

“GEO-Snapshots”

Geology Grade Levels 4-5

Objectives: In order to understand the essential questions of, “How can photographs show earth processes (slow and fast)?” and “How do humans get and use natural resources?” students learn about the rock cycle, plate tectonics, and human uses of geologic materials before identifying historic photographs from the *Landscape Change Program* that illustrate these concepts. They present their findings as a PowerPoint collection. *Time Needed: 1-2 hours*

Vermont’s Framework of Standards and Learning Opportunities:

7.15 The Universe, Earth, and the Environment (students demonstrate understanding of the earth and its environment...)

Grade Level Expectations:

Earth Science 5-6:46 Earth Materials and the Rock Cycle

Earth Science 5-6:47 Forces and Changes at Earth’s Surface (slow and fast changes)

Earth Science 5-6:49 Natural Resources

Interdisciplinary Connections: Technology — Multimedia presentation tools

Materials & Resources:

Landscape Change Program Archive, www.uvm.edu/perkins/landscape

Images: LS01639, LS00609, LS08195, LS08215, LS03003, LS02029, or LS10150

Reference map showing tectonic plate locations from one or more of the following:

Physical World Maps: www.lib.utexas.edu/maps/world.html

Animated Tectonics Maps: www.ucmp.berkeley.edu/geology/tectonics.html

Thematic World Maps: www.maps.com/maps.aspx?nav=RM&cid=679,1037

PowerPoint software access

“GEO-Snapshot” PowerPoint Guidelines Sheet (below)

Activities:

<p>1. Hook Your Students After a review of the concepts of rock cycle, plate tectonics (map links above), and natural resources, students view a model PowerPoint of historic images to visualize these concepts.</p>	<p>4. Culminating Activity Students share PowerPoint presentations with peers.</p>
<p>2. Introduce Concepts Teacher poses questions to encourage students to analyze these historic “GEO” photographs.</p>	<p>5. Assessment Rubric (included in PowerPoint Guidelines Sheet).</p>
<p>3. Apply Skills Students create their own “GEO-Snapshot” PowerPoint illustrating examples of the rock cycle (erosion, rock types), plate tectonics (faults), and natural resources (quarries, cemeteries, stone walls, etc.)</p>	<p>6. Extensions Illustrate <i>additional</i> earth science concepts using historic photographs (water cycle, glaciations, etc.). Find images of active or inactive tectonic areas outside of Vermont (subduction zones, strike-slip areas).</p>

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Lesson Plan Details

Detailed summary of curricular format:

Hook:

Prepare a sample “Geo-snapshot” power point model to present and discuss with your students. The images should show examples of:

- 1.) The Rock Cycle eg: Erosion and different types of rock.
- 2.) Plate tectonics eg: A thrust fault zone
- 3.) Rocks being used for human purposes in the past and present and where they came from eg:
 - a. Barre Granite Quarry and a cemetery
 - b. A stone wall and an old farm field.

Introduce Concepts:

Pose questions for each photograph to encourage students to analyze the photographs in terms of seeing things in general, as well as identifying earth processes and features.

Apply skills:

Students will create their own “GEO-Snapshot” PowerPoint of images that present examples of geological formations and rock and soil being used for human purposes.

For each image, they need to describe how it demonstrates the concept.

Share:

Provide time for students to share their PowerPoints with the class.

Assessment:

The PowerPoint should be used to assess students understanding of the standards.

List of possible images to use from the *Landscape Change Program* archive:

Norcross & West Marble Co:	LS01639
Barre Granite Quarry:	LS00609
Bartlets Falls:	LS08195
Deer Leap:	LS08215
Rock Point from the Water:	LS03003
Lone Rock Point:	LS02029
Fault Zone Brechia:	LS10150



Limestone Bedding and Waterfall: LS11589

“GEO-Snapshots”

PowerPoint Guidelines and Rubric Sheet

“Geo-Snapshot” PowerPoint Guidelines

Now that you have learned about the Rock Cycle and how geological features are formed, you will demonstrate your understanding of what you have learned by preparing a “GEO-snapshot” PowerPoint of photographs.

The photographs should show examples of:

- 1. The Rock Cycle eg. Erosion and different types of rock.**
- 2. Plate tectonics eg. The Thrust Fault zone**
- 3. Rocks being used for human purposes in the past and present and where they came from eg.**
 - a. Barre Granite Quarry and a cemetery**
 - b. A stone wall and an old farm field**

You can find the images by typing in this web address - <http://www.uvm.edu/perkins/landscape> type in “rocks” or another term in the search box. You can sort your results using “list” or do an advanced search using “refine search”. You can also type in terms such as “metamorphic” to narrow your search and save time.

“GEO-Snapshot” Assessment Rubric

4	3	2	1
Included accurate photographs of all 3 areas and description give detailed explanations to show evidence of understanding. Uses geological vocabulary	Included accurate photographs of all 3 areas and gives explanations to show evidence of understanding.	Included accurate photographs of some of the areas with limited explanations to show evidence of understanding.	Includes some or no photographs and explanations are missing or limited showing little to no evidence of understanding.