



# Maths

## Number and Place Value

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

**Assessment Statements**  
By the end of this unit;

**children working towards the expected level will be able to:**

- read and write numbers up to 100 000;
- identify the value of each digit in a number up to 100 000 using place value grids and counters;
- recognise concrete and visual representations of numbers with one decimal place;
- order numbers up to 100 000;
- compare numbers up to 100 000 using the greater than and less than symbols;
- round numbers to the nearest 10, 100, 1 000, 10 000 or 100 000 using a number line; calculate intervals across zero using a number line;
- compare and order negative numbers using a number line;
- identify negative numbers in context;
- recognise some powers of 10 within sequences;
- read Roman numerals up to 500 (D) using a symbol chart;
- identify years written in Roman numerals using a symbol chart;

**children working at the expected level will be able to:**

- read and write most numbers up to 1 000 000;
- identify the value of most digits in a number up to 1 000 000;
- use concrete, visual and abstract representations to help identify numbers with two decimal places;
- order most numbers up to 1 000 000;
- compare most numbers up to 1 000 000 using the greater than and less than symbols;
- round numbers up to 1 000 000 to the nearest 1000, 10 000 or 100 000 using a number line;
- compare and order negative numbers;
- solve age appropriate problems involving negative numbers;
- count forwards and backwards in steps of 10;
- read Roman numerals up to 1000 (M);
- identify years written in Roman numerals;
- solve reasoning problems using all of the above.

**Introduction**

**Teacher Note:** The Y5 Place Value objectives read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit and round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 are closely linked to the Y5 fractions objectives read, write, order and compare numbers with up to three decimal places and round decimals with two decimal places to the nearest whole number and to one decimal place. Please head over to the Fractions Topic Area to find some more support lessons to support decimal place value.

In this unit, children will read, write, construct and deconstruct numbers up to 1 000 000. They will use concrete, visual and abstract methods to help identify the value of individual digits in numbers with up to six digits. As well as larger numbers, children are introduced to the concept of decimal numbers in preparation for the designated book in Spring term. They revisit comparisons of numbers using the greater than and less than symbols and then develop their skills by reasoning about numbers. Children will focus on rounding any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 or 100 000. They will work with negative numbers, counting forwards and backwards across zero. They will use negative numbers in context to solve problems. Children will count forwards and backwards in different powers of 10. They will have the opportunity to use all of their number and place value skills to solve a range of problems. Finally, children will extend their knowledge of Roman numerals to represent numbers up to 1000 and read years written in Roman numerals.

**Resources**  
In addition to your standard maths resources, you may need place value counters, scissors, glue or sticky tape, playing cards, D-9 dice and 1-d die.

**Number and Place Value**  
Maths | Year 5 | Scope to Progression Overview

The aim of the overview is to support teachers using PlanIt Maths to show the most coherent and progressive sequence to teach each area of maths. We also want to fully support teachers who use the White Rose Maths scheme of learning to make full use of the resources available within PlanIt Maths. Wherever possible, lesson packs have been matched to each of the small steps on the White Rose Maths scheme of learning.

**Yearly Overview**

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<b>Autumn</b>	Number: Place Value			Number: Addition and Subtraction		Statistics		Number: Multiplication and Division		Perimeter and Area		Consolidation
<b>Spring</b>	Number: Multiplication and Division			Number: Fractions						Number: Decimals and Percentages		Consolidation
<b>Summer</b>	Number: Decimals			Geometry: Properties of Shapes			Geometry: Position and Direction	Measurement: Converting Units		Measurement: Volume		Consolidation



# Determine Decimal Number Digit Values



# 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.



# Remember It



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

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

# Remember It



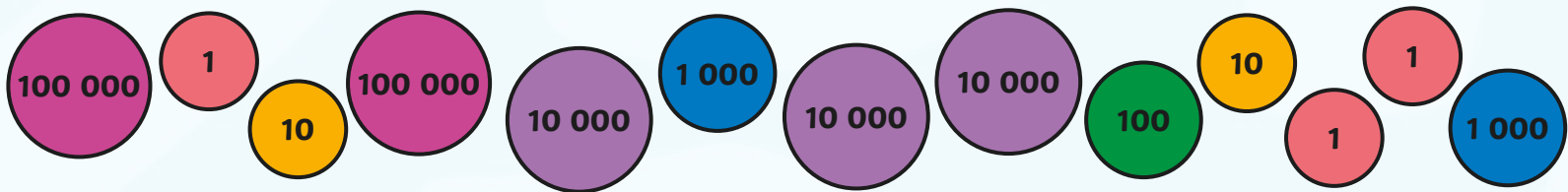
Partition the numbers and write the value of each number in words.  
An example has been given.

