

The Keeper's Stores at Brindle Point

Converting units of metric measure · standard tier

The light has gone out and the store door has locked itself. Ten records in the keeper's stores each hold one letter of the word that opens it. Every record is a measurement written twice — find the line that was converted wrongly, and the letter is yours.

THE LOCK — fill this in at the end, from the letters you collect

1	2	3	4	5	6	7	8	9	10

CLUE 1 · The Delivery Slate

Five deliveries. One weight is wrong. Which delivery?

- Delivery 1: 1.5 kg as $1.5 \times 1000 = 1500$ g.
- Delivery 2: 2.4 kg as $2.4 \times 1000 = 2400$ g.
- Delivery 3: 6.2 kg as $6.2 \times 1000 = 6200$ g.
- Delivery 4: 3.5 kg as $3.5 \times 1000 = 3500$ g.
- Delivery 5: 3.5 kg as $3.5 \times 1000 = 350$ g.

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 9

CLUE 2 · The Watch Crew

Four keepers, one rail. One is wrong. Who?

- Keeper Ash — She wrote 2.5 m as $2.5 \times 100 = 250$ cm.
- Keeper Bly — He wrote 4.5 m as $4.5 \times 100 = 45$ cm.
- Keeper Dunn — She wrote 1.8 m as $1.8 \times 100 = 180$ cm.
- Keeper Fen — He wrote 3.4 m as $3.4 \times 100 = 340$ cm.

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 1

CLUE 3 · The Weighing Beam

Work the beam through each step. Where does it settle?

Start: 200

Then: $\div 100$

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 5

CLUE 4 · The Oil Ledger

Four barrels logged twice. One line is wrong. Which barrel?

- Barrel 1: 1.2 litres as $1.2 \times 1000 = 120$ ml.
- Barrel 2: 2.6 litres as $2.6 \times 1000 = 2600$ ml.
- Barrel 3: 0.5 litres as $0.5 \times 1000 = 500$ ml.
- Barrel 4: 4.05 litres as $4.05 \times 1000 = 4050$ ml.

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 3

CLUE 5 · The Wick Gauge

Run the gauge down through its steps. Where does it come to rest?

Start: 300

Then: $\div 100 \rightarrow -2$

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 7

ACT TWO

You have 5 of the 10 letters. Fill the rest and the door opens.

CLUE 6 • The Lamp Room Floor

Only TRUE tiles hold your weight. How many are safe?

$2.5 \times 100 = 250$	$40 \div 10 = 4$	$7.5 \times 10 = 75$
$600 \div 100 = 60$	$1.5 \times 1000 = 150$	$90 \div 10 = 900$
$3000 \div 1000 = 3$	$4.2 \times 100 = 42$	$250 \div 100 = 25$

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 6

CLUE 7 • The Paint Store

Four hands relabelled the tins. One got it wrong. Who?

2. Hand Orrin — He wrote 2.5 cm as $2.5 \times 10 = 25$ mm.
4. Hand Pell — She wrote 7.2 cm as $7.2 \times 10 = 72$ mm.
5. Hand Quill — He wrote 4.5 cm as $4.5 \times 10 = 450$ mm.
7. Hand Roe — She wrote 9.8 cm as $9.8 \times 10 = 98$ mm.

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 2

CLUE 8 • The Signal Board

A lamp lights only if its conversion is TRUE. How many light?

$1.5 \times 100 = 150$	$3.6 \times 10 = 36$	$2.4 \times 1000 = 2400$
$750 \div 1000 = 0.75$	$120 \div 100 = 1.2$	$45 \div 10 = 450$
$0.8 \times 1000 = 800$	$6.5 \times 100 = 650$	$300 \div 1000 = 30$

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 10

CLUE 9 • The Rain Gauge Wall

Some gauges were read correctly. How many are right?

$1.2 \times 1000 = 1200$	$3.5 \times 10 = 35$	$460 \div 100 = 4.6$
$0.9 \times 100 = 90$	$2500 \div 1000 = 2.5$	$7.4 \times 10 = 740$
$60 \div 10 = 6$	$0.4 \times 1000 = 40$	$180 \div 100 = 18$

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 4

CLUE 10 • The Final Dial

One dial remains. Work through its steps. Where does it stop?

