States of Matter Collage: Group Work

Overview: Students will learn about the states of matter though direct instruction and a group project.

Procedure: The teacher will begin initial instruction of the states of matter topic by presenting the states (solid, liquid, and gas) on the blackboard or smart board. The teacher will use water to provide an initial example of each state. He/she will explain that water is a liquid, steam is a gas, and ice is a solid. This will be noted on the board. The teacher will ask students to give examples of each state of matter. These examples will be listed on the board next to the state of matter that coincides with the example. After assessing for understanding, the teacher will provide the students with magazines to create a states of matter collage. Students will be placed in 3 small groups and each group will be assigned a specific state (solid, liquid, or gas). Each group will be responsible for cutting pictures of items that illustrate their assigned state and gluing to a group piece of paper. Upon completion of the activity, groups will be asked to present their collective collage paper to the class. These collages can be displayed in the classroom to illustrate the concept throughout the year.

ASOL Covered in this Activity:

3S-SI 1d: The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which two or more characteristics or properties are used to classify items.

Extension Ideas:

- Some students may be able to complete this project independently and under testing conditions so that it may be considered as a piece of evident for the individual VAAP binder. If being used for VAAP evidence the student will find pictures of each state of matter. A document would be created to assess the student understanding of solids, liquids and gas using pictures for the student to correctly identify what is being asked.

3S-FME 2a: The student will investigate and understand basic properties of solids, liquids, and gases. Key concepts include identification of distinguishing characteristics of solids, liquids, and gases.

Extension Ideas:

- Some students may wish to complete a similar homework assignment in which they categorize and list items from their own home into a solid, liquid, or gas category. This could not be used as VAAP data if completed at home.
- Some students may wish to draw self-created items on collage sheet.
- Students will be provided with pictures to sort into the appropriate category.
- Hands on experiments incorporating melting ice can be used to identify the properties of water.

5S-SI 1b: The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which objects or events are classified and arranged according to characteristics or properties.

Extension Ideas:

- Some students may be able to complete this project independently and under testing conditions so that it may be considered as a piece of evident for the individual VAAP binder.

5S-FME 5a: The student will investigate and understand that matter is anything that has mass, and takes up space; and occurs as a solid, liquid or gas. Key concepts include distinguishing properties of each phase of matter.

Extension ideas:

- Learn the stages of matter song http://www.youtube.com/watch?v=lTKl0Gpn5oQ
- Review and answer questions on the changing states of water http://www.sciencekids.co.nz/gamesactivities/statematerials.html
- Hands on experiments incorporating food such as melting ice pops, making rice crispy treats (melting butter, melting marshmallows, solid treat)
- Explore other hands on experiments http://lifestyle.howstuffworks.com/crafts/other-arts-crafts/science-projects-for-kids-states-of-matter.htm

8S-FME 3b: The student will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Key concepts include the properties of water in all three phrases.

Extension Ideas:

- This activity introduces the above goal. Addition instruction that focuses on water specifically in the state would be beneficial. Students would benefit from an experiment that allowed them to work with each state of matter (boiling water to create steam with teacher support, feeling water, and freezing water into ice).
- Watch Scholastic's Study Jam videos online http://studyjams.scholastic.com/studyjams/jams/science/matter/properties-of-matter.htm

8S-FME 5c: The student will investigate and understand the nature of matter. Key concepts include solids, liquids, and gases.

Extension Ideas:

- Some students may be able to complete this project independently and under testing conditions so that it may be considered as a piece of evident for the individual VAAP binder.
- Provide photographs to sort into appropriate categories.
- Using a data sheet and voice output device ask student to identify states of matter during snack activies.

Materials Needed:

1. Blackboard/Smartboard
2. Scrap Magazines
3. 3 Large Papers
4. Scissors
5. Glue

Instructional Setting:

Classroom

Community Connections and/or Peer Interaction:

- Students are asked to work in a group after being instructed by the teacher. Students must work together to create a collage. They must collaborate to complete the task. In

addition, students will target presentation/public speaking skills by being asked to present the final collage to the class.
- Have students work with a typically developing peer to find and cut pictures from a magazine.
- Ask the cafeteria staff to demonstrate making a favorite lunch item allowing the students to identify different states of matter when cooking.

Functional Activity/Routine:
This type of collage activity can be used when presenting information on any type of curriculum that involves multiple characteristics. In addition, displaying the student generated collage on the classroom wall, allows the students to access a relatable reference throughout the year.

Strategies to Collect Evidence:
- Include each group's final grade on the assignment. Include an anecdotal record that explains the individual student understanding of the concept and their social involvement for the group project.
- Create a data sheet to track student responses to questions related to the states of matter during group lessons.
- Create an assessment document using similar pictures found in the magazines for students to sort into their appropriate categories.
- Create an assessment incorporating word box with characteristics and other information about the different states of matter. Word choices can be arranged using a cut and paste format.

Specific Options for Differentiating this Activity:
Differentiate this activity by allowing students to complete the activity based on their individual needs. It may be necessary to cut correctly student identified pictures for the students and to help with gluing. Other students may require a field of precut pictures and the opportunity to choose the correct picture for their collage. In addition, it may be beneficial to partner a weaker student with a stronger group.