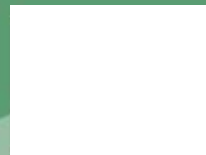


# Mathematics

## Number and Algebra

# Paperclip Chains



# Aim

- To multiply and divide numbers by 10, 100 and 1000 to convert units of measurement.

# Success Criteria

- I can multiply and divide numbers by 10, 100 and 1000 by moving each digit one, two or three places to the left or right.
- I can multiply and divide numbers by 10, 100 and 1000 to convert between mm, cm and m.

# Trios



Match up the problem, the calculation and the answer.  
Use a whiteboard to help.

How many m in 3520km?       $\times 1000 =$       872.93cm

Convert 624 000m into km       $\div 10 =$       3 520 000m

How many m in 352cm?       $\div 100 =$       3.52m

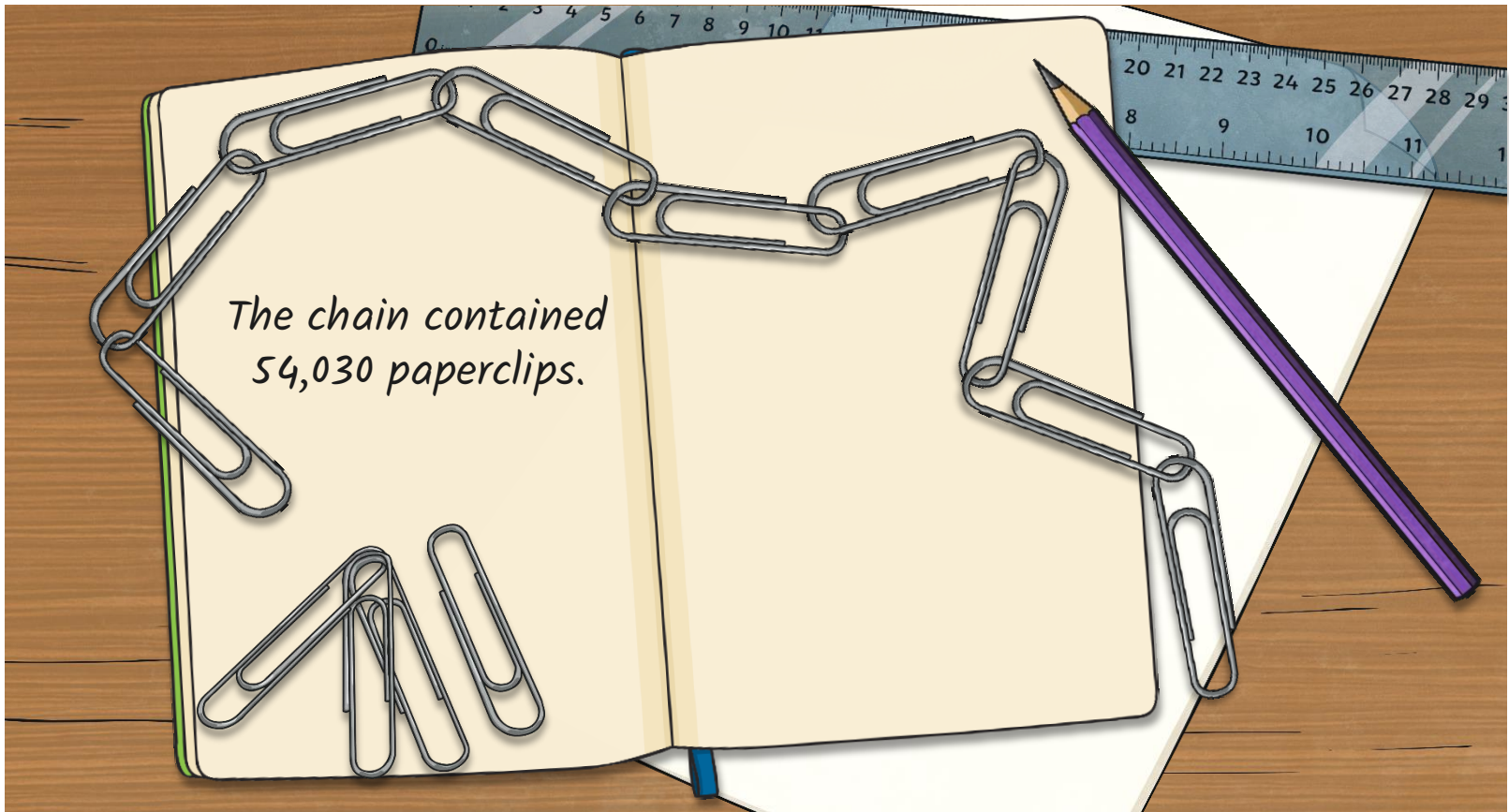
How many cm in 3.52m?       $\times 10 =$       6728mm

