

UNIT 4: Plate Tectonics and Earth's Interior

LAB 4-1: PATTERNS OF CRUSTAL ACTIVITY

INTRODUCTION: Studies of **tectonics** have shown that crustal activities are occurring worldwide. Earthquakes, volcanoes, and mountain ranges do not occur randomly. There are special zones in which they occur. In this lab you will look for the relationships between the locations of these crustal activities.

OBJECTIVE: You will plot the areas in which earthquakes occur most frequently and identify other crustal activities that appear related to these zones.

VOCABULARY:

Mid-Atlantic Ridge:

continental drift:

plate tectonics:

PROCEDURE:

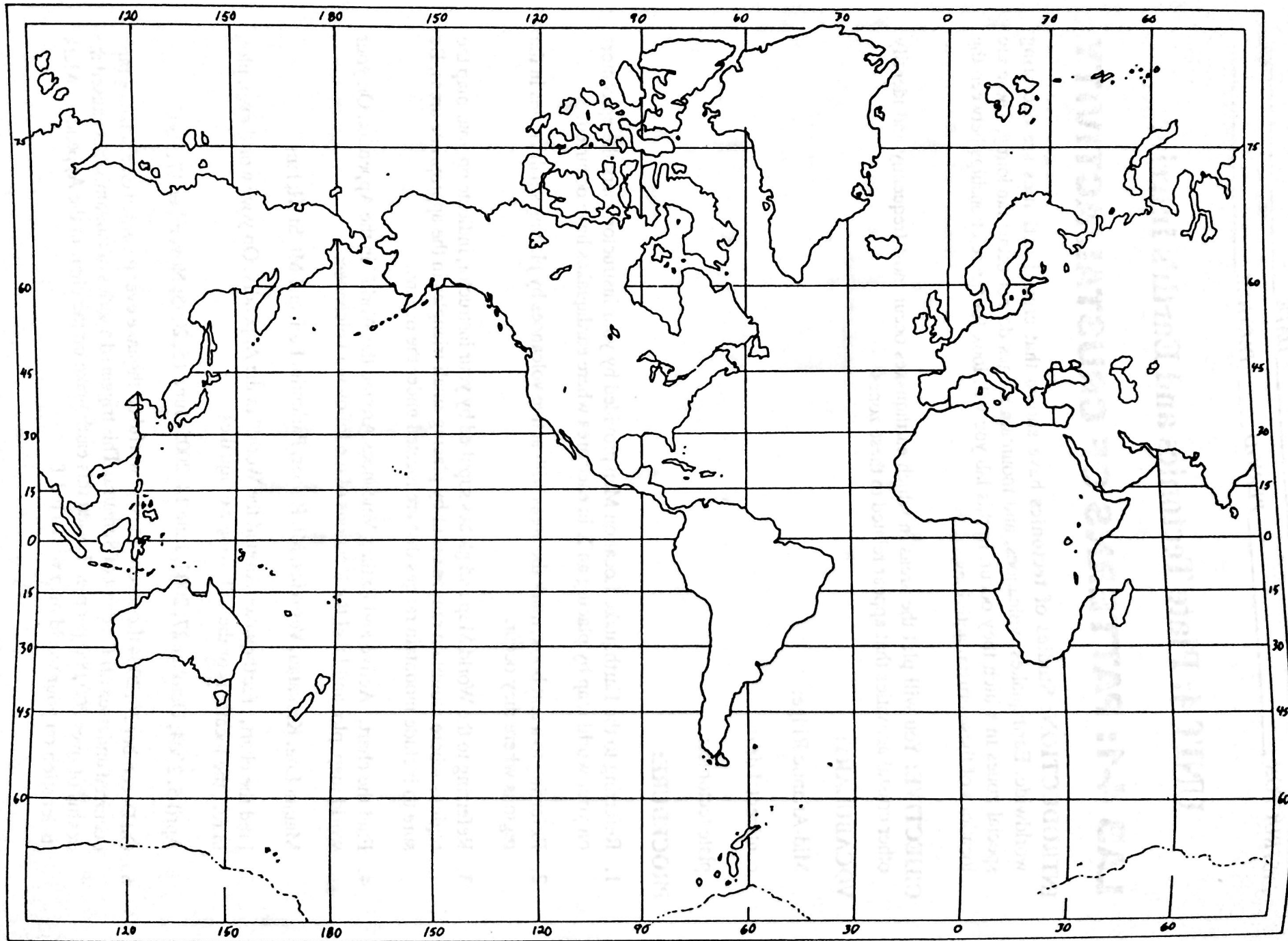
1. Referring to the Earthquake Location Map provided by your instructor, mark the epicenters on your world map by placing an X in each area where earthquakes have occurred.
2. Referring to a text book, mark the areas with active volcanoes by placing small circles in the regions where they occur.
3. Referring to the World Map and globes supplied by your instructor, indicate on your map the regions where mountain ranges occur by placing small triangles in the appropriate areas. Be sure to include mountain ranges that are located under the oceans.
4. Find the chart, "Active and Extinct Volcanoes Around the World" in the Appendix. On your world map, plot and label the locations of the following volcanoes:

Mauna Loa, Krakatau, Vesuvius, Mt. Rainer, Paricutin, Fuji, and Mt. St. Helens

5. Find the chart, "Earthquakes Around the World" in the Appendix. On your world map, plot, in red, the locations of the following earthquakes:

April 5, 2004; October 27, 2004; June 14, 2005; June 15, 2005; November 17, 2005

6. On December 26, 2004 the second most powerful earthquake ever recorded on a seismograph occurred undersea off the coast of Sumatra. This triggered a series of tsunamis that caused the deaths of over 200,000 people. Locate this earthquake on the chart in the Appendix. Mark its location on your world map with a red T.



WORLD-WIDE CRUSTAL ACTIVITY

DISCUSSION QUESTIONS: (*Answer in Complete Sentences*)

1. Your world map should show that earthquakes do not occur at random locations. Describe the pattern of earthquakes on your map.
2. How are the locations of earthquakes, mountain ranges, and volcanic activity related?
3. What regions of North and South America show the greatest crustal activity?
4. According to your map, what is the probability of having either a major earthquake shake your house or of having a volcano pop up in your backyard?
5. Why is the perimeter around the Pacific Ocean referred to as the "Ring of Fire"?

CONCLUSION: Compare the patterns of earthquakes, volcanoes, and mountain ranges on Earth.

