

Name: _____ Date: _____

Sizzling Scoops and Chemical Batches: A 6th Grade Quiz

Counting by weighing and recipe-style scaling—foundational skills that build a concrete understanding of mass relationships in chemical reactions.

1. Imagine you are building a bicycle. You need 2 wheels for every 1 frame. If this were a chemical reaction, the number of wheels and frames would be known as:

- A. The boiling point
- B. The recipe ratio
- C. The melting scale
- D. The color change

2. True or False: Scientists use a special counting unit called a 'mole' because atoms are too tiny to count one by one.

- A. True
- B. False

3. If a recipe for a 'Sizzling Science Bar' requires 10 grams of sugar and 5 grams of cocoa, what is the total mass of the bar after mixing?

- A. 5 grams
- B. 10 grams
- C. 15 grams
- D. 50 grams

4. A baker uses a balance scale to find out how much a dozen eggs weigh. In chemistry, finding the mass of a specific number of 'units' is called finding the:

- A. Molar mass
- B. Volume
- C. Temperature
- D. Speed

5. True or False: If you have 1 mole of gold and 1 mole of aluminum, they will both weigh exactly the same amount on a scale.

- A. True
- B. False

6. In the 'recipe' for rust, Iron + Oxygen yields Rust. If you start with 4 atoms of Iron and 3 molecules of Oxygen, the ____ are the starting ingredients.

- A. Products
- B. Reactants
- C. Catalysts

Name: _____ Date: _____

D. Solvents

7. A scientist wants to know how many water molecules are in a drop. Which 'counting tool' would they use to represent a huge number of particles?

- A. A ruler
- B. A thermometer
- C. The mole
- D. The clock

8. True or False: Stoichiometry is used in real life to make sure matches have the right amount of chemicals to light safely.

- A. True
- B. False

9. If you have a chemical equation that says $2A + B \rightarrow C$, and you use 4 parts of 'A', how many parts of 'B' do you need to keep the ratio the same?

- A. 1 part
- B. 2 parts
- C. 3 parts
- D. 4 parts

10. Which of these is the best example of 'counting by weighing' in a grocery store?

- A. Naming the types of apples
- B. Estimating how many jellybeans are in a jar using a scale
- C. Checking the expiration date on milk
- D. Counting the number of aisles