Name:_____ Date:_____ Group:_____

MATH CONNECTIONS

Spreading Rates

As the plates move and form mid-ocean ridges, this causes the ocean floor to spread. As it spreads, magma from the mantle surfaces and solidifies to create new lithosphere. Scientists can measure the *spreading rate* of the ridges using maps of the sea floor overtime.

The spreading rate is calculated by dividing the distance of the spread by the time it took to spread:

$$\mathbf{R} = {}^{d}/_{t}$$

R = rate of sea floor spreading
d = distance between two points on the map
t = difference in time between two points on the plates

1. If a segment of the East Pacific Rise spreads 748 km over a span of 18 million years, what is the rate of spreading in one year? Convert your answer to centimeters per year. (Round to the nearest hundredth.)

2. Use the answer from question 1 to determine how far the sea floor will spread in the next 50 years. What type of geological events could this cause in the region?

3. If a segment of the Mid–Atlantic Ridge spreads 927 km over a span of 71 million years, what is the rate of the spreading in one year? Convert your answer to centimeters per year. (Round to the nearest hundredth.)

4. Use the answer from question 3 to determine how far the sea floor will spread in the next 150 years.

5. If the rate of sea–floor spreading between two plates is 2 cm/year, and the time passed is 54,000,000 years, how many kilometers has the sea floor actually spread?