

# Decimal Disco



# Multiplying and Dividing by 10, 100 and 1000



How do we **multiply** whole numbers by 10, 100 and 1000?

This will make the number 10, 100 or 1000 times bigger.

Don't forget to add zeros as place holders before the decimal point.

Move each digit in the number one, two or three places to the left.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
				2	4	6		

# Multiplying and Dividing by 10, 100 and 1000



How do we **divide** whole numbers by 10, 100 and 1000?

Don't forget to  
adjust the calculation  
for digits below the  
decimal point.

Move each  
digit in the number  
one, two or three  
places to the right.

This will make  
the number 10, 100 or  
1000 times smaller.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
	1	6	7	0	0	0		

$$167\,000 \div 100 = 1670$$

# The Decimal Point

When we calculated  $167\,000 \div 100$ ,  
we moved each digit two places to the right.

What happens  
if the digits aren't  
zeros though?

This meant  
moving two of the zeros across  
the decimal point.

We didn't need  
to write the decimal digits  
in because they were all  
zeros.

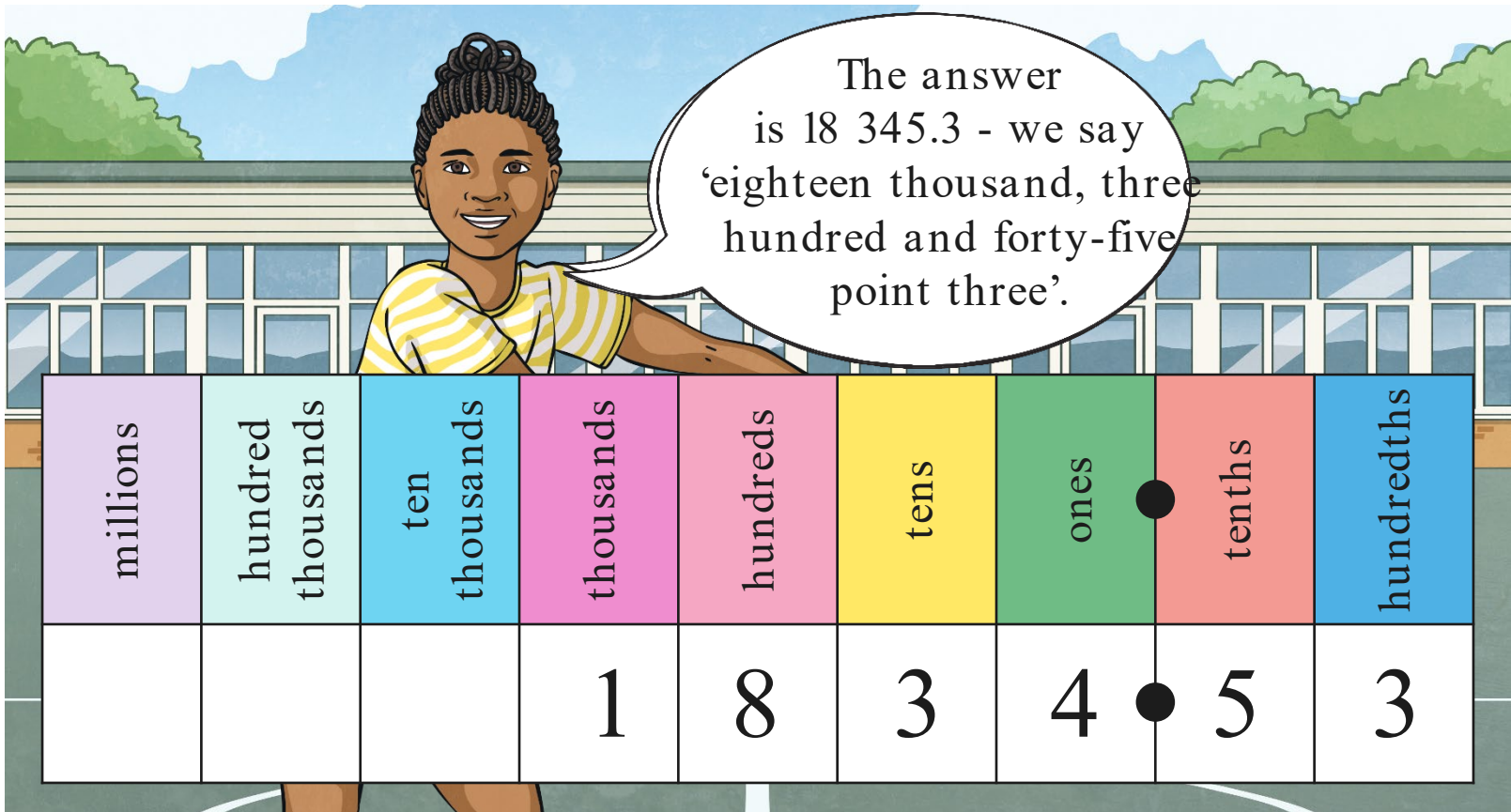
The answer  
was 1670.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
	1	6	7	0	0	0		

# The Decimal Point

Let's work out  $1834.53 \times 10$ .

