

NAME \_\_\_\_\_

Module 12 Attributes and Tools  
Lesson 5 Measurement: Weight and Mass

### Lesson Objectives

- Demonstrate how to read a scale and a balance.
- Determine when to and how to measure customary weight.
- Determine when to and how to measure metric mass.
- Determine which unit of measure or measurement tool matches the context for a problem situation involving weight and mass.
- Solve real-world problems involving weight and mass.

### Subtopic 1 Using a Scale

A **scale** is an instrument used to measure weight and mass.

Since gravity is assumed constant on Earth, the terms **mass** and **weight** are often used interchangeably.

In **scientific** calculations, mass and weight **cannot** be used interchangeably.

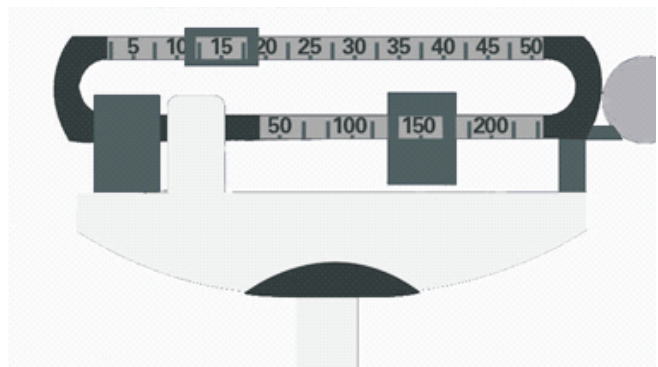
Balance Scale

- Compares the weights of **two** objects or **two** sets of objects
- When the weights are **equal**, the scale balances.

**1** Give the weight shown by each scale.



116 pounds



165 pounds

- 2** Which is heavier: the orange or the banana?  
Explain the answer.

**The orange is heavier because the tray with the heavier load is lower.**



- 3** The scale shown is balanced. How many balls are needed to balance 12 blocks?

**Eight balls balance 12 blocks.**



### Subtopic 2 Customary Weight

- 4** Which weighs more: a bag of 13 oranges weighing four ounces each or one bag of tangerines weighing four pounds?

$$\text{Oranges: } 13 \times 4 \text{ oz} = 52 \text{ oz}$$

$$\text{Tangerines: } 4 \cancel{\text{ lb}} \times 16 \frac{\text{oz}}{\cancel{\text{ lb}}} = 64 \text{ oz}$$

**The tangerines weigh more.**

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- 5** An airline allows passengers to have up to 40 pounds of carry-on baggage. Saul's three bags weigh 17 pounds, nine ounces; nine pounds, six ounces; and 13 pounds, two ounces. Is Saul's baggage over the airline's 40-pound limit?

$$\begin{array}{r} 17 \text{ lb } 9 \text{ oz} \\ 9 \text{ lb } 6 \text{ oz} \\ + 13 \text{ lb } 2 \text{ oz} \\ \hline 39 \text{ lb } 17 \text{ oz} = 40 \text{ lb } 1 \text{ oz} \end{array}$$

**Saul's baggage is over the 40-pound limit.**

**Subtopic 3**   **Metric Weight**

- 6** A bag contained 2.2 kilograms of flour. Ming took out 300 grams of flour. What is the mass of the remaining flour?

$$\begin{array}{r|l} 2.2 \text{ kg} - 300 \text{ g} & 2.2 \text{ kg} - 300 \text{ g} \\ 2,200 \text{ g} - 300 \text{ g} & 2.2 \text{ kg} - 0.3 \text{ kg} \\ 1,900 \text{ g} & 1.9 \text{ kg} \end{array}$$

**The mass is 1,900 g or 1.9 kg.**

