artsNOW
Integrated learning solutions

BE ONE WITH THE WATER
Grade Band: 6-8
Content Focus: Dance & Science

LEARNING DESCRIPTION

Students will explore states of matter and the water cycle by bringing water to life with their bodies. By enacting the changes that water molecules experience, students will learn scientific information kinesthetically.

LEARNING TARGETS

Essential Questions	"I Can" Statements
How can the process of acting increase comprehension of states of matter and the water cycle?	I can explain the stages of the water cycle, how molecules behave in each state, and how I showed this using my body.
How does energy relate to changes in states of matter?	I can use my body to enact the different states of matter.
What are the stages of the water cycle?	I can explain how energy impacts changes in states of matter.

GEORGIA STANDARDS

Curriculum Standards	Arts Standards
Grade 6: S6E3. Obtain, evaluate, and communicate information to recognize the significant role of water in Earth processes. b. Plan and carry out an investigation to illustrate the role of the sun's energy in atmospheric conditions that lead to the cycling of water. (Clarification statement: The water cycle should include evaporation, condensation, precipitation, transpiration, infiltration, groundwater, and runoff.)	**Grade 6:** TA6.PR.1 Act by communicating and sustaining roles in formal and informal environments. TA6.CN.1 Explore how theatre connects to life experience, careers, and other content.

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
Grade 6: 6-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.	**Anchor Standard 3:** I can act in improvised scenes and written scripts. **Anchor Standard 8:** I can relate theatre to other content areas, arts disciplines, and careers.

KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
• Water cycle - A continuous process by which water moves through the Earth's atmosphere, surface, and underground • Evaporation - Water from oceans, rivers, lakes, and other bodies of water turns into water vapor due to the heat from the sun. This also includes transpiration from plants, where water is absorbed by roots from the soil and released as vapor from the leaves. • Condensation - The water vapor rises into the atmosphere and cools, forming tiny droplets that gather to create clouds. This process changes water	• Theater - Dramatic literature or its performance; drama • Character - A person, an animal or other figure assuming human qualities, in a story • Voice – An actor's tool, which we shape and change to portray the way a character speaks or sounds • Body – An actor's tool, which we shape and change to portray the way a character looks, walks, or moves

vapor back into liquid or solid form, such as droplets or ice crystals.

- Precipitation - When these droplets or ice crystals become too heavy, they fall to the Earth's surface as precipitation, which can be in the form of rain, snow, sleet, or hail.
- Infiltration - Some of the water that reaches the ground seeps into the soil, replenishing groundwater supplies
- Runoff - Water that doesn't infiltrate the ground flows over the surface and collects in bodies of water such as rivers, lakes, and oceans. This water will eventually evaporate and continue the cycle.
- Sublimation - In colder regions, snow and ice can change directly into water vapor without melting first, contributing to the water vapor in the atmosphere.
- Deposition - The reverse of sublimation, where water vapor changes directly into ice without becoming liquid first, often forming frost

- Improvisation - A creation that is spoken or written without prior preparation

MATERIALS

- Sound source and music
- Masking tape

INSTRUCTIONAL DESIGN

Opening/Activating Strategy

- Ask students what a sound effect is. Ask a couple of students to demonstrate examples of sound effects like a car engine.
- Next, tell students that they will be using their voices and bodies to create sound effects responding to the teacher's prompts. Set noise level and movement guidelines for students before beginning.
    - Tell students:
        - "Make the sound of water droplets hitting the ground. Is it rain, a hose, a sprinkler, a spilled glass? You decide."

