



Measurement prefixes

Mana Maths

Te reo Māori terms



inenga

measurement

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mita

metre

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karamu

gram

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papatipu

mass

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Notes & Steps



Key idea

Metric prefixes scale a unit by powers of 10. **kilo** means 1000 times bigger, **centi** means 100 times smaller, and **milli** means 1000 times smaller.

Steps

1. Decide whether you are changing to a bigger or smaller unit.
2. Use powers of 10: metres ↔ centimetres ↔ millimetres.
3. Multiply when changing to a smaller unit.
4. Divide when changing to a bigger unit.

Common mistake

Going the wrong way with place value. Converting metres to centimetres means multiplying by 100, not dividing by 100.

Key facts

- ▶ 1 km = 1000 m
- ▶ 1 m = 100 cm
- ▶ 1 cm = 10 mm
- ▶ 1 L = 1000 mL
- ▶ 1 kg = 1000 g

Try these

1. Convert 3 km to metres.
2. Convert 250 cm to metres.
3. Convert 4 L to mL.

Notes & Steps



Example 1: km to m

Convert 2.5 km to metres.

$$2.5 \times 1000 = 2500 \text{ m}$$

Example 2: cm to m

Convert 450 cm to metres.

$$450 \div 100 = 4.5 \text{ m}$$

Example 3: L to mL

Convert 1.8 L to mL.

$$1.8 \times 1000 = 1800 \text{ mL}$$

Example 4: reasoning

Which is larger: 0.01 km or 1000 mm?

$$0.01 \text{ km} = 10 \text{ m}, \quad 1000 \text{ mm} = 1 \text{ m}$$

So 0.01 km is larger.

Start Tasks



1. What does the prefix kilo mean?

2. What does the prefix centi mean?

3. What does the prefix milli mean?

4. Convert 3 km to metres.

5. Convert 500 cm to metres.

6. Convert 2000 g to kilograms.

7. Convert 2.5 m to centimetres.

8. Convert 1500 mL to litres.

9. Convert 4 kg to grams.

Measurement prefixes — Answers



1. 1000

2. 1/100

3. 1/1000

4. 3000 m

5. 5 m

6. 2 kg

7. 250 cm

8. 1.5 L

9. 4000 g

Start Tasks



10. Convert 7 m to centimetres.

11. Convert 9 cm to millimetres.

12. Convert 4500 m to kilometres.

13. Convert 600 mm to centimetres.

14. Convert 8 L to millilitres.

15. Convert 250 cm to metres.

16. Convert 0.5 kg to grams.

17. Convert 3 g to milligrams.

18. Convert 1200 mm to metres.

Measurement prefixes – Answers



10. 700 cm

11. 90 mm

12. 4.5 km

13. 6 cm

14. 8000 mL

15. 2.5 m

16. 500 g

17. 3000 mg

18. 1.2 m

Start Tasks



19. Fill in:

1 km = _____ m.

20. Fill in:

1 m = _____ cm.

21. Fill in:

1 cm = _____ mm.

22. Fill in:

1 L = _____ mL.

23. Which is larger:

1 kg or 900 g?

24. Which is larger:

2 m or 180 cm?

25. Which is larger:

500 mL or 0.4 L?

26. Convert 12 km to

metres.

27. Convert 75 mm to

centimetres.

