

Name \_\_\_\_\_ Block \_\_\_\_\_ Date \_\_\_\_\_

### Scientific Notation Word Problems

Show all work as you solve the problems. **All final answer must be in correct scientific notation form.**

1. Suppose there are  $5 \times 10^6$  bacteria in every liter of water. How many bacteria are there in 12 liters of water?
2. A TV show had  $3.5 \times 10^6$  viewers for their first episode and  $8.5 \times 10^6$  viewers for their second episode. How many viewers did they have overall?
3. In 2013 the Los Angeles Dodgers opening day payroll was about  $\$2.16 \times 10^8$  and the Houston Astros opening day payroll was about  $\$2.4 \times 10^7$ . How much higher was the Dodgers' payroll?
4. The population of the United States is  $3 \times 10^8$  and the population of the world is  $7 \times 10^9$ . How many times larger is the population of the world than the U.S.?
5. The population of Mathville is  $8.4 \times 10^3$ . The population of Algeville is  $1.3 \times 10^4$ . How many more people are there in Algeville?
6. If the speed of light is  $3 \times 10^8$  meters/second, how many seconds does it take light to reach the Earth, if the sun is  $1.5 \times 10^{11}$  meters from Earth?

7. A factory that has  $6 \times 10^3$  workers makes  $2.4 \times 10^5$  products each day. What is the average amount of products made per worker?
8. In the US, the amount of electricity generated by coal in 2008 was  $1.8 \times 10^{12}$  kWh and  $9 \times 10^{11}$  kWh in 2020. What was the decrease over those 12 years?
9. The volume of Lake Rason is approximately  $2.56 \times 10^5$  km<sup>3</sup>. Lake Rushton is 25 times the volume of Lake Rason. What is the volume of Lake Rushton?
10. The speed of light in cold air is approximately  $3 \times 10^8$  meters/sec. The speed of sound in cold air is approximately  $3 \times 10^2$  meters/sec. The speed of light in cold air is how many times the speed of sound in cold air?
11. There are approximately  $3.1 \times 10^8$  people in the United States. If on average each person has  $4.1 \times 10^1$  coins lying around on dressers, in pockets, in cars, etc., how many total coins do all the people in the U.S. have?
12. The SR-71 "Blackbird" is one of the world's fastest airplanes. It is capable of traveling at a cruising speed of Mach 3, or three times the speed of sound. The speed of sound is approximately  $7.67 \times 10^2$  miles per hour. What is Mach 3 in miles per hour?