



**UNIT: EARTH'S CHANGING SURFACE**  
**WEATHERING, EROSION, AND DEPOSITION THROUGH MOVEMENT**  
 (Lesson 1 of 5)  
**Grade Band: 5, 6**  
**Content Focus: Dance & Science**



**LEARNING DESCRIPTION**

Students will use dance to demonstrate the forces of weathering, erosion, and deposition through the use of dance choreography.

**LEARNING TARGETS**

Essential Questions	"I Can" Statements
What are the constructive/destructive processes that shape the Earth's crust?	I can explain destructive and constructive processes shaping Earth's crust through dance.
How can I use dance and movement to model the impact of destructive processes on Earth's surface?	I can model the constructive processes that shape the Earth's crust with choreography.



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## GEORGIA STANDARDS

Curriculum Standards	Arts Standards
<b>Grade 5:</b> S5E1. Obtain, evaluate, and communicate information to identify surface features on the Earth caused by constructive and/or destructive processes. a. Construct an argument supported by scientific evidence to identify surface features (examples could include deltas, sand dunes, mountains, volcanoes) as being caused by constructive and/or destructive processes (examples could include deposition, weathering, erosion, and impact of organisms). b. Develop simple interactive models to collect data that illustrate how changes in surface features are/were caused by constructive and/or destructive processes.	<b>Grade 5:</b> ESD5.CR.1 Demonstrate an understanding of the choreographic process. a. Create shapes and levels through movement. b. Create movement phrases with or without music. c. Demonstrate knowledge of compositional elements through movement (e.g. beginning, middle, end, transitions). d. Create movement based on student generated ideas or feelings. f. Create and accurately repeat a dance phrase, then vary it using the elements (e.g. body, time, space, energy)  ESD5.CR.2 Demonstrate an understanding of dance as a form of communication.  ESD5.RE.1 Demonstrate critical and creative thinking in dance.

## SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
<b>Grade 6:</b> 6-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	<b>Anchor Standard 1:</b> I can use movement exploration to discover and create artistic ideas and works.  <b>Anchor Standard 2:</b> I can choreograph a dance.  <b>Anchor Standard 3:</b> I can perform movements using the dance elements.

## KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
<ul style="list-style-type: none"> <li>• <u>Constructive force</u> - A natural process that builds up the Earth's surface, creating new landforms and adding to existing ones</li> <li>• <u>Destructive force</u> - A natural process that breaks down or wears away the Earth's surface, destroying or altering</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Locomotor</u> - A movement that travels through space</li> <li>• <u>Non-locomotor</u> - A movement that does not travel through space</li> <li>• <u>Pathways</u> - Designs traced on the floor as a dancer travels across space; the</li> </ul>



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<p>landforms</p> <ul style="list-style-type: none"> <li>• <u>Weathering</u> - The breakdown of rocks into smaller fragments without changing their chemical composition; it can be caused by wind, rain, hail, snow, water</li> <li>• <u>Erosion</u> - The natural process by which soil, rock, or other surface materials are worn away and transported from one location to another by agents such as water, wind, ice, or gravity</li> <li>• <u>Deposition</u> - The geological process by which sediments, soil, and rocks that are transported by wind, water, ice, or gravity are dropped or settled in a new location</li> </ul>	<p>designs traced in the air as a dancer moves various body parts</p> <ul style="list-style-type: none"> <li>• <u>Levels</u> - One of the aspects of movement (there are three basic levels in dance: high, middle, and low)</li> <li>• <u>Percussive</u> - Refers to the quality of movement characterized by sharp starts and stops; staccato jabs of energy</li> <li>• <u>Space</u> - The physical area in which movement occurs and how dancers use, navigate, and relate to that area</li> <li>• <u>Time</u> - The element that organizes movement in relation to rhythm, tempo, and duration</li> <li>• <u>Energy</u> - The quality or force of movement, describing how the body moves through space</li> <li>• <u>Props</u> - Objects that dancers use or interact with during a performance to enhance the visual, narrative, or thematic elements of the choreography</li> <li>• <u>Tempo</u> - In music, the speed of the beat</li> </ul>
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## MATERIALS

- Two songs for students to choose from (instrumental recommended): One with a fast tempo and one with a slow tempo
- Optional: Props such as scarves, dance ribbons, pom poms and leaf branches
- [See/Think/Wonder artful thinking routine](#)
- [Dance Vocabulary](#)

## INSTRUCTIONAL DESIGN

### Opening/Activating Strategy

*Teacher Note: In order to be successful in this unit students should be able to define constructive and destructive forces. Students should understand that landforms can change quickly or slowly over time. Students should be able to identify surface features caused by constructive and destructive forces.*

- Show an image of a sand dune. Have students engage in the [See/Think/Wonder artful thinking routine](#). Then ask the following:
  - What type of landform is this?
  - How do you think this landform got there?
  - How long did you think it took for it to be developed?



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- This activator will lead into a discussion of constructive and destructive forces.
- The teacher will activate prior knowledge by sharing weathering and erosion anchor charts to review unit vocabulary. Students will turn and talk to share their definitions of weathering, erosion and deposition.
  - As they discuss, have students create hand movements that represent weathering, erosion, and deposition.

