Maths

Number and Place Value

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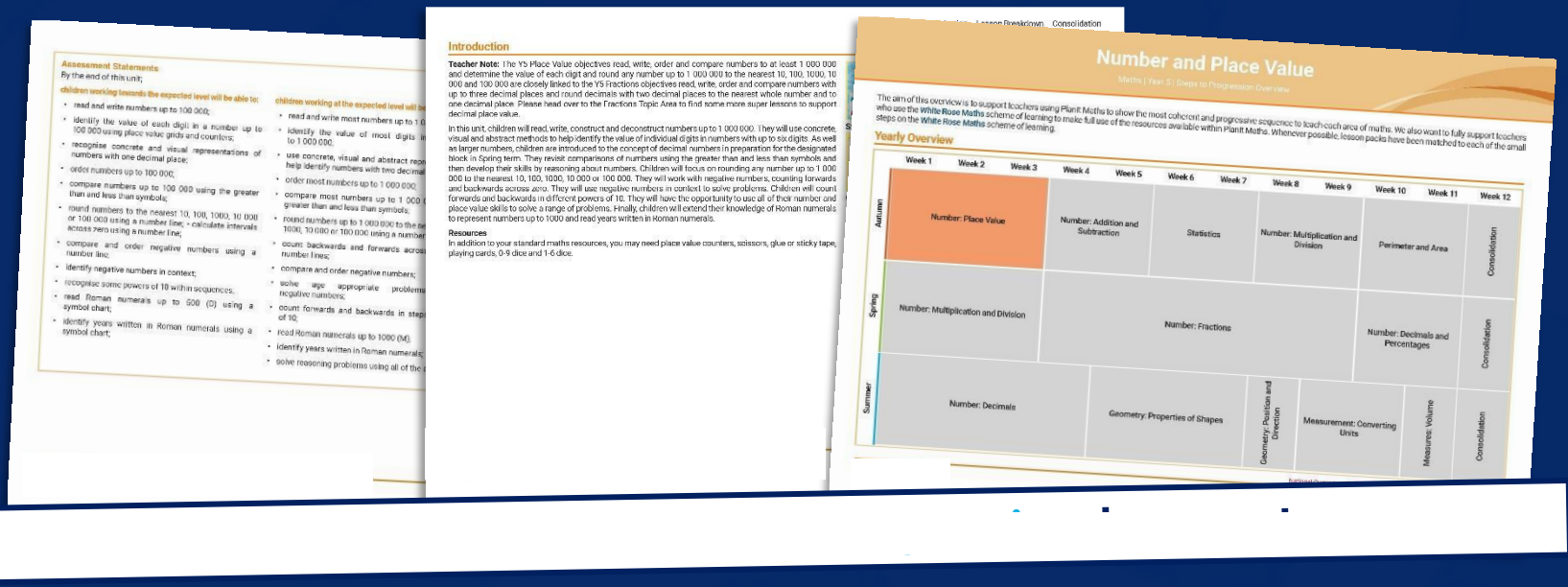
Need a coherently planned sequence of lessons to complement this resource?



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Determine Decimal Number Digit Values

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Aim

- To determine the value of each digit in decimal numbers.

Success Criteria

- I can use visual and abstract methods to identify the value of digits in a decimal number.
- I can identify how to alter a digit in a decimal number.
- I can solve problems involving different digits in a decimal number.

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Remember It

Partition the numbers and write the value of each number in words. An example has been given.

421	400 + 20 + 1	**four hundred and twenty-one**
356 863	**300 000 + 50 000 + 6 000 + 800 + 60 + 3**	**three hundred and fifty-six thousand, eight hundred and sixty-three**
251 208	**200 000 + 50 000 + 1 000 + 200 + 8**	two hundred and fifty-one thousand, two hundred and eight

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Remember It

Partition the numbers and write the value of each number in words. An example has been given.

901 103	**900 000 + 1 000 + 100 + 3**	**four hundred and twenty-one**
360 203	300 000 + 60 000 + 200 + 3	**three hundred and sixty thousand, two hundred and three**
260 074	seven tens, four ones, six ten thousands, two hundred thousands	**two hundred and sixty thousand and seventy-four**

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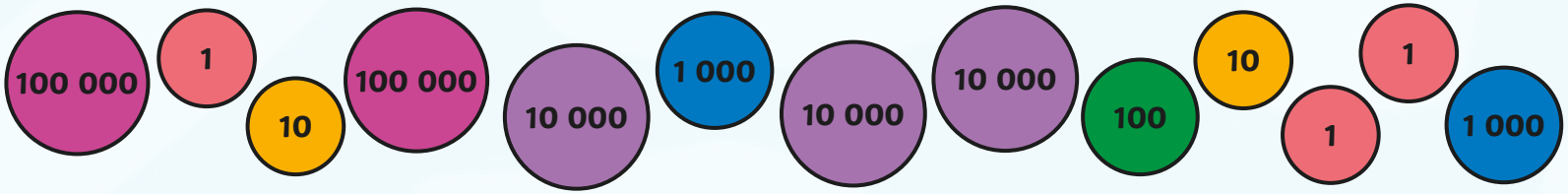
Revisiting Whole Numbers

In previous lessons, place value counters were ordered from right to left to find the value of different whole numbers. What number is represented?



Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
	100 000 100 000	10 000 10 000 10 000	1 000 1 000	100	10 10	1 1 1

123 232

232 123

232 213

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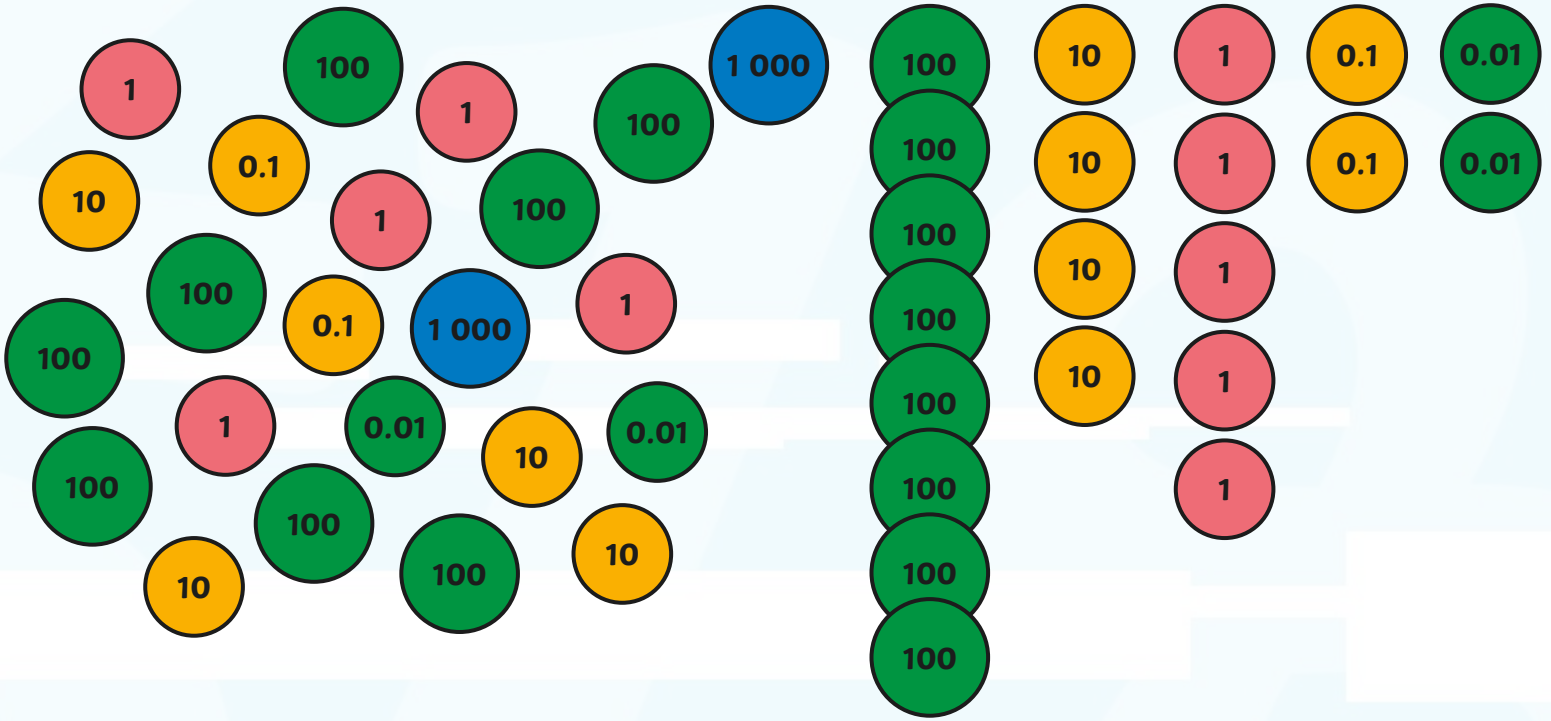
Composing Numbers With Decimals

In the same way, composing numbers that include decimals is easier when we group together units of the same place value.



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Composing Numbers With Decimals

Numbers with decimals are sorted from right to left in a place value grid, the same way as whole numbers.

How many tenths are represented in the tenths column?

Thousands	Hundreds	Tens	Ones	tenths	hundredths
1 000	100 100 100 100 100 100 100 100	10 10 10 10	1 1 1 1 1	0.1 0.1	0.01 0.01

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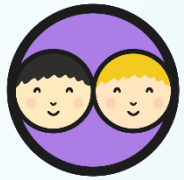
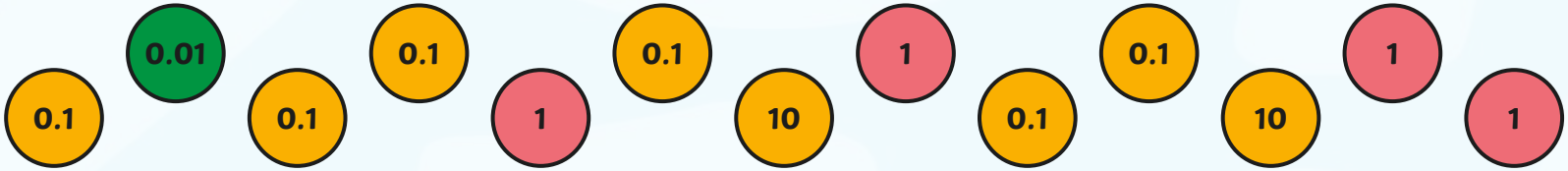
Composing Numbers With Decimals



Use place value counters to compose the number. Which is the correct answer?



Thousands	Hundreds	Tens	Ones	tenths	hundredths
		10 10	1 1 1 1	0.1 0.1 0.1 0.1 0.1 0.1	0.01

124.61	**24.61**	204.61

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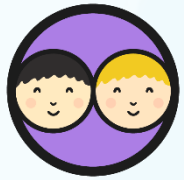
Composing Numbers With Decimals



Use place value counters to compose the number. Which is the correct answer?

Thousands	Hundreds	Tens	Ones	tenths	hundredths
			1 1 1 1	0.1 0.1 0.1 0.1	0.01 0.01 0.01

4.43

4.234

4.34

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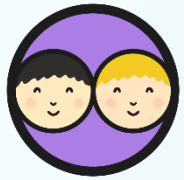
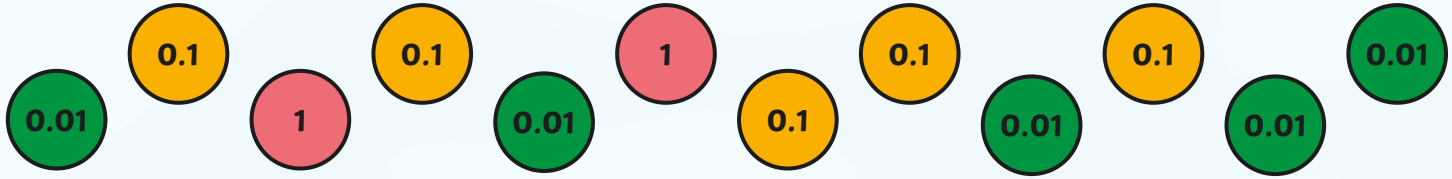
Composing Numbers With Decimals



Use place value counters to compose the number. Which is the correct answer?



