CONVERT METRIC UNITS

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

1 km = 1000 m | 1 m = 100 cm | 1 cm = 10 mm

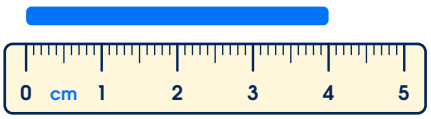
1 kg = 1000 g | 1 l = 1000 ml

Big unit → small unit: MULTIPLY

Small unit → big unit: DIVIDE

1 Measure each blue bar with its ruler. Then change it into millimetres.

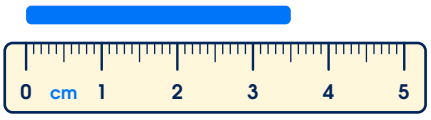
a)



1 cm = 10 mm

□ (□ cm = □ mm) □

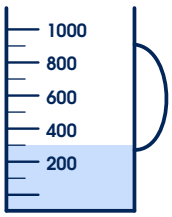
b)



1 cm = 10 mm

□ (□ cm = □ mm) □

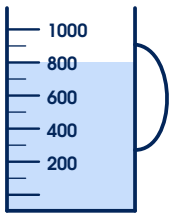
2 How much water is in each jug? Each jug holds 1 litre (1000 ml).



□ ml

More to make 1 litre:

□ ml



□ ml

More to make 1 litre:

□ ml

3 Multiply and divide by 10, 100 and 1000.

a) 3 × 1000 = □

b) 4500 ÷ 1000 = □

c) 2.5 × 100 = □

d) 60 ÷ 10 = □

4 Convert each measure. Do the same to both sides.

a)

× 2 (1 kg = 1000 g / 2 kg = □ g) □

b)

□ (1000 ml = 1 l / 3000 ml = □ l) □

CONVERT METRIC UNITS

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

PREFIX	MEANS	EXAMPLE
kilo-	× 1000	1 km = 1000 m
centi-	one hundredth	1 m = 100 cm
milli-	one thousandth	1 l = 1000 ml

Big unit → small unit: **multiply**

Small unit → big unit: **divide**

1 Use the fact to fill in the operation, then convert.

a) 1 km = 1000 m

4.2 km → × 1000 → ____ m

b) 1 m = 100 cm

350 cm → ____ → ____ m

c) 1 kg = 1000 g

6.5 kg → ____ → ____ g

d) 1 l = 1000 ml

2750 ml → ____ → ____ l

e) 1 cm = 10 mm

9 mm → ____ → ____ cm

f) 1 m = 100 cm

0.8 m → ____ → ____ cm

2 Circle the larger measure in each pair.

a) 3 cm or 20 mm

b) 2 kg or 1500 g

c) 500 ml or 1 l

d) 1 km or 800 m

3 Write these lengths in order, starting with the smallest.

2 m 150 cm 3 m 50 cm

smallest ____ < ____ < ____ < ____ largest

4 Ella says, "30 m = 30 000 km, because there are 1000 m in a kilometre."

a) Explain Ella's mistake. .....

b) 30 m = ____ km

CONVERT METRIC UNITS

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

kilo- means 1000, centi- means one hundredth and milli- means one thousandth. Before you calculate with measures, change them into the same unit. Check: is your answer a sensible size?

FLUENCY

1 Convert each measure.

a) 0.45 km = ☐ cm

b) 3.06 kg = ☐ g

c) 85 cl = ☐ ml = ☐ l

d) 0.6 cm = ☐ mm

e) 7800 mg = ☐ g

2 Work out each answer in the unit given.

a) 2.4 kg + 650 g = ☐ kg

b) 3 m – 85 cm = ☐ cm

c) 1.5 l ÷ 6 = ☐ ml

d) 12 × 45 cm = ☐ m

REASONING

3 A jug holds 1.8 litres of juice. It is poured into glasses that each hold 250 ml. How many glasses can be filled? How much juice is left over?

glasses filled: ☐ left over: ☐ ml

4 Units and prefixes.

a) Can you convert kilograms into kilometres? Explain.

b) Explain why km → m and kg → g use the same multiplier.

CONVERT METRIC UNITS

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

If it is sometimes true, give an example of when it is true and when it is not.

a) To change from a larger unit to a smaller unit, you multiply. ALWAYS SOMETIMES NEVER

b) Converting a length from cm into m gives a number less than 1. ALWAYS SOMETIMES NEVER

c) If you divide by 1000 to convert, the new unit has the prefix kilo-. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 1 mm = 1000 micrometres (μm). A hair is 0.08 mm wide. A red blood cell is 8 μm wide.

How many times wider is the hair than the blood cell? ☐

3 Sam cuts as many 85 cm pieces of ribbon as possible from a 12 m roll.

Number of pieces: ☐ Length left over: ☐ mm

★ CHALLENGE FOR ALL

4 A fish tank is a cuboid 80 cm long, 50 cm wide and 40 cm tall. 1 litre = 1000 cm^3.

a) How many litres of water does the tank hold when full? ☐

b) It is filled using 1.5 litre bottles. How many bottles are needed? ☐

CONVERT METRIC UNITS – ANSWERS

ANSWERS

BUILDING BLOCKS

1 a) 4 cm, × 4 on both sides: 40 mm · b) 3.5 cm, × 3.5 on both sides: 35 mm
2 A: 300 ml, 700 ml more · B: 800 ml, 200 ml more
3 a) 3000 · b) 4.5 · c) 250 · d) 6
4 a) 2000 g · b) × 3 on both sides: 3 l

SUPPORT

1 a) 4200 m · b) ÷ 100: 3.5 m · c) × 1000: 6500 g · d) ÷ 1000: 2.75 l · e) ÷ 10: 0.9 cm · f) × 100: 80 cm
2 a) 3 cm · b) 2 kg · c) 1 l · d) 1 km
3 50 cm < 150 cm < 2 m < 3 m
4 a) A km is bigger than a m, so there should be fewer km: divide by 1000 · b) 0.03 km

CORE

1 a) 45 000 cm · b) 3060 g · c) 850 ml = 0.85 l · d) 6 mm · e) 7.8 g
2 a) 3.05 kg · b) 215 cm · c) 250 ml · d) 5.4 m
3 1800 ÷ 250 = 7.2: 7 glasses, 50 ml left over
4 a) No – kilograms measure mass and kilometres measure length · b) Both use the prefix kilo-, which means 1000

GREATER DEPTH

1 a) Always · b) Sometimes, e.g. 45 cm = 0.45 m (true), 250 cm = 2.5 m (false) · c) Sometimes, e.g. m → km (true), ml → l (false)
2 0.08 mm = 80 μm, so 10 times wider
3 1200 ÷ 85 = 14 pieces (1190 cm), 10 cm = 100 mm left
4 a) 160 000 cm^3 = 160 litres · b) 160 ÷ 1.5 = 106.7, so 107 bottles