

Plate tectonics: Tectonically speaking . . .



UNIT
Question:

Why does the
Earth move and
where is it
going
anyway?!



How do my
environments
affect
me?

AOI

Environments

awareness and understanding of:

- the roles our environments play in the lives and well-being of humankind
- the effects of one environment on another

reflection on:

- our responsibilities to our environments

taking action on:

- a range of issues related to environments

KEY CONCEPT: The earth is moving, **inside** and **out**.



Final Task

Model Earth!

UNIT
Question:

Why does the Earth
move and where is it
going anyway?!

Create a model of one of Earth's processes (Earthquake, Volcano, Tsunami or Continental Drift).
Make the model interactive (make it moveable!).

Remember, you're a geologist, so you will need to **explain** the process occurring in an investigative report and label features of the model.

You can create a poster or workbook to **present** your investigative report.

Investigative Report should include:

- * Pre-model hypothesis: what do you think causes this process and how can you show that using a model?
- * Hand-drawn and labelled diagram of the process
- * Written explanation of the process (what is happening??)
- * 3 examples of cases of this process on Earth
- * List of vocabulary and definitions

Don't
forget a
bibliography!

Marking Criteria:

B Concepts: Systems; Change

C Skills: Investigative Skills

D Organization and Presentation



Find out how to meet the criteria
on the following pages!

Objectives

Concepts

Show how the elements of the Earth cooperate and interact to create changes. Show the results of Earth's systems moving around and choose different examples to show that changes can occur in different places, at different times and in different ways.

Investigative Skills

Think about the process you choose and create a **hypothesis** before researching: what do you think causes it? How can you show that using a model?

Do some **research** to report on the facts.

Organization and Presentation

Create a model of the process that shows your audience what is happening in a clear and interesting way.

Make it **moveable** so that it represents our dynamic Earth!

Marking Criteria:

B Concepts: Systems

- identify and make basic comparisons, using examples of cooperation within and between systems
- identify and make basic comparisons between systems in local, national and global societies
- identify and make basic comparisons between different types of equilibrium within systems
- understand, identify and compare the dynamic nature of basic systems

Change

- identify basic short-term and long-term causes of change
- identify links between causes, processes and consequences
- recognize and describe basic examples that illustrate continuity and change
- recognize what change is and that rates of change vary

C Skills: Investigative Skills

- test basic hypotheses and ideas
- plan, carry out and present basic individual and group investigations

D Organization and Presentation

- present and express basic information and ideas in a clear and concise manner

Follow this order!

**Step
1**

**Choose one of Earth's
Processes:**

Earthquake

Volcano

Tsunami

Continental Drift

**Step
2**

Hypothesize! Reflect!