Thousands	Hundreds	Tens	Ones	tenths	hundredths
			1 1	0.1 0.1 0.1 0.1 0.1	0.01 0.01 0.01 0.01 0.01

two point five five

two point six five

two point four five

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Decimal Digits

Each digit in a decimal number has a value according to its place in the number. Using a place value grid can help us identify the value of each digit.

Ones	tenths	hundredths	thousandths

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Decimal Digits

What is the value of the 4 in the number 3.248?

We can find out by entering the number into the place value grid.

Remember to make sure that the decimal point lines up with the decimal point on the place value grid.

Ones	tenths	hundredths	thousandths
3	2	4	8

We can now see that the value of the 4 is 4 hundredths.
We write this as 0.04 in digits.

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Decimal Digits

Enter 0.601 into your place value grid to find the value of the digit 6.

Ones	tenths	hundredths	thousandths
0	6	0	1

The digit 6 represents 6 tenths, or 0.6.

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Pick the Lock

Whole Class

The padlocks on these suitcases all have different decimal number codes.

The yellow suitcase has a padlock with the lowest digit in the ones place.

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Which Key?

Whole Class

To open the padlocks on the suitcases, one of the digits needs to be turned into a zero.

Let's look at the pink case as an example.

To open this padlock, we need to make the tenths digit into a zero.

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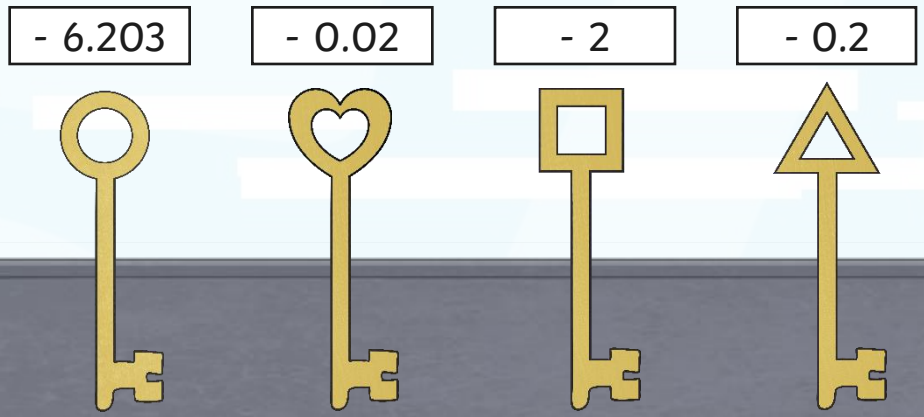
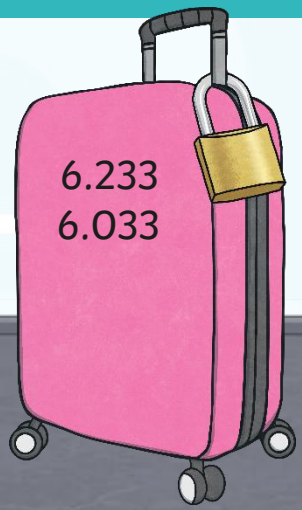
Which Key?

We should use the triangle key to subtract 2 tenths, or 0.2.

This will change the digit 2 into a zero, and will open the suitcase!





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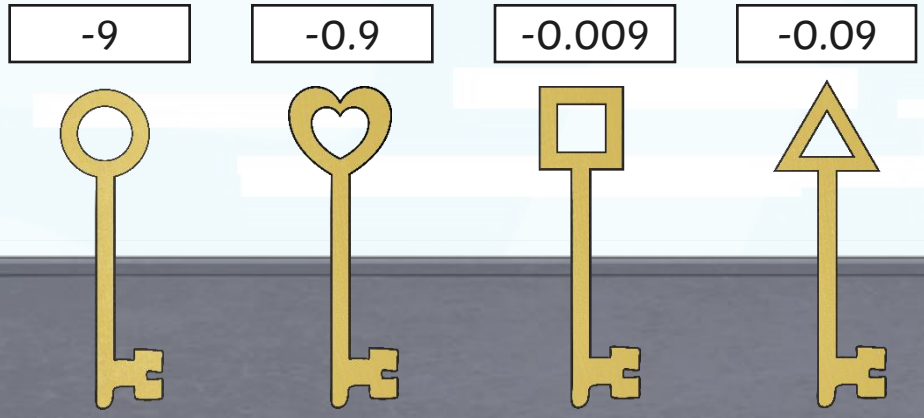
Which Key?

To open the green suitcase, we need to change the 9 digit into a zero.

Which key should we use?

The 9 is in the tenths place, so we should use the heart key to subtract nine tenths or 0.9.



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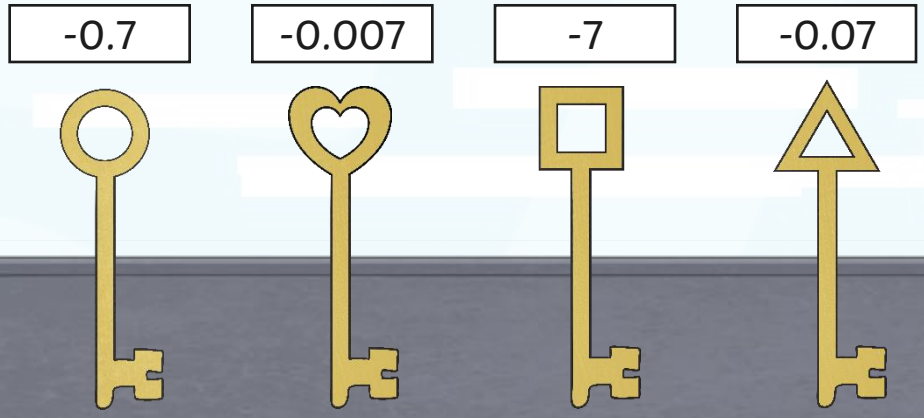
Which Key?

