

MURDOCH MIDDLE CHARTER PUBLIC SCHOOL
5/6 Science Project
2007-2008

PROJECT/UNIT TITLE	PLAYING THE GEOLOGICAL RECORD- ROCK AND ROLL
Description	The “Playing the Geological Record- Rock and Roll” project focuses on how and why earth’s landscape changes over time. Students will interpret and create contour maps that depict the earth’s common physical features. Students will develop an understanding of the dynamic nature of our planet through investigating geologic concepts such as rock formation, weathering, erosion, deposition, and plate tectonics. Students will identify the physical evidence that supports the theories of the earth’s evolution over geologic time.
Developers	Melissa Kapeckas, Jennifer Shaby, David Maier, Brook Hamilton
Standards	<p>Science Standards: Give a simple explanation of what a mineral is and some examples, e.g., quartz, mica. (5.E.1) Identify the physical properties of minerals (hardness, color, luster, cleavage, and streak), and explain how minerals can be tested for these different physical properties. (5.E.2) Identify the three categories of rocks (metamorphic, igneous, and sedimentary) based on how they are formed, and explain the natural and physical processes that create these rocks. (5.E.3) Explain and give examples of the ways in which soil is formed (the weathering of rock by water and wind and from the decomposition of plant and animal remains). (5.E.4) Give examples of how the surface of the earth changes due to slow processes such as erosion and weathering, and rapid processes such as landslides, volcanic eruptions, and earthquakes. (5.E.12) Recognize, interpret, and be able to create models of the earth’s common physical features in various mapping representations, including contour maps. (8.E.1) Describe the layers of the solid earth, including the lithosphere, the hot convecting mantle, and the dense metallic core. (8.E.2) Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through the earth’s system. (8.E.3) Describe how the movement of the earth’s crustal plates causes both changes in the earth’s surfaces (e.g., formation of mountains and ocean basins) and rapid ones (e.g., volcanic eruptions and earthquakes) (8.E.5) Describe and give examples of ways in which the earth’s surface is built up and torn down by natural processes, including deposition of sediments, rock formation, and weathering. (8.E.6) Explain and give examples of how physical evidence, such as fossils and surface features of glaciation, supports theories that the earth has evolved over geologic time. (8.E.7)</p> <p>Creative Arts: Dance Standards 1.10 Demonstrate understanding of alignment, articulation of body parts, initiation of movement, weight shift and balance, elevation and landing, and fall and recovery 1.11 Demonstrate ability to move to changing rhythms, melodies, and non-musical sounds 1.12 Explore increasingly complex combinations of locomotor and non-locomotor movements that emphasize the elements of space, time, and force 2.6 Use improvisation to generate movement for choreography 2.8 Demonstrate compositional forms in short choreographed phrases, using AB, ABA, theme-variations, canon, rondos, story-telling, and narration</p> <p>Creative Arts Dance Standards (continued) 2.9 Use scientific and/or mathematical concepts to create movement phrases</p>

	<p>2.10 Demonstrate the following partner skills in creating contrasting and complementary shapes: taking and supporting weight, counter-tension, and counterbalance</p> <p>2.11 Describe and analyze, orally and in writing, the choreographic structure of variety of dances, using appropriate dance vocabulary</p> <p>2.12 Record dances and choreography using pictorial symbols or other forms of notation</p> <p>3.8 Perform dances confidently, communicating the intention of the choreographer and the style of the dance</p> <p>4.5 Create or learn and perform a dance for invited guests or peers based on one of the following: a ritual from another culture; a traditional dance; work with a partner, group, or single choreographer. Identify and explain the circumstances and settings in which the dance would be performed</p> <p>4.6 Demonstrate increased ability to work effectively alone, and to cooperate with a partner or in an ensemble</p> <p>4.7 Understand the purpose of the rehearsal process in refining and revising work leading to a finished performance</p> <p>5.5 Use appropriate dance terminology to describe and analyze their own work</p> <p>5.6. Identify and discuss artistic challenges and successful outcomes encountered during the creative and rehearsal processes. Reflect upon the value of different solutions</p> <p>5.7 Identify possible criteria for evaluating dance, such as skill of performers, originality of movement, visual and/or emotional impact, variety, contrast, and appropriateness of accompaniment</p> <p>5.8 Understand the role of an audience for dance; discuss opinions about dances in a supportive and constructive way</p>
Student Role	geologist, cartographer, choreographer, performer, observer, writer
Major Rubriced Pieces (products) or Assessments (quizzes and tests)	<ul style="list-style-type: none"> • Topographic Map: Imagination Location • Chemical Weathering Lab Report • Earth Science Choreographed Dance Performance • 1 -2 Tests
MMS Outcomes	<p><u>Community Membership</u>: Students will work on being good community members during collaborative group work and lab work. Students will work within a team to choreograph a piece which communicates knowledge through movement.</p> <p><u>Self-Direction</u>: Students will be required to plan their time well to meet individual and group work deadlines.</p> <p><u>Problem Solving</u>: Students will gather data through a series of geological tests and draw conclusions to identify a mineral sample.</p> <p><u>Effective Communication</u>: Students will communicate a variety of earth's processes through creative movement techniques.</p>
Systems Thinking Connection(s)	<p>Interconnectedness: Students will recognize the connection between the movement within the earth's crust and the creation of the earth's landforms.</p> <p>Change over time: Students will begin to appreciate the slow and rapid changes that have occurred in the earth's surface over the course of geologic time.</p>
Technology Connection(s)	Internet investigation
Community Connection(s)	Possible field trip to local site of geologic importance
Creative Arts Connection(s)	Group choreographed performance, creation of topographic map
Timeline	Quarters 1 & 2