**Second Grade Science: States of Matter Lesson**

**I. PRE-INSTRUCTION PHASE: What you are planning to teach.**

**1. TEACHING STANDARDS**

|  |  |
| --- | --- |
| **NY.MST.K-6.PS.4.3** | Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity |
| **NY-CC-ELA-2011.ELA.2.RF.4.A** | Read grade-level text with purpose and understanding. |
| **NY-CC-ELA-2011.ELA.2.RI.3** | Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. |
| **NY-CC-ELA-2011.ELA.2.RI.4** | Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area. |
| **NY-CC-ELA-2011.ELA.2.L.1** | Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. |

**2. LESSON OBJECTIVE (S):**

1. Given the information presented in the textbook and subsequent discussion, LWDAT identify solids, liquids, and gasses on a teacher made worksheet with 80% accuracy.
2. After completing the Alka seltzer activity, LWDAT use clear, grammatically correct language to describe what they observed on a teacher made worksheet with 100% accuracy.

**3. CONCEPT OR CENTRAL FOCUS:**

Students will learn about the three states of matter and the distinct properties of each state.

**4. ENROUTE OBJECTIVES (TASK ANALYSIS):**

Students must be able to:

1. read a grade level informational text
2. understand what matter is
3. understand the differences between solids, liquids, and gasses
4. apply this knowledge when completing the "What's the Matter?" worksheet
5. observe what happens when the Alka seltzer is placed in the water
6. use clear sentences to describe what happened in the Alka seltzer activity

**5. LANGUAGE DEMANDS:**

Vocabulary: matter, solid, liquid, gas, volume, particle

Syntax: be able to write sentences about solids, liquids, and gasses using proper grammatical structure

Discourse: use descriptive language to describe the three states of matter

Language functions: seek information, compare

**6. INSTRUCTIONAL AIDS/RESOURCES/TECHNOLOGIES:**

Science textbook, Smart Board, ""What's the Matter?" worksheet, Alka seltzer tablets, cups of water, Alka seltzer activity questions

**7. STUDENT ADAPTATIONS (with or without disabilities):**

Struggling learners will:

* receive modeling, guidance, and frequent checks for understanding from pre-service teacher
* be given opportunity to complete writing assignments with a partner
* receive additional time to complete the assignment

**II. INTERACTIVE PHASE: How you actually teach the lesson, step by step.**

**8. SET/FOCUSING EVENT:**

Ask students to recall what they learned in the previous introductory lesson about matter.  Have each student share what "matter" is with their partner.  Choose one student to share aloud.  Bridge to objective: "Now that we know what matter is, we are going to learn about the three different types of matter."

**9. IMPLEMENTATION:**

Step One: Reading textbook to gain initial information about the three states

* read pages 242-247 aloud together
* pause after each definition and ask students to repeat definition back to you
* ask students to identify examples shown in the pictures

Step Two: Categorization Worksheet

* Pass out worksheet to students and ask them to classify objects as either solid, liquid, or gas
* Direct students to look back in the book to help them remember definitions, if needed
* Once everyone has finished, go over worksheet together on Smart Board
* Randomly call up students one at a time to place one item in the correct column
* Students should shake their head "no" or nod "yes" to show if they agree or disagree
* Each time, ask student to explain how they made their choice

Step Four: Alka Seltzer Activity (writing piece)

* divide students into small groups, give each group one alka seltzer tablet and one glass of water
* ask students to look at the two items and write down on their worksheet what they notice
* place tablet in water, observe what happens.  Ask students to place their hand over the cups; explain that they are feeling gas bubbles being released from the tablet.
* Ask students to complete questions on the worksheet independently.

Step Five: Measuring Matter (Math Component)

* Place students into groups and give each group a ruler, liquid measuring cup, and a balance.
* Model how to measure items from each of the three states,
* Direct student to find examples of solids, liquids, and gasses in the room and measure them, recording the data in a table

**10. CLOSURE**

Have students share with their partner the most important thing they learned today. Choose a few students to share their answers aloud.

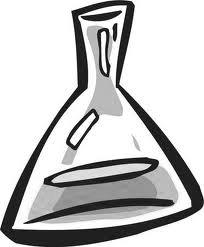
**11. EXTENDING ACTIVITY:**

Encourage students to try to find one example of a solid, liquid, and gas at home.

**III. POST INSTRUCTION PHASE: Identify how you check for understanding.**

**12. EVALUATION:**

Student understanding will be assessed based on active participation in the activities and discussions, successful completion of the "What's the Matter?" worksheet, and thorough completion of the Alka Seltzer activity questions.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

States of Matter Activity

***Materials***: Alka Seltzer tablet, glass of water

1. Describe the two materials: What do they look like? What do they feel like?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Is the Alka seltzer a solid, liquid, or gas? How do you know?

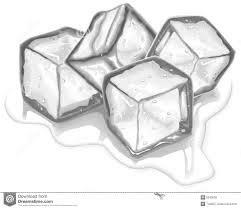
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Is the water a solid, liquid, or gas? How do you know?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What happened when you put the Alka Selzer tablet in the water? (What did you see? When you placed your hand over the cup, what did you feel? Did you still have one solid and one liquid, or did the states of matter change?)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Complete each sentence with the word solid, liquid, or gas.**

**What’s the matter?**

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has a definite shape. It does not take the shape of its container. It also has a definite volume because it can be measured.

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ does not have a definite shape. It takes the shape of its container. It does have a definite volume because it can be measured.

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ does not have a definite shape. It sometimes takes the shape of its container and flies freely around you. These particles are not connected to each other and it takes up whatever space is available.

**Tell whether each is a solid, liquid, or gas.**

|  |  |
| --- | --- |
| 1. Milk- \_\_\_\_\_\_\_\_\_\_\_ | 1. Cookie- \_\_\_\_\_\_\_\_\_\_\_ |
| 1. Pencil- \_\_\_\_\_\_\_\_\_\_\_ | 1. Fish-\_\_\_\_\_\_\_\_\_\_\_ |
| 1. Oxygen- \_\_\_\_\_\_\_\_\_\_\_ | 1. Paint- \_\_\_\_\_\_\_\_\_\_\_ |
| 1. Shampoo- \_\_\_\_\_\_\_\_\_\_\_ | 1. Fog- \_\_\_\_\_\_\_\_\_\_\_ |
| 1. Ice cube- \_\_\_\_\_\_\_\_\_\_\_ | 1. Rain- \_\_\_\_\_\_\_\_\_\_\_ |
| 1. Oil- \_\_\_\_\_\_\_\_\_\_\_ | 1. Salt- \_\_\_\_\_\_\_\_\_\_\_ |
| 1. Steam- \_\_\_\_\_\_\_\_\_\_\_ | 1. Brick- \_\_\_\_\_\_\_\_\_\_\_ |
| 1. Air- \_\_\_\_\_\_\_\_\_\_\_ | 1. Desk- \_\_\_\_\_\_\_\_\_\_\_ |