Convert 8729.3mm into cm       $\times 100 =$       352cm

Convert 672.8cm into mm       $\div 1000 =$       624km

# Paperclip Record

The world record for the longest paperclip chain made in 24 hours by one individual is 1627.6m.





# Converting Lengths

The length of the paperclip chain below is given in **millimetres**.  
How could we convert this into **centimetres**?

Let's try one:

There are ten millimetres in a centimetre.

| Length in Millimetres | Calculation | Length in Centimetres |
|-----------------------|-------------|-----------------------|
| 372.5mm               | $\div 10$   | 37.25cm               |

# Converting Lengths

The length of this paperclip chain is given in **centimetres**.  
How could we convert this into **metres**?

...we can  
how r  
long

Let's try one:

There are a  
hundred centimetres  
in a metre.

| Length in Centimetres | Conversion | Length in Metres |
|-----------------------|------------|------------------|
| 6243cm                | $\div 100$ | 62.43m           |

# Converting Lengths

The length of this paperclip chain is given in **millimetres**.  
How could we convert this into **metres**?

Let's try one:

There are a thousand millimetres in a metre.

| Length in Millimetres |            | Length in Metres |
|-----------------------|------------|------------------|
| 6243cm                | $\div 100$ | 62.43m           |



# Multiplying and Dividing by 10, 100 and 1000

Click on the boxes below to remind you how to multiply and divide by 10, 100 and 1000.

Multiply by 10

Divide by 10

Multiply by 100

Divide by 100

Multiply by 1000

Divide by 1000

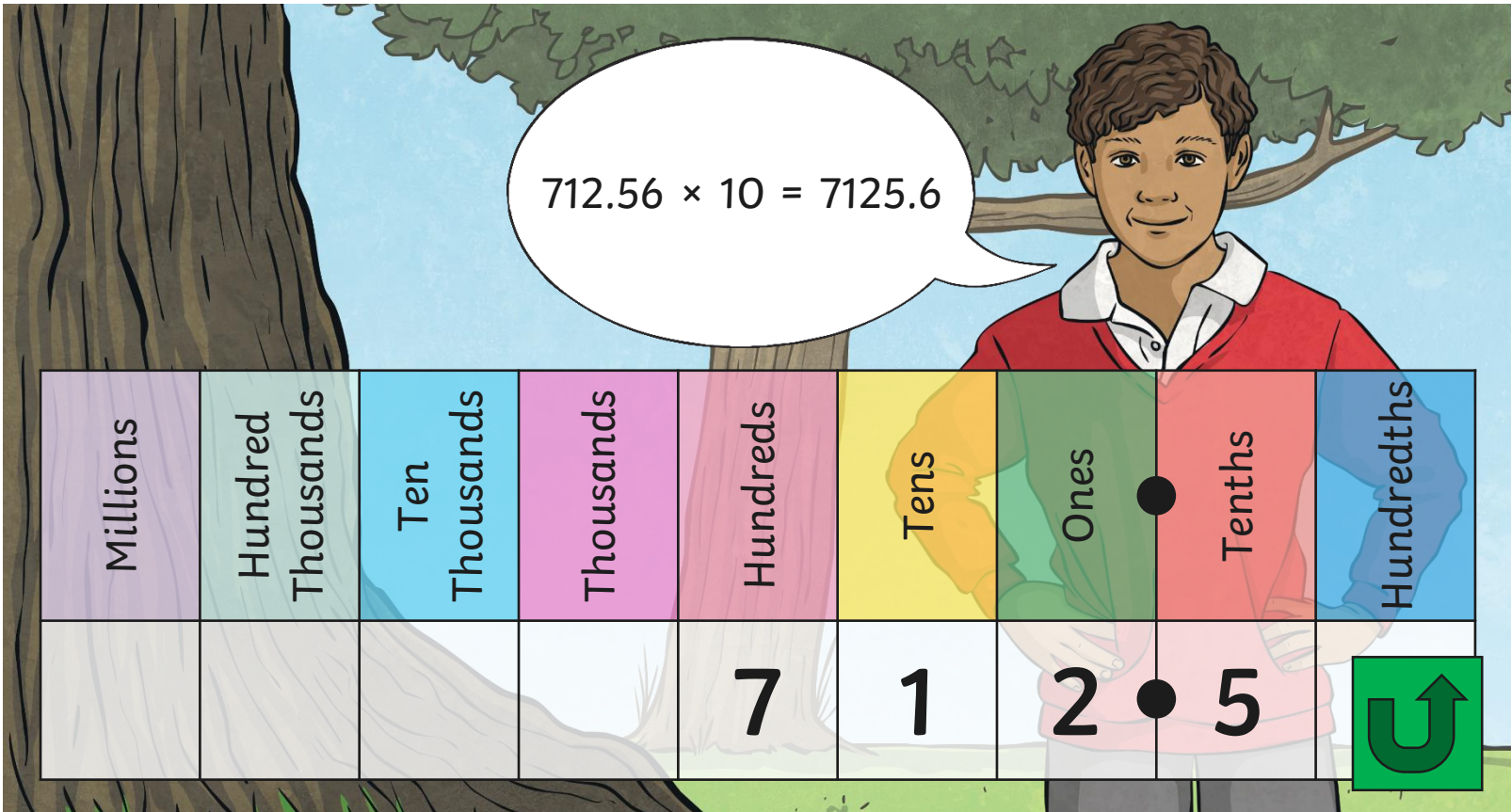
Go straight to [Paperclip Chain Activity Sheets](#).

