artsNOW
Integrated learning solutions

EARTH SYSTEMS, ENVIRONMENT & CONSERVATION THROUGH MOVEMENT
Grade Band: 4-5
Content Focus: Dance & Science

LEARNING DESCRIPTION

In this lesson, students will understand how choreographers use performance as a platform for communicating concepts. By creating their own choreography, students will learn and teach their classmates about the scientific concepts they are investigating in class.

LEARNING TARGETS

Essential Questions	"I Can" Statements
How and why do choreographers create dances to inform audiences about important issues? How can I demonstrate my understanding of scientific concepts through choreography and movement?	I can use performance as a platform to inform audiences about important issues. I can create a choreographic work about scientific concepts.

GEORGIA STANDARDS

Curriculum Standards	Arts Standards
Grade 4 S4E3. Obtain, evaluate, and communicate information to demonstrate the water cycle. **Grade 5** S5E1. Obtain, evaluate, and communicate information to identify surface features on the Earth caused by constructive and/or destructive processes.	**Grade 4** ESD4.CR.1 Demonstrate an understanding of the choreographic process. ESD4.CR.2 Demonstrate an understanding of dance as a form of communication. ESD4.PR.1 Identify and demonstrate movement elements, skills, and terminology in dance ESD4.RE.1 Demonstrate critical and creative thinking in dance. **Grade 5** ESD5.CR.1 Demonstrate an understanding of the choreographic process. ESD5.CR.2 Demonstrate an understanding of dance as a form of communication. ESD5.PR.1 Identify and demonstrate movement elements, skills, and terminology in dance ESD5.RE.1 Demonstrate critical and creative thinking in dance.

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
Grade 4 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and how their uses affect the environment. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	**Anchor Standard 1:** I can use movement exploration to discover and create artistic ideas and works. **Anchor Standard 2:** I can choreograph a dance. **Anchor Standard 3:** I can perform movements using the dance elements. **Anchor Standard 7:** I can relate dance to other arts disciplines, content areas, and careers.

Grade 5 5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	

KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
• Geosphere - The solid parts of the Earth, encompassing all the layers that make up the planet's structure • Biosphere - The global sum of all ecosystems, including all living organisms and their relationships with the environment, encompassing both land and water areas • Hydrosphere - All of the water found on, under, and over the surface of the Earth • Atmosphere - The layer of gasses surrounding the Earth, held in place by gravity • Constructive forces - The natural processes that contribute to the building up or formation of Earth's surface features or geological structures • Destructive forces - The natural processes or phenomena that cause the breaking down, wearing away, or erosion of Earth's surface features or geological structures • Weathering - The natural process by which rocks, soils, and minerals are broken down into smaller particles through exposure to the Earth's atmosphere, water, and biological organisms	• Choreographer/Choreography - The art of designing and arranging sequences of movements, steps, and gestures to create a dance piece • Levels - The vertical positioning of the dancer's body in relation to the floor (high, mid, low) • Shape - The visual configuration or arrangement of the dancer's body or limbs in space • Tempo - The speed or pace of the music to which dancers perform • Energy - The quality, intensity, and dynamic force behind movement • Pathway - The route that a dancer's movement takes through space; it can encompass the direction, shape, and pattern of movement as the dancer moves across the performance space

• Erosion - The process by which soil, rock, and other surface materials are worn away and transported from one location to another by natural forces such as wind, water, ice, and gravity • Water cycle - The continuous movement and exchange of water between the Earth's surface, atmosphere, and hydrosphere (which includes oceans, rivers, lakes, groundwater, and ice caps)	

MATERIALS

- Dance/piece of choreography to watch (see examples in “Additional Resources”)
- Music

INSTRUCTIONAL DESIGN

Opening/Activating Strategy

- Using vocabulary from the current unit of study in science, ask students to show a movement to represent a vocabulary word or idea. Ask students to explain why they chose their movement and how/why that movement would represent the definition/idea to an audience.
- Tell students that choreographers are like authors except they don't use words and pictures to help the audience understand what they are communicating.
    - Instead, they use their bodies and movement to teach the audience about the concept.
    - Creating choreography about science is just like an author writing an informational text; our dance must inform the audience through movement.

