PHYSMATH

6: Making estimations

LEARNING OUTCOMES

Level 4
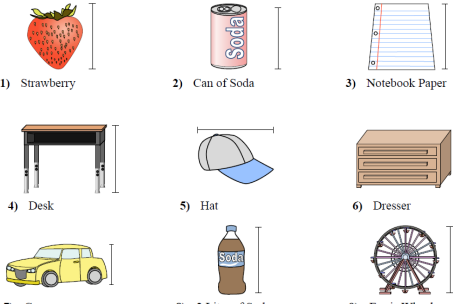➤ Sort objects with approximate equal value into groups

Level 5
➤ Compare the approximate values of different objects

Level 6
➤ Predict accurately the approximate value of different objects

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Length

Sort the following objects from the smallest to the largest

1) Strawberry

2) Can of Soda

3) Notebook Paper

4) Desk

5) Hat

6) Dresser

7) Car

8) 2 Liter of Soda

9) Ferris Wheel

Determine which letter best represents the length / height.

Millimeter (mm)	Centimeter (cm)	Meter (m)	Kilometer (km)
A millimeter is about the thickness of a credit card.	10 mm = 1 cm. The metal portion of a pencil is about 1 cm. A ruler is about 30 centimeters.	100 cm = 1 m From the floor to a door knob is about 1 meter.	1,000 m = 1 km Most major roads are at least a kilometer long.

1) Ferris Wheel
A. 30 centimeters
B. 5 meters
C. 50 kilometers
D. 23 meters

2) Screw
A. 20 centimeters
B. 25 centimeters
C. 3 centimeters
D. 1 meter

3) Can of Beans
A. 120 centimeters
B. 2 meters
C. 2 kilometers
D. 10 centimeters

Determine which letter best represents the length / height.

Millimeter (mm)	Centimeter (cm)	Meter (m)	Kilometer (km)
A millimeter is about the thickness of a credit card.	10 mm = 1 cm. The metal portion of a pencil is about 1 cm. A ruler is about 30 centimeters.	100 cm = 1 m From the floor to a door knob is about 1 meter.	1,000 m = 1 km Most major roads are at least a kilometer long.

4) Flash Drive
A. 30 centimeters
B. 60 centimeters
C. 6 centimeters
D. 15 centimeters

5) Adult Horse
A. 90 centimeters
B. 2 meters
C. 25 millimeters
D. 30 centimeters

6) Recliner
A. 60 centimeters
B. 1 meter
C. 120 centimeters
D. 10 millimeters

Determine which letter best represents the length / height.

Millimeter (mm)	Centimeter (cm)	Meter (m)	Kilometer (km)
A millimeter is about the thickness of a credit card.	10 mm = 1 cm. The metal portion of a pencil is about 1 cm. A ruler is about 30 centimeters.	100 cm = 1 m From the floor to a door knob is about 1 meter.	1,000 m = 1 km Most major roads are at least a kilometer long.

7) 11 Story Building
A. 1 meter
B. 3 kilometers
C. 335 centimeters
D. 30 meters

8) Key
A. 5 centimeters
B. 2 meters
C. 15 centimeters
D. 150 centimeters

9) Notebook Paper
A. 15 centimeters
B. 1 meters
C. 60 centimeters
D. 25 centimeters

MINI-INVESTIGATION ⑥

- Choose three objects in the room and complete the following table with units

Object	Estimated length, E	Measured length, M	E-M	$((E - M) \div M) \times 100$

Mass

Sort the following objects from the lightest to the heaviest

1) Ruler
2) Stove
3) File Cabinet
4) Weight Set
5) Football
6) Key
7) Brick
8) Strawberry
9) Candle

Determine which letter best represents the weight.

Gram (g)
A gram is about the weight of a paperclip.

Kilogram (kg)
A kilogram is about the weight of a thick book.

Remember:
Kilo means 1,000. So a kilogram is 1,000 grams.
1 Kilogram is also about the same weight as 2 pounds.