To unlock the blue suitcase, we need to change the 7 into a zero.

Which key will unlock it?

As the 7 is in the ones place, we should use the square key to subtract 7 ones, or 7.



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Which Key?

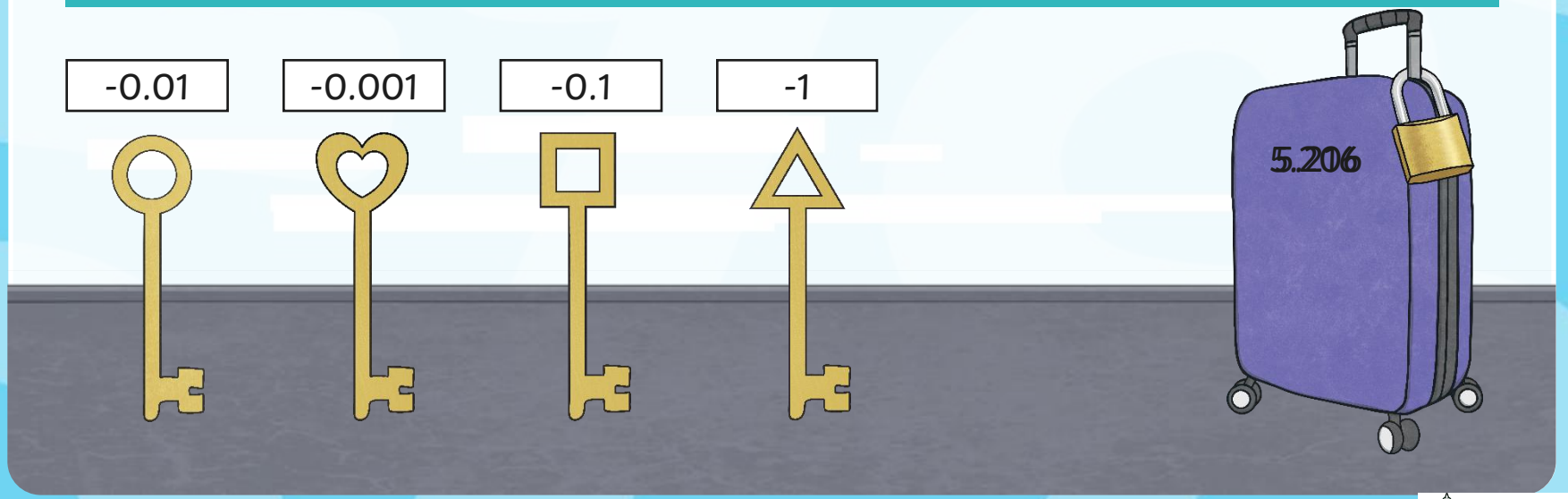
Whole Class

To unlock the purple suitcase, we need to change the 1 into a zero.

Which key will unlock it?

We can use the circle key to open this suitcase.
The 1 is in the hundredths place, so we should subtract 1 hundredth, or 0.01.

-0.01 -0.001 -0.1 -1



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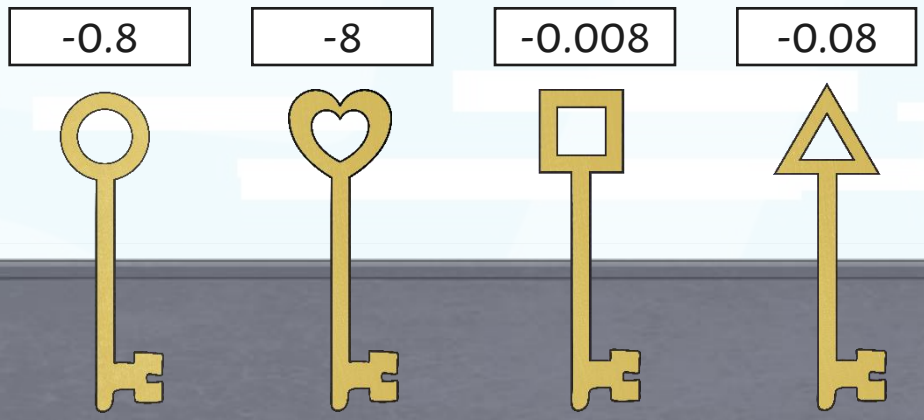
Which Key?

To open the yellow suitcase, we need to change the 8 into a zero.

Which key should we use?

The 8 is in the thousandths place, so we need to subtract 8 thousands.
We should use the square key, showing -0.008.



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Which Key?

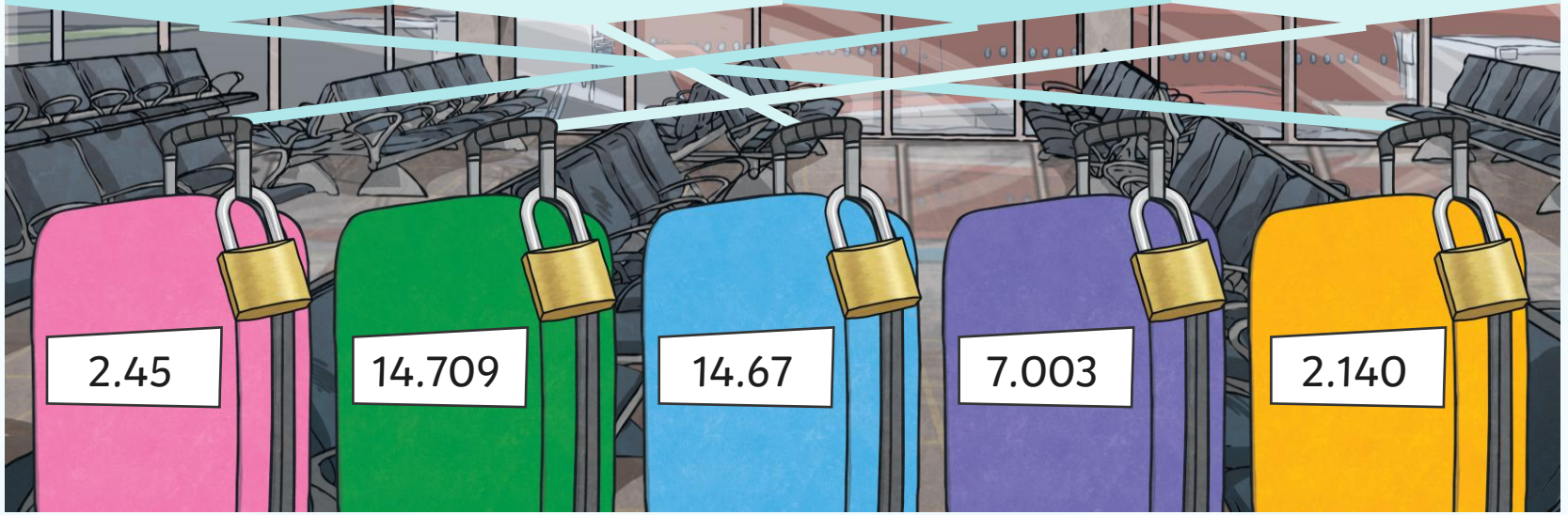
Match the correct suitcase to the correct statement.

