

Week 5 Answers.

Day 1 – Lesson 1 – Metric Units (1)

Starter

⚡ Answers:

$$13\cdot2 \times 10 = 132 \quad \times 100 = 1,320 \quad \times 1,000 = 13,200$$

$$35\cdot32 \times 10 = 353\cdot2 \quad \times 100 = 3,532 \quad \times 1,000 = 35,320$$

$$40\cdot82 \times 10 = 408\cdot2 \quad \times 100 = 4,082 \quad \times 1,000 = 40,820$$

Discover

ANSWERS

Question 1 a): It is 930,000 metres from London to Berlin.

Question 1 b): $6 \text{ kg} < 7 \text{ kg}$, so Jen can take her bag onto the plane.

Think Together

ANSWERS

Question 1: $1 \text{ kg} = 1,000 \text{ g}$. To convert kg to g, multiply by 1,000. When we multiply by 1,000, the digits shift to the left by 3 places.

$$5\cdot9 \times 1,000 = 5,900$$

The scales will show 5,900 g when the rucksack is placed on them.

Question 2: $1,000 \text{ m} = 1 \text{ km}$. To convert m to km, divide by 1,000. The digits will shift to the right by 3 places.

$$260,500 \div 1,000 = 260\cdot5$$

The plane travels 260.5 km.

Challenge

Question 3: Multiplying by 1,000 involves shifting digits 3 places to the left.

$$8\cdot3 \text{ kg} = 8,300 \text{ g}$$

Textbook

1. a) To convert metres into kilometres, divide by 1,000.

$$162,000 \text{ m} \div 1,000 = 162 \text{ km}$$

London → Birmingham = 162 km

b) To convert kilometres into metres, \times by 1,000.

$$50 \text{ km} \times 1,000 = 50,000 \text{ m}$$

Manchester → Liverpool = 50,000 m

c) Glasgow → Edinburgh = 67.1 km

2. Letters written into circles:

A and D → $\div 1,000$

B and C → $\times 1,000$

5. Possible distances: 0.45 km, 0.54 km, 4.05 km or 5.04 km

Answers in metres: 4,500 m, 5,400 m, 40,500 m, 50,400 m

6. 2 bags: $18,000 \text{ g} = 18 \text{ kg}$ and $8,000 \text{ g} = 8 \text{ kg}$

Explanations will vary; for example:

Masses that are multiples of 1,000 g are a whole number of kilograms.

3. a) $12 \text{ kg} = 12,000 \text{ g}$

b) $8,000 \text{ g} = 8 \text{ kg}$

c) $6,500 \text{ g} = 6 \text{ kg and } 500 \text{ g}$

d) $3\cdot4 \text{ kg} = 3,400 \text{ g}$

e) $10 \text{ kg } 200 \text{ g} = 10,200 \text{ g}$

$10 \text{ kg } 200 \text{ g} = 10\cdot2 \text{ kg}$

f) $4 \text{ kg } 3,000 \text{ g} = 7,000 \text{ g}$

$4 \text{ kg } 3,000 \text{ g} = 7 \text{ kg}$

4. To convert from kilograms to grams Kate needs to multiply by 1,000. Her mistake is that she has divided instead of multiplied.

$$27\cdot5 \text{ kg} = 27,500 \text{ g}$$

Reflect

Explanations may vary; for example:

To convert grams into kilograms divide by 1,000.

$$12,500 \div 1,000 = 12\cdot5$$

$$\text{So, } 12,500 \text{ g} = 12\cdot5 \text{ kg}$$

Day 2 – Lesson 2 – Metric Units (2)

Starter

⚡ Answers:

$\times 1,000$ $\div 100$
 $\times 10$ $\div 100$

Discover

ANSWERS

Question 1 a): $1,500 < 2,000$, so Ebo does not have enough fencing to go across the flower bed.

Question 1 b): Alex has put 4.5 litres of water in the watering can.

Think Together

ANSWERS

Question 1 a): There are 10 mm in 1 cm, so to convert mm into cm, divide by 10. $6 \div 10 = 0.6$. The flower is 0.6 cm tall.

Question 1 b): There are 1,000 ml in 1 l.
 $0.7 \times 1,000 = 700$.
The bottle contains 700 ml.

Question 2: To convert from a larger to a smaller unit, multiply. To convert from a smaller to a larger unit, divide.

