Title:
Lecture Tutorial: Seafloor Ages

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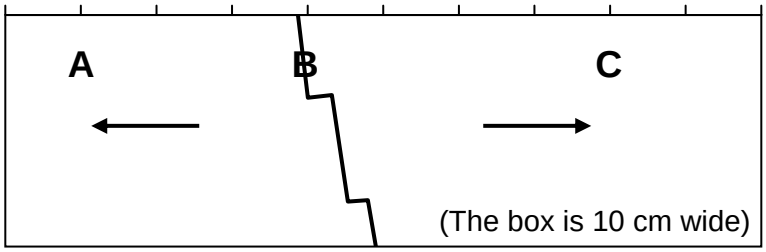
Part 1: **Divergent Boundary**

A divergent boundary in the center of an ocean is shown below with arrows showing the direction the crust is moving.



1) Where is the oldest crust found?

A B C

2) If each plate is moving at a rate of 2 cm per year, roughly how long did it take for Rock C to reach its current location?

0 years 2 years 4 years 8 years

3) What is the age of the rocks at location B?

0 years old 2 years old 4 years old 8 years old

4) What is the age of the rocks at location C?

0 years old 2 years old 4 years old 8 years old

5) Why should your answers to Questions #2 and #4 match? Revise your answers if necessary.

6) A map of the Atlantic Ocean is shown to the right. Where are the oldest rocks in the Atlantic found?

D E F

Briefly explain your answer.

7) Two students are debating about the relative ages of the rocks in the Atlantic Ocean.

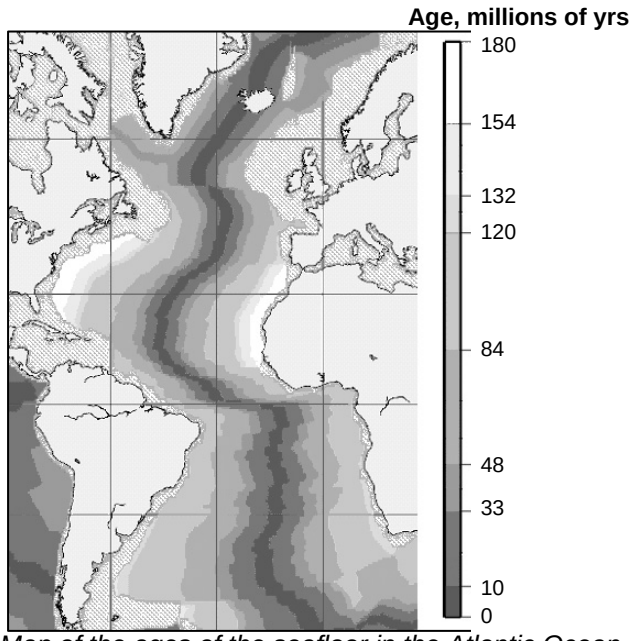
Student 1: *The oldest rocks are located at E because it is the farthest from a continent. The rocks would take a really long time to get to the middle of the ocean.*

Student 2: *But divergent boundaries are found in the centers of oceans. This means that rocks at E are really young. D is farthest from the divergent boundary, so that's where the oldest rocks are.*

With which student do you agree? Why?

Part 2: The Atlantic Ocean

Examine the map of the ages of the seafloor in the Atlantic Ocean.



Map of the ages of the seafloor in the Atlantic Ocean

8) Does the pattern of ages match your answer to Question 6? Revise your answer if necessary.

9) Draw a line along the divergent boundary.

10) What is the age of the oldest rocks in the Atlantic Ocean?

11) Approximately how long ago did the Atlantic Ocean begin to form?

12) Why should your answers to Questions #10 and #11 match? Revise your answers if necessary.

13) You are reading a proposal requesting money to search for evidence of a crater that caused a mass extinction on Earth 245 million years ago. The team is proposing to search a poorly explored area of the floor of the Atlantic Ocean between South America and northern Africa. Would you fund this project? Use the ages of the seafloor to support your answer.

Compare your answer of the last question to the answers of other groups.