        - "Now make the sound of ice hitting something. Is it an ice storm, or ice in a glass from an ice maker or ice tray? Is it hail? You decide."
        - "Now make the sound of water as a gas. Is it steam from a boiling pot of water? Rain evaporating off of concrete after a storm? You decide."
    - Debrief the activity with students. Ask them why some states of matter are easy to add sound to and some are not.
- Tell students that now they will use their bodies to enact the different states of matter.
    - *Teacher note: Because students may come in physical contact with each other during the activity, set parameters and expectations for student behavior prior to the activity.*
    - Process:
        - Direct students' attention to the large square on the floor made with masking tape.
        - Liquid State: Ask your students to come into the middle of the space and get as close together as they can while still being able to move around freely amongst one another. Students should stay in the middle of the space. Ask students how their movement is like a liquid state.
        - Solid State: Tell your students that you will be taking away energy from the group. Ask students what they think should happen when they lose energy. (The group will not be able to move as much, moving slower and slower, eventually ceasing movement.)
        - Gaseous State: Now tell your students that you will begin pumping energy into the square. The students will be able to move again without holding onto each other. Note that so much energy may enable some of the students to bounce out of the square, and eventually all of the students will be able to go anywhere in the room (they will not be contained by the square anymore). Remind students that if they "bump into" anything (stress that they should not really crash) they will bounce off in a new direction.
        - Comment on the fact that the group has expanded to fill all of the available space.
        - Ask students what the square might represent (a container) and why they were not confined to it when they changed into a gaseous state (students should think about a pot of boiling water).
    - Facilitate a discussion around the following questions:
        - "What was each state?"
            - Moveable but contained in the shape
            - Not moveable in the shape
            - Bouncing all over, not contained to the shape
        - "What else do you know that has these three states?"

Work Session

- Tell students that they will be using a similar process to enact the water cycle.
- Tell students to find their own space in the room.
- Ask the students to describe some places where water is on the earth. Tell students that when the music starts, they should become bodies of water when the music starts. They can be the ocean, a river, a pond, a puddle, etc.
    - Remind students of the physical shape of water–flat, low, etc.
    - Start music and allow students to move like water.

- After a few minutes, ask the students to begin letting their water evaporate. Tell students to show the water evaporating, think about where it goes, and show how it rises up.
- Remind students that if they are a droplet now, move lightly as a droplet would, using their whole bodies.
- Now ask the students to imagine that they are rising as the water evaporates.
- As they get higher the air is cooler and the water starts to condense.
- Ask students to try to move more strongly, contracting as they come more solid.
- Ask students to squeeze themselves into a cloud that keeps changing shape.
- Now ask students to work together to become bigger and bigger clouds.
- Next, ask students to imagine that their cloud has become so heavy that the vapor turns into rain.
- Ask students to become the rain with their bodies. Are they big droplets? Or a steady spring rain? Remind students to use their whole bodies, including fingers, toes, etc.
- Now ask students to become a body of water again. Make it a different body of water than before.
- Repeat the process, altering the size of the cloud or type of precipitation, etc.

- Debrief the activity with students. Ask students how they changed their bodies based on what state of matter they represented.

Closing/Reflection

- Students should write a reflection on the process, explaining the stages of the water cycle, how molecules behave in each state, and how they showed this using their bodies. This reflection can be done in students' STEAM journals if they use one.

ASSESSMENTS

Formative

Teachers will assess students' understanding of the content throughout the lesson by observing students' participation in the activator, ability to demonstrate various states of matter using their bodies, ability to enact the water cycle using their bodies, and ability to explain their movement choices.
Look for students who seem to be copying other students' movements and not creating their own, this may indicate a lack of understanding.

Summative

CHECKLIST

- Students can explain the stages of the water cycle, how molecules behave in each state, and how they showed this using their bodies.
- Students can use their bodies to enact the different states of matter.
- Students can explain how energy impacts changes in states of matter.

DIFFERENTIATION

Acceleration: Challenge students to write a scene that incorporates dialogue in which each state of matter is personified. Students should create a character profile for each state of matter–this will include adding voice qualities and personalities to each state of matter. Students can then act out the scene.

Remediation:

- Use pictures and videos to help students understand how molecules behave in the different states.
- Break students into small groups. Have them create the scene in which they demonstrate the water cycle in their groups instead as a whole class. This will allow the teacher to identify and work more closely with students who are struggling.

ADDITIONAL RESOURCES

NA

**This integrated lesson provides differentiated ideas and activities for educators that are aligned to a sampling of standards. Standards referenced at the time of publishing may differ based on each state's adoption of new standards.*

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