

Arts Integrated Lesson Plan



ART FORM:
Dance



SUBJECT AREA:
Science

Lesson Title: Rock cycle	Grade: 6
Contributor, School: Tammy Kreppel, Berlin Intermediate School	Time Frame: 90 minutes

State Curriculum Content Standards, Indicators, Objectives

<p>Dance Content Standard 3.0 Creative Expression and Production</p> <p>Students will demonstrate the ability to create and perform dance.</p>	<p>Science Content Standard 2.0 Earth/Space Science</p> <p>Students will use scientific skills and processes to explain the chemical and physical interactions (i.e., natural forces and cycles, transfer of energy) of the environment, Earth, and the universe that occur over time.</p> <p>Topic A: Materials and Processes that Shape the Planet</p>
<p>Dance Content Indicator 3.2 Develop the ability to select and combine the elements, aesthetic principles, and choreographic forms to communicate meaning.</p>	<p>Science Content Indicator 2.A.4 Differentiate among igneous, sedimentary, and metamorphic rocks based upon the processes that they formed.</p>
<p>Dance Content Objective(s) 3.2.a Select elements of dance to convey ideas and concepts. 3.2.c Create movement sequences by selecting and using principles to communicate a theme.</p>	<p>Science Content Objective(s) 2.A.4.a Identify and describe the processes that form sedimentary rock. 2.A.4.b Identify and describe the processes that form igneous rock. 2.A.4.c Identify and describe the processes that form metamorphic rock.</p>

Objective(s) (Connecting the content areas)

Students will identify the processes that form igneous, sedimentary, and metamorphic rock by using the elements of dance to create movement that demonstrates a deeper understanding of the scientific concept.

Key Arts Vocabulary

- *movement: locomotor, non-locomotor*
- *body: shape, parts*
- *space: self-space, general space, levels, direction, pathway, size, focus*
- *time: tempo, rhythm*
- *energy: qualities, flow*

Key Science Vocabulary

- *igneous rock: intrusive, extrusive*
- *sedimentary rock: deposition, compaction, cementation*
- *metamorphic rock: temperature, pressure*

Prior Knowledge Students Need for This Lesson

Arts
None

Science

- Students will need to read a science textbook to understand that there are three types of rocks, and that they are based upon different processes by which they are formed.
- Students will need to understand the process that changes one form of rock into another form (i.e., rock cycle).

Materials and Resources

Materials and Resources for the Class

- *Paper*
- *Markers*
- *Open space to move*
- *Copy of Elements of Dance sheet*
- *Earth's Changing Surface (science textbook)*
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Materials and Resources for the Teacher

- *Elements of Dance chart*
- *Earth's Changing Surface (teacher edition)*

Lesson Development/Procedures (including motivation, modeling, guided practice, and independent practice)

- **Motivation/Modeling** (10 min.)—Discuss the definition of *dance* with students (to move the body and feet in rhythm, sometimes to music; the fine art that uses the human body as its expressive instrument and movement as its medium for communication). Show students how they can use their bodies to portray each element of dance. Using the Elements of Dance chart, discuss and have students give examples of other movements (i.e., body, space, time, and energy). Create a list of these examples on the chart under each category (i.e., body—curved, straight, or bent shapes; space—high, medium, and low levels).
- **Guided Practice** (10 min.)—After identifying the space that each student can use in the classroom, allow each student to practice each dance element. The teacher will give examples of different types of movement that incorporate the elements (i.e., move like a pebble crossing a pond (skip), move like an earthquake (shake), move like a tornado (twist), move like a liquid (flow), etc.
- **Group Activity** (5 min.)—Assign students to six groups. Using paper, each group will brainstorm key words that describe the type of rock assigned. Two groups will be igneous rocks (i.e., intrusive, magma, extrusive, lava, and volcano). Two groups will be sedimentary rocks (i.e., weather, erosion, deposition, compaction, and cementation). Two groups will be metamorphic rocks (i.e., temperature, pressure).
- **Independent Practice** (15 min.)—Groups will show four or more movements in a memorized sequence to represent their assigned rock formations. Each group should show elements of dance in the selected movements. The teacher should act as a facilitator, guiding students through the process.
- **Group Presentations** (10 min.)—After practicing movement sequences, groups present their dance compositions to the class. The class participates by identifying the type of rock that each group has been assigned, noting the dance elements that are evident, as well as

identifying which movements clearly portray the characteristics of the rock. Positive feedback (Praise) will be given to each group, followed by suggestions to improve the compositions (Polish).

- **Revised Group Work** (20 min.)—Combine the two igneous rock groups to make one larger group. Do the same for the two sedimentary rock groups and the metamorphic rock groups. The groups will look at the movements that each group has come up with for the type of rock assigned. Using feedback from classmates, each group's task will be to decide on the best movements to use to clearly convey the assigned rock formation. When the movements have been decided, the next step is to show a sequence of the rock cycle using movement. Within that sequence, at least three elements of dance should be used to enhance the movement phase (e.g., igneous rocks need to show weathering and erosion to change into sedimentary rock or metamorphic rock; metamorphic rock will show a change into igneous rock or sedimentary rock).
- **Revised Group Presentations** (10 min.)—The class watches the combined group dances and gives feedback based on the following questions: Did the movement sequences for each rock group improve or not? If so, how? (Praise) If not, what could the group do differently? (Polish)
- **Assessment** (10 min.)—Students will complete a BCR that has students write about the three types of rocks and the rock cycle. The teacher will use a rubric to assess the BCR.

Closure/Summary

This lesson can be used to teach any sequential concept in a science class. Giving students the opportunity to use movement can deepen each student's understanding of the concepts taught in a way that just reading in a textbook cannot.

Assessment (Description/Tools)

An informal (reflection) assessment will be used when students Praise and Polish the dance work of classmates. Although some evidence of understanding of rock formations is evident in the group dance compositions, a BCR will be also be used to see if all students have a clear understanding of the three types of rocks, and the rock cycle, after viewing the dances, participating in the discussions, and identifying the differences in the types of rocks.

Lesson Extensions

This lesson can be used year round for teaching the layers of the atmosphere, the water cycle, the layers of the interior of the Earth, Newton's laws, and environmental habits/animals that live in the habitats. Adding music could enhance the dance compositions. Students can also create and share poetry, books, or PowerPoint presentations about the rock cycle.