Answer Key – Student Activity

The distance between us and them: Sea floor spreading in the Atlantic Ocean

1. North Atlantic Ocean
2. Answers vary depending upon the strip of ocean students choose.
3. Answers vary.
4. Because students choose different study sites, their answers will vary but should fall within the range of a 9-12km/My half-rate.
5. Answers should fall within 18-24 km/My.
6. 4550km
7. Calculated ages will vary, but should fall around 190-220 My old.
8. The ocean began to open within the Late Triassic/Early Jurassic period.
9. Answers will vary based on students' calculated rates from (5). A sample calculation is given below for a rate of 18km/My.

   (18km/My) * (0.621mi/km) * (5280ft/mi) * (12in/ft) * (1 My/1,000,000yr) = 0.7in/yr
   Note: The average spreading rate in the Atlantic is around 2 cm/yr. Student answers however may vary here somewhat depending on the sea floor strip they use.
10. Answers vary based on students' ages and calculated rates, but answers should be calculated by multiplying the rate from (9) by age. For example, within a 16 year old student's lifetime, the distance increased by (0.7in/yr)*16yr or 11.2in.
11. Answers should be calculated by multiplying the rate by 82 years, then dividing by 12 to convert from inches to feet. For example:

    (0.7in/yr)*(ft/12in)*82yr = 5ft
12. Answers should be calculated by finding the time that has passed since Columbus' voyage, multiplying by the rate and dividing by 12 to convert from inches to feet. In 2010, for example:

    (0.7in/yr)*(ft/12in)*518yr = 30ft