

Part 1: Divergent Boundary

The diagram is of a divergent boundary in the center of an ocean with arrows showing the direction the crust is moving.

1) What is the age of rock at Location B?

2) If each plate is moving at a rate of 10 km per 1 million years, roughly how long did it take for Rock A to reach its current location?

0 million years 1 million years 2 million years 4 million years

3) What is the age of the rock at Location C?

0 million years old 1 million years old 2 million years 4 million years old

4) Why is the age of the rock at Location C twice that of the age of the rock at Location A? Revise your answers to Questions 2 and 3 if necessary.

5) A map of the Atlantic Ocean is shown to the right. There is a divergent boundary running north-south in the middle of the ocean. Where is the oldest rock in the Atlantic Ocean found?

D E

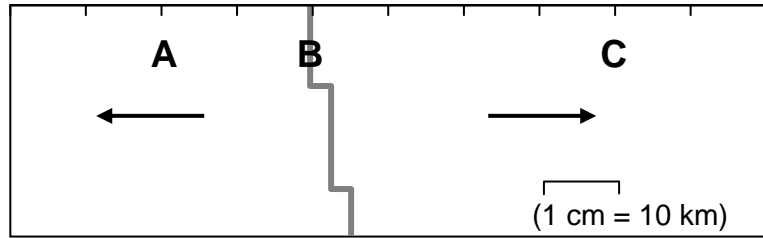
Briefly explain your answer.

6) Two students are debating about the relative ages of the rock that makes up the crust in the Atlantic Ocean.

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

Student 2: *But this ocean has a divergent boundary in the center. This means that rock at E is really young. D is farthest from the divergent boundary, so that's where the oldest rock is.*

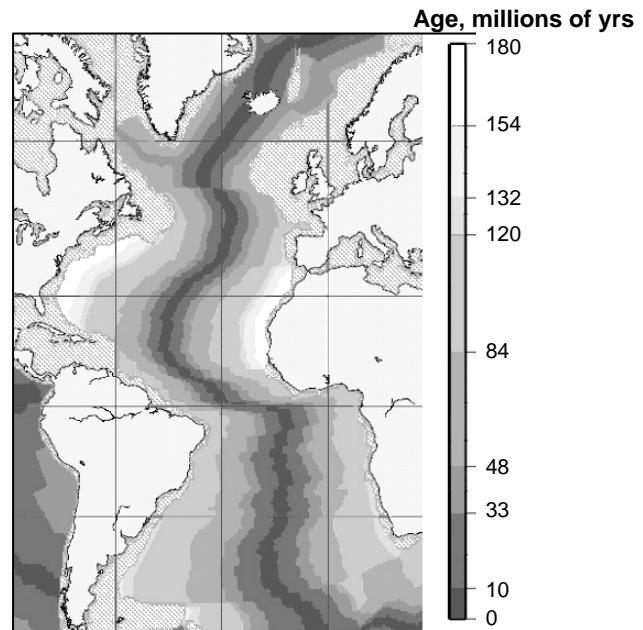
With which student do you agree? Why?



Part 2: The Atlantic Ocean

Examine the map of the ages of the ocean crust in the Atlantic Ocean.

- 7) Does the pattern of ages match your answer to Question 5? Revise your answer if necessary.
- 8) Draw a line along the divergent boundary.
- 9) Put an "X" on the oldest rock in the Atlantic Ocean. What age is it?
- 10) Approximately how long ago did a continent begin to split to form the Atlantic Ocean?



Map of the age of the ocean crust in the Atlantic Ocean

- 11) Why should your answers to Questions 9 and 10 match? Revise your answers if necessary.
- 12) You are reading a proposal requesting money to search for evidence of a crater that caused a mass extinction on Earth around 250 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 age of the ocean crust to support your answer.

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