This suitcase has a zero in the thousandths place.

This suitcase has a 7 in hundredths place.

This suitcase has a 4 in the tenths place.

If I added one thousandth to this suitcase, it would then show one hundredth.



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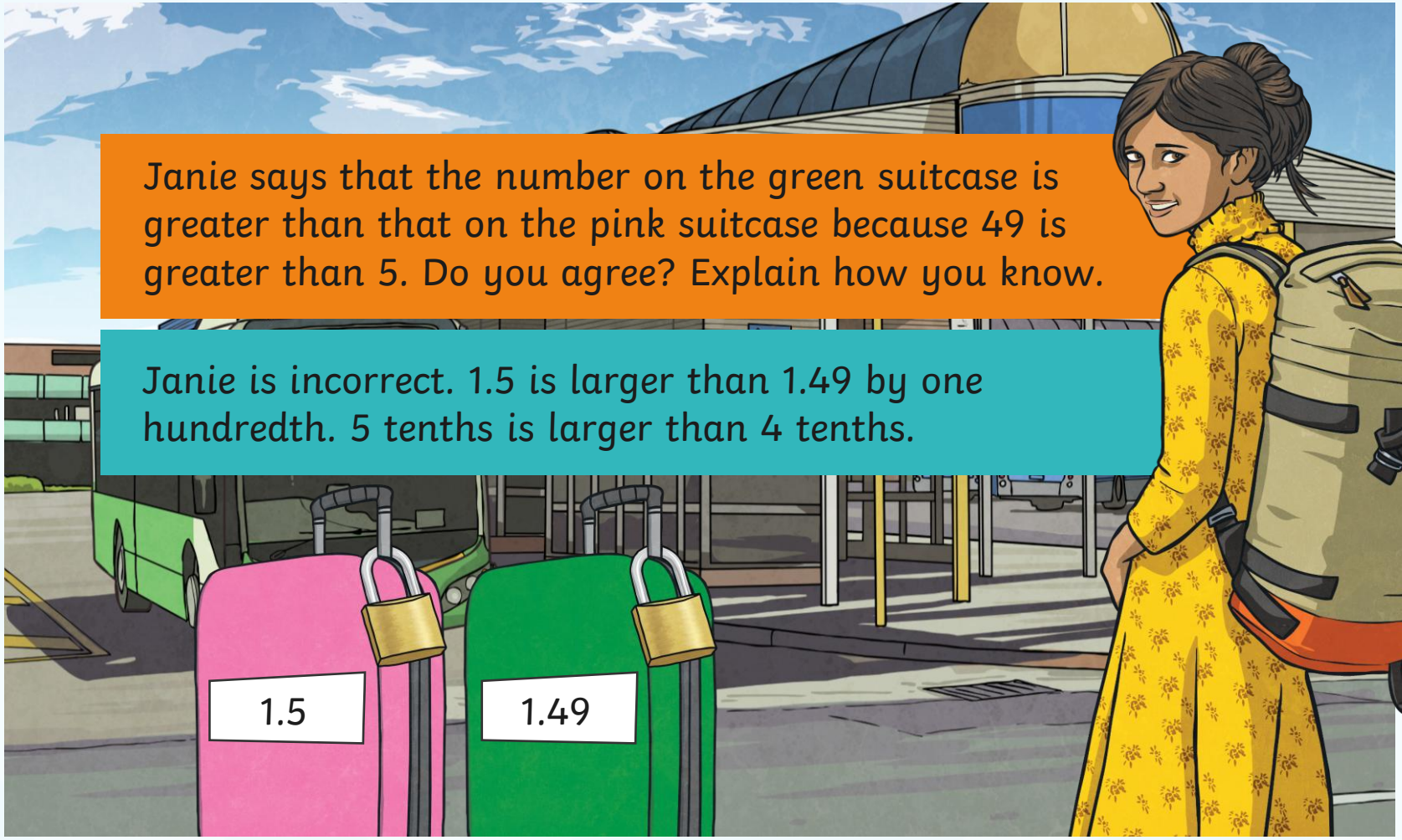
Which Key?

Whole Class



Janie says that the number on the green suitcase is greater than that on the pink suitcase because 49 is greater than 5. Do you agree? Explain how you know.

Janie is incorrect. 1.5 is larger than 1.49 by one hundredth. 5 tenths is larger than 4 tenths.