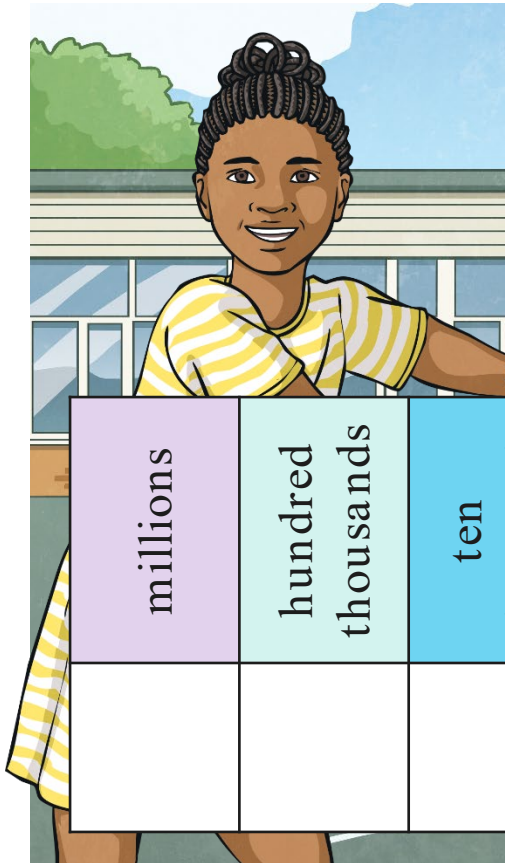
The answer  
is 18 345.3 - we say  
'eighteen thousand, three  
hundred and forty-five  
point three'.



# The Decimal Point

Let's work out  $1834.53 \times 10$ .

- First, write it in the place value grid.
- To multiply by 10, we move each digit one place to the left.
- There is one ten thousand plus eight thousands, three hundreds, four tens, five ones and three tenths.
- The answer is 18 345.3 - we say 'eighteen thousand, three hundred and forty-five point three'.



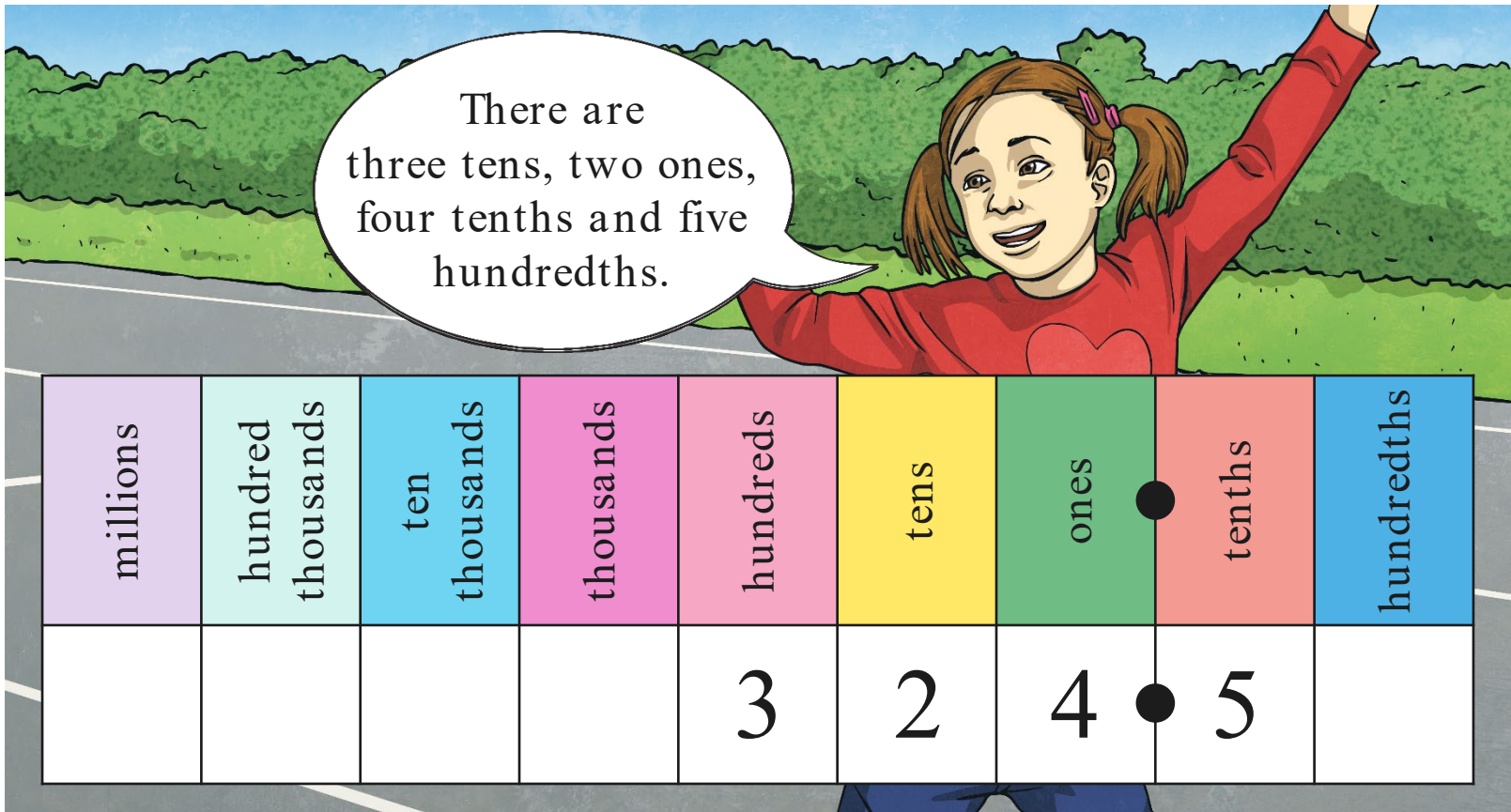
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
			1	8	3	4	5	3



# The Decimal Point

Let's work out  $324.5 \div 10$ .


There are  
three tens, two ones,  
four tenths and five  
hundredths.



# The Decimal Point

Let's work out  $324.5 \div 10$ .

- First, write it in the place value grid.
- To divide by 10, we move each digit one place to the right.
- There are three tens, two ones, four tenths and five hundredths. The answer is 32.45 - we say 'thirty-two point four five'.

