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 Earth Science—6th Grade**

**Unit: Weathering and Erosion**

**Sternberg Task**

How does Erosion and Deposition Change the Surface of the Earth?

**Standards (Content and Characteristics):**

*S6E5 Students will investigate the scientific view of how the earth’s surface is formed.*

d. Describe processes that change rocks and the surface of the earth.
e. 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.

*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.

*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.

*S6CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.*

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.*

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.
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S6CS9. Students will investigate the features of the process of scientific inquiry.
   Students will apply the following to inquiry learning practices:
   a. Scientific investigations are conducted for different reasons. They usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations.
   b. Scientists often collaborate to design research. To prevent bias, scientists conduct independent studies of the same questions.
   c. Accurate record keeping, data sharing, and replication of results are essential for maintaining an investigator’s credibility with other scientists and society.
   d. Scientists use technology and mathematics to enhance the process of scientific inquiry.

S6CS10. Students will enhance reading in all curriculum areas by:
   a. Reading in All Curriculum Areas
   c. Building vocabulary knowledge
   d. Establishing context

Enduring Understanding:
   ● Erosion is the movement of rock particles by water and wind.
   ● Deposition occurs where the agents (forces) of erosion lay down sediment.

Essential Question(s):
How does water and wind change the surface of the earth?
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Pre-Assessment:
Provide students with a copy of the following facts. Students will respond to each fact using true, false, maybe, no opinion:

- A delta is a body of river sediment that is deposited at the mouth of the river where it flows into the ocean.
- Mounds of wind-deposited sand are called dunes.
- If the ocean waves and currents are very weak or slow compared to the river flow and current, the front of the delta becomes blunted or rounded off.
- The faster the wind blows the more material and the heavier the particles it can carry.
- As wind speed slows, lighter materials are deposited first.
- Wind can deposit material much finer than sand.
- All sand dunes are formed by wind deposition.

<table>
<thead>
<tr>
<th>Outcome/Performance Level Indicator</th>
<th>ANALYTICAL</th>
<th>PRACTICAL</th>
<th>CREATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The students will investigate the scientific view of how the earth’s surface is formed and explain the effects of physical processes on geological features.</td>
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<tr>
<td>Performance Task: (Detailed Description)</td>
<td>Bookmark specific websites students can use when doing their research. Remind students to hold cutting implements away from others when working on their posters. Students should have appropriate computer use documentation complete as directed by school system.</td>
<td>Bookmark specific websites students can use when doing their research. Remind students to wear appropriate shoes/clothing when investigating land areas. Students should have appropriate computer use documentation complete as directed by school system.</td>
<td>Bookmark specific websites students can use when doing their research. Remind students to hold cutting implements away from others when working on their models. Create adequate space for students to manipulate materials they are using in the model building process. Students should have appropriate computer use documentation complete as directed by school system.</td>
</tr>
<tr>
<td>Safety Precautions:</td>
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Georgia Department of Education
Kathy Cox, State Superintendent of Schools
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# Georgia Performance Standards Framework for Earth Science—6th Grade

## Teacher role?

The **teacher** will function as a facilitator to help students acquire research sources explaining the scientific view of how the earth’s surface is formed and the effects of physical processes on geological features. Research sources should provide information about the following terms/concepts: delta, dunes, ocean waves, currents, weathering, erosion, deposition, wind speed/direction, river sediment.

## Student role?

The **students** will develop posters to demonstrate three natural formations on earth created by erosion/deposition. The posters must include information about the “physical process” (weathering, wind/water transport) causing the erosion/deposition, “geological features” resulting from the physical process and

The **teacher** will function as a facilitator helping students to list areas they might investigate to find possible examples of wind and/or water erosion/deposition. The teacher should direct students to look for specific evidence of how the earth’s surface is formed and the effects of physical processes on geological features. Investigation should focus on these terms/concepts: delta, dunes, ocean waves, currents, weathering, erosion, deposition, wind speed/direction, river sediment.

The **students** create a model through self-selected materials such as modeling clay, plaster, other textured materials, etc. to show the results of erosion/deposition by wind or water. Students must be able to explain the cause of erosion/deposition demonstrated in their models. Students will present
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| “origination point” of the deposits. When students present their projects/posters to the class, they should be able to define/explain the terminology used on their posters. | “physical process” (weathering, wind/water transport) contributing to erosion/deposition, the geological features” resulting from the physical process and “origination point” of the deposits they discover. Students should also include basic definitions/explanations about the terminology used in their lab/log reports. | their models to the class explaining the following concepts: the “physical process” (weathering, wind/water transport) contributing to erosion/deposition, the geological features” resulting from the physical process and “origination point” of the deposits demonstrated in their models. When students present their projects/models to the class, they should be able to define/explain the terminology used in their oral presentation. |
| Resources | content material covering terminology listed in the teacher role of this activity, poster board, crayons, paint, markers, etc. and other materials for designing posters, hardcopy research sources, internet research sources addressing “physical process” (weathering, wind/water transport) causing the erosion/deposition, “geological features” resulting from the physical process and | content material covering terminology listed in the teacher role of this activity, lab/log notebooks, hardcopy research sources, internet research sources addressing “physical process” (weathering, wind/water transport) causing the erosion/deposition, “geological features” resulting from the physical process and “origination point” of deposit, multi-media technology | content material covering terminology listed in the teacher role of this activity, topographical maps, regional land maps to help students with research information to use in designing models, materials for building models such as clay, plaster, textured materials, etc., hardcopy research sources, internet research sources addressing, “physical process” (weathering, |
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<table>
<thead>
<tr>
<th><strong>Instructional Tasks Accommodations for ELL Students</strong></th>
<th>“origination point” of deposits, multi-media technology</th>
<th>wind/water transport) causing the erosion/deposition, “geological features” resulting from the physical process and “origination point” of deposits, multi-media technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Homework/Extension</em></td>
<td>Students will extend the understanding of this activity by researching and journaling about the differences between beach dunes and desert dunes.</td>
<td>Students will extend the understanding of this lesson by journaling the differences between sediments deposited by wind and water.</td>
</tr>
</tbody>
</table>

## Instructional Tasks Accommodations for Students with Disabilities

- Use a “Word-wall” or similar display of content related vocabulary terms
- Partner ELL students with a same language buddy to assist
- Extend the time allowed for students to complete their products
- Provide oral as well as a written copy of instructions for the student activity in this task
- Modify/paraphrase difficult text material students find through research

## Instructional Tasks Accommodations for Gifted Students

- Have students repeat the instructions to a peer partner/adult to assure comprehension
- Use peer partnerships during the activity
- Allow partners to complete one product as a team
- Give students a checklist to be sure they have addressed all terms/concepts in this task while completing their products
- Help students enlarge font when researching through internet to improve readability

- Allow gifted students to do independent research on disappearing dunes and the Desert Tortoise
- Curriculum compacting
- Allow students to take information from collaboration with peers and prepare a multi-media presentation to share with the class
- Negotiate the assignment requirements for this task by using a learning contract