

HOW DO SCIENTISTS DETERMINE THE BOUNDARIES OF THE EARTH'S PLATES?

OBJECTIVE: _____

RESEARCH:
 lithosphere: _____
 plate: _____

3 types of boundaries between plates:

BOUNDARY	DIRECTION OF MOVEMENT	FORMATIONS

Procedure _____

A. Following is a list of geographic coordinates of earthquakes. Plot the location of each earthquake on the map in Figure 23-1 by placing a dot where the longitude and latitude coordinates intersect.

<i>Latitude</i>	<i>Longitude</i>	<i>Latitude</i>	<i>Longitude</i>
75° N	0°	30° S	20° W
70° N	15° W	40° S	28° W
60° N	29° W	45° S	30° W
55° N	30° W	55° S	40° W
45° N	40° W	60° S	60° W
35° N	40° W	40° S	90° W
20° N	40° W	35° S	120° W
15° N	30° W	45° S	135° W
0°	20° W	50° S	150° W
15° S	20° W		

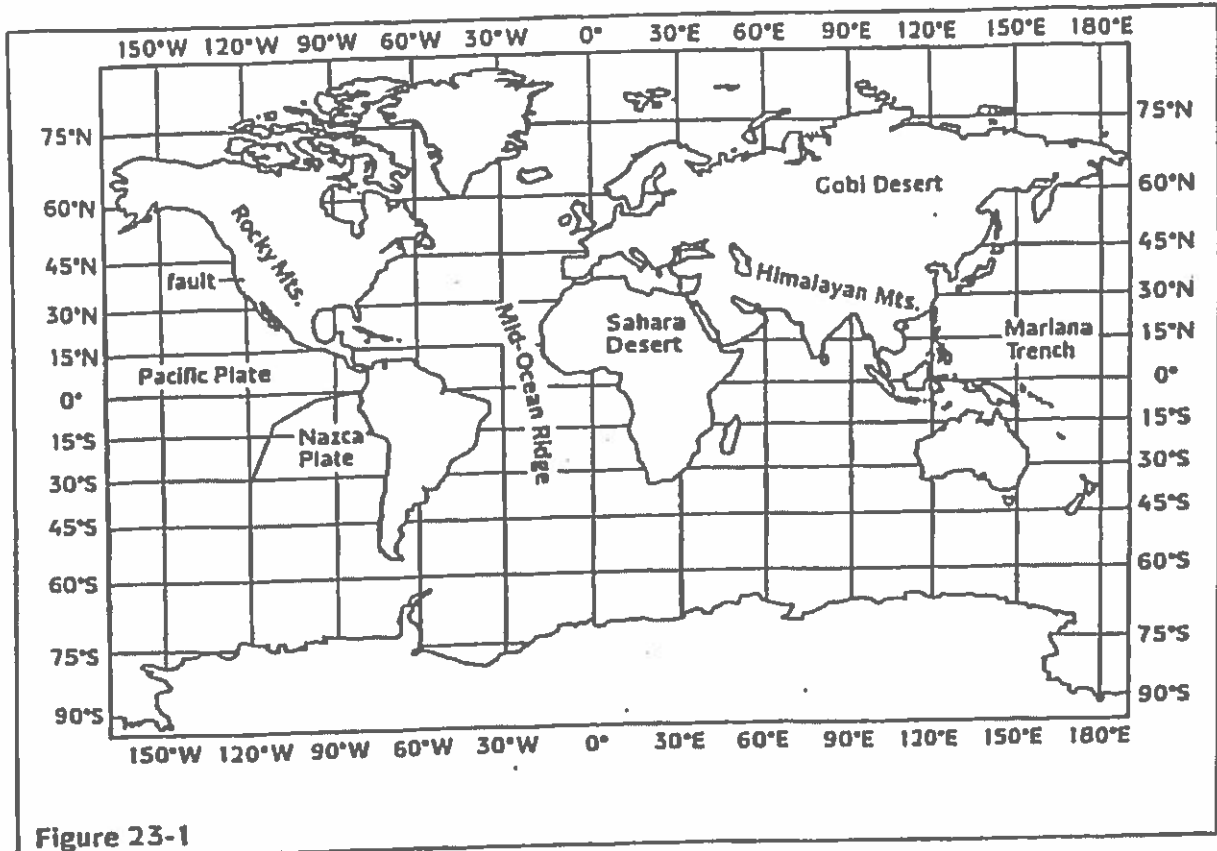


Figure 23-1

B. After you have plotted the coordinates, connect them to form a curved line.

C. Plot the following coordinates and then connect them.

Latitude	Longitude	Latitude	Longitude
35°N	30°W	5°N	60°E
35°N	10°W	10°S	70°E
35°N	0°	30°S	45°E
35°N	15°E	48°S	30°E
30°N	30°E	50°S	0°
25°N	40°E	47°S	20°W
10°N	45°E		

