

## Overview:

In this lesson, students use Alfred Wegener's observations to examine how continents once fit together. This idea helps illustrate how the surface of Earth is constantly changing.

## Targeted Alaska Grade Level Expectations:

### *Science*

[3-4] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.

[4] SG4.1 The student demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base by using an account of a discovery to recognize that an individual's (e.g., George Washington Carver, Marie Curie) curiosity led to advancements in science.

### *Reading*

[3] 1.2.1 The student comprehends literal or inferred meaning from text by locating information explicitly stated in narrative and informational text to answer literal-comprehension questions.

[4] 2.2.1 The student comprehends literal or inferred meaning from text by locating information explicitly stated in narrative and informational text to answer literal-comprehension questions.

## Objectives:

The student will:

- identify continents and oceans;
- examine how three continents may have fit together at one time (K-2);
- locate information in text to answer literal comprehension questions (3-4); and
- recognize that Alfred Wegener's curiosity led to the idea of Pangaea (3-4).

## Materials:

- Globe or world map
- Scissors
- Glue
- Peters, L. W. (2003). (C. Felstad, illus.) *Earthshake: Poems from the ground up*. New York: Greenwillow Books.
- STUDENT INFORMATION SHEET: "Pieces of the Puzzle"
- STUDENT WORKSHEET: "Continent Puzzle"
- STUDENT INFORMATION SHEET: "Alfred Wegener's Puzzle"
- STUDENT WORKSHEET: "Use the Clues"
- MULTIMEDIA FILE: "Pangaea Puzzle" from ATEP DVD or ATEP website: <http://www.aktsunami.org>

## Science Basics:

In the 1900s, Alfred Wegener, a German scientist, noticed Earth's continents looked like pieces of a puzzle. Using shapes of continents and fossil evidence, he was able to join the continents together to form a supercontinent. He named this continent Pangaea, which means "all lands" in Greek. His ideas formed the theory of continental drift. At first, Wegener's ideas were considered radical. However, today our understanding of Earth and plate tectonics comes from Wegener's theory of continental drift.

## Activity Procedure:

### **(For Younger Students)**

1. Show students the class' location on the world map or globe. Define "continent," and pointing, trace the edges of a continent. Ask a student to come up and trace another continent. Ask other students to locate and trace the other continents. Review and name each continent. Repeat the process with oceans.
2. Explain a long time ago a scientist named Alfred Wegener thought Earth's continents looked like pieces of a puzzle. When he put them together, they formed one large continent. He named this continent Pangaea, which means "all lands" in Greek.
3. Distribute STUDENT INFORMATION SHEET: "Pieces of the Puzzle." Explain the shapes on the worksheet represent how the continents of North America, South America, and Africa once looked a very long time ago.
4. Distribute scissors, glue, and STUDENT WORKSHEET: "Continent Puzzle." Instruct students to cut out the three continents and see if they can tell how they might have fit together.

### **(For Older Students)**

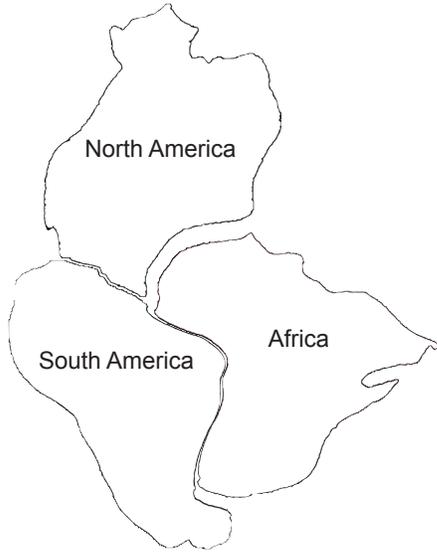
1. Explain today's lesson will help show how Earth's surface changes and how a scientist used his own curiosity and observations to make a discovery.
2. Review the continents and oceans on a globe or world map.
3. Read aloud and display the poem, "Continental Promises" on page 9 of *Earthshake: Poems from the ground up* by Lisa Westberg Peters. Ask students why they think the author wrote that poem.
4. Distribute STUDENT INFORMATION SHEET: "Alfred Wegener's Puzzle." Instruct students to read the information individually, in groups, or as a class.
5. Access the Pangaea Puzzle multimedia file from the ATEP DVD or on the ATEP website under Student Resources (<http://www.aktsunami.org>). Ask students to manipulate the continents to visualize Pangaea.
6. Distribute STUDENT WORKSHEET: "Use the Clues." Ask students to complete the worksheet and to use the information from the STUDENT INFORMATION SHEET if necessary.
7. Revisit the poem, "Continental Promises," then share the poem, "Obituary for a Clam" on page 21 and discuss its connection to today's lesson.