1) Clothes Dryer
A. 3 kilograms
B. 3 grams
C. 60 kilograms
D. 60 grams

2) Clothes Iron
A. 100 grams
B. 15 kilograms
C. 15 grams
D. 2 kilograms

3) Envelope
A. 1 gram
B. 675 grams
C. 30 grams
D. 200 Kilograms

Determine which letter best represents the weight.

Gram (g)
A gram is about the weight of a paperclip.

Kilogram (kg)
A kilogram is about the weight of a thick book.

Remember:
Kilo means 1,000. So a kilogram is 1,000 grams.
1 Kilogram is also about the same weight as 2 pounds.

4) DVD
A. 15 grams
B. 15 kilograms
C. 1 gram
D. 1 kilogram

5) Desk
A. 15 grams
B. 300 grams
C. 300 kilograms
D. 15 kilograms

6) Pear
A. 170 kilograms
B. 170 grams
C. 2 grams
D. 2 kilograms

Determine which letter best represents the weight.

Gram (g)
A gram is about the weight of a paperclip.

Kilogram (kg)
A kilogram is about the weight of a thick book.

Remember:
Kilo means 1,000. So a kilogram is 1,000 grams.
1 Kilogram is also about the same weight as 2 pounds.

7) Frog
A. 5,000 grams
B. 30 kilograms
C. 30 grams
D. 5,000 kilograms

8) Car
A. 2,000 kilograms
B. 15 grams
C. 6,000 grams
D. 2 kilograms

9) Phone
A. 500 grams
B. 5 grams
C. 15 kilograms
D. 500 kilograms

MINI-INVESTIGATION ⑥

- Choose three objects in the room and complete the following table with units (small objects only!)

Object	Estimated mass, E	Measured mass, M	E-M	$((E - M) \div M) \times 100$

Volume

Sort the following objects from the smallest capacity to the largest capacity

1) Bathtub
2) Gallon of Milk
3) Ice Chest
4) Liquid in a tea cup
5) Water for a house plant
6) Toothpaste in a tube
7) Cafeteria Milk
8) Liquid in a thermos
9) Ink in a pen

Determine which letter best represents the volume.

Milliliter
A milliliter is equal to about 20 drops of water.

Liter
Many large soda bottles are either 1 or 2 liters.
1 Liter = 1,000 Milliliters

× 20

1) Cereal Bowl
   A. 2 Liters
   B. 475 Milliliters
   C. 50 Milliliters
   D. 1 Milliliter

2) Liquid in a tea cup
   A. 5 Liters
   B. 2 Milliliters
   C. 250 Milliliters
   D. 2 Liters

3) Liquid a spoon holds
   A. 5 Liters
   B. 500 Milliliters
   C. 5 Milliliters
   D. 1 Liter

Determine which letter best represents the volume.

Milliliter
A milliliter is equal to about 20 drops of water.

Liter
Many large soda bottles are either 1 or 2 liters.
1 Liter = 1,000 Milliliters

× 20

4) Soda in a can
   A. 2 Liters
   B. 350 Liters
   C. 350 Milliliters
   D. 2 Milliliters

5) Shampoo in a bottle
   A. 20 Liters
   B. 1.5 Liters
   C. 20 Milliliters
   D. 1 Milliliter

6) Paint in a can
   A. 400 Milliliters
   B. 20 Milliliters
   C. 1 Liter
   D. 3.75 Liters

Determine which letter best represents the volume.

Milliliter
A milliliter is equal to about 20 drops of water.

Liter
Many large soda bottles are either 1 or 2 liters.
1 Liter = 1,000 Milliliters

× 20

7) Flour in a batch of cookies
   A. 350 Milliliters
   B. 1 Milliliter
   C. 10 Milliliters
   D. 2 Liters

8) Cafeteria Milk
   A. 1 Liter
   B. 237 Liters
   C. 237 Milliliters
   D. 2 Liters

9) Liquid in a thermos
   A. 440 Milliliters
   B. 20 Milliliters
   C. 3 Liters
   D. 20 Liters