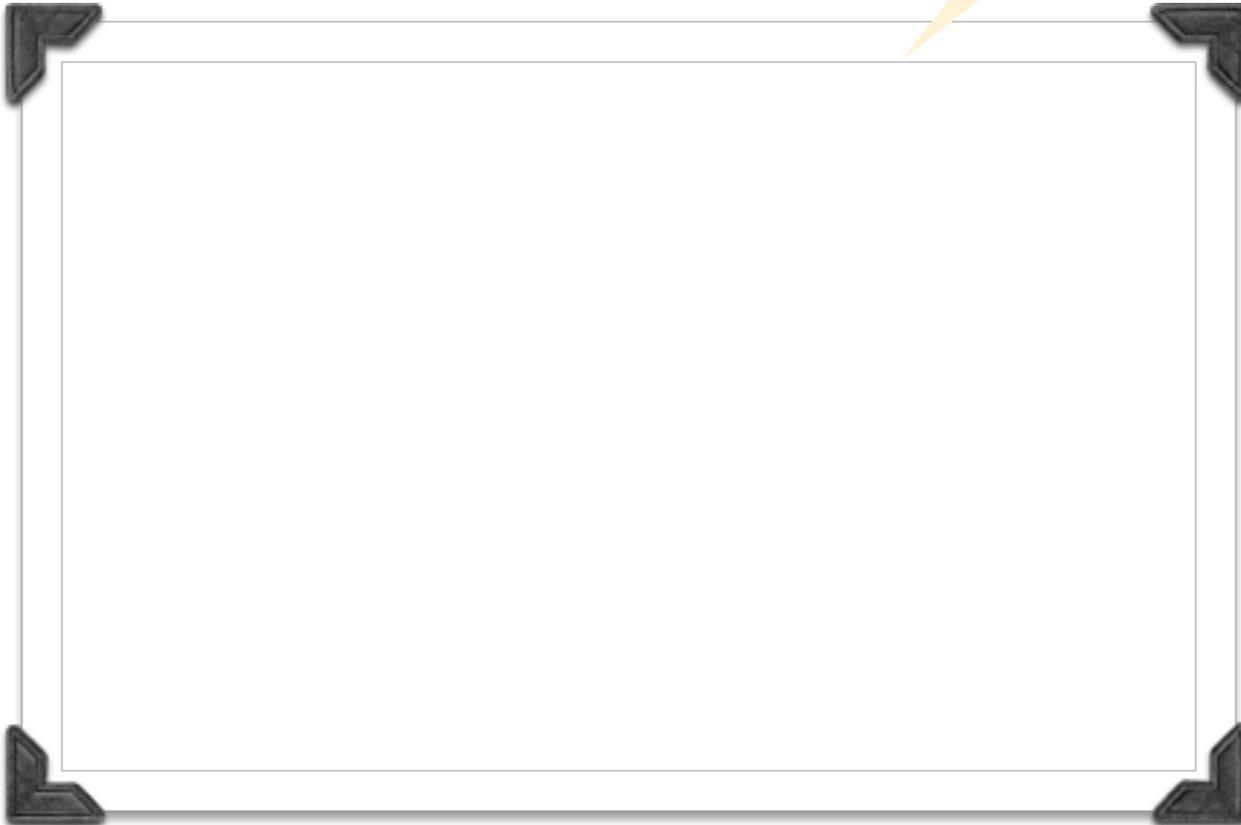
Why does this process occur? Think about the things we have learned throughout this unit . . .

Step
3

Think!

How can you represent this DYNAMIC process using a moveable model?

**Sketch
your
ideas!**



This
requires
RESEARCH and
creative thinking.

Use websites to explore science projects and come up with some of your own creative ideas.

Record resources and ideas here
(AS YOU GO!):

Step
4

Create a hand-drawn and labelled diagram
of the process for your report.

This
requires
RESEARCH and **FACTUAL
EVIDENCE.**

Use more than one website and/
or book.

Record your resources
as you go!



Step
5

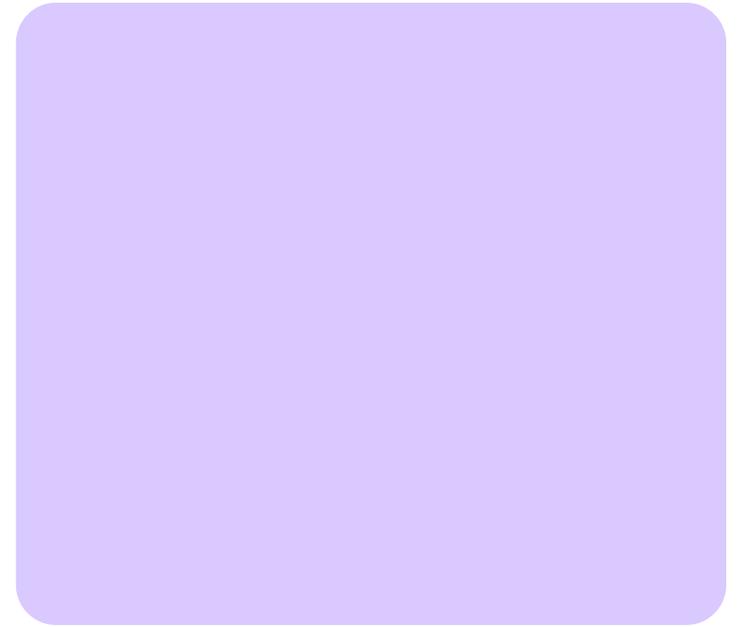
Process

Write a simple explanation
of the process

(What is happening??)

Give 3 examples of cases of
this process on Earth.

Examples



Name the disaster and tell me where it occurred, why it occurred and how serious it was (did people die, building break?).



Vocab List

Step
6

Compile a list of vocabulary and definitions as you go.

Hand them in with your project.

Final
Step!

Create a
Bibliography!
Use the Writer's
Handbook.