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

# 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?

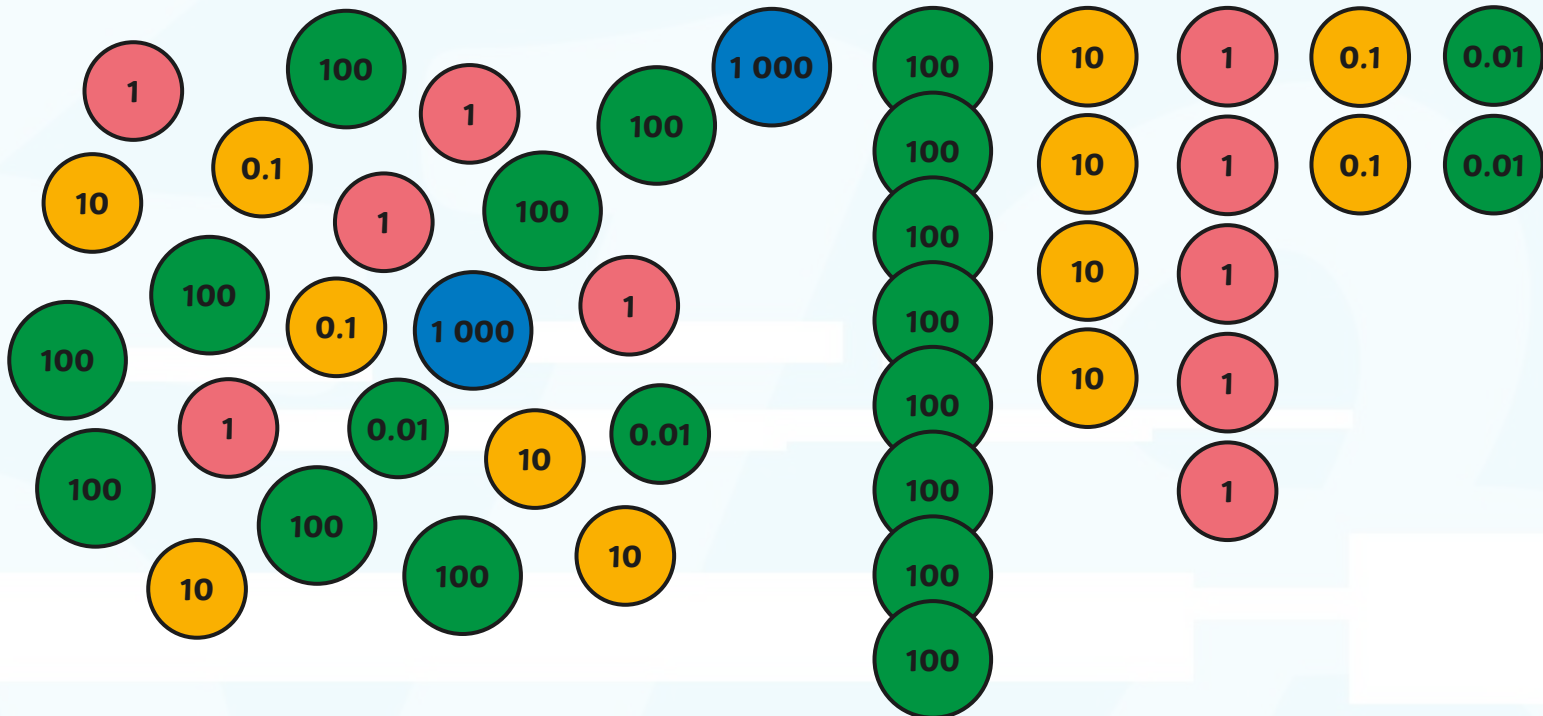


Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
123 232			<b>232 123</b>			232 213

