



Activity 6

Light Years Away

Name _____

Date _____

Light travels at a speed of 186,000 miles per second. In scientific notation, this value is 1.86×10^5 miles per second. The distance that light travels in a year is called a *light year*.

Write each numerical answer as a multi-digit number and in scientific notation.

1. How far does light travel in 1 second?

2. How far does light travel in 1 minute?

3. How far does light travel in 1 hour?

4. How far does light travel in 1 day?

5. How far does light travel in 1 year (of 365 days)?

6. Write a key stroke sequence that will result in the value of a light year.

7. To help find the value of a light year, Chris keyed in this sequence: $6 \times 6 \times 24 \times 365 \times 186$ and got 58656960. Why do you think Chris used these numbers?

8. Use Chris' answer (58656960) to write the exact value of a light year.

9. If you travel 3 miles on the bus to get to school (and 3 miles to get home) each day, how many miles will you travel on the bus during a 180-day school year?

10. How many years would you have to go to school to travel 186,000 miles?

11. How many years would you have to go to school to travel a light year?

12. Chris flies from New York to San Francisco (and back) each week. Each flight covers 3,000 miles. How many weeks will it take Chris to travel 186,000?

13. How many light years would Chris travel in 10 years of flying back and forth?

14. The circumference of the earth is approximately 24,000 miles. How many trips around the equator would you have to make to travel 186,000 miles?

15. How many trips would you need to take to travel a light year?

16. If each trip around the equator takes 80 days, how many days would it take to travel a light year?

17. The space shuttle orbits at approximately 17,500 miles per hour. How far could it travel in one year?

18. The nearest star (other than the sun) is Alpha Centauri, which is approximately 4 light years away. If you left today on one of the space shuttles, how old would you be (in years) when you arrived at Alpha Centauri? Explain how you found your answer.

19. How fast would a super shuttle have to travel (per hour) in order for you to reach Alpha Centauri by the time you are 65 years old? Explain how you found your answer.

20. How fast would a super shuttle have to travel (per hour) in order for you to reach Alpha Centauri by the time you are 18 years old? Explain how you found your answer.