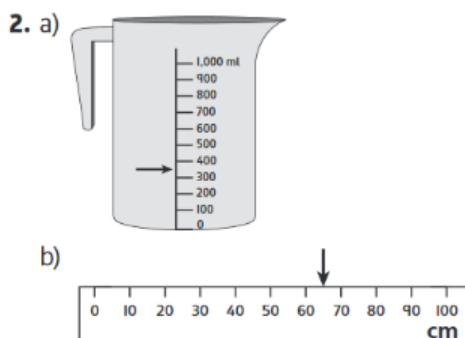
Challenge

Question 3 a): $1 \text{ mm} = \frac{1}{1,000}$ of a metre, $1 \text{ ml} = \frac{1}{1,000}$ of a litre; $1 \text{ cm} = \frac{1}{100}$ of a metre; $1 \text{ m} = 1,000 \text{ mm}$, $1 \text{ l} = 1,000 \text{ ml}$; $1 \text{ m} = 100 \text{ cm}$; 1 mm is 0.001 m or 1 m is 0.001 km, 1 ml is 0.001 l

Question 3 b): Although they are concerned with different types of measurement, the digits are the same in each column of the table. Words which begin 'milli' are always one thousandth of the whole. The units of measurements are different, length is measured in millimetres, centimetres and kilometres. Capacity is measured in millilitres and litres.

Textbook

- a) To convert mm into cm, divide by 10.
 $30 \text{ mm} \div 10 = 3 \text{ cm}$
The blade of grass is 3 cm long.
b) To convert litres into millilitres, multiply by 1,000.
 $1.2 \text{ l} \times 1,000 = 1,200 \text{ ml}$
The bottle holds 1,200 ml.



- Lines drawn to join strategy and task:
 - $\div 10 \rightarrow$ Measure the width of a stamp in mm and convert it into cm.
 - $\times 10 \rightarrow$ Change the height of a flower (in cm) into mm.
 - $\div 1,000 \rightarrow$ Convert an amount of water from millilitres into litres.
 - $\times 1,000 \rightarrow$ Convert the mass of a bag of sand (in kg) into g.
 - $\div 100 \rightarrow$ Write a length in cm as m.
 - $\times 100 \rightarrow$ Convert the height of a building (in m) into cm.
- a) $4,000 \text{ ml} = 4 \text{ l}$
b) $15 \text{ l} = 15,000 \text{ ml}$
c) $7.2 \text{ l} = 7 \text{ l}$ and 200 ml
d) $1,600 \text{ ml} = 1.6 \text{ l}$
e) $12 \text{ l } 500 \text{ ml} = 12,500 \text{ ml}$
 $12 \text{ l } 500 \text{ ml} = 12.5 \text{ l}$
f) $9 \text{ l } 2,500 \text{ ml} = 11,500 \text{ ml}$
 $9 \text{ l } 2,500 \text{ ml} = 11.5 \text{ l}$

5. To convert from centimetres to millimetres you multiply by 10, so Mo is correct since his measurement (in millimetres) is 10 times Lee's (measured in centimetres).

6.

First cup	Second cup	Third cup	Total
C	C	A	0.5 l
A	B	B	0.25 l
C	B	B	0.35 l
C	A	B	0.375 l

Reflect

Danny is wrong. Explanations may vary; for example: It is true that 10 mm is equal to 1 cm but Danny needs to multiply by 10 to convert cm into mm, rather than dividing. So, 5.6 cm = 56 mm.

Day 3 – Lesson 3 – Metric Units (3)

Starter – Jack, Whitney, Rosie, Mo – 1240mm, 1300mm, 1320mm, 1410mm

Discover

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ANSWERS

- Question 1 a): $1.40\text{ m} < 1.45\text{ m}$ so Isla is not tall enough to go on the roller coaster.
 Question 1 b): Aki is buying 750 ml of fizzy pop altogether.

Think Together

ANSWERS

- Question 1: $0.9 \times 1,000 = 900$ $0.3 \times 1,000 = 300$
 $0.9\text{ kg} = 900\text{ g}$ $0.3\text{ kg} = 300\text{ g}$
 $0.9\text{ kg} + 0.3\text{ kg} = 900\text{ g} + 300\text{ g} = 1,200\text{ g}$
 Ambika should guess a total of 1,200 g.
 Question 2: The roller coaster is now 597 m long.

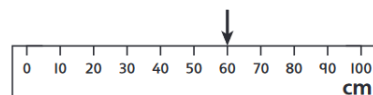
Challenge

- Question 3 a): A, D, B, C, E
 Question 3 b): Yes, you would get the same order. Explanations should mention that the mass of each parcel is still the same, whether it is expressed in grams or kilograms. Converting to kilograms and then comparing or converting to grams and then comparing will both give the same order.