# 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.





# 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

# Composing Numbers With Decimals



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



Thousands	Hundreds	Tens	Ones	tenths	hundredths

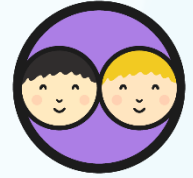
124.61

24.61

204.61



# Composing Numbers With Decimals



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



Thousands	Hundreds	Tens	Ones	tenths	hundredths

4.43

4.234

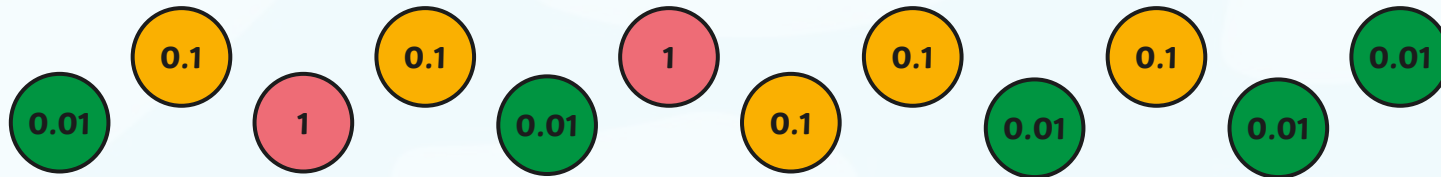
4.34



# Composing Numbers With Decimals



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



Thousands	Hundreds	Tens	Ones	tenths	hundredths

two point five five

two point six five

two point four five

# 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



# 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.



# 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.



# Pick the Lock



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.





# Which Key?



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.



# Which Key?



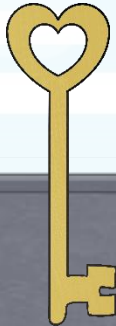
We should use the triangle key to subtract 2 tenths, or 0.2.

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

- 6.203



- 0.02



- 2



- 0.2



# Which Key?



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

Which key should we use?

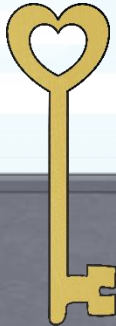
The 9 is in the tenths place, so we should use the heart key to subtract nine tenths or 0.9.

-9

-0.9

-0.009

-0.09



# Which Key?



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

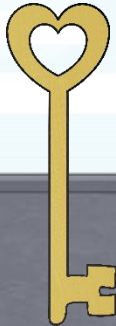
Which key will unlock it?

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

-0.7



-0.007



-7



-0.07



# Which Key?



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

Which key will unlock it?

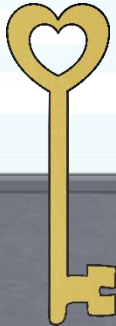
We can use the circle key to open this suitcase.  
The 1 is in the hundredths place, so we should subtract 1 hundredth, or 0.01.