Work Session

- Watch a piece of choreography about an earth system or the environment/conservation (see “Additional Resources”).
- Discuss choreographic choices/movements used to express thoughts and ideas to the audience.
    - Lead students in a movement exercise to introduce them to the following dance terms: Levels, shape, tempo, energy, and pathways.
        - Begin by playing music. Help students find the beat by tapping their toes or patting their legs.
        - Prompt students to make shapes with their bodies to express the words that they hear, such as curved, straight, angular, twisted etc.
        - Next, have students explore pathways. Tell students that pathways are the route that a dancer's movement takes through space. Ask students to begin traveling through the room, moving from place to place, as you prompt

them with different body shapes. Encourage students to think about how they can link their movements together fluidly.
        - Ask students to freeze in place. Bring students' attention to levels (high, mid, low) with movements such as stretching up high and moving on tiptoes, crouching in a small ball close to the floor, and bouncing in place at a middle level. Provide prompts, such as, "Create a curved low-level shape", to allow students to explore combining levels and shapes.
        - Now, direct students to explore energy variations with different movement qualities such as sharp movements–quick, precise actions like punches or snaps, and smooth movements–slow, flowing actions like waves or circles with arms. Prompt students with directions such as, "Crouch in a low-level curved shape and quickly burst into a high level straight shape". Ask students what type of energy this shows. Then, ask them to slowly transition from a high-level straight shape to a low-level curved shape; ask students to identify what type of energy this shows.
    - Look at the dance performance again. Ask students where they see examples of these elements in the choreography. Ask students what the choreographer communicated by using the concept.
- Tell students that they will be using what they just learned about dance to communicate scientific concepts. Choose one concept from the unit to choreograph as a class, such as erosion.
    - As a group, explore movement ideas to represent concepts (remember to cue students to use the elements of dance such as levels, shape, etc. to communicate ideas).
- Arrange students into small groups. Assign each group a topic related to the current unit of study in science.
- Tell students that they will be creating choreography about their assigned topic. Remind students that as choreographers, it is their job to communicate a concept through movement.
    - Remind students that choreographers use levels, shape, tempo, energy, and pathways intentionally to communicate with the audience. Tell students to select three elements that they will use to choreograph their dance. Each element must be used intentionally to communicate the concept.
    - Tell students that their choreography must have a beginning, middle, and end that includes a starting pose, at least three movements, and an ending pose.
- Circulate the room to work with students as they create their choreography.
- Have students share their choreography with the class.
    - The audience members should describe what they observed in the group's choreography using both science and dance vocabulary.
    - Ask students to explain how the choreography choices contributed to the meaning of the dance.

Closing/Reflection

- Using the elements of dance as a guide, ask students how their choreographic choices helped the audience understand the content. This can be a written or oral reflection.

ASSESSMENTS

Formative
Teacher will assess students by asking students about their choreographic choices and how they aid in the audience's understanding of the scientific concept.
Summative
CHECKLIST ● Choreography: ○ Students can create choreography that has a beginning, middle, and end. ○ Students can create choreography that correctly demonstrates scientific concepts and vocabulary. ○ Students can intentionally use three of the elements of dance to communicate a concept. ● Audience: ○ Students can discuss the performances of the other groups and identify how movements demonstrate scientific concepts and vocabulary. **This assessment can be done as a class discussion or a written assignment.*

DIFFERENTIATION

Accelerated: Increase the expectations of the full choreographic work. Each part (beginning/middle/end) contains more than one movement idea.

Remedial: Have students create choreography for just one vocabulary word/concept.

ADDITIONAL RESOURCES

- Julia Roberts is Mother Nature
- Prince Ea's Dear Future Generations: Sorry
- Types of weather choreography: Dance & Science: 'Weather' (2012) – Lucy Guerin
- Environmental/conservation choreography:
  - Fighting Climate Change with Dance | KQED Arts
  - WORLD ENVIRONMENT DAY | Go Green - Save Trees | Stop pollution | Dance | Tapperz Dance Skool

**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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