# Multiplying by 10



When we multiply by 10, the number gets 10 times bigger.

$$712.56 \times 10 = 7125.6$$



# Multiplying by 100



When we multiply by 100, the number gets 100 times bigger.

$493.07 \times 100 = 49\,307$

| Millions | Hundred Thousands | Ten Thousands | Thousands | Hundreds | Tens | Ones | Tenths | Hundredths |
|----------|-------------------|---------------|-----------|----------|------|------|--------|------------|
|          |                   |               |           | 4        | 9    | 3    | 0      |            |

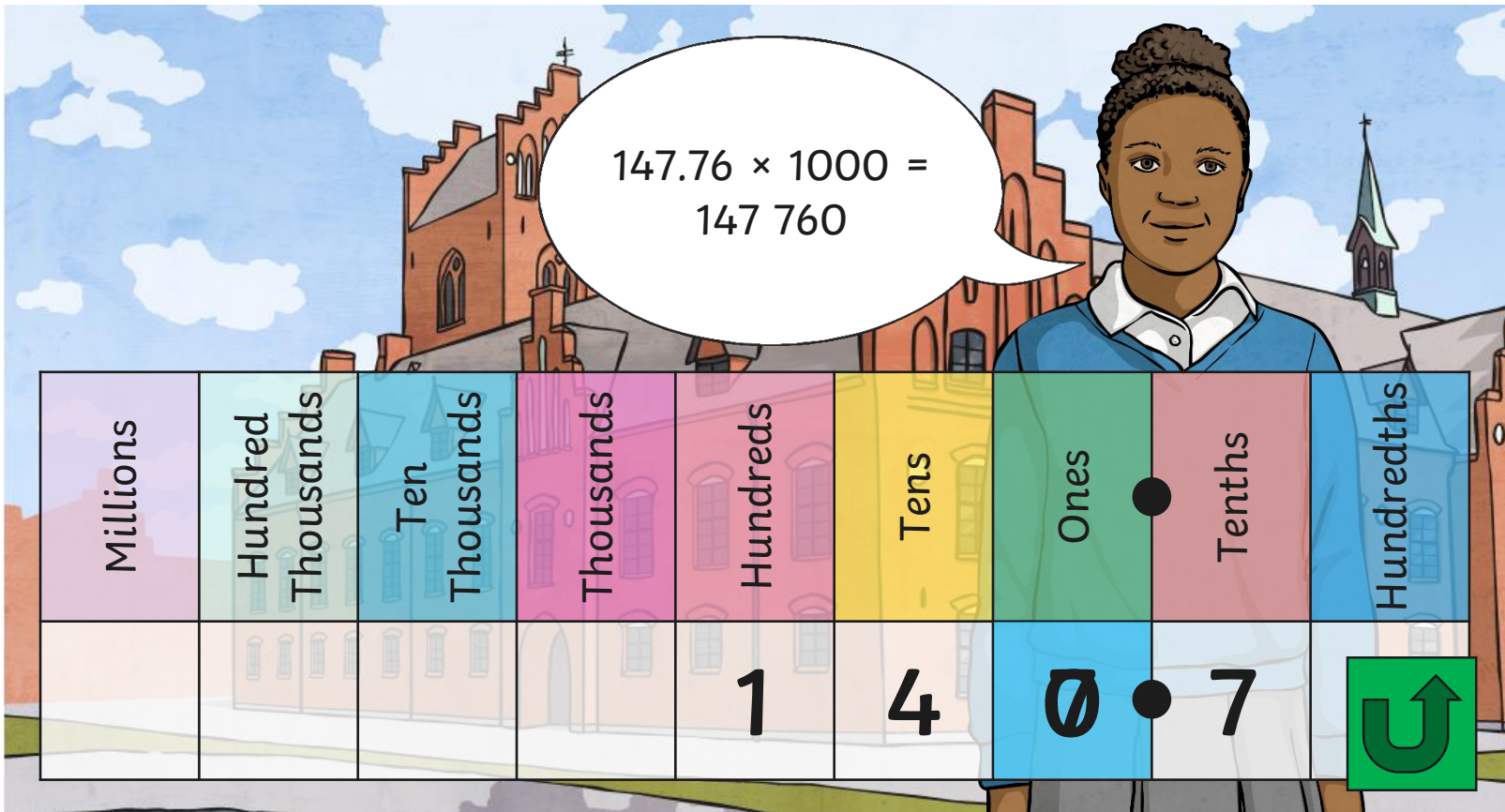


# Multiplying by 1000



When we multiply by 1000, the number gets 1000 times bigger.

$$147.76 \times 1000 = 147\,760$$





# Dividing by 10



When we divide by 10, the number gets 10 times smaller.

