The following instructional plan is part of a GaDOE collection of Unit Frameworks, Performance Tasks, examples of Student Work, and Teacher Commentary. Many more GaDOE approved instructional plans are available by using the Search Standards feature located on GeorgiaStandards.Org.

**Georgia Performance Standards Framework for The Unpredictable Earth – 6TH GRADE**

**Subject Area:** Earth Science  
**Grade:** 6

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<th><strong>SUGGESTED TASK #2</strong></th>
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| **S6E5. Students will investigate the scientific view of how the Earth’s surface is formed**  
  e. Recognize that lithospheric plates constantly move and cause major geological events on the Earth’s surface.  
  f. Explain the effects of physical processes (plate tectonics, erosion, deposition, volcanic eruption, gravity) on geological features including oceans (composition, currents, and tides). |
| **S6CS1. Students will explore the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**  
  a. Understand the importance of—and keep—honest, clear, and accurate records in science.  
  b. Understand that hypotheses are valuable if they lead to fruitful investigations, even if the hypotheses turn out not to be completely accurate descriptions. |
| **S6CS2. Students will use standard safety practices for all classroom laboratory and field investigations.**  
  a. Follow correct procedures for use of scientific apparatus.  
  b. Demonstrate appropriate techniques in all laboratory situations.  
  c. Follow correct protocol for identifying and reporting safety problems and violations. |
| **S6CS3. Students will use computation and estimation skills necessary for analyzing data and following scientific explanations.**  
  a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers and decimals.  
  b. Use metric input units (such as seconds, meters, or grams per milliliter) of scientific calculations to determine the proper unit for expressing the answer.  
  c. Address the relationship between accuracy and precision and the importance of each.  
  d. Draw conclusions based on analyzed data. |
| **S6CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**  
  a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.  
  b. Estimate the effect of making a change in one part of a system on the system as a whole.  
  c. Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, and temperature, and choose appropriate units for reporting various quantities. |
S6CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.
   a. Observe and explain how parts are related to other parts in systems such as weather systems, solar systems, and ocean systems including how the output from one part of a system (in the form of material, energy, or information) can become the input to other parts. (For example: El Nino’s effect on weather)
   b. Identify several different models (such as physical replicas, pictures, and analogies) that could be used to represent the same thing, and evaluate their usefulness, taking into account such things as the model’s purpose and complexity.

S6CS6. Students will communicate scientific ideas and activities clearly.
   a. Write clear, step-by-step instructions for conducting scientific investigations, operating a piece of equipment, or following a procedure.
   b. Understand and describe how writing for scientific purposes is different than writing for literary purposes.
   c. Organize scientific information using appropriate tables, charts, and graphs, and identify relationships they reveal.

S6CS7. Students will question scientific claims and arguments effectively.
   a. Question claims based on vague attributions (such as “Leading doctors say…”) or on statements made by people outside the area of their particular expertise.
   b. Recognize that there may be more than one way to interpret a given set of findings.

Enduring Understanding(s):
   The Earth is divided into layers. The outermost layer of the Earth is called the lithosphere.

   The lithosphere of the Earth is broken up into tectonic plates. These tectonic plates are moving. Most earthquakes are the result of tectonic plate movements.

   The movement of the tectonic plates either helps to build or destroy the surface of the Earth. In other words, the movement of these plates causes major events on the Earth’s surface.

Essential Question(s):
   How does the movement of tectonic plates cause major events on Earth’s surface?
   How do plate movements cause earthquakes?
   How do plate movements cause volcanic eruptions?
   How do plate movements form mountains and ocean basins?

Outcome / Performance Expectations:
   Students will understand that the Earth is made up of an outer layer known as the lithosphere. The lithosphere is broken into tectonic plates which move on top of the Earth’s asthenosphere, which is a solid that flows.
   The movement of these plates is responsible for major changes on the Earth’s surface.
Detailed instructions for Teacher and Students:

Make a scale model of the Earth (about the size of a baseball) using modeling clay or any other moldable material.

Show the continents, oceans and seas on your model. The continents, oceans and seas could be modeled or drawn, cut out and attach to the Earth model.

The scale model should also show the interior layers of the Earth. The interior layers should also be scaled to the proper thicknesses.

Slice out a thin wedge of the Earth model to show a labeled interior of the Earth.

Draw or trace the Earth’s lithospheric plates on the Earth’s surface.

Adjustments might need to be made to fit either the drawn or cut out plates on the Earth model.

Use markers and arrows to show the direction of the movement of the plates.

The class will be divided into groups to research an assigned plate boundary.

The research should focus on how the movement of their plate is causing a major event on the Earth’s surface.

The method of presentation could be decided by either the teacher or the students. Students might want to include some newer technology in their presentations, such as a computer slide show.

Resources:

Suggested resources will include the following:
Materials for making home made clay (available on the internet), construction paper, glue, markers, labels, tooth picks (for labeling), computers with internet access and printers.

Homework / Extension:

Students will compare the Earth’s surface with the Moon’s surface. Students will also investigate how the Moon’s and Earth’s surfaces have evolved over the years.