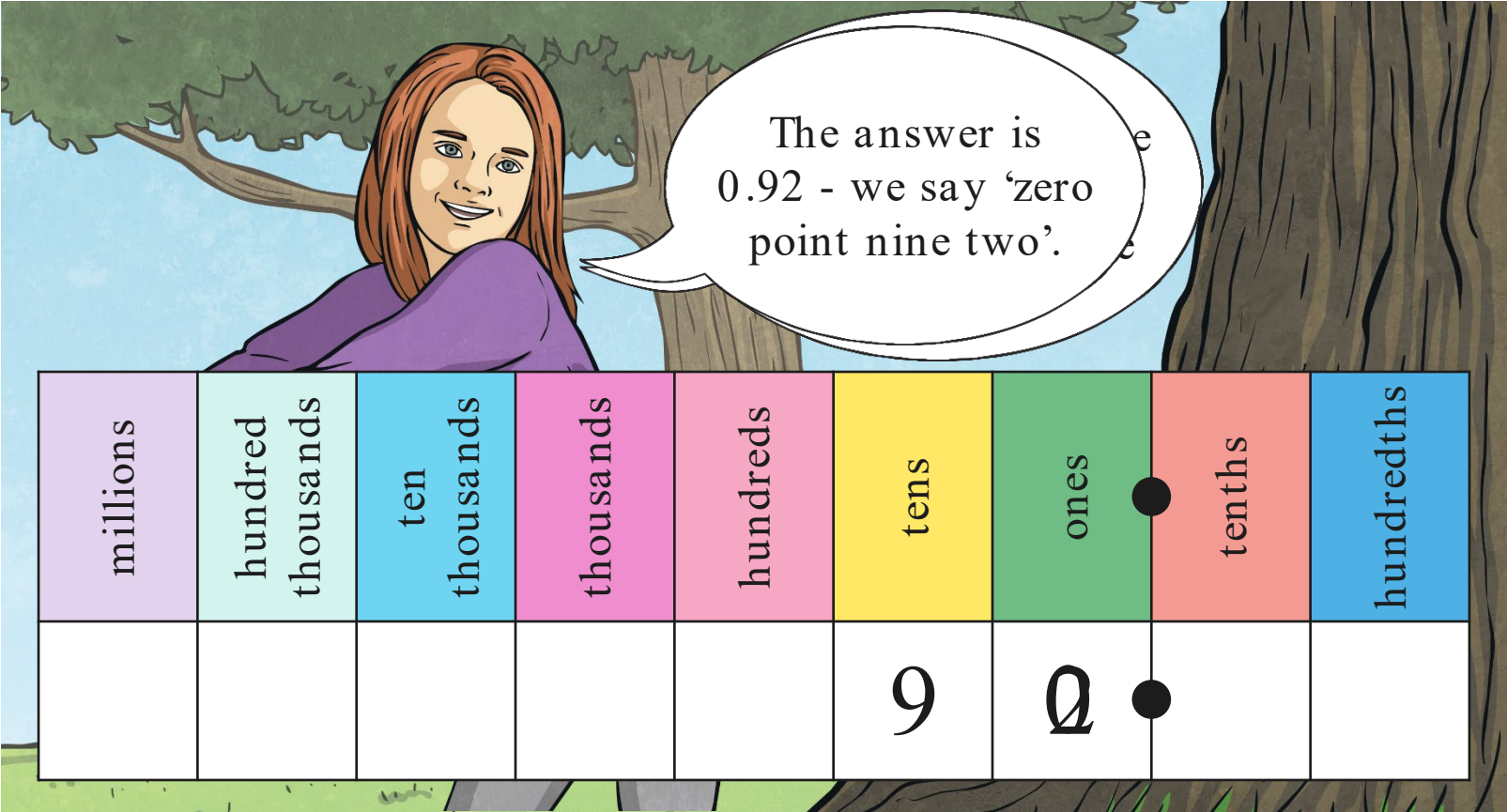


millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
				3	2	4	5	



# The Decimal Point

Let's work out  $92 \div 100$




The answer is 0.92 - we say 'zero point nine two'.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
					9	2		