### Work Session 20 minutes

- Tell students that they will use dance to develop their understanding on the topic of constructive and destructive forces.
- Introduce the following elements of dance: Space, time, and energy. Lead students in a dance warm-up to help them engage with the vocabulary. Teachers can do all or part of the following warm-up. Be sure students are exposed to locomotor and non-locomotor movements, different levels, and different energies.
  - Students will embody the elements of earth, water, air, and fire with movement, learning to express the concepts of space, energy, and levels.
  - Tell students that they will start with Earth focusing on levels and locomotor/non-locomotor movements.
    - Walk (locomotor): Say or paraphrase, "Let's march in place like sturdy trees standing tall. Can you make your steps big and strong? Walk like you're feeling the Earth beneath you".
    - Low level and non-locomotor: Say or paraphrase, "Now, imagine we're in the forest, and we need to crouch down low like we're planting seeds. Move slowly and stay close to the ground like you're growing roots."
    - Medium level and non-locomotor: Say or paraphrase, "Come up to your normal standing height. Keep your arms strong like branches stretching out from your body, but stay grounded like a tree."
  - Tell students that now they will become water adding in energy.
    - Smooth, flowing movement (non-locomotor): Say or paraphrase, "Begin by making gentle, flowing waves with your arms. Move like the water is gliding peacefully in the ocean, letting your arms move gracefully through the air."
    - Sharp, sudden energy (energy): Say or paraphrase, "Now, imagine the water splashing suddenly! Let's make quick, sharp movements like drops of water jumping off the surface."
    - Level change (low to high): Say or paraphrase, "Let's pretend you're a water droplet, rising from the ocean. Start low, then rise up, and reach as high as you can with your arms like you're jumping out of the water."
  - Tell students that now they will become air.
    - Gliding (locomotor): Say or paraphrase, "Start by walking slowly and lightly around the space. Glide and float through the room like you're a breeze drifting past."
    - Leap (non-locomotor and energy): Say or paraphrase, "Now, let's jump into the air like we're flying! Take off from the ground and imagine you're floating like a feather in the wind."
    - High level (energy and movement): Say or paraphrase, "As you jump, reach as high as you can, floating and fluttering through the air. Can you be light and graceful with every jump?"
    - Slow floating (non-locomotor): Say or paraphrase, "Now, let's pretend to float gently back down. Move your arms in slow, circular motions as if you're floating peacefully back to the ground."
  - Tell students that now they will become fire.

- Quick movements (locomotor and energy): Say or paraphrase, “Let’s move quickly around the room like we’re fire spreading quickly! Move with energy, fast and fiery!”
- Sharp, strong energy (energy): Say or paraphrase, “Now, stop and make sharp, bold movements. Strike a pose with your arms like you’re the flame of a fire—strong and fierce.”
- High level (levels and energy): Say or paraphrase, “Let’s jump into the air as high as we can, imagining we’re flames leaping up into the sky!”
- Non-locomotor (non-locomotor and energy): “Stop and make twisting, turning movements with your body, like a fire spinning in a circle. Let your arms move around like flames swirling and flickering.”
  - Debrief the warm-up discussing locomotor, non-locomotor, energy, and space.
- Tell students that now they will create a dance using locomotor and non-locomotor movements, energy, and levels to demonstrate weathering, erosion and deposition.
- Divide students into small groups of three to four.
  - Students will then listen to two pieces of instrumental music (one with a fast tempo and one with a slow tempo).
  - Ask students to choose and write down which song they want to use for their choreography.
  - Provide students with the following criteria for their choreography:
    - The dances must have a beginning, middle, and end.
      - The dance must begin and end with a frozen shape.
      - The dance must include at least six movements total (this does not include frozen shapes).
      - Movements must show each vocabulary word: Weathering, erosion and deposition.
      - Students must show different levels, different energies, and both locomotor and non-locomotor movements.
  - Optional: After students have choreographed their dances, introduce props, such as scarves, dance ribbons, pom poms and leaf branches, to students and allow them to choose which ones will enhance their dance.
  - Provide time for students to rehearse their dances.

### Closing/Reflection

- Tell students that they will perform their dances. Review appropriate audience participation and etiquette prior to performances.
- After each performance, ask the audience to identify how the group showed weathering, erosion and deposition through movement. Students should use specific dance vocabulary in their explanations: Levels, locomotor/non-locomotor, and energy.
- Have students explain in a brief reflection how they used levels, locomotor/non-locomotor, and energy to model each concept.
- Have students reflect on what they would change about their choreography if they were able to go back and do it again.

## ASSESSMENTS

### Formative

- Students will improvise movements to demonstrate weathering, erosion, and deposition in teacher led small groups.



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- The teacher will check-in with students while they are choreographing to determine understanding of content vocabulary and how they are using dance concepts to express that content vocabulary.

### Summative

- Students are able to choreograph an original dance using locomotor and nonlocomotor movements, levels, and energy that demonstrates their understanding of weathering, erosion, and deposition.
- Student audience will identify the various forces (weathering, erosion, and deposition) in the dance of the presentation groups.
- Students can explain through their reflections how their choreographic choices demonstrated weathering, erosion, and deposition.

## DIFFERENTIATION

### Accelerated:

- Students will independently choose two pieces of music that demonstrate weathering, erosion, and deposition and then choreograph an original dance demonstrating the corresponding forces.
- Have students fully engage in the Engineering Design Process by brainstorming movements for their choreography, planning their choreography through visuals or in writing, performing their dances for a partner group, receiving feedback from the partner group, and revising their choreography before performing their final pieces.

### Remedial:

- Have students watch a recorded dance, and orally identify which movements could represent constructive and destructive forces.
- Brainstorm how different movements could represent weathering, erosion, and deposition as a class before having groups choreograph on their own.
- Have students focus on one or two concepts rather than all three in their choreography.
- Reduce the requirements in the choreography.

## ADDITIONAL RESOURCES

## CREDITS

U.S. Department of Education- STEM + the Art of Integrated Learning  
Ideas contributed by: SAIL grant teacher leaders

*\*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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