



Connection to the Arts: “What’s the Matter?”

States of Matter Module

This hands-on activity provides students with the opportunity to further explore the properties of states of matter. They will work collaboratively with peers to act out the particle movement of solids, liquids, and gases.

This offline hands-on activity can be completed after participation in the online Engage, Explore, and Explain.

Teacher objective: To demonstrate that particles in solids, liquids, and gases move at different rates.

Student objective: Upon completion of this activity, students will act out the particle movement of solids, liquids, and gases.

Estimated time for activity: 20 minutes

Materials:

- Direction Cards

Procedure:

1. Print and cut up direction cards page.
2. Divide students into groups of four to five.
3. Groups take turns choosing a card and acting out how the particles would move for that state of matter or phase change described on the card.
4. Peer groups take turns guessing what state of matter or phase change the group is acting out.
5. Groups continue to play until all teams have had a chance or all of the cards are used.

Teacher background & discussion points:

Science is made up of concrete concepts that often utilizes technical language. While it is important for students to understand the terminology, research has found that those who are able to draw a connection between the concepts and their own experiences develop greater understanding. By providing students with differentiated science experiences through the arts, we can foster their creativity and provide a better understanding of scientific concepts. This “Connection to the Arts” activity provides students with an innovative approach to science as they experience a variety of learning styles such as dance, music, art, poetry, and theater. Providing diverse opportunities for students to experience science will engage all students, including those who may respond more favorably to nontraditional instruction.

In this activity, students will use what they know about the states of matter to act out particle movement in solids, liquids, and gases as well as phase changes from one state to another. This activity illustrates that matter is made up of tiny particles that are in constant motion. It is important for students to recognize that the particles that make up solids, liquids, and gases



move at different rates. In fact, it is the motion of the particles that determines if an object or substance is a solid, a liquid, or a gas.

Use the following questions to emphasize the scientific connection to this art activity.

- “How did you know which state of matter that was?”
- “How did you know that one was a phase change?”
- “What does that movement (solid/liquid/gas) tell you about the properties of solids/liquids/gases?”
- “What did you like the best about this activity?”

Review:

At the conclusion of the lesson, remember to review the following key points:

- Matter is made up of tiny particles in motion.
- Particles that make up solids, liquids, and gases move at different rates.

Accommodations:

If students have difficulty reading the direction cards or acting out the motions, a variety of accommodations can be employed.

- The teacher can read the direction cards to the students and coach them on how to act out their card before they perform for peers.
- The teacher can place at least one reader in each group to help better understand the clues.
- The activity can be completed with science buddies from an older grade.
- The teacher can choose which cards best meet the academic needs of the students.



Direction Cards

Solid

Liquid

Gas

Solid to Liquid

Liquid to Solid

Liquid to Gas

Gas to Liquid