

Name: _____ Date: _____

Escape the Lab: 5th Grade Metric Precision Challenge

Calculate volume using graduated cylinders and differentiate between mass and weight to ensure your scientific results are accurate and reproducible.

1. An oceanographer is measuring the salinity of a water sample. To ensure 'precision,' what must the scientist do?

- A. Get a result that matches a textbook exactly.
- B. Repeat the measurement multiple times and get nearly the same result.
- C. Guess the measurement based on the color of the water.
- D. Use a tool that has never been tested before.

2. A baker needs to convert 4 kilograms of flour into grams for a large recipe. How many grams is this?

- A. 40 grams
- B. 400 grams
- C. 4,000 grams
- D. 40,000 grams

3. True or False: A graduated cylinder should be read at the top of the curve (meniscus) of the liquid.

- A. True
- B. False

4. Which tool would a botanist use to measure the exact amount of 'transpiration' (water loss) in milliliters from a leaf?

- A. A balance scale
- B. A metric ruler
- C. A graduated cylinder
- D. A thermometer

5. A marathon runner covers a distance of 10 kilometers. If you were recording this in the base SI unit for length, how many meters would that be?

- A. 100 meters
- B. 1,000 meters
- C. 10,000 meters
- D. 100,000 meters

6. True or False: Mass and weight are the same thing because they both measure how much 'stuff' is in an object.

- A. True
- B. False

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7. If you are measuring the temperature of a chemical reaction and it increases by 10 degrees Celsius, why might a scientist record this in Kelvin instead?

- A. Kelvin is the SI base unit for temperature used in global science.
- B. Kelvin measures weight, not heat.
- C. Celsius is only used for measuring weather.
- D. Kelvin is easier to read on a standard wall thermometer.

8. To find the volume of an irregular object like a jagged rock, a student uses water displacement. The water rises from 50mL to 65mL. What is the volume of the rock?

- A. 115 mL
- B. 15 mL
- C. 5 mL
- D. 50 mL

9. True or False: The metric system is based on multiples of 10, making it easier to convert between units than the imperial system.

- A. True
- B. False

10. A scientist is testing a new LED bulb. Which SI unit would they use to measure the 'brightness' or luminous intensity of the light emitted?

- A. Ampere
- B. Mole
- C. Candela
- D. Second