

**INVESTIGATING THE TOPOGRAPHY OF THE PERU CHILE TRENCH**

These data were taken from nautical charts and maps of Chile, South America, on a straight east to west line at 28° 30'S. Make a line graph with distance (kilometers) along the x-axis and the elevation (+) or depth (-) (meters) on the y-axis.

DATA:	depth or dist (km)	elevation (meters)
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	0	+6872
	25	+6200
	50	+6000
	75	+6500
	100	+6100
	125	+4329
	150	+4100
	175	+3800
	200	+2000
	225	+1214
	250	+1000
	275	+576
	300	+50
	325	0
	350	-100
	375	-217
	400	-1152
	425	-1254
	450	-2000
	475	-2437
	500	-2490
	525	-3000
	550	-4100
	575	-4561
	600	-4409
	625	-4500
	650	-4900
	700	-6629
	725	-8000
	750	-6417
	775	-5174
	800	-4618
	825	-4523
	850	-4274
	875	-4409
	900	-4102
	925	-4027
	950	-3950

**ANALYSIS:**

1. Use your ruler to draw a horizontal line across your entire graph at 0 meters depth to indicate the surface of the Pacific Ocean.
2. Use a dark color such as black or brown and fill-in all the area below your line graph to indicate the land and the Earth's crust below the Pacific Ocean.
3. Draw a second horizontal line across the entire graph at 200 meters depth to indicate the maximum depth of the Photic or Epipelagic Zone. Color water areas (not the crust) between zero and 200 meters using a light green color.
4. Draw a third horizontal line across the entire graph at 2000 meters depth to indicate the maximum depth of the Mesopelagic Zone. Color the water areas (not the crust) on your graph between 200 and 2000 meters using a blue color.
5. Draw your next horizontal line across the entire graph at 6000 meters depth to indicate the maximum depth of the Abyssal or Bathypelagic Zone. Color the water areas (not the crust) on your graph between 2000 and 6000 meters using a light purple or medium blue color.
6. Color the water areas (not the crust) on your graph below 6000 meters using a black or deep purple color to represent the Hadal Zone.
7. With the help of reference books and diagrams, label the crustal plates, name the mountains and add all the topographic features you can find on your graph.
8. Add a few arrows to show the direction of crustal plate movement.
9. Write a paragraph or two explaining the mechanisms of plate tectonics and forces responsible for the topography you graphed.

**EXTENDED RESEARCH:** Use a large nautical chart for another interesting area of the ocean. With the help of a ruler or large straight-edge read and record the depth of the ocean and heights of islands or land masses at regular intervals, (such as every 2 miles or some other appropriate distance). Make another line graph like you did in this Lab. Label the geographic and topographic features, color it and write a short essay comparing the two profiles. Turn in a copy of your chart, numeric data, graph and analysis.

# TEACHER'S GUIDE:

## Pacific Ocean Topography

South America - Peru Chile Trench @ 28° 30' S

