---

14. MEASUREMENT

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. If a recipe requires 300 grams of flour and you have 2 kilograms, how much flour will you have left after using the required amount?
   A) 1,500 grams B) 1,700 grams
   C) 1,800 grams D) 1,200 grams

Key: B

Explanation: 2 kg = 2000 g. Subtract 300 g: 2000 – 300 = 1700 g.

2. A car travels 150 kilometers. How many meters has it traveled?
   A) 15,000 m B) 150,000 m
   C) 1,500,000 m D) 1,500 m

Key: B

Explanation: 1 km = 1000 m, so 150 km = 150 × 1000 = 150,000 m.

3. Which of the following is NOT a metric unit of mass?
   A) Gram B) Kilogram C) Pound D) Milligram

Key: C

Explanation: Pound is an imperial unit, not a metric unit.

4. You have a bag of sugar that weighs 1.2 kilograms. How many grams does that equal?
   A) 1,200 grams B) 12 grams
   C) 120 grams D) 0.12 grams

Key: A

Explanation: 1 kg = 1000 g, so 1.2 kg = 1.2 × 1000 = 1200 g.

5. If you need to convert 5 miles to kilometers, which of the following is the correct conversion? (Use 1 mile = 1.60934 km)
   A) 3.1 km B) 5.0 km C) 8.0 km D) 8.05 km

Key: D

Explanation: 5 miles × 1.60934 km/mile = 8.0467 km, which rounds to 8.05 km.

ADVANCED LEVEL

More than One Answer Type

6. Which of the following are valid conversions of units of length?
   A) 1 meter = 100 centimeters
   B) 1 foot = 30.48 centimeters
   C) 1 kilometer = 1,000 meters
   D) 1 inch = 1.5 centimeters

Key: A, B, C

Explanation: D is incorrect because 1 inch = 2.54 cm, not 1.5 cm.

7. Select the units of mass in the metric system.
   A) Gram (g)
   B) Kilogram (kg)
   C) Pound (lb)
   D) Milligram (mg)

Key: A, B, D

Explanation: Pound (lb) is an imperial unit, not metric.

8. Which of the following statements are true about mass and weight?
   A) Mass is the amount of matter in an object.
   B) Weight is the same everywhere.
   C) Mass changes with gravity.
   D) Weight can change based on location.

Key: A, D

Explanation: Mass is constant; weight depends on gravity, so it changes with location.

Fill In the Blanks

9. A yard is equal to _____ feet.

Key: 3

Explanation: 1 yard = 3 feet in the imperial system.

10. When measuring length, a _____ is a flexible tool often used for longer distances in construction.

Key: measuring tape

Explanation: Measuring tape is flexible and ideal for measuring longer distances like in construction.

Matching Type

11. Match the Measurement Tools to Their Uses

Tools	Uses
1. Ruler	A. Providing quick weight readings
2. Balance Scale	B. Measuring longer distances
3. Measuring Tape	C. Measuring length of objects
4. Digital Scale	D. Weighing mass

Key: C, D, B, A

Answer the Following Questions

12. A gardener plants seeds in a garden bed that is 2.5 meters long. If he uses 1 meter for carrots and 80 centimeters for tomatoes, how much length remains for other plants?

Key: 70 cm

Explanation: Convert all to cm: 2.5 m = 250 cm, 1 m = 100 cm. Remaining: 250 – 100 – 80 = 70 cm.

13. Lisa goes grocery shopping and buys three bags of flour weighing 1.2 kilograms, 750 grams, and 500 grams. What is the total weight of the flour in grams?

Key: 2450 g

Explanation: Convert 1.2 kg to 1200 g, then sum: 1200 + 750 + 500 = 2450 g.

14. Tom has 1.5 meters of ribbon. He wants to cut it into pieces that are each 30 centimeters long. How many pieces can he cut from the ribbon?

Key: 5 pieces

Explanation: 1.5 m = 150 cm. Pieces = 150 ÷ 30 = 5.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. What unit is commonly used to measure short lengths in everyday situations?
   A) Kilometer B) Millimeter
   C) Meter D) Centimeter

Key: D

Explanation: Centimeter is commonly used for short lengths like the length of a pencil or a book.

2. If a pencil measures 25 centimeters, how many millimeters long is it?
   A) 250 mm B) 2.5 mm C) 25 mm D) 2.5 cm

Key: A

Explanation: 1 cm = 10 mm, so 25 cm = 25 × 10 = 250 mm.

3. Which tool would you use to measure the mass of a small object like a coin?
   A) Ruler B) Measuring Tape
   C) Balance Scale D) Protractor

Key: C

Explanation: A balance scale is used for measuring mass, especially for small objects.

4. How many inches are in 3 feet?
   A) 24 inches B) 30 inches C) 36 inches D) 12 inches

Key: C

Explanation: 1 foot = 12 inches, so 3 feet = 3 × 12 = 36 inches.

5. What is the total weight of a package that weighs 2.5 kilograms and another that weighs 750 grams?
   A) 2.25 kg B) 3.25 kg C) 3.5 kg D) 3 kg

Key: B

Explanation: Convert 750 g to 0.75 kg. Total = 2.5 + 0.75 = 3.25 kg.