80 115 ÷ 10 = 8 011.5

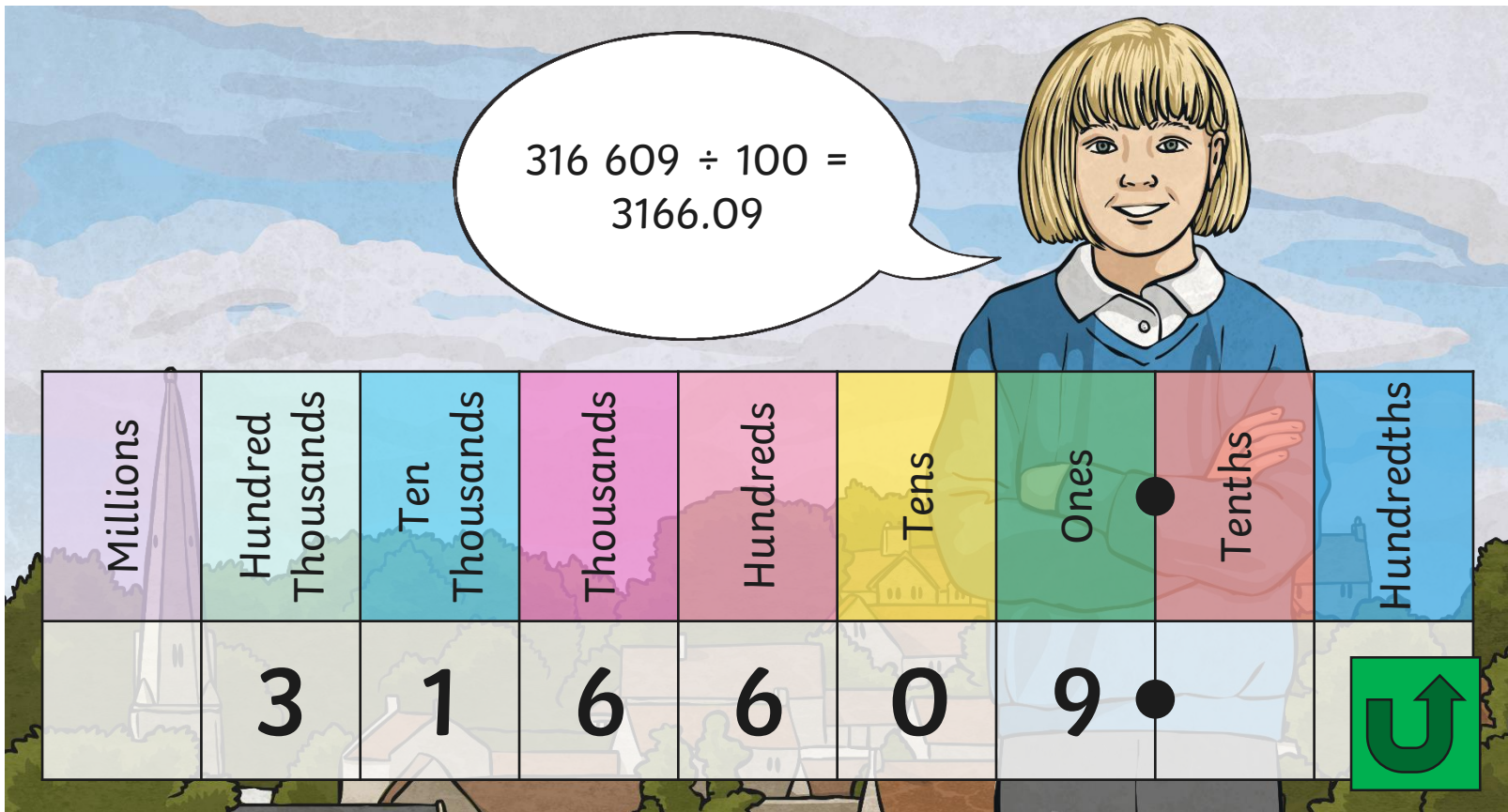
| Millions | Hundred Thousands | Ten Thousands | Thousands | Hundreds | Tens | Ones | Tenths | Hundredths |
|----------|-------------------|---------------|-----------|----------|------|------|--------|------------|
|          |                   | 8             | 0         | 1        | 1    | 5    |        |            |

# Dividing by 100



When we divide by 100, the number gets 100 times smaller.

