MATH ACTIVITY: WHERE DID OUR WATER COME FROM?

Teacher Note: This activity should be done after "Math Activity: How long would it take?" Teachers may also need to do a mini lesson on the water cycle for students for background information.

Instructions: Now that the students know how slow ground water is, ask the students to hypothesize when our current water fell as rain. Do they think the water is from a few days ago, a few months, a few years or centuries?

Students will use the map of the cross-section to determine when the current ground water we used today originally fell as rain. Students will compare their prediction to the actual answer. Teacher will have a discussion stressing how long it takes to get groundwater and lead discussion into potential risk/ problems concerning groundwater.

Possible extensions: Teacher may ask students to use similar triangles to find the distance from the well of the 1,500-foot aquifer to the recharge area. Use the legend only to check the answer. Students may also use similar triangles to find the length of the 1,500-foot aquifer. Students then can use all this information to find when the water we are using now from the 1,500 foot aquifer fell as a rainfall. Make sure first to note which two angles are congruent before allowing the set up of similar triangles.

Math Activity: Where did our water come from?

Directions: Use the cross-section figure to answer the following question.

Prediction: The water we use today is from _____ _____ ago.

1. How deep is the pipe of the well that is drawing water from the "2,000-foot" sand?

2. What is the estimated distance from the recharge area of the 2,000-foot sand to the well on land? (Use the legend)

3. Convert the land distance from miles to feet. (1 mile = 5280 feet)

4. What is the approximate length of the aquifer (in the 2,000-foot sand)? Illustrate and show how you found this answer. (Hint: use Pythagorean Theorem)

5. Convert this distance to kilometers.

6. Using the rate of travel for ground water, find out how long it look for the rain to travel from the ground to the bottom of the bottom of the well.
   Groundwater rate of flow = 0.00002 km per hour

7. Convert your answer to an appropriate time unit.

The water we use today fell as rain approximately _____ ago.

Math Activity: Where did our water come from?
ANSWER KEY

Directions: Use the cross-section figure to answer the following question.

Prediction: The water we use today is from _____ _____ ago.

1. How deep is the pipe of the well that is drawing water from the "2,000-foot" sand?
   2,000 feet

2. What is the estimated distance from the recharge area of the 2,000-foot sand to the well on land? (Use the legend)
   65 miles

3. Convert the land distance from miles to feet. (1 mile = 5280 feet)
   343,200 feet

4. What is the approximate length of the aquifer (in the 2,000-foot sand)? Illustrate and show how you found this answer. (Hint: use Pythagorean Theorem)
   $343200^2 + 2000^2 = c^2$
   c = 343,205.83 feet

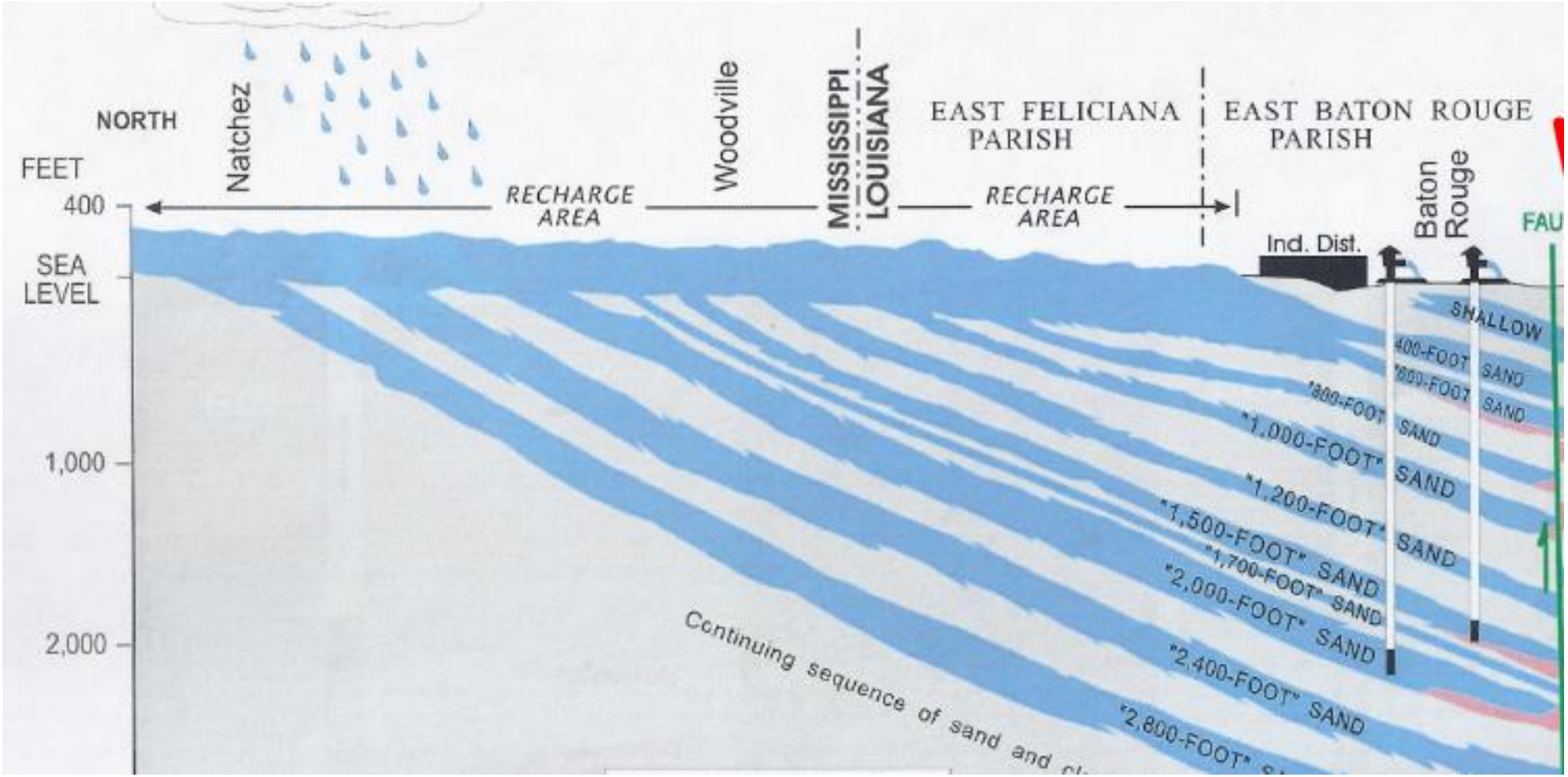
5. Convert this distance to kilometers. (3280.84 feet = 1 kilometer)
   104.6 kilometers

6. Using the rate of travel for ground water, find out how long it look for the rain to travel from the ground to the bottom of the bottom of the well.
   Groundwater rate of flow = 0.00002 km per hour
   5230,000 hours

7. Convert your answer to an appropriate time unit.
   Approximately 597 years or 6 centuries ago

The water we use today fell as rain approximately ____600 years__ ago.

CROSS- SECTION SHOWING AQUIFERS IN BATON ROUGE



CROSS- SECTION SHOWING AQUIFERS IN BATON ROUGE