Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_ Block \_\_\_\_\_\_\_\_\_

**Locating Earthquakes and Volcanoes**

**LAB**

(M)

Earth’s crust and upper mantle are divided into plates called **lithospheric plates**. These plates resemble a jigsaw puzzle with the way they are shaped and fit together. The major lithospheric plates are the Eurasian Plate, Indo-Australian Plate, Pacific Plate, Nazca Plate, South American Plate, African Plate, North American Plate, and Antarctic Plate. The locations where the plates touch are called **plate boundaries**.

The study of the formation and movement of lithospheric plates is called plate tectonics. Scientists have learned that the plates interact and move in three different ways along plate boundaries; toward each other (**convergent**), away from each other (**divergent**) or past one another (**transform**). These interactions cause earthquakes and volcanoes around the world. Earthquakes can occur along fault lines of any kind, while volcanoes are located only along converging and diverging plate boundaries. The greatest number of both earthquakes and volcanoes occur along the Pacific Plate Boundary called the **Ring of Fire**.

Procedure:

1. **Cut and glue** the map of the Earth onto construction paper.
2. Use a **black marker** to **outline each plate boundary** (the edges of each puzzle piece).
3. **Color all land GREEN**
4. **Color all water BLUE**
5. **Glue the lithospheric plates** names onto the map:
   1. Eurasian Plate, Indo-Australian Plate, Pacific Plate, Nazca Plate, South American Plate, African Plate, North American Plate, and Antarctic Plate.
6. **Identify direction of plate movement** with black arrows:
   1. **Eurasian Plate – Southeast**
   2. **Indo-Australian Plate – Northeast**
   3. **Pacific Plate – Northwest**
   4. **Nazca Plate – East**
   5. **South American Plate – West**
   6. **African Plate - East**
   7. **North American Plate – Northwest**
   8. **Antarctic Plate – Southeast**
7. Use the data table to **plot each of the following points**:
   1. **Earthquakes = RED X**
   2. **Volcanoes = BLUE O**
8. Put a **KEY** on your paper.

**Data Table**:

**Earthquakes Volcanoes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Latitude** | **Longitude** | **Latitude** | **Longitude** |
| 35°N | 130°E | 30°N | 130°E |
| 0° | 120°E | 50°N | 170°W |
| 5°N | 75°W | 20°N | 100°W |
| 35°N | 25°E | 5°S | 80°W |
| 50°N | 175°W | 40°N | 15°E |
| 25°N | 110°W | 15°N | 90°W |
| 20°N | 95°W | 50°N | 140°E |
| 50°S | 75°W | 65°N | 20°W |
| 60°N | 135°W | 60°N | 150°W |
| 50°S | 175°E | 20°N | 160°W |
| 25°S | 70°W | 40°N | 125°W |
| 55°N | 165°W | 20°N | 155°W |

**Analysis**:

1. What **type of boundary** is located between the:
   1. North American & Eurasian Plates: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Nazca & South American Plates: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Eurasian & Pacific Plates: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. South American & African Plates: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_ 2. Which hemispheres do most **earthquakes** occur in:

a. North & West b. North & East c. South & West d. South & East

\_\_\_\_\_ 3. Which hemispheres are most **volcanoes** found in:

a. North & West b. North & East c. South & West d. South & East

\_\_\_\_\_ 4. In which ocean would the boundaries between North America, Europe and Africa

be located:

1. Pacific b. Atlantic c. Indian d. Arctic

\_\_\_\_\_ 5. Name two plates that are primarily covered by water?

1. Eurasian & North American b. South American and African

c. Pacific & Antarctic d. Eurasian and Nazca

\_\_\_\_\_ 6. On which coast of North America are the majority of earthquakes and volcanoes

located on?

1. North b. South c. East d. West