$$316\,609 \div 100 = 3166.09$$



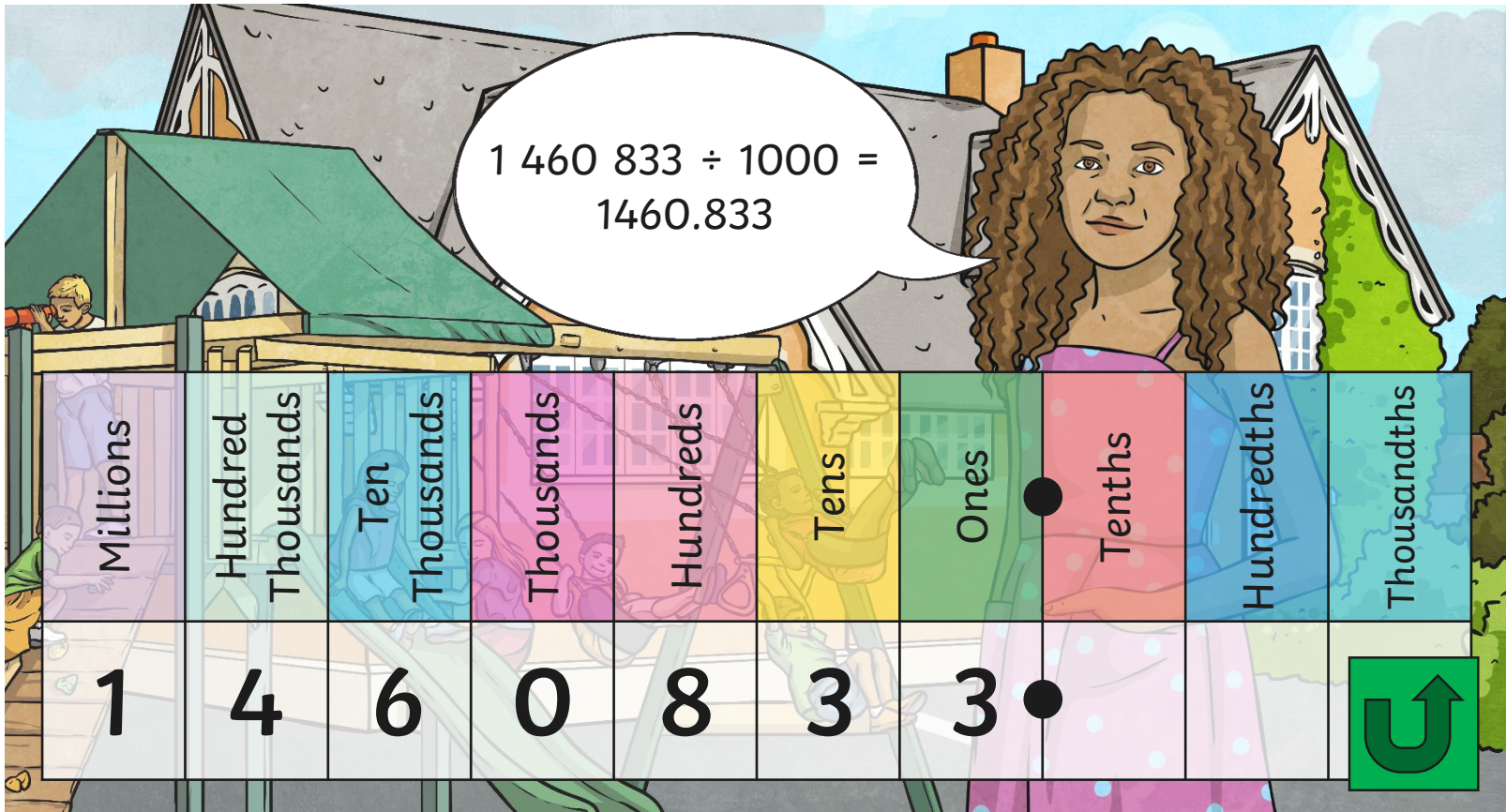


# Dividing by 1000

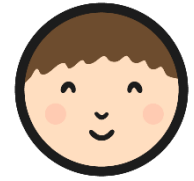


When we divide by 1000, the number gets 1000 times smaller.

$$1\ 460\ 833 \div 1000 = 1460.833$$



# Paperclip Chains



Use your marvellous maths skills to complete these activities:

2) Complete this conversion table.

To multiply and divide numbers by 10, 100 and 1000 to convert units of measurement.

The children in Class 2 at Twinkl Primary School have made paperclip chains. They want to know which one is the longest, but they all used different units when they measured them.

Use these facts to help you:  
There are 10mm in a centimetre. There are 100cm in a metre.

1) Can you convert all the paperclip chains into centimetres by multiplying or dividing by 10, 100 or 1000? Complete to help you:

| Name      | Chain Length | Chain Length in Centimetres |
|-----------|--------------|-----------------------------|
| Robert    | 200mm        |                             |
| Emma      | 2.45m        |                             |
| Connie    | 740cm        |                             |
| Sofie     | 1539mm       |                             |
| Lucia     | 1.76m        |                             |
| Paul      | 1328.9mm     |                             |
| Elizabeth | 1.00m        |                             |
| Ffion     | 8402mm       |                             |
| Anika     | 182cm        |                             |
| Harvey    | 2.54m        |                             |

Who made the longest chain? \_\_\_\_\_  
Who made the shortest chain? \_\_\_\_\_



# Measurement Maths



Can you think of any other units of measurement conversions which would require you to multiply and divide by 10, 100 or 1000?



# Aim



- To multiply and divide numbers by 10, 100 and 1000 to convert units of measurement.

# Success Criteria

- I can multiply and divide numbers by 10, 100 and 1000 by moving each digit one, two or three places to the left or right.
- I can multiply and divide numbers by 10, 100 and 1000 to convert between mm, cm and m.

