

Powers of 10 & Place Value: Powers-of-10 Chart

Name: _____ Date: _____

LEARNING OBJECTIVE

Students will connect powers of 10 to place value and use them to express large and small numbers.

MATERIALS NEEDED

- poster board or long paper strip
- ruler
- markers
- sticky notes

HANDS-ON ACTIVITY

1. Draw a horizontal line across your poster board and mark 13 evenly spaced tick marks using your ruler.
2. Label the ticks from 10^{-6} up to 10^6 , writing both the exponent form and the standard decimal form (for example, $10^3 = 1,000$; $10^{-3} = 0.001$) under each.
3. On sticky notes, write 6 real-world quantities (such as the width of a hair, the length of a room, or the distance to the moon) and place each note above the closest matching power of 10 on your chart.
4. Circle the power of 10 closest to your own height in meters.
5. Write a 2-sentence explanation of how moving one tick to the right changes the value (multiply by 10) compared to moving one tick to the left (divide by 10).

QUESTIONS

1. What is 10^4 in standard form?
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2. What is 10^{-2} in standard/decimal form?
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3. Which power of 10 did you place closest to your height, and what standard-form value does it represent?
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4. **Explain what happens to a value each time you move one tick to the right on your chart.**
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