Rubric

Concepts

Show how the elements of the Earth cooperate and interact to create changes. Show the results of Earth's systems moving around and choose different examples to show that changes can occur in different places, at different times and in different ways.

<i>Achievement Level</i>	<i>Descriptor</i>
0	I do not reach a standard described by any of the descriptors given below.
1-2	My application of Systems and Change is incorrect or missing . I may show some awareness and understanding of concepts by recognizing a few basic ways in which elements of the Earth interact and create change.
3-4	My application of Systems and Change is not always correct . I show awareness and understanding of some concepts by describing some basic ways in which elements of the Earth interact and create change.
5-6	My application of Systems and Change is usually correct, but sometimes weak . I show awareness and understanding of concepts by recognizing how elements of the Earth interact and create change. I use some examples to make connections between these concepts and the real world.
7-8	My application of Systems and Change is correct and shows some depth . I show awareness and understanding of concepts by describing how elements of the Earth interact and create change. I use examples to make connections between these concepts and the real world.
9-10	My application of Systems and Change is correct and appropriate . I show awareness and understanding of concepts by describing how elements of the Earth interact and create change. I use effective examples to make connections between these concepts and the real world.

Rubric

Investigative Skills

Think about the process you chose and create a hypothesis before researching: What do you think (or remember from this Unit!) causes it? How can you show that using a model?

Do some research to report on the facts. Use effective research skills (don't type entire sentences into Google!) and record your sources.

<i>Achievement Level</i>	<i>Descriptor</i>
0	The student does not reach a standard described by any of the descriptors given below.
1-2	I try to demonstrate investigative skills by developing a weak hypothesis, but do little research to find factual evidence.
3-4	I use basic investigative skills by developing a simple hypothesis and doing research to find factual evidence. I research by using more than one resource.
5-6	I use satisfactory investigative skills by developing an acceptable hypothesis and doing research to find factual evidence. I research by using appropriate resources and recording them.
7-8	I use good investigative skills by developing a logical hypothesis and doing research to find factual evidence. I research well by using appropriate resources and recording them.
9-10	I use effective investigative skills by developing a logical and reflective hypothesis and doing research to find factual evidence. I research efficiently by using appropriate resources and recording them.

Rubric

Organization and Presentation

Create a model of the process that shows your audience what is happening in a clear and interesting way. Make it moveable so that it represents our dynamic Earth!

<i>Achievement level</i>	<i>Level descriptor</i>
0	I do not reach a standard described by any of the descriptors given below.
1-2	I communicate information that may not always be related to the subject. I try to structure my work, but it may be sloppy or disorganized. My presentation and expression is unclear and very general. I may have made some effort to reference my resources. My model is unclear and very general . The model is a not an accurate representation of an earthquake, a volcano, a tsunami or continental drift. No effort is made to cite sources.
3-4	My model is sometimes unclear . The model is a somewhat accurate representation of an earthquake, a volcano, a tsunami or continental drift. Some effort is made to cite sources.
5-6	My model is clear and effective . The model is an accurate representation of an earthquake, a volcano, a tsunami or continental drift. All sources of information are referenced using the Writer's Handbook with few errors .
7-8	My model is clear, specific and effective . The model is an accurate and creative representation of an earthquake, a volcano, a tsunami or continental drift. All sources of information are referenced using the Writer's Handbook with few or no errors .

Bibliography

Bibliography

“Earth’s Floor: Plate Tectonics”. [Online] Available

<<http://www.cotf.edu/ete/modules/mseese/earthsysflr/plates2.html>> Web. January 17, 2011.

“Earthquake Myths and Folklore”. [Online] Available

<<http://www.ceri.memphis.edu/awareness/myths.html>> Web. January 11, 2011.

“Earthquakes” [Online] Available

<<http://environment.nationalgeographic.com/environment/natural-disasters/earthquake-profile/>> Web. January 24, 2011.

“Layers of the Earth”. [Online] Available

<<http://www.educationalrap.com/song/layers-of-the-earth.html>> Web. January 17, 2011.

“Pangea- Whole Land”. [Online] Available

<<http://www.kidsgeo.com/geology-for-kids/0042-pangaea.php>> Web. January 19, 2011.

“Will That Volcano Spoil Our Party?” [Online] Available

<<http://terrax.org/teacher/lessons/earth/volcano/spoil.aspx>> Web. January 24, 2011.

Sample