

10.5**Reading Scientific Notation**

For use with Activity 10.5

Essential Question How can you read numbers that are written in scientific notation?

1 ACTIVITY: Very Large Numbers

Work with a partner.

- Use a calculator. Experiment with multiplying large numbers until your calculator displays an answer that is *not* in standard form.
- When the calculator at the right was used to multiply 2 billion by 3 billion, it listed the result as
 $6.0E+18$.
- Multiply 2 billion by 3 billion by hand. Use the result to explain what $6.0E+18$ means.



- Check your explanation using products of other large numbers.
- Why didn't the calculator show the answer in standard form?
- Experiment to find the maximum number of digits your calculator displays. For instance, if you multiply 1000 by 1000 and your calculator shows 1,000,000, then it can display 7 digits.

10.5 Reading Scientific Notation (continued)

2 ACTIVITY: Very Small Numbers

Work with a partner.

- Use a calculator. Experiment with multiplying very small numbers until your calculator displays an answer that is *not* in standard form.
- When the calculator at the right was used to multiply 2 billionths by 3 billionths, it listed the result as
 $6.0E-18$.
- Multiply 2 billionths by 3 billionths by hand. Use the result to explain what $6.0E-18$ means.

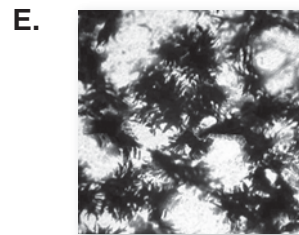
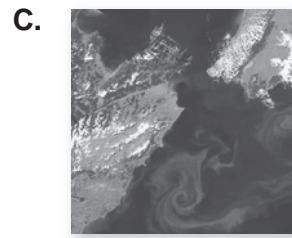


- Check your explanation by calculating the products of other very small numbers.

3 ACTIVITY: Powers of 10 Matching Game

Work with a partner. Match each picture with its power of 10. Explain your reasoning.

- | | | | | | |
|----------|----------|----------|-------------|-------------|-------------|
| 10^5 m | 10^2 m | 10^0 m | 10^{-1} m | 10^{-2} m | 10^{-5} m |
|----------|----------|----------|-------------|-------------|-------------|



10.5 Reading Scientific Notation (continued)**4** **ACTIVITY:** Choosing Appropriate Units

Work with a partner. Match each unit with its most appropriate measurement.

inches

centimeters

feet

millimeters

meters

a. Height of a door:

$$2 \times 10^0$$

**b.** Height of a volcano

$$1.6 \times 10^4$$

**c.** Length of a pen:

$$1.4 \times 10^2$$

**d.** Diameter of a steel ball bearing:

$$6.3 \times 10^{-1}$$

**e.** Circumference of a beach ball:

$$7.5 \times 10^1$$

**What Is Your Answer?**

5. IN YOUR OWN WORDS How can you read numbers that are written in scientific notation? Why do you think this type of notation is called “scientific notation”? Why is scientific notation important?



Practice and Problem Solving

Write the number shown on the calculator display in standard form.

3. $5.6E12$

4. $2.1E-10$

5. $8.73E16$