D. Plot the following coordinates and then connect them.

Latitude	Longitude
15°N	55°W
15°N	65°W
15°N	75°W

E. Plot the following coordinates and then connect them.

Latitude	Longitude	Latitude	Longitude
50°N	170°W	15°N	90°W
55°N	150°W	5°N	75°W
45°N	125°W	15°S	70°W
30°N	115°W	30°S	75°W
20°N	105°W	45°S	75°W

F. Plot the following coordinates and then connect them.

Latitude	Longitude
60° N	180° E
55° N	150° E
45° N	130° E
30° N	125° E
15° N	120° E
0°	120° E
10° S	135° E
15° S	160° E
30° S	165° E
50° S	160° E
55° S	135° E
50° S	110° E
40° S	80° E
20° S	75° E
15° S	65° E

G. Plot the following coordinates and then connect them.

Latitude	Longitude
30° N	45° E
30° N	60° E
30° N	75° E
20° N	90° E
15° N	95° E
0°	105° E
5° S	120° E

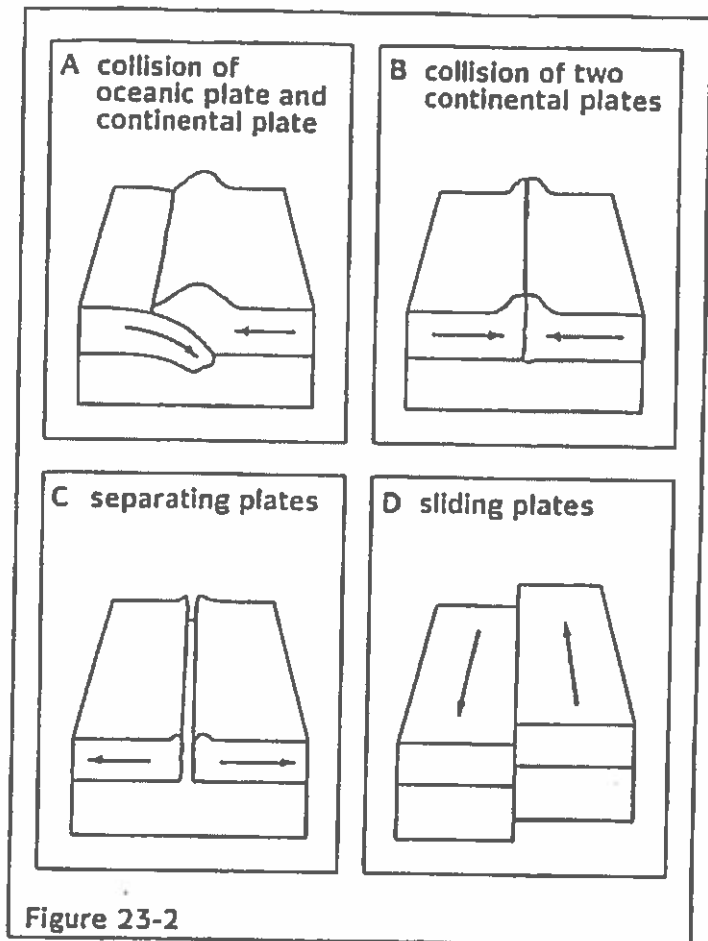


Figure 23-2

1. Look at the map you have just completed. What do the lines represent?

H. Listed below are six of the seven major continental plates that scientists have identified. The continental plates are named after the continent that is located on the plate. Write the names of the following continental plates in the proper places on your map. The seventh major plate, the Nazca Plate, is identified for you.

- North American Plate
- South American Plate
- African Plate
- Eurasian Plate
- Indo-Australian Plate
- Antarctic Plate

I. Plate boundaries move in different directions. The movement of two plates creates natural formations. Study the diagrams in Figure 23-2. Note that three of the views are cross-sections while one is an overhead view.

2. Study your map in Figure 23-1. What landform might be illustrated in diagram B?

- 3. What space might be illustrated in diagram C? _____
- 4. What deep part of the sea floor might be illustrated in diagram A? _____
- 5. What type of boundary is illustrated in diagram D? _____

Conclusions _____

1. How have earthquakes helped geologists identify major plates on the earth?

2. Why is knowing the location of plate boundaries important? _____

3. What might occur as a result of the sliding boundaries illustrated in diagram D of Figure 23-2? _____