tell the two objects apart. Use the following rubric to determine the extent to which students are able to use multiple properties to describe matter.

Rubric:

3	Students use 3 or more properties to distinguish between the objects (e.g., color, relative size, shape, texture, composition, patterns, odor).
2	Students use 2 properties to distinguish between objects (e.g., color, relative size, shape, texture, composition, patterns, odor).
1	Students use 1 property to distinguish between objects (e.g., color, relative size, shape, texture, composition, patterns, odor)..