Start: 1000

Then: $\div 1000$

Answer: ____ → find it on the CIPHER STRIP → LETTER: ____ → goes in BOX 8

The Keeper's Stores at Brindle Point — TEACHER KEY

Password: SALTCELLAR

Read DOWN the letter column to check the lock left to right.

BOX	FROM	LETTER	HOW IT IS FOUND
1	Clue 2	S	witness # = 3
2	Clue 7	A	witness # = 5
3	Clue 4	L	corrupted item # = 1
4	Clue 9	T	count of TRUE items = 6
5	Clue 3	C	final result = 2
6	Clue 6	E	count of TRUE items = 4
7	Clue 5	L	final result = 1
8	Clue 10	L	final result = 1
9	Clue 1	A	corrupted item # = 5
10	Clue 8	R	count of TRUE items = 7

PER-CLUE ANSWERS

LETTER 1 (corrupted item #) • Clue 1: The Delivery Slate

Delivery 5 is wrong: $2 \times 1000 = 2000$, not 200 (support); $3.5 \times 1000 = 3500$, not 350 (standard); $0.85 \times 1000 = 850$, not 85 (stretch). Every other line converts correctly.

Common mistake: Going from a big unit to a small one MULTIPLIES. If your answer got smaller, you divided by mistake.

LETTER 2 (witness #) • Clue 2: The Watch Crew

Keeper 3 is wrong every time: $6 \times 100 = 600$, not 60 (support); $4.5 \times 100 = 450$, not 45 (standard); $0.7 \times 100 = 70$, not 7 (stretch). The other three convert correctly.

Common mistake: There are 100 centimetres in a metre, not 10. Ten is the step between centimetres and millimetres.

LETTER 3 (final result) • Clue 3: The Weighing Beam

Support $20 \div 10 = 2$. Standard $200 \div 100 = 2$. Stretch $2000 \div 1000 = 2$ grams, then $\times 3 = 6$, then $- 4 = 2$.

Common mistake: Work left to right through the steps exactly as written. Do not reorder them or apply the usual order of operations.

LETTER 4 (corrupted item #) • Clue 4: The Oil Ledger

Barrel 1 is wrong: $3 \times 1000 = 3000$, not 300 (support); $1.2 \times 1000 = 1200$, not 120 (standard); $0.075 \times 1000 = 75$, not 7.5 (stretch).

Common mistake: A thousand millilitres make one litre. Multiplying by 100 instead of 1000 is the usual slip.

LETTER 5 (final result) • Clue 5: The Wick Gauge

Support $10 \div 10 = 1$. Standard $300 \div 100 = 3$ centimetres, then $- 2 = 1$. Stretch $2500 \div 1000 = 2.5$ kilograms, then $- 1.5 = 1$.

Common mistake: Each step works on the number you have just made, not the one you started with.

LETTER 6 (count of TRUE items) • Clue 6: The Lamp Room Floor

Four tiles are true. The five false ones use the wrong multiplier or divide when they should multiply.

Common mistake: Check the operation as well as the digits. 10, 100 and 1000 are three different steps.

LETTER 7 (witness #) • Clue 7: The Paint Store

Hand 5 is wrong every time: $6 \times 10 = 60$, not 600 (support); $4.5 \times 10 = 45$, not 450 (standard); $0.35 \times 10 = 3.5$, not 35 (stretch).

Common mistake: Ten millimetres make a centimetre. A hundred is the step from metres to centimetres.

LETTER 8 (count of TRUE items) • Clue 8: The Signal Board

Seven lamps light. Only two conversions are false, and both divide by the wrong power of ten.

Common mistake: A conversion can look wrong just because the answer is a decimal. Check the arithmetic, not the shape of the number.

LETTER 9 (count of TRUE items) • Clue 9: The Rain Gauge Wall

Six readings are correct. The three false ones move the digits the wrong number of places.

Common mistake: Dividing by 1000 moves the digits three places, not one. Count the places.

LETTER 10 (final result) • Clue 10: The Final Dial

Support $100 \div 100 = 1$. Standard $1000 \div 1000 = 1$. Stretch $4500 \div 1000 = 4.5$ kilograms, then $- 3.5 = 1$.

Common mistake: Each step acts on the number you have just made, not on the number you started with.