ADVANCED LEVEL

More than One Answer Type

6. Identify the mass measuring tools.
   A) Triple Beam Balance B) Measuring Tape
   C) Digital Scale D) Ruler

Key: A, C

Explanation: Triple beam balance and digital scale measure mass; measuring tape and ruler measure length.

7. Which of the following can be measured in grams?
   A) A pencil B) A bag of flour
   C) A car D) A piece of fruit

Key: B, D

Explanation: Flour and fruit are often measured in grams; a car is measured in kilograms; a pencil is very light but usually measured in grams as well, but typically small objects like fruit and flour fit better.

8. What are some examples of story sums involving measurement?
   A) Converting kilometers to meters
   B) Finding the height of a building
   C) Calculating the total weight of multiple items
   D) Measuring the length of a table

Key: A, B, C, D

Explanation: All involve measurement concepts commonly found in story problems.

Fill In the Blanks

9. The base unit of length in the metric system is the _____.

Key: meter

Explanation: The meter is the fundamental unit for length in the metric system.

10. To convert from grams to kilograms, you would divide by _____.

Key: 1000

Explanation: 1 kg = 1000 g, so divide grams by 1000 to get kilograms.

Matching Type

11. Match the Measurement Units to Their Categories

Units	Categories
1. Millimeter (mm)	A. Metric Mass
2. Foot (ft)	B. Imperial Mass
3. Kilogram (kg)	C. Metric Length
4. Inch (in)	D. Imperial Length

Key: C, D, A, D

Answer the Following Questions

12. Maria bought 450 centimeters of fabric to make a dress. After cutting out pieces for the dress, she has 120 centimeters left. How many meters of fabric did Maria use for the dress?

Key: 3.3 m

Explanation: Used = 450 – 120 = 330 cm = 3.3 m (since 100 cm = 1 m).

13. David rides his bicycle 15 miles every weekend. If he continues this for 4 week ends, how many kilometers does he ride in total? (Note: 1 mile = 1.60934 kilo meters)

Key: 96.56 km

Explanation: Total miles = 15 × 4 = 60 miles. Convert: 60 × 1.60934 = 96.56 km.

14. Jenna is baking cookies and needs 300 grams of sugar. She finds that she has a 1-kilogram bag of sugar. How much sugar will she have left after baking?

Key: 700 g

Explanation: 1 kg = 1000 g. Left = 1000 – 300 = 700 g.

MEASUREMENT OF CAPACITY

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. If a bottle can hold 1.2 gallons of water, how many quarts can it hold? (Note: 1 gallon = 4 quarts)
   A) 2.4 quarts B) 3 quarts
   C) 4.8 quarts D) 5 quarts

Key: C

Explanation: 1.2 gallons × 4 quarts/gallon = 4.8 quarts.

2. If a car travels 90 miles at a speed of 45 mph, how long does the trip take?
   A) 1 hour B) 1.5 hours C) 2 hours D) 2.5 hours

Key: C

Explanation: Time = Distance ÷ Speed = 90 ÷ 45 = 2 hours.

3. How many fluid ounces are there in 2 pints? (Note: 1 pint = 16 fl oz)
   A) 16 fl oz B) 24 fl oz C) 32 fl oz D) 48 fl oz

Key: C

Explanation: 2 pints × 16 fl oz/pint = 32 fl oz.

4. If it takes 15 minutes to walk 1 kilometer, what is the walking speed in km/h?
   A) 2 km/h B) 3 km/h C) 4 km/h D) 5 km/h

Key: C

Explanation: 15 minutes per km ? 4 km in 60 minutes (1 hour) $\rightarrow$ 4 km/h.

5. A jug holds 1.5 liters of juice. If you pour out 250 mL, how much juice is left?
   A) 1.25 L B) 1.50 L C) 1.75 L D) 1.20 L

Key: A

Explanation: 1.5 L = 1500 mL. Left = 1500 – 250 = 1250 mL = 1.25 L.

ADVANCED LEVEL

More than One Answer Type

6. Which of the following are common units of capacity in the metric system?
   A) Milliliter (mL) B) Pint (pt)
   C) Liter (L) D) Gallon (gal)

Key: A, C

Explanation: Pint and gallon are imperial units; mL and L are metric.

7. Identify the tools used for measuring capacity.
   A) Measuring Cup B) Graduated Cylinder
   C) Ruler D) Syringe

Key: A, B, D

Explanation: Ruler measures length, not capacity.

8. Which of the following statements about estimating measures are true?
   A) Estimating helps save time.

B) Estimating is always 100% accurate.
C) Estimating can help verify calculations.
D) Estimating is useful for quick assessments.

Key: A, C, D

Explanation: B is false because estimates are approximate, not exact.

Fill In the Blanks

9. If a car travels at a speed of 80 km/h for 3 hours, the distance traveled is _____ kilometers.

Key: 240

Explanation: Distance = Speed × Time = 80 × 3 = 240 km.

