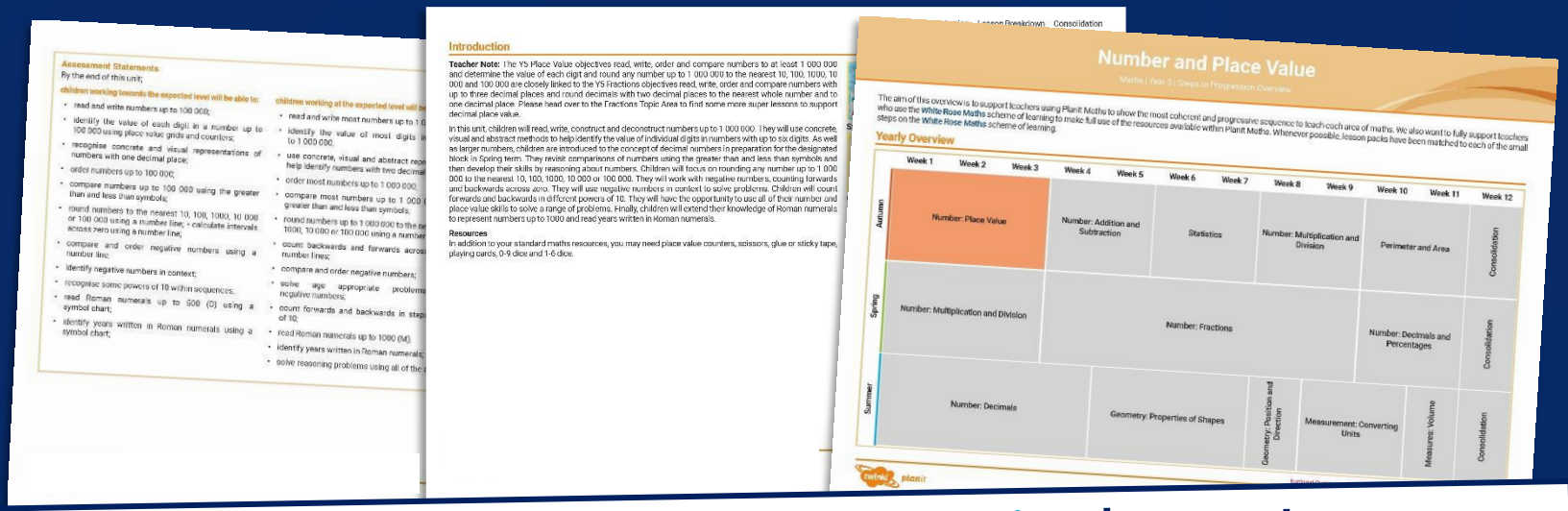
Maths

Number and Place Value

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



See our Unit Name Steps to Progression document.

Determine Whole Number Digit Values

Aim

- To determine the value of each digit in numbers to 1 000 000.

Success Criteria

- I can write numbers correctly into a place value grid.
- I can describe the value of different digits.
- I can solve reasoning challenges about the value of the digits in a number.

Remember It

64 000

Can you read this number? Tell your partner now!

Could you read it?

It says sixty-four thousand.

We are going to think about everything we know about this number.

Remember It

64 000

What can we say about this number?
Can you tell your partner a fact about 64 000?

Complete these facts about 64 000.

1. 64 000 is made up of **four thousand** and sixty thousand.
2. There are **6400** tens in 64 000.
3. One more than 64 000 is **64 001**.
4. **63 999** is one less than 64 000.
5. 64 000 is **36 000** less than 100 000.
6. 10 000 more than 64 000 is **74 000**.

Describing Digits

Whole Class

Today we are going to be digit detectives!

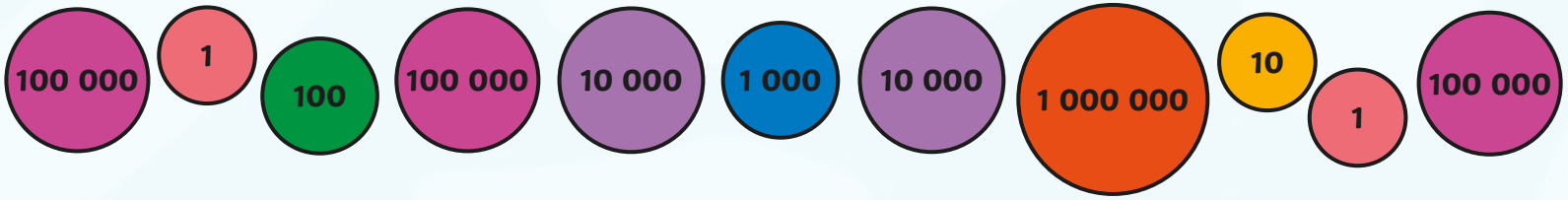
We will explore and describe the value of the different digits in a number.

Each digit in a number has a particular value depending on its place in the number. This is what place value is all about!

Describing Digits

Whole Class

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
1 000 000	100 000 100 000 100 000	10 000 10 000	1 000	100	10	1 1

1 321 112

1 232 121

1 301 112

Describing Digits

We can use a place value grid to find out the value of each digit in a number.

Each digit of a number goes into a different column in the grid.
We always start at the right when writing digits in the columns.

Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Describing Digits

Let's try an example all together.