# The Decimal Point

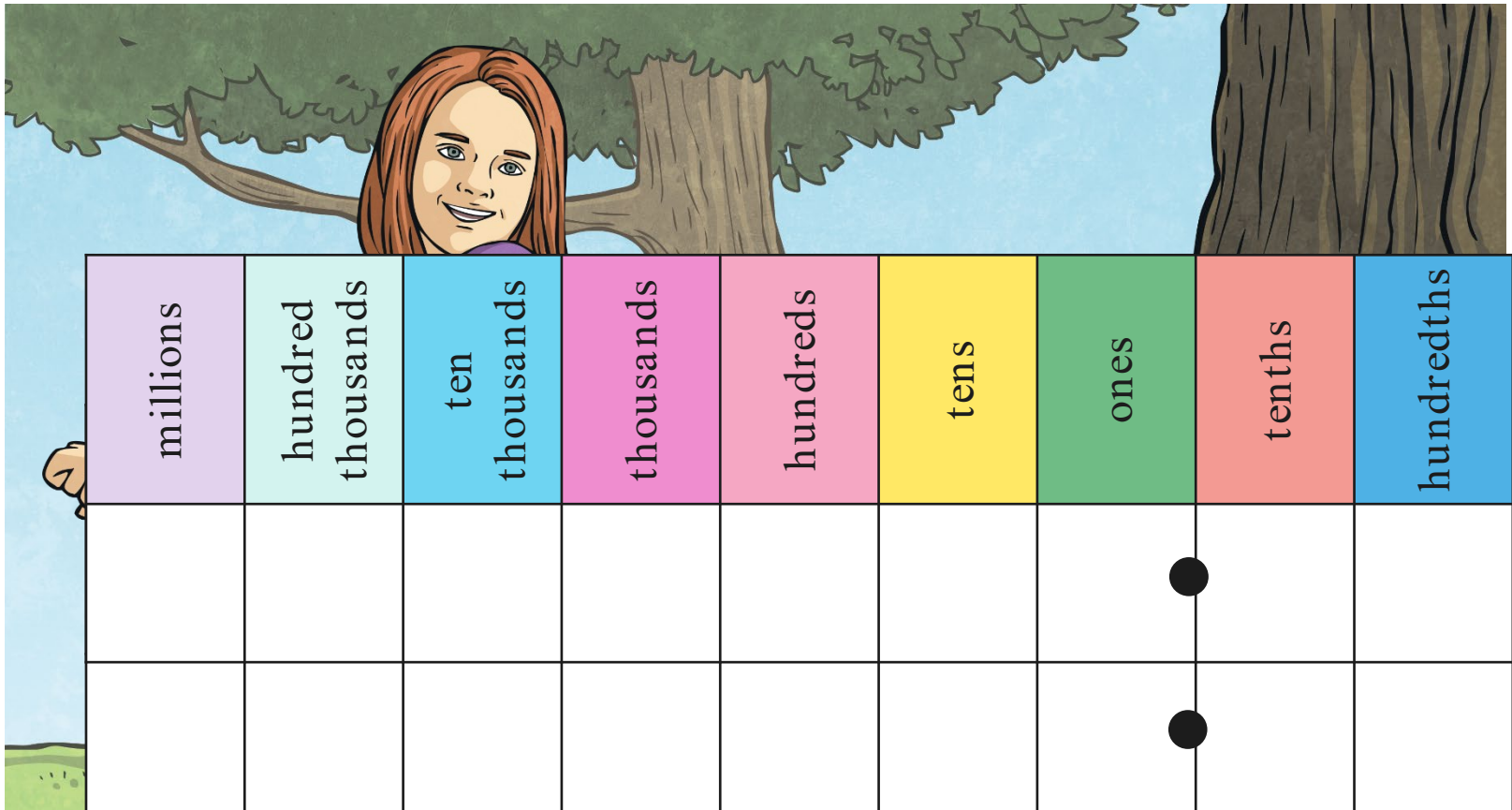
Let's work out  $92 \div 100$

- 
- First, write it in the place value grid.
  - To divide by 100, we move each digit two places to the right.
  - There are nine tenths and two hundredths.
  - We need to write in a zero before the decimal point to show that there are no ones.
  - The answer is 0.92 - we say 'zero point nine two'.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
					9	0		