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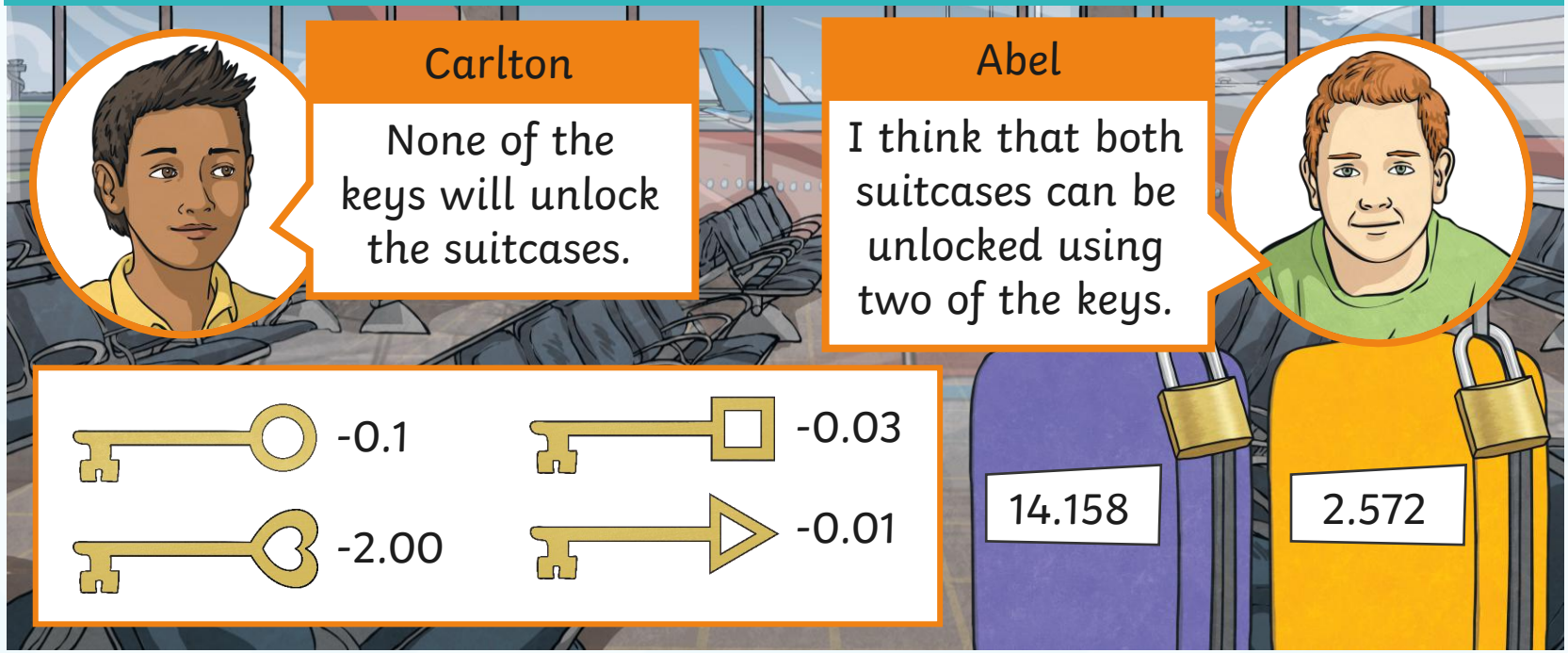
Which Key?

Whole Class

Abel is correct. The purple suitcase can be unlocked using the circular key. The yellow suitcase can be unlocked using the heart key.



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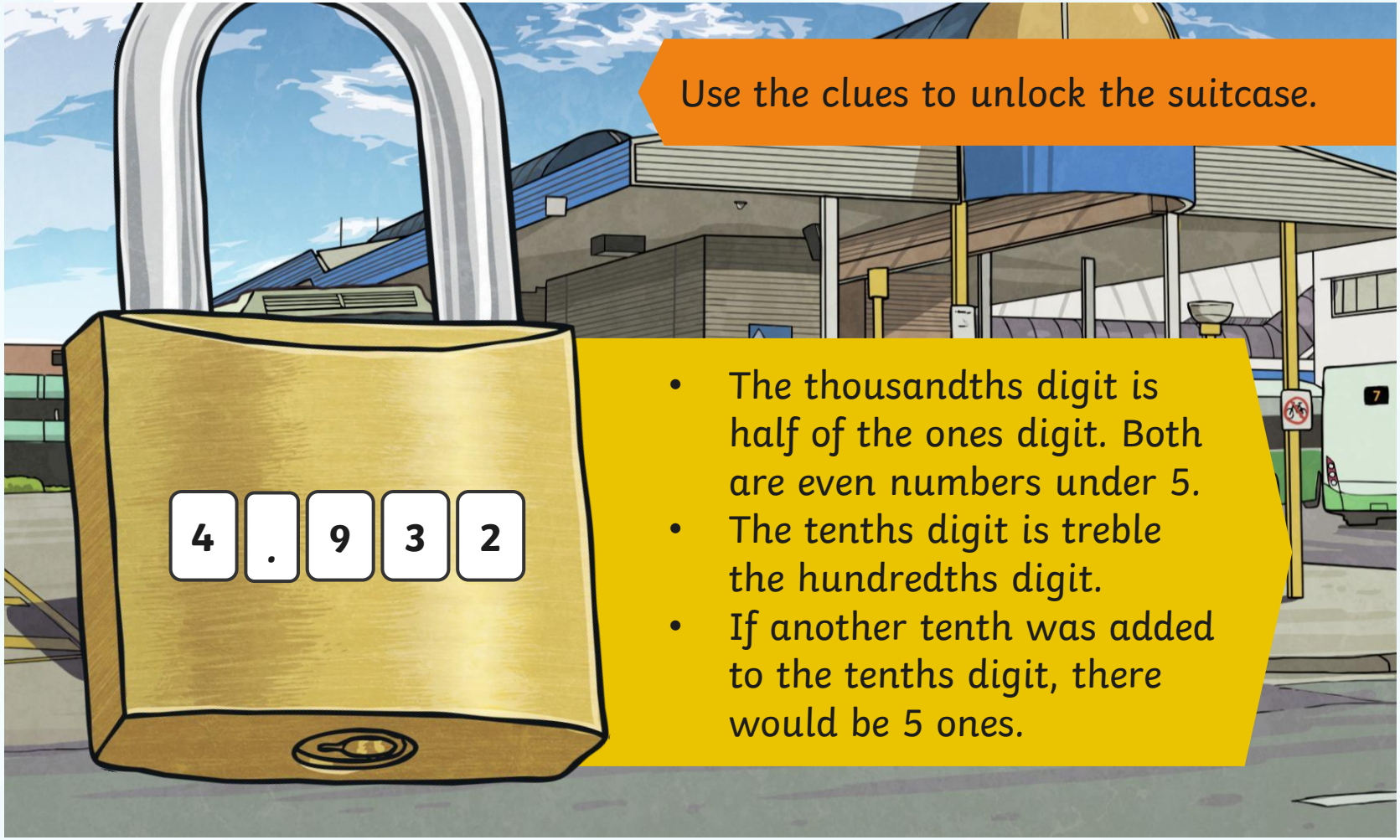
Which Key?