Measurement prefixes – Answers



19. 1000 m

20. 100 cm

21. 10 mm

22. 1000 mL

23. 1 kg

24. 2 m

25. 500 mL

26. 12000 m

27. 7.5 cm

Build Tasks



1. Convert 4500 mm to centimetres.

2. Convert 0.35 kg to grams.

3. Convert 2.4 km to centimetres.

4. Convert 5000 micrograms to milligrams.

5. Convert 3.2 MHz to hertz.

6. Convert 4.5 km to millimetres.

7. Convert 0.08 m to millimetres.

8. Convert 750000 g to kilograms.

9. Convert 6.4 L to millilitres.

Measurement prefixes — Answers



1. 450 cm

2. 350 g

3. 240000 cm

4. 5 mg

5. 3.2 MHz

6. 4500000 mm

7. 80 mm

8. 750 kg

9. 6400 mL

Build Tasks



10. Put in order:
0.5 km, 50000 cm,
500 m.

11. Put in order: 4 g,
4000 mg, 0.004 kg.

12. Convert 2 m^2 to
 cm^2 .

13. Convert 3 L to
millilitres.

14. Convert 0.006 m to
millimetres.

15. Convert 2500000 Hz
to megahertz.

16. Convert 0.45 m to
centimetres.

17. Convert 3600 s to
hours.

18. Convert 18 km to
metres.

Measurement prefixes — Answers



10. all 500 m

11. all 4 g

12. 20000 cm
extsuperscript2

13. 3000 mL

14. 6 mm

15. 2.5 MHz

16. 45 cm

17. 1 h

18. 18000 m

Build Tasks



19. Convert 0.9 L to millilitres.

20. Convert 48 cm to metres.

21. Convert 5 mm to micrometres.

22. Convert 1.2 mg to micrograms.

23. Convert 3200 m to kilometres.

24. Convert 7.5 m to millimetres.

25. Convert 0.25 kg to milligrams.

26. Convert 2.7 h to minutes.

27. Convert 5400 s to minutes.

Measurement prefixes — Answers



19. 900 mL

20. 0.48 m

21. 5000 μm

22. 1200 μg

23. 3.2 km

24. 7500 mm

25. 250000 mg

26. 162 min

27. 90 min

Push Tasks



1. A box weighs 2.5 kg.
Write its mass in grams.

2. A box weighs 2.5 kg.
Write its mass in milligrams.

3. Convert 1.5 m^2 to cm^2 .

4. A jug holds 1.5 L.
How many 250 mL glasses fill it?

5. A race is 5 km. A runner has done 3200 m. How many metres left?

6. A student says $0.004 \text{ km} = 400 \text{ cm}$.
Correct or not?

7. Convert 36 km/h to m/s.

8. Which is larger:
0.01 km or 1000 mm?

9. A tank holds 2.4 L.
Write this in millilitres.

Measurement prefixes — Answers



1. 2500 g

2. 2500000 mg

3. 15000 cm
extsuperscript2

4. 6 glasses

5. 1800 m

6. Correct

7. 10 m/s

8. 0.01 km

9. 2400 mL

Push Tasks



10. Convert 0.75 m^2 to mm^2 .

11. Convert 4.2 m^3 to litres.

12. How many 25 cm pieces can be cut from 6 m?

13. A cable is 0.008 km long. Write this in metres and centimetres.

14. Which is heavier: 0.6 kg or 650 g?

15. A bottle holds 750 mL. How many bottles make 6 L?

16. Convert 12 cm^2 to mm^2 .

17. Convert 1800000 Hz to megahertz.

18. Convert 3.5 MHz to hertz.

Measurement prefixes — Answers



10. 750000 mm
extsuperscript2

11. 4200 L

12. 24 pieces

13. 8 m

14. 650 g

15. 8 bottles

16. 1200 mm
extsuperscript2

17. 1.8 MHz

18. 3500000 Hz

Push Tasks



19. Water flows at 250 mL/s. How many litres in 20 s?

20. A truck travels 90 km/h. How many kilometres in 30 min?

21. Convert 0.45 g to milligrams.

22. Convert 0.45 g to micrograms.

23. Which is longer: 0.003 km or 250 cm?

24. A field is 120 m by 80 m. Find area in m^2 .

25. Then write that area in hectares if $1 \text{ ha} = 10000 \text{ m}^2$.

26. A car uses 8 L per 100 km. Find mL per km.

27. A drum holds 0.2 m^3 . Write this in litres.

Measurement prefixes — Answers



19. 5 L

20. 45 km

21. 450 mg

22. 450000 ug

23. 0.003 km

24. 9600 m
extsuperscript2

25. 0.96 ha

26. 80 mL/km

27. 200 L