## Extension Ideas:

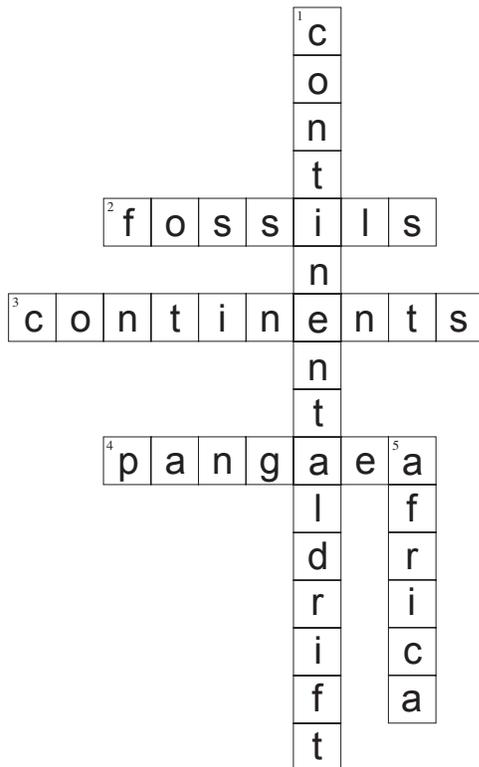
- Write and illustrate poems using the content of the lesson, modeled after the poems in Peters, L. W.(2003). (C. Felstad, illus.) *Earthshake: Poems from the ground up*. New York: Greenwillow Books. This may address Alaska GLEs for writing; [3] 1.2.2 and [4] 2.2.3.
- Research the Tethys Sea mentioned in the poem, "Obituary for a Clam."

Answers:

