

Bathymetric Maps

READ

Imagine that all the water in the oceans disappeared. If this happened, you would be able to see what the bottom of the ocean looks like. Fortunately, we don't have to drain water from the ocean to get a picture of the ocean floor. Instead, scientists use echo sounding and other techniques to "see" the ocean floor. The result is a bathymetric map. This skill sheet will provide you with the opportunity to practice reading a bathymetric map.

PRACTICE

Main features on a bathymetric map

1. Main features on a bathymetric map are mid-ocean ridges, rises, deep-ocean trenches, plateaus, and fracture zones. Find one example of each of these on a bathymetric map.
 - a. Mid-ocean ridge: _____
 - b. Rise: _____
 - c. Deep-ocean trench: _____
 - d. Plateau: _____
 - e. Fracture zones: _____
2. All the ridges you see on the bathymetric map behave in the same way even though they may not be in the middle of an ocean. What happens at mid-ocean ridges?
3. Find the Rio Grande Rise on the bathymetric map. Then, find the East Pacific Rise.
 - a. Which of these features is an example of a mid-ocean ridge?
 - b. Find another example of a rise that is a mid-ocean ridge. Justify your answer.
 - c. Find another example of a rise that is **not** a mid-ocean ridge. Justify your answer.
4. There are a number of deep-ocean trenches on the western side of the North Pacific Ocean. What process is going on at these trenches?
5. What plate tectonic process probably caused the fracture zones in the North Pacific Ocean? Justify your answer.

How is the East Pacific Rise different from the Mid-Atlantic Ridge?

6. Look carefully at the Mid-Atlantic Ridge. Describe what this ridge looks like. Be detailed in your description.
7. Now, look carefully at the East Pacific Rise. Describe what this ridge looks like. Be detailed in your description.
8. Which of these features has a noticeable dark line running along the middle of the feature? Look at the legend at the bottom of the map. What does this dark line indicate?

9. Based on your observations of these two features, draw a cross-section of each in the boxes below.

Mid-Atlantic Ridge cross-section	East Pacific Rise cross-section

10. One of these mid-ocean ridges has a very fast spreading rate. The other has a very slow spreading rate. Which one is which? Justify your answer based on your answer to questions 8 and 9.