Whole Class



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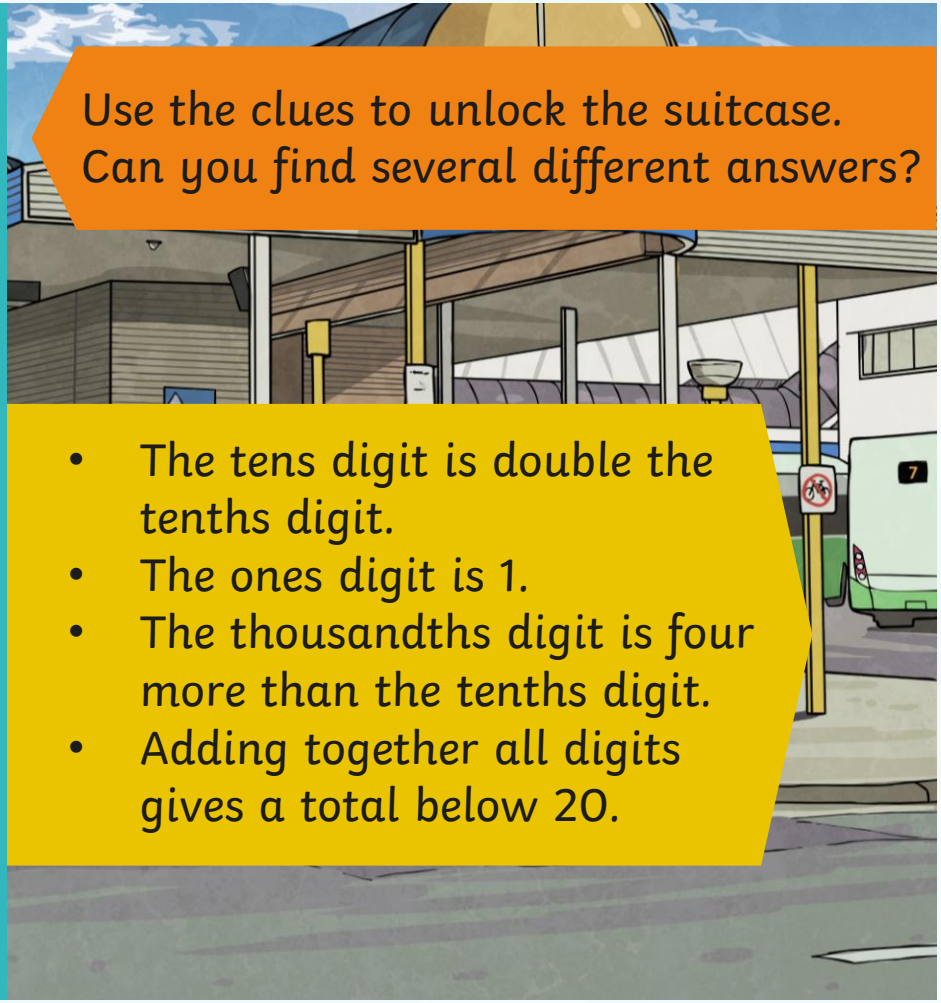
Which Key?

There are several possible answers.

21.105, 21.115, 21.125, 21.135, 21.145, 21.155, 21.165, 21.175, 21.185, 21.195, 41.206, 41.216, 41.226, 41.236, 41.246, 41.256, 41.266, 61.307, 61.317, 61.327



Use the clues to unlock the suitcase.
Can you find several different answers?

- The tens digit is double the tenths digit.
- The ones digit is 1.
- The thousandths digit is four more than the tenths digit.
- Adding together all digits gives a total below 20.

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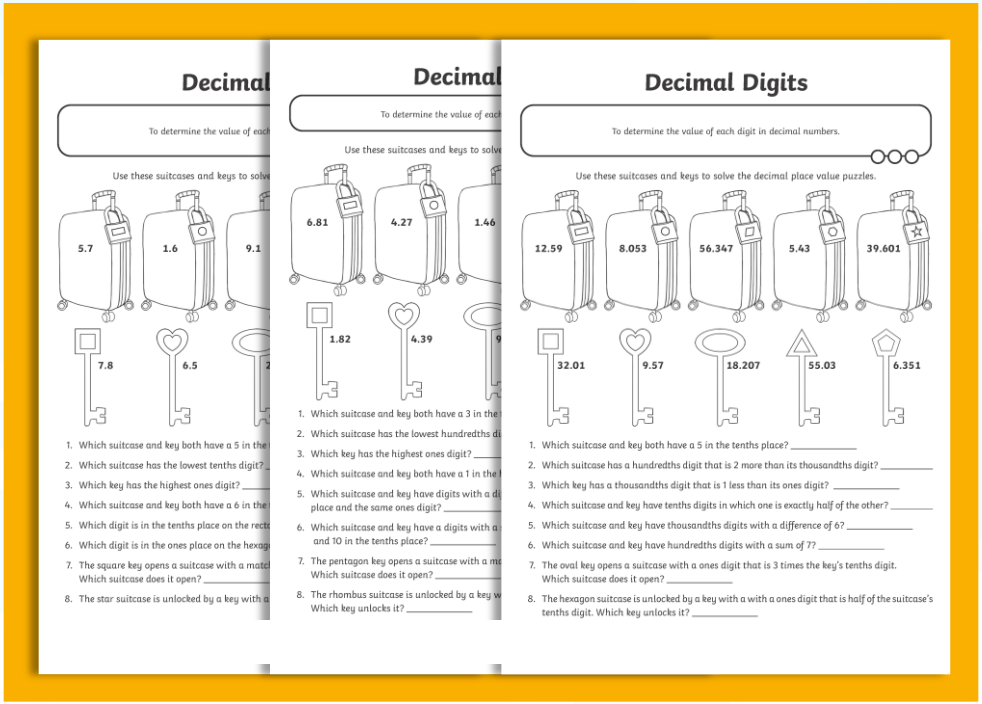
Decimal Digits Activity

Can you solve the decimal place value problems on the **Decimal Digits Activity Sheet**?

Match the correct keys and suitcases based on the value of their digits.

Write the numbers shown on the suitcases to show your answers.



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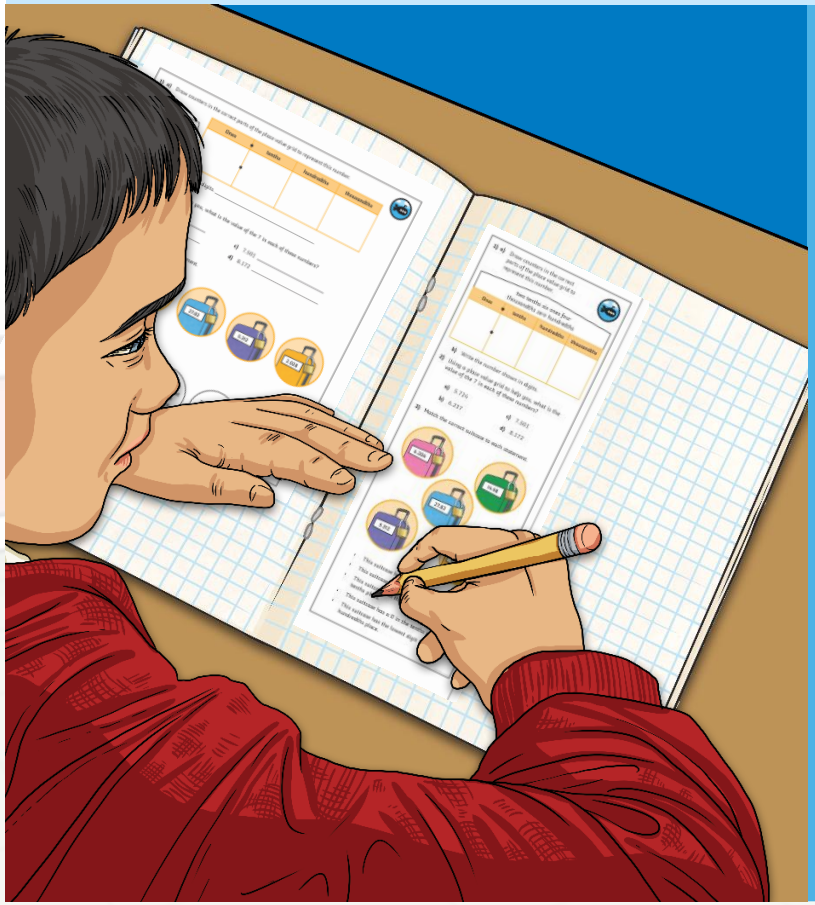
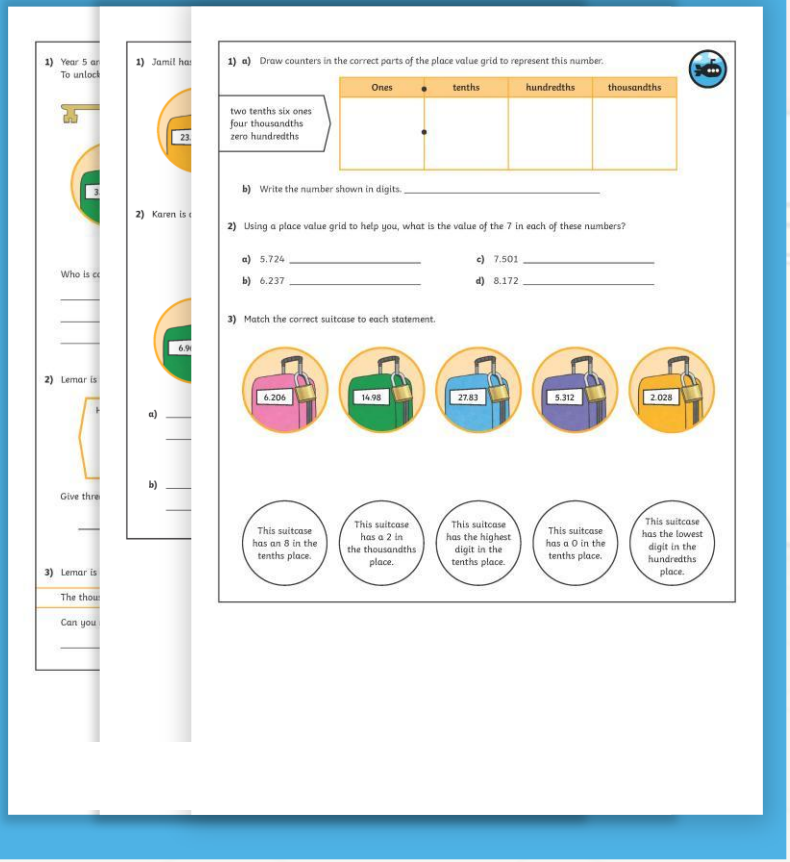
Diving into Mastery

Dive in by completing your own activity!





1) a) Draw counters in the correct parts of the place value grid to represent this number.

two tenths six ones
four thousandths
zero hundredths

Ones	tenths	hundredths	thousandths

b) Write the number shown in digits. _____

2) Using a place value grid to help you, what is the value of the 7 in each of these numbers?

a) 5.724 _____ c) 7.501 _____

b) 6.237 _____ d) 8.172 _____

3) Match the correct suitcase to each statement.

This suitcase has an 8 in the tenths place.

This suitcase has a 2 in the thousandths place.

This suitcase has the highest digit in the tenths place.

This suitcase has a 0 in the tenths place.

This suitcase has the lowest digit in the hundredths place.

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Aim

- To determine the value of each digit in decimal numbers.

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