Textbook

1. a) $7,200\text{ ml} + 1,000\text{ ml} = 8,200\text{ ml}$
 b) $6.2\text{ kg} + 2000\text{ g}$
 $= 6,200\text{ g} + 2,000\text{ g} = 8,200\text{ g}$
 c) In each of these examples, I converted the numbers by multiplying by 1,000.

2. 60 centimetres are left.



3. a) $800\text{ g} + \frac{1}{2}\text{ kg}$ $800\text{ g} + \frac{1}{2}\text{ kg}$
 $= 800\text{ g} + 500\text{ g}$ $= 0.8\text{ kg} + 0.5\text{ kg}$
 $= 1,300\text{ g}$ $= 1.3\text{ kg}$
 b) $10.5\text{ cm} - 62\text{ mm}$ $10.5\text{ cm} - 62\text{ mm}$
 $= 10.5\text{ cm} - 6.2\text{ cm}$ $= 105\text{ mm} - 62\text{ mm}$
 $= 4.3\text{ cm}$ $= 43\text{ mm}$

4. C, B, A, D

5. a) 1.1 litres = 1,100 ml
1,100 ml – 300 ml = 800 ml
Richard has 800 ml of squash left.
b) Each glass has 200 ml of squash.

Reflect

Explanations may vary; for example:

First convert 0.6 km to m by multiplying by 1,000.

$$0.6 \times 1,000 = 600$$

$$250 \text{ m} + 600 \text{ m} = 850 \text{ m}$$

Day 4 – Lesson 4 – Metric Units (4)

Starter

Answers:

Yes, you will say the number $^{-}5$.

The smallest number you will say is $^{-}124$.

My starting number was 4,968.

I arrived at the number 14,968.

Discover

ANSWERS

Question 1 a): The children will need 100,000 1p coins to make a line 1 km long.
They will have raised £1,000 for charity.

Question 1 b): The children would raise £9,000 more if they placed the coins on their sides.

Think Together

Question 1: $600 \div 10 = 60$. 600 mm = 60 cm.
 $60 \div 100 = 0.6$, 60 cm = 0.6 m
 $600 \div 1,000 = 0.6$. 600 mm = 0.6 m
Olivia's chain of coins is 0.6 m long.

Question 2: B, C, A; Max walks 50,000 cm.

Challenge

Question 3: All possible answers: mm \rightarrow cm \div 10,
cm \rightarrow mm \times 10; mm \rightarrow m \div 1,000,
m \rightarrow mm \times 1,000; mm \rightarrow km \div 1,000,000,
km \rightarrow mm \times 1,000,000; cm \rightarrow m \div 100,
m \rightarrow cm \times 100; cm \rightarrow km \div 100,000,
km \rightarrow cm \times 100,000; m \rightarrow km \div 1,000,
km \rightarrow m \times 1,000

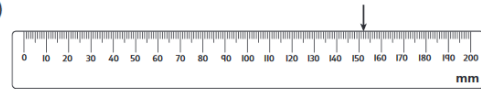
Explanations should include that each number has a 1 and a number of zeros (accept any alternative answer that describes the fact they are all powers of 10).

Textbook

- 10 mm = 1 cm
To convert from mm to cm, divide by 10.
 - 100 cm = 1 m
1,000 m = 1 km
 $100 \times 1,000 = 100,000$
To convert from cm to km, \div by 100,000.
To convert from km to cm, \times by 100,000.
- The mouse's tail is 14.2 cm long.
Check that children have drawn tails that are 14.2 cm long.
 - $40,000 \text{ cm} = 400 \text{ m} = 0.4 \text{ km}$
- Lexi, Reena, Ebo, Max

- Danny has treated the length of the ribbon as if it was 2 cm. The length of 2 m needs to be converted to cm ($2 \times 100 = 200 \text{ cm}$) so that the length and width are in the same units before carrying out his calculation.
 - The perimeter is $406 \text{ cm} = 4.06 \text{ m}$.

5. a)



- The cola will travel 7,582 cm.
- $310 \text{ mm} = 31 \text{ cm}$
So, any person who is less than 31 cm in width can walk down it, but it would be very narrow.

Reflect

Answers will vary; for example:

There are 10 mm in 1 cm.

There are 100 cm in 1 m.

There are 1,000 ml in 1 l / There are 1,000 g in 1 kg /

There are 1,000 mm in 1 m / There are 1,000 m in 1 km.

Day 5 – Mental Maths Answers

- 450
- 360
- 270
- 120
- 14
- 810
- 5120
- 160
- 74
- 24
- 9.6
- 37.3
- 2
- 6.6
- 7.9
- 0.2
- 3984
- 12,984
- 1050
- 18,760