Facilitation Guide

States of Matter Movement

SABES Lesson 9

EXPERIENCE OVERVIEW

Students will use their bodies and movement to demonstrate the structure of the molecules in different states of matter (gas, liquid, and solid).

Standards

SCIENCE
SEP 2: Developing and using models
PS1 A: Structure and Properties of Matter
CCC 5&6: Energy and Matter; Structure and Function

MARYLAND STATE ARTS STANDARDS
Dance Standards: E:P-2:4: Demonstrate creative solutions to movement problems by working independently and collaboratively with others.

Getting Ready

SABES LEARNING OBJECTIVES:
- Use information from observations to construct a definition of a gas, solid, and liquid and the properties of a gas, solid, and liquid.

RECOMMENDED STUDENT MATERIALS:
- Student-created Solid, Liquid, and Gas Chart from previous lesson

TEACHER BACKGROUND
Teachers should have an understanding of the different states of matter and how to encourage students to use movement (improv) on how to use their bodies to make a model.

STUDENT PREREQUISITES
Students should have some general knowledge of the different states of matter.

ACCESSIBILITY NOTES
- Anchor charts with illustrated representations of each state of matter are visible in the classroom.

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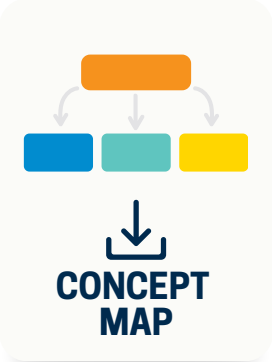
ARTS EVERY DAY
IN BALTIMORE CITY PUBLIC SCHOOLS

ARTS INTEGRATION MATERIALS



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TEACH

Engage

- Discussion:
  - Encourage a brief class discussion about the **differences** between solid, liquid, and gas.
  - Connect to students' experiences by asking students where they see each of the states of matter in **their everyday lives**.

VIDEO TUTORIAL

Experience

- Divide the class into **three groups**, assigning each group a state of matter (solid, liquid, or gas).
  - Optional: provide students with index card signs that name the state of matter that they are representing, along with an image.

- Explain to students that they will each **embody a molecule** that is part of a solid, liquid, or gas (depending on their assignment).
- Provide an open space for each group to explore and embody the physical properties of their assigned state through movement. Ask guiding questions like,
  - *How would the molecules in a solid behave? Would they be very close together? Very far apart? Would they move a great deal? Etc.*

- **Improvised Molecule Dance Practice:** Guide students to create an improvised molecule dance, showcasing the characteristics and movements associated with solids, liquids, and gases. Model an example prior to students' movement.

Apply & Assess

- **Molecule Dance Group Presentations**: Each group performs its improvised molecule dance for the class.
  - Encourage students to observe and take notes on the movements, attempting to identify the state of matter their peers are representing.
    - *Which state of matter do you think this is? Why do you think that? What evidence do you see?*
    - Discuss these observations and conclusions as a class. Ask: *What are the similarities between the three states of matter? What are the differences?*

- Use student responses and physical movements as **formative assessment tools** to check for understanding.