We will put the following number into the place value grid:

4 768 235

Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
	4	**7**	**6**	**8**	**2**	**3**	**5**

Describing Digits

4 768 235

Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
	4	7	6	8	2	3	5

The digit in the ten thousands column is 6.
It represents 6 ten thousands, or 60 thousands.

Describing Digits

Choose 1 of the following numbers and write it on your **Place Value Grid** to find out what each digit represents. Remember to start from the right hand side.

★	★★	★★★
85 923	734 691	5 841 926

Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Describing Digits

Let's have a look at how the numbers fit into the place value grid.

★	★★	★★★
85 923	734 691	5 841 926

Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			8	5	9	2	3
		7	3	4	6	9	1
	5	8	4	1	9	2	6

Describing Digits

734 691 does not have a 9 in the hundreds place.

★	★★	★★★
85 923	734 691	5 841 926

Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			8	5	9	2	3
		7	**3**	**4**	**6**	**9**	**1**
	5	8	4	1	9	2	6

Describing Digits

The 8 in 85 923 represents 8 ten thousands. The 8 in 5 841 926 represents 8 hundred thousands. The value of the digit 8 is greatest in 5 841 926.

★	★★	★★★
85 923	734 691	5 841 926

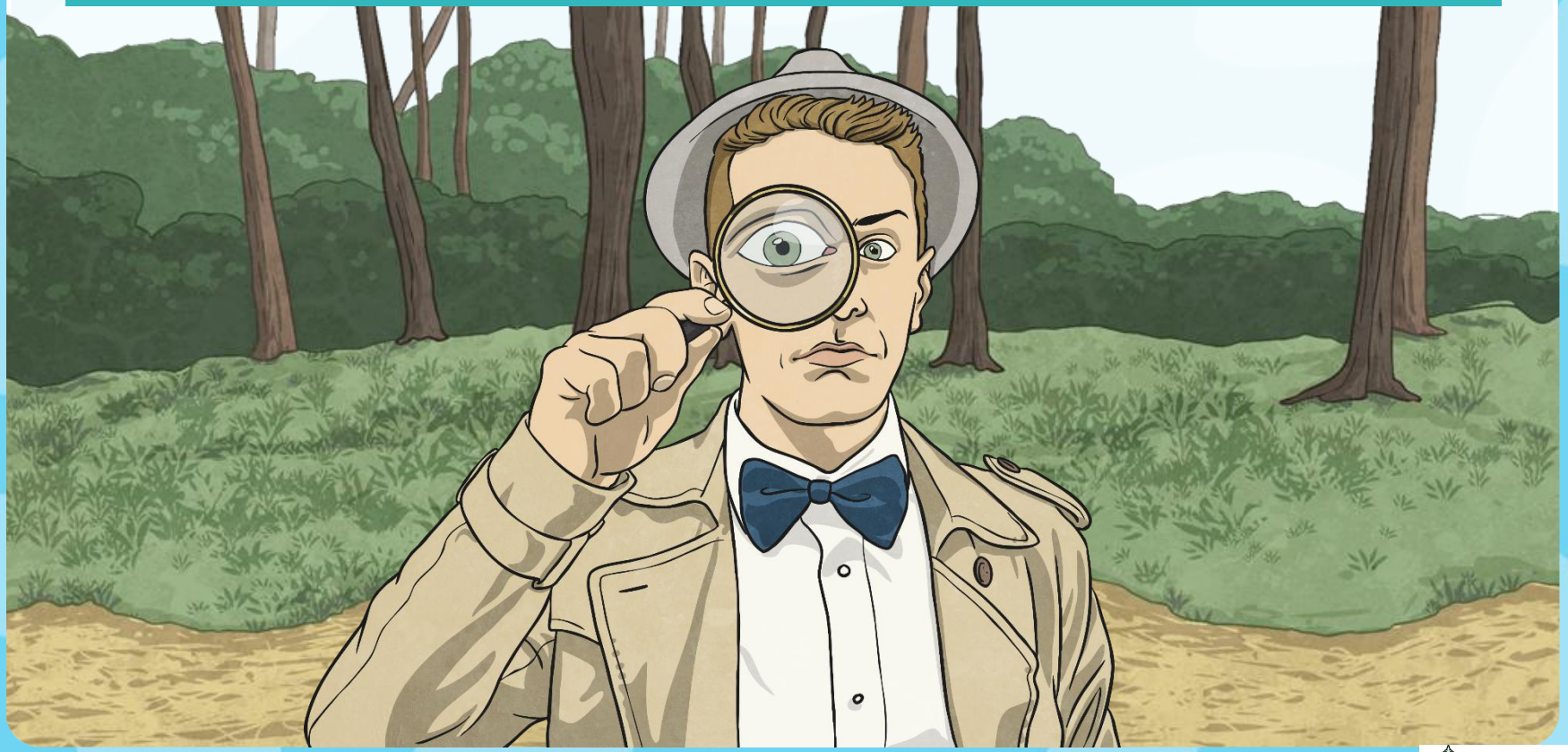
Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			8	5	9	2	3
		7	3	4	6	9	1
	5	**8**	4	1	9	2	6

Digit Detectives

Whole Class

Can you be digit detectives and describe the magnified digit in each number?

You can use your place value grid to help you.



Digit Detectives

Whole Class

What is the value of this magnified digit?

This digit represents 9 hundreds.

Digit Detectives

Whole Class