**STUDENT WORKSHEET: Continent Puzzle**



**STUDENT WORKSHEET: Use the Clues**



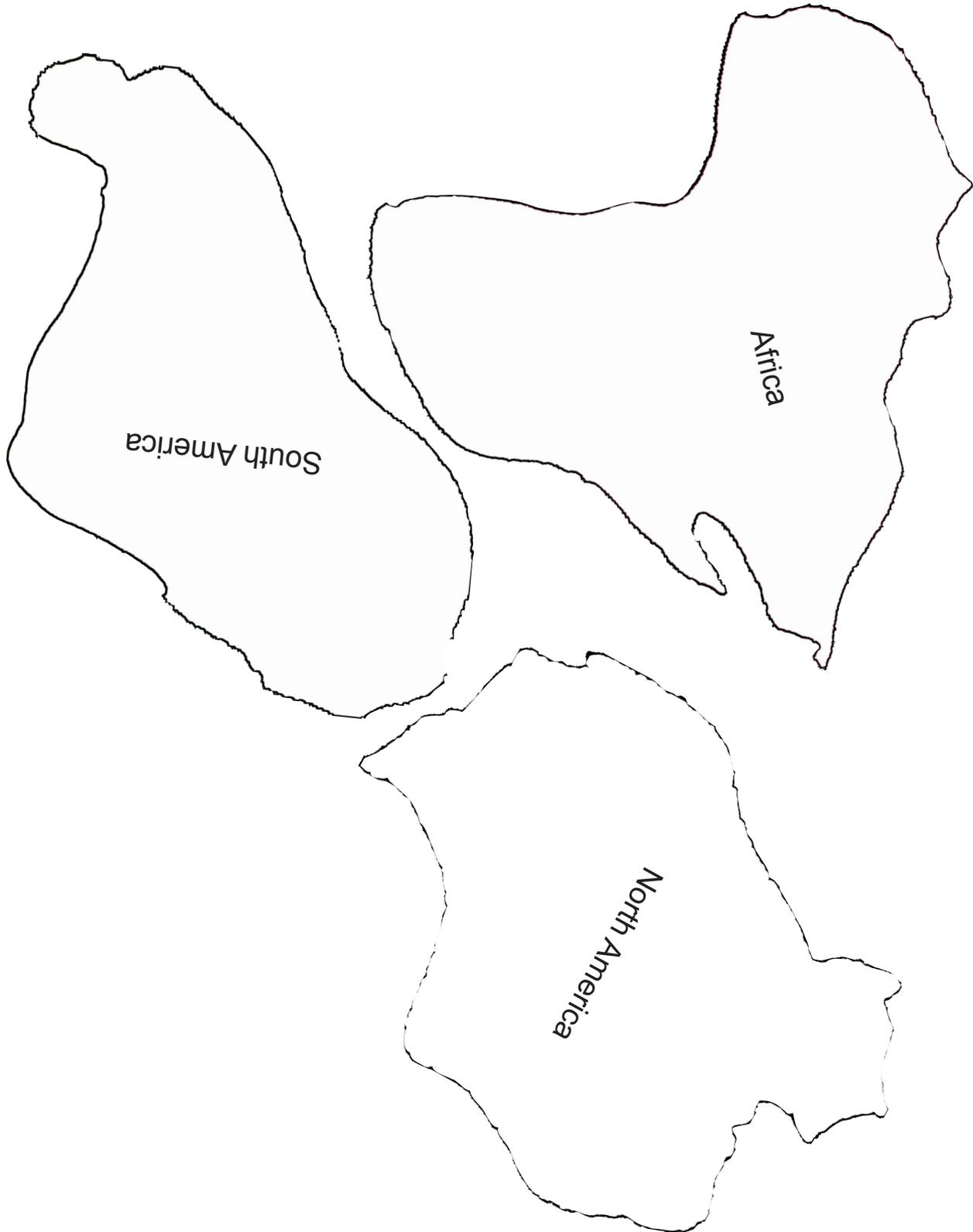
# Pieces of the Puzzle

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## Student Information Sheet



**Directions:** Cut out the shapes of the continents below.



Name: \_\_\_\_\_

# Continent Puzzle

## Student Worksheet



**Directions:** Glue the continents below, showing the best possible fit.

# Alfred Wegener's Puzzle

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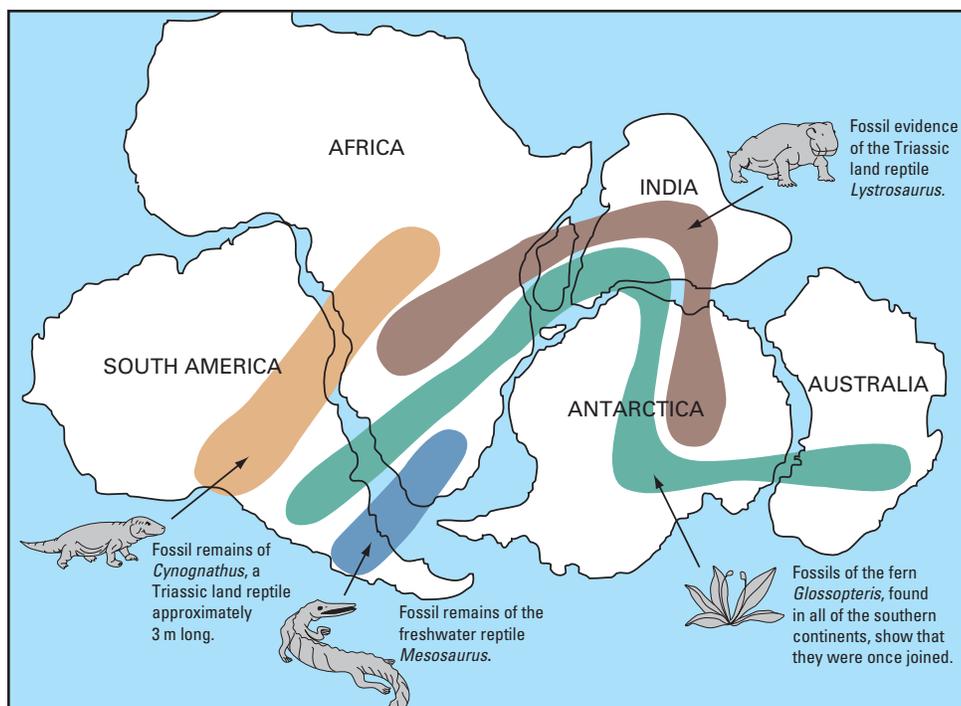
## Student Information Sheet



Grades  
3-4

In 1910 a German scientist named Alfred Wegener wrote to his future wife: “Doesn’t the east coast of South America fit exactly against the west coast of Africa, as if they had once been joined?”

Alfred Wegener was curious. He wanted to know more about Earth. He looked at the shapes of continents and the locations of fossils to understand how continents were once connected. The picture below shows where fossils of three different reptiles and one type of plant (fern) are found on different continents. When they are connected, they form a supercontinent. Alfred Wegener named this large continent “Pangaea.” Pangaea means “all lands” in Greek. Over time, Pangaea split apart. Continents moved away from each other as the oceans between them grew wider. He called his theory, or idea, “Continental Drift.”



U.S. Geological Survey image

Alfred Wegener’s theory of continental drift was very new and different from the ideas of other scientists. Even though he made a lot of observations that supported his idea, it was hard for other scientists to understand his theory at first. Much of what we know about Earth today grew out of Alfred Wegener’s theory of Continental Drift.