# The Decimal Point

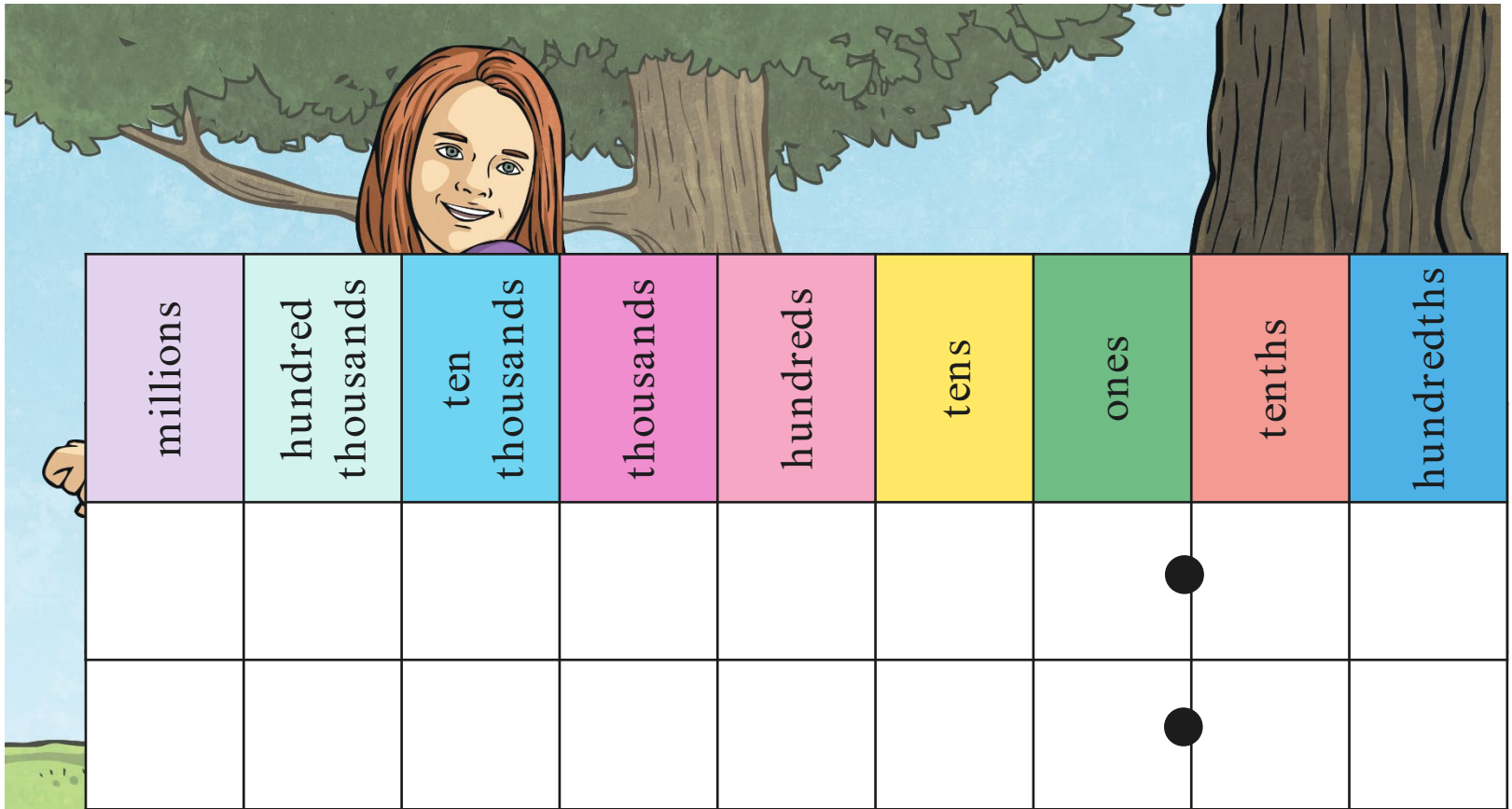
Let's work out  $22.1 \times 100$



millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths

# The Decimal Point

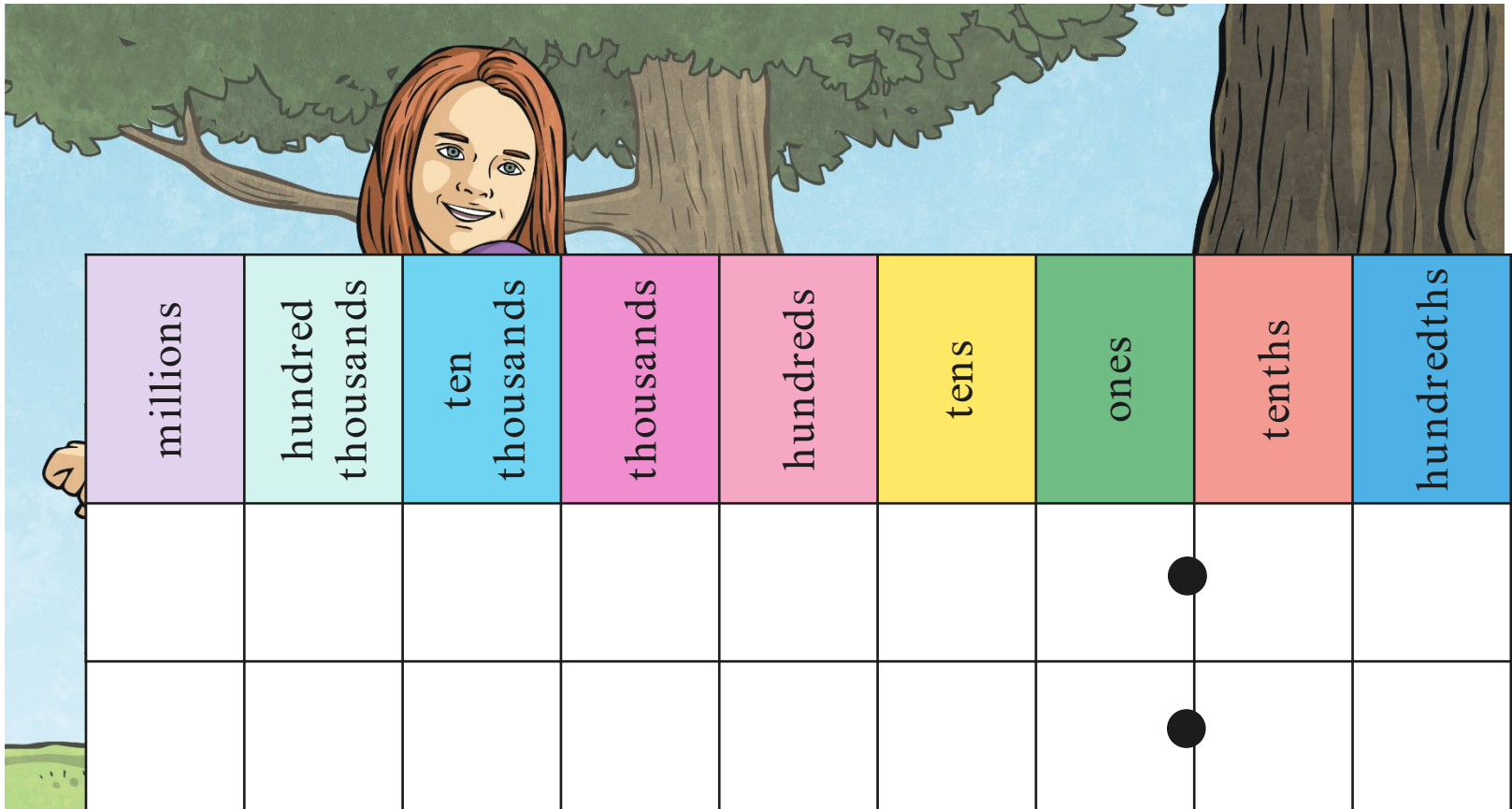
Let's work out  $550 \div 1000$



millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths

# The Decimal Point

Let's work out  $0.25 \times 100$

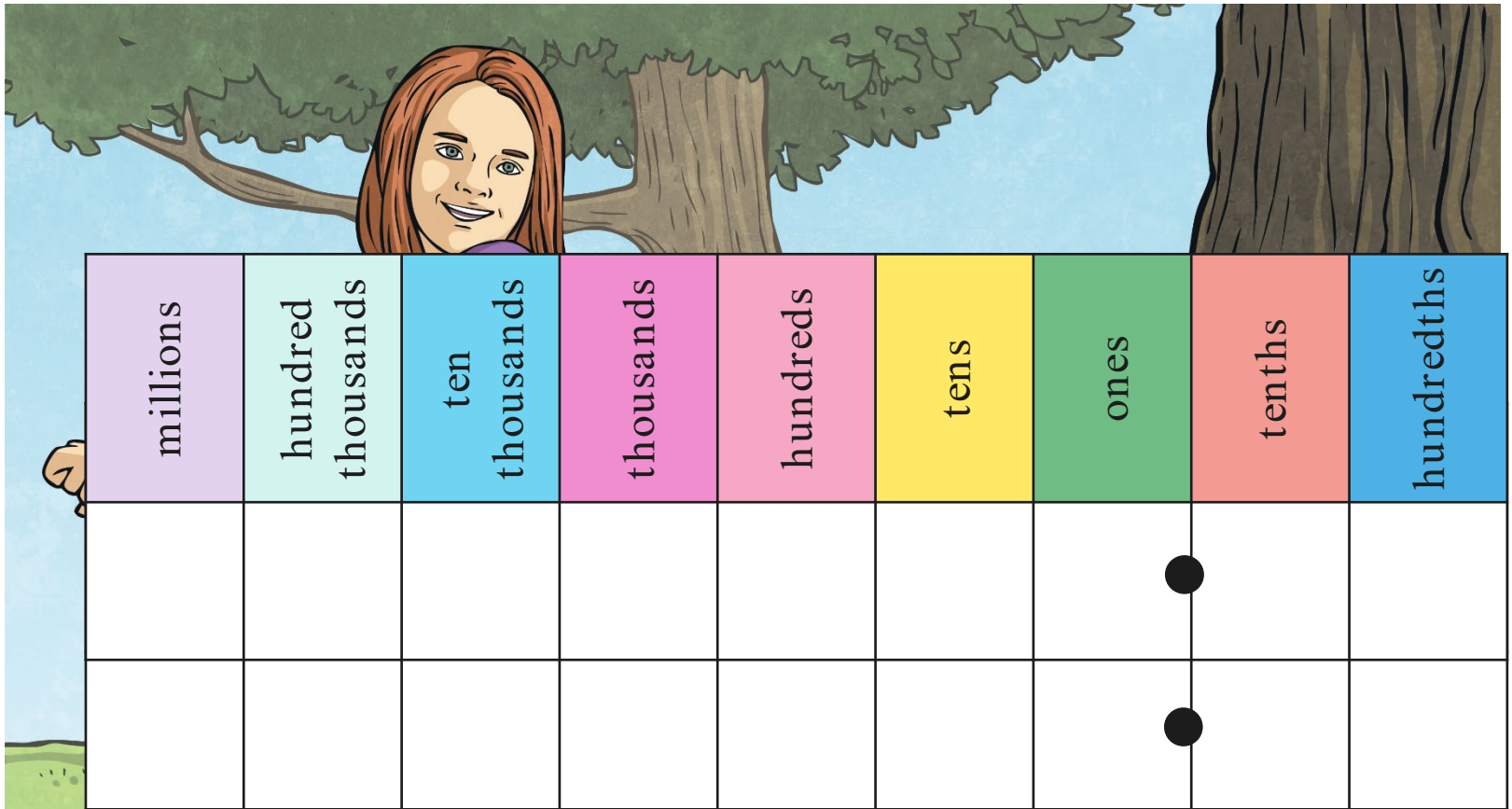


millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths



# The Decimal Point

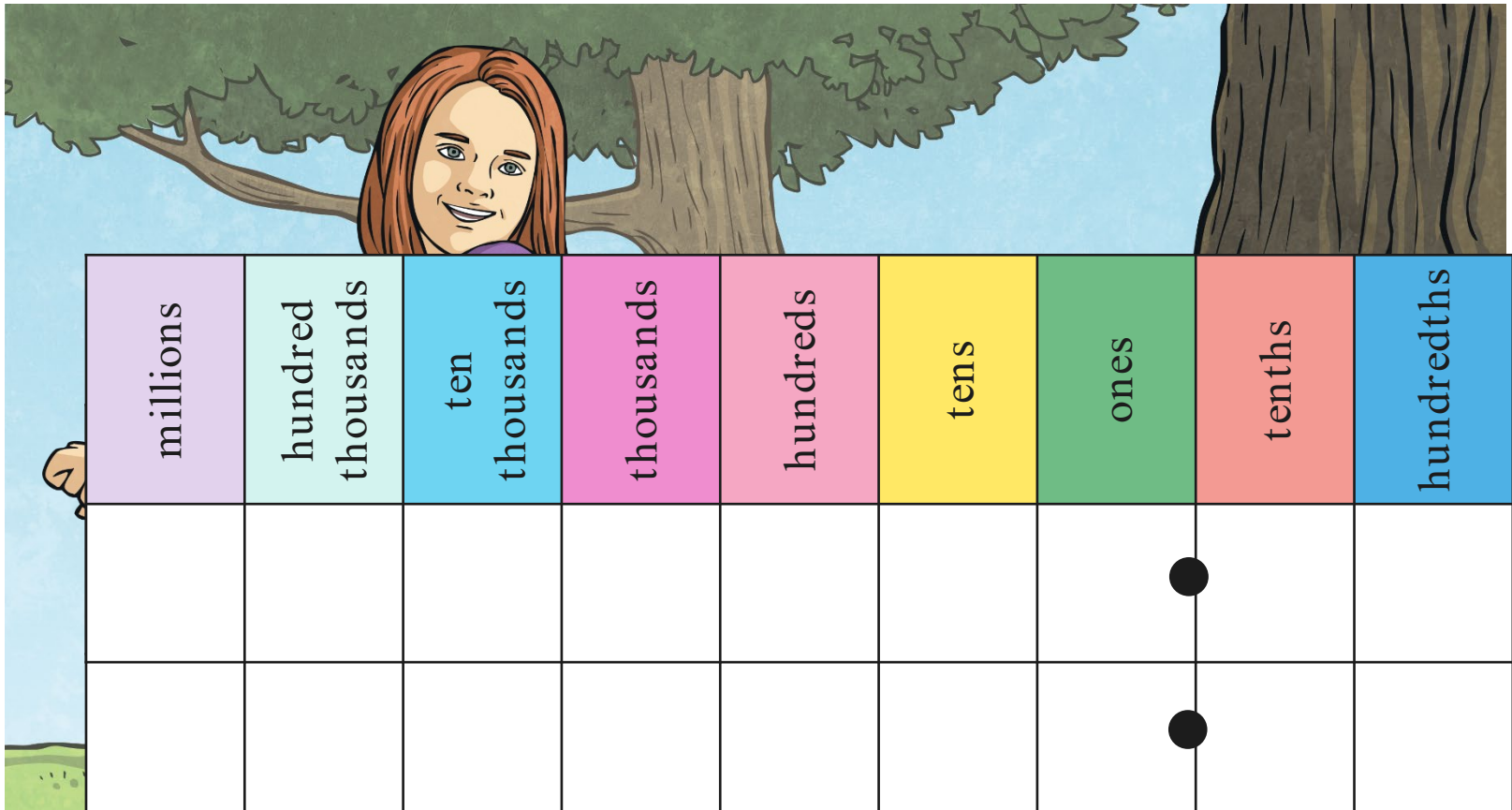
Let's work out  $18.6 \div 10$



millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths

# The Decimal Point

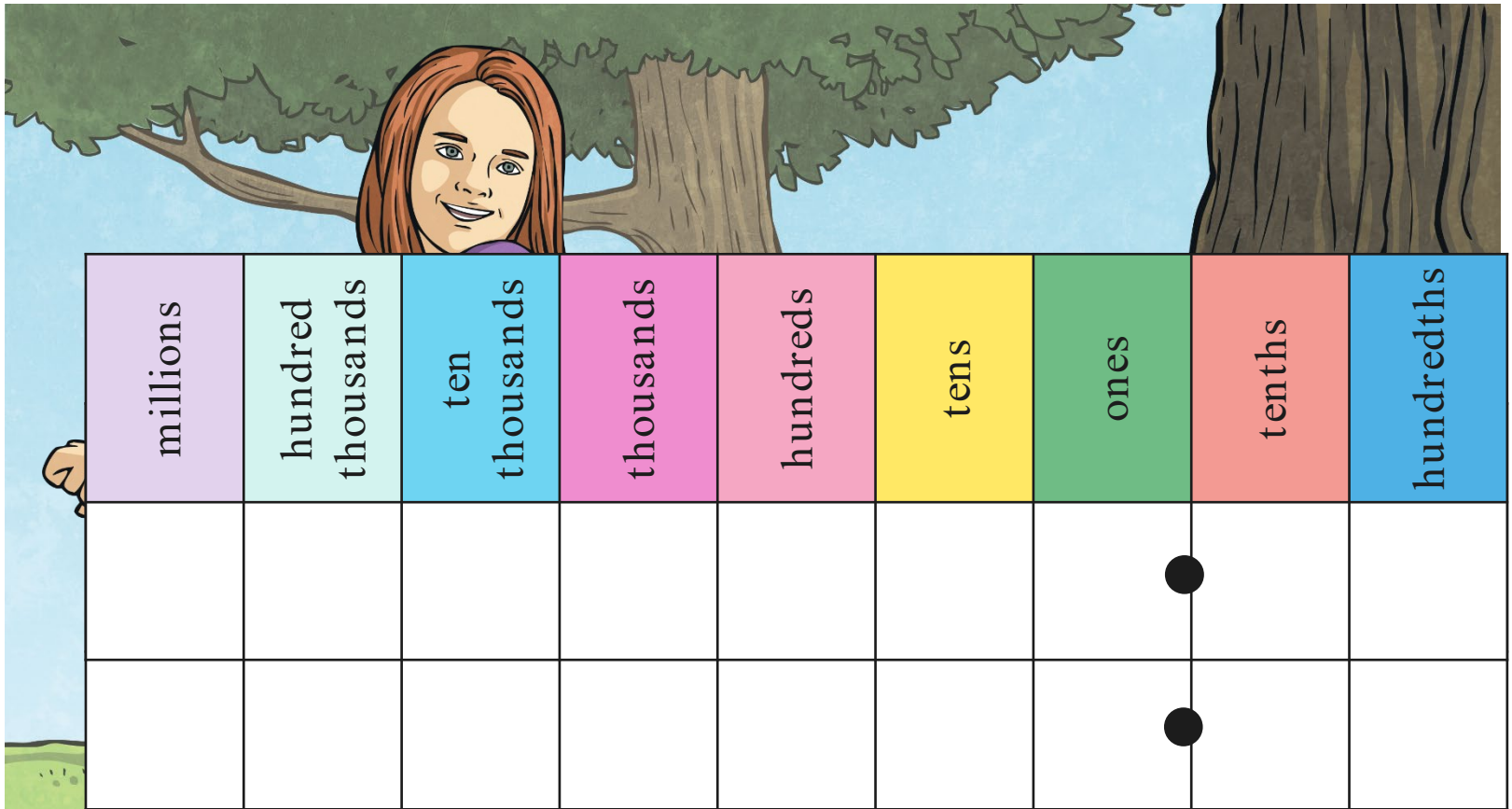
Let's work out  $258.2 \times 100$ .



millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths

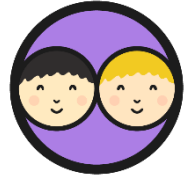
# The Decimal Point

Let's work out  $5.69 \div 100$

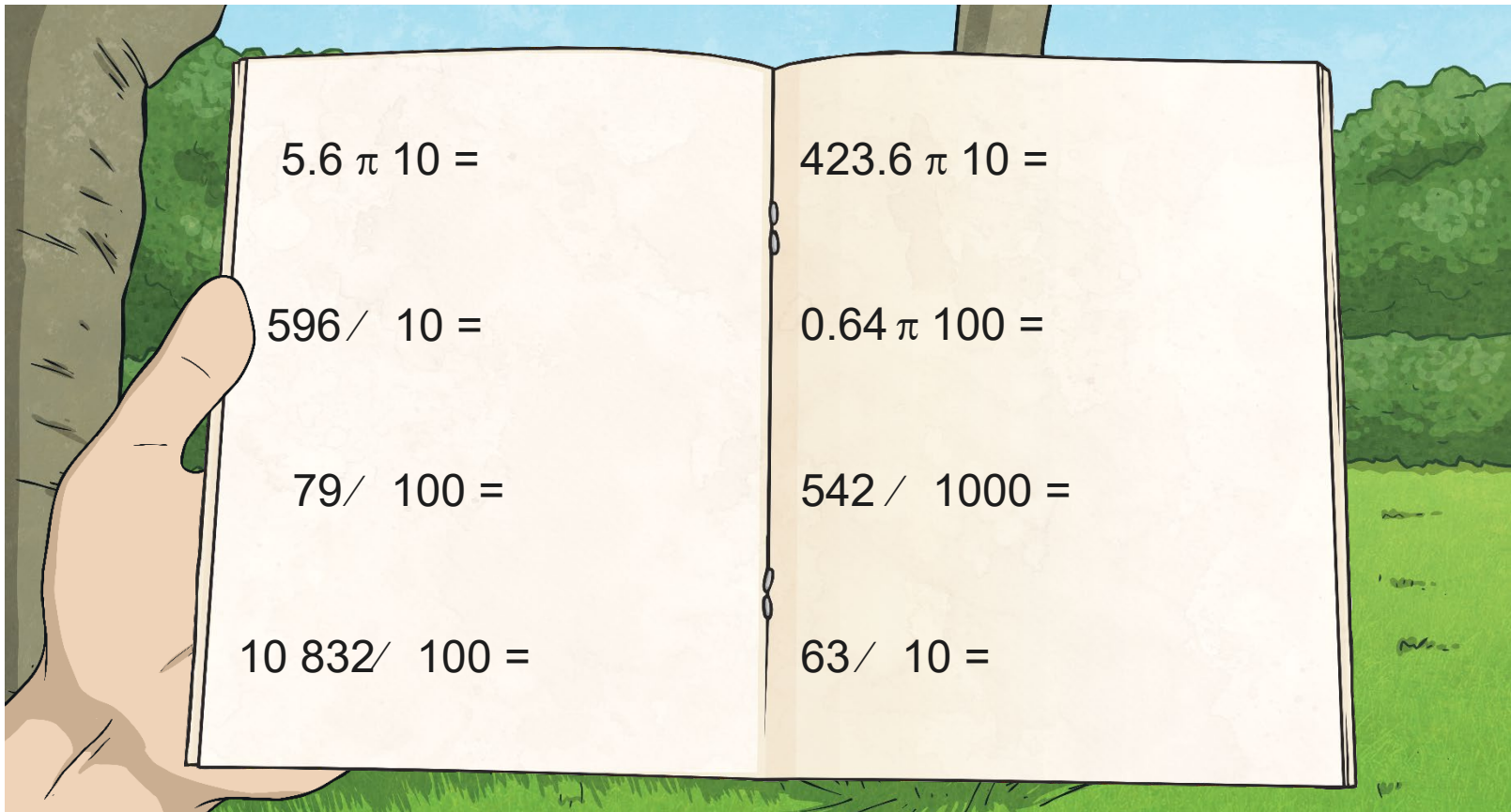


millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths

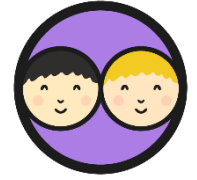
# Practise



Time to show us your moves! Complete these calculations.  
Check with your partner to see if they got the same answers as you.



# Practise



Time to show us your moves! Complete these calculations.  
Check with your partner to see if they got the same answers as you.

$$5.6 \times 10 = 56$$

$$596 \div 10 = 59.6$$

$$79 \div 100 = 0.79$$

$$10\,832 \div 100 = 108.32$$

$$423.6 \times 10 = 4236$$

$$0.64 \times 100 = 64$$

$$542 \div 1000 = 0.542$$

$$63 \div 10 = 6.3$$



# Missing digits

- \_\_\_\_\_ x 24 = 2400
- The 2 and the 4 have moved two places to the left, so they must have multiplied by 100.
- 10 x \_\_\_\_\_ = 2.4
- For this you need to complete the inverse operation and divide by 10 – the missing number is 0.24
- 580 ÷ \_\_\_\_\_ = 5.8
- For this you need to work out how many places the 5 and the 8 have moved to the right.
- They have moved two places, so the missing number is 100.

To answer these you need to work out how many places the digits have moved. This will tell you whether they have been multiplied or divided by 10, 100 or 1000.

## You try...

- $25 \times \underline{\hspace{2cm}} = 2500$
- $\underline{\hspace{2cm}} \times 100 = 25.1$
- $892 \div \underline{\hspace{2cm}} = 8.92$
- $\underline{\hspace{2cm}} \div 1000 = 0.96$
- $795.2 \times \underline{\hspace{2cm}} = 79,520$
- $\underline{\hspace{2cm}} \div 10 = 125$

twinkl