10. If it takes a train 4 hours to travel 200 kilometers, its average speed is _____ km/h.

Key: 50

Explanation: Speed = Distance ÷ Time = 200 ÷ 4 = 50 km/h.

Matching Type

11. Match the Concepts to Their Formulas

Concepts	**Formulas**
1. Speed	A. Distance = Speed × Time
2. Distance	B. Speed = Distance ÷ Time
3. Time	C. Time = Distance ÷ Speed

Key: B, A, C

Answer the Following Questions

12. A recipe requires 500 mL of milk, but you only have a measuring cup that measures in liters. How much is that in liters, and how many cups (if 1 cup = 240 mL) would you need?

Key: 0.5 L, about 2 cups

Explanation: 500 mL = 0.5 L. Cups needed = 500 ÷ 240 = 2.08, so about 2 cups.

13. A tank has a capacity of 10 gallons. If it is currently filled with 6.5 gallons, how much more can it hold?

Key: 3.5 gallons

Explanation: Remaining capacity = 10 – 6.5 = 3.5 gallons.

14. A car travels 120 km in the first 1 hour and then 90 km in the next 1.5 hours. What is the car's average speed for the entire trip?

Key: 84 km/h

Explanation: Total distance = 120 + 90 = 210 km. Total time = 1 + 1.5 = 2.5 hours. Average speed = 210 ÷ 2.5 = 84 km/h.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. Which unit is used to measure capacity in the metric system?
   A) Grams B) Liters C) Meters D) Inches

Key: B

Explanation: Liters are used for capacity; grams for mass, meters for length, inches for length (imperial).

2. How many milliliters are in 1.5 liters?
   A) 150 mL B) 1,500 mL C) 15,000 mL D) 1,050 mL

Key: B

Explanation: 1 L = 1000 mL, so 1.5 L = 1.5 × 1000 = 1500 mL.

3. If a measuring cup holds 240 mL, how many cups are in 1 liter?
   A) 2 cups B) 4 cups C) 3 cups D) 5 cups

Key: B

Explanation: 1 L = 1000 mL. Cups = 1000 ÷ 240 ˜ 4.17, so about 4 cups.

4. Anna estimates that it will take her about 45 minutes to cook dinner. If dinner actually takes 30 minutes, how much did Anna overestimate?
   A) 10 minutes B) 15 minutes C) 20 minutes D) 25 minutes

Key: B

Explanation: Overestimate = 45 – 30 = 15 minutes.

5. A runner completes a marathon (42 km) in 3 hours. What is their average speed in km/h?
   A) 10 km/h B) 12 km/h C) 14 km/h D) 15 km/h

Key: C

Explanation: Speed = Distance ÷ Time = 42 ÷ 3 = 14 km/h.

ADVANCED LEVEL

More than One Answer Type

6. Select the correct relationships among speed, distance, and time.
   A) Speed = Distance × Time B) Distance = Speed × Time
   C) Time = Distance ÷ Speed D) Speed = Time ÷ Distance

Key: B, C

Explanation: Distance = Speed × Time and Time = Distance ÷ Speed are correct.

7. Which of the following examples involve capacity?
   A) Measuring 2 liters of juice for a party.
   B) Estimating the time to cook pasta.
   C) Filling a tank with 15 gallons of water.
   D) Weighing a bag of flour.

Key: A, C

Explanation: A and C involve volume/capacity; B is time, D is mass.

8. Identify the units used to measure speed.
   A) Kilometers per hour (km/h) B) Meters
   C) Miles per hour (mph) D) Seconds

Key: A, C

Explanation: km/h and mph are speed units; meters and seconds are not speed units alone.

Fill In the Blanks

9. To convert 1.5 liters to milliliters, you would multiply by _____.

Key: 1000

Explanation: 1 L = 1000 mL, so multiply liters by 1000 to get milliliters.

10. A _____ is a common tool used for measuring liquid ingredients in cooking.

Key: measuring cup

Explanation: A measuring cup is specifically designed for measuring liquids in cooking.

Matching Type

11. Match the Units of Capacity to Their Measurement System

Units	Measurement Systems
1. Liter (L)	A. Imperial
2. Gallon (gal)	B. Metric
3. Milliliter (mL)	C. Imperial
4. Pint (pt)	D. Metric

Key: B, A, B, A

Answer the Following Questions

12. A container holds 2.5 liters of liquid. If you pour out 1.2 liters and then refill it with 600 mL, how much liquid is in the container now?

Key: 1.9 L

Explanation: After pouring out: 2.5 – 1.2 = 1.3 L. Add 600 mL = 0.6 L. Total = 1.3 + 0.6 = 1.9 L.

13. A cyclist travels 24 kilometers in 1 hour and 30 minutes. What is their average speed in km/h?

Key: 16 km/h

Explanation: 1 hour 30 minutes = 1.5 hours. Speed = 24 ÷ 1.5 = 16 km/h.

14. If a recipe says it takes 45 minutes to bake a cake, but you want to estimate that you will take 10 minutes longer for preparation, how long do you expect the total time to be?

Key: 55 minutes

Explanation: Total time = bake time + prep time = 45 + 10 = 55 minutes.