-0.01

-0.001

-0.1

-1



# 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  $-0.008$ .

$-0.8$



$-8$



$-0.008$



$-0.08$



2.098



# Which Key?



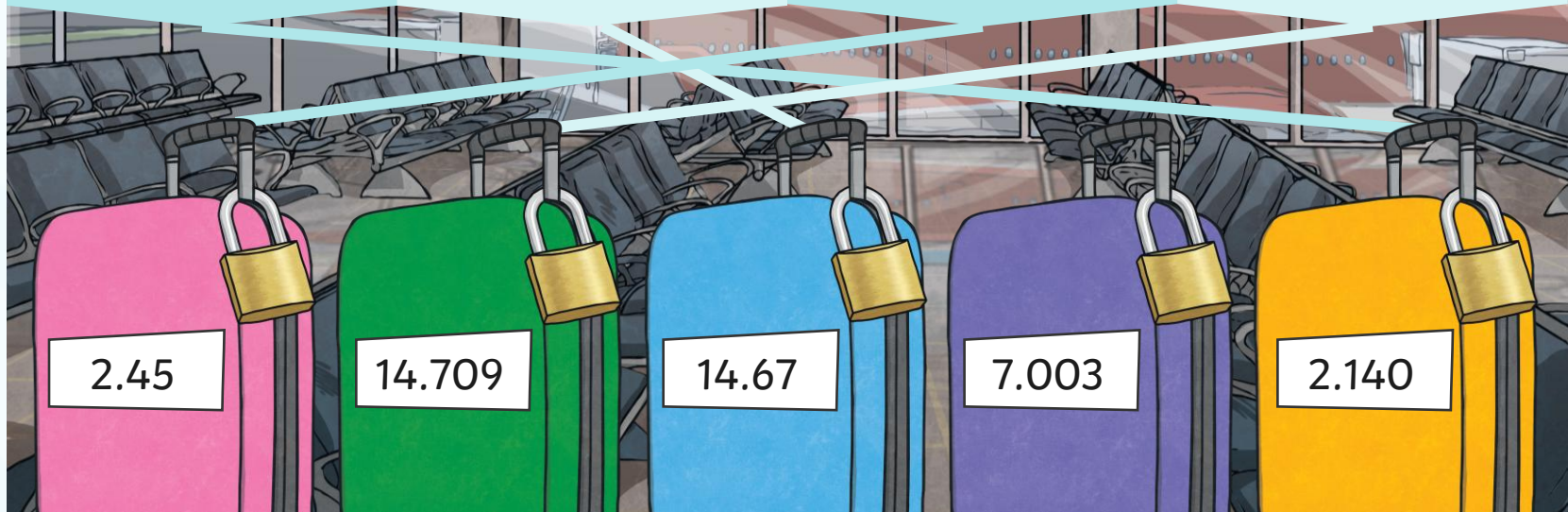
Match the correct suitcase to the correct statement.

This suitcase has a zero in the thousandths place.

This suitcase has a 7 in the 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.



2.45

14.709

14.67

7.003

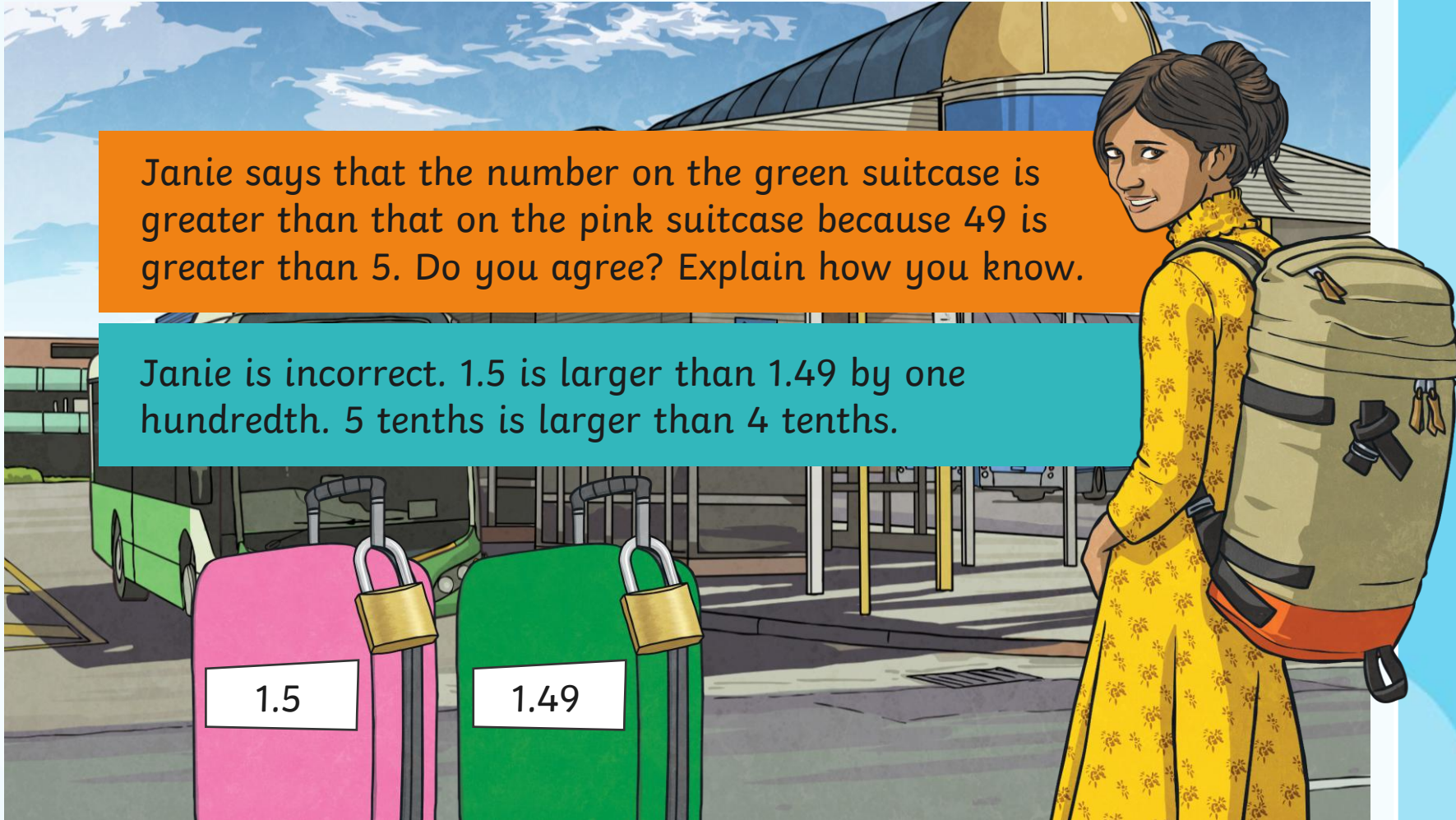
2.140

# Which Key?



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.





# Which Key?



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

Carlton

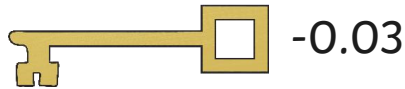
None of the keys will unlock the suitcases.

Abel

I think that both suitcases can be unlocked using two of the keys.



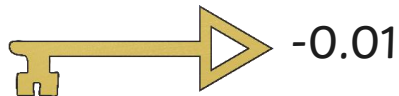
-0.1



-0.03



-2.00



-0.01

14.158

2.572

# Which Key?



Use the clues to unlock the suitcase.

4 . 9 3 2

- The thousandths digit is half of the ones digit. Both are even numbers under 5.
- The tenths digit is treble the hundredths digit.
- If another tenth was added to the tenths digit, there would be 5 ones.

# Which Key?



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

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

- 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.

# 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.

**Decimal Digits**

To determine the value of each digit in decimal numbers.

Use these suitcases and keys to solve the decimal place value puzzles.

1. Which suitcase and key both have a 5 in the tenths place? \_\_\_\_\_

2. Which suitcase has a hundredths digit that is 2 more than its thousandths digit? \_\_\_\_\_

3. Which key has a thousandths digit that is 1 less than its ones digit? \_\_\_\_\_

4. Which suitcase and key have tenths digits in which one is exactly half of the other? \_\_\_\_\_

5. Which suitcase and key have thousandths digits with a difference of 6? \_\_\_\_\_

6. Which suitcase and key have hundredths digits with a sum of 7? \_\_\_\_\_

7. The oval key opens a suitcase with a ones digit that is 3 times the key's tenths digit. Which suitcase does it open? \_\_\_\_\_

8. The hexagon suitcase is unlocked by a key with a ones digit that is half of the suitcase's tenths digit. Which key unlocks it? \_\_\_\_\_

## Diving into Mastery

Dive in by completing your own activity!



1) Year 5 students are asked to unlock the mystery number. To unlock the mystery number, they need to use the clues below to complete the place value grid.

Ones	tenths	hundredths	thousandths

two tenths six ones  
four thousandths  
zero hundredths

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.

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a) \_\_\_\_\_  
b) \_\_\_\_\_

--	--	--	--	--

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.

# 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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