Plate Tectonics

Overview

During this 1-class-period activity, students assemble a blank puzzle to represent the Earth. The individual puzzle pieces represent the tectonic plates. They use the puzzle to explore the relationship of the plates to continents and geographic features such as mountain ranges and ridges on the sea floor. They learn that the puzzle pieces represent independent plates that slowly move over long periods of time. Given this information, the class speculates about why features such as mountains and ridges might be located where they are.

North Carolina Essential Science Standards

6.E.2.2 Explain how crustal plates and ocean basins are formed, move and interact using earthquakes, heat flow and volcanoes to reflect forces within the earth.

Brief Science Background

Earth's crust is not one continuous surface, but is broken into large, continent-sized independent pieces known as plates. Because the surface of the Earth is built from these plates, they are called "tectonic" from the Greek word "to build." The edges of these independent pieces of earth's crust roughly correspond to the shapes of the continents. They are even more closely aligned to geographic features such as mountain ranges, volcanoes, seismic activity, and undersea ridges.

Materials

Materials for pairs of students

- One set of tectonic puzzle pieces
- One sandwich bag to store collected puzzle pieces.

Preparation

1. Have tectonic puzzle sets ready to hand out.
2. Be ready to project SD-1 and SD-2.
3. Assemble a puzzle to see what students will be doing. After punching out the pieces, find the side of the cardboard pieces that is shinier. Turn all pieces shiny-side-up. You will notice that the pieces do not fit perfectly or interlock, requiring some care to join them.

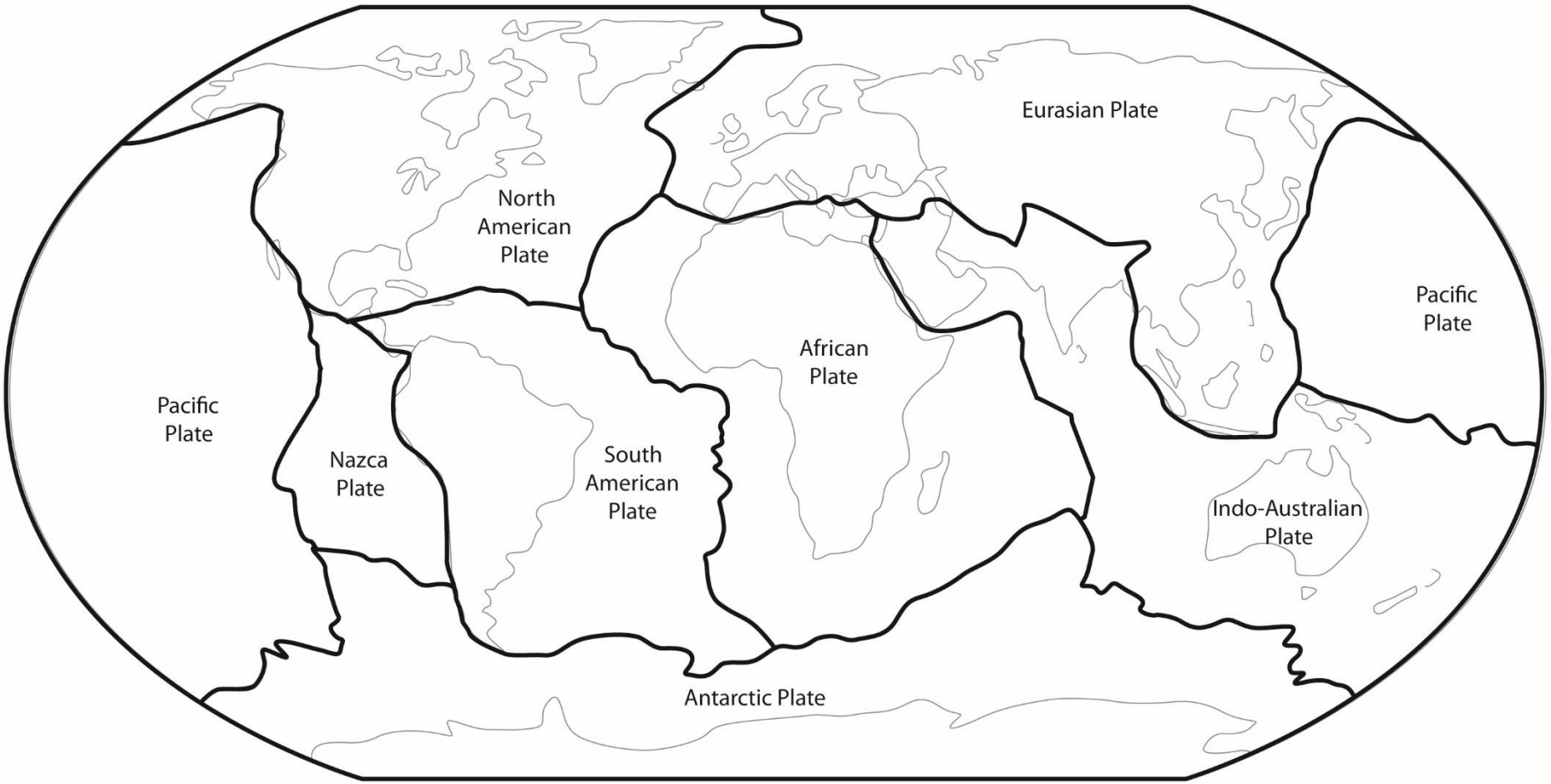
Procedure

1. Without explaining the purpose of the lesson or the puzzle, give each pair of students a set of pieces and ask them to assemble the puzzle. Ask students to find the shinier side of the puzzle pieces and turn them all shiny-side-up.

Let students know that the pieces do not fit perfectly. There will be small spaces between them when assembled.

2. When everyone has assembled a puzzle, ask what they notice about it, whether there is anything familiar about it, or what they think the pieces might represent. Accept answers as speculation.
3. Project SD-1, the assembled puzzle superimposed on a world map of continents. Now that students have this new information, ask what they think the shapes might represent. Refer to the projected image as students give ideas. Accept answers as speculation. Students might notice that the puzzle shapes somewhat follow continents but do not exactly line up with them.
4. At this time, explain that the puzzle pieces represent “tectonic plates.” Define the term “tectonic plate” as independent pieces of the earth’s crust.
5. Project SD-2, the world map with selected geographic features. Ask each pair of students to record in their notebooks what they notice about the location of geographic features in relation to the puzzle pieces. Several mountain ranges and ocean ridges line up with or cross puzzle piece boundaries. Accept all ideas as speculation. Students will learn more about tectonic plates, their movements, and the visible results of those movements in coming lessons. There is no need to go into depth about this at this time.
6. Get the class to summarize what we have learned so far. The surface of the earth is made up of pieces called plates, and mountain ranges and ocean ridges occur roughly along the lines where these pieces come together.
7. Ask students to return puzzle pieces to the sandwich bag for later use.

SD - 1 TECTONIC PLATES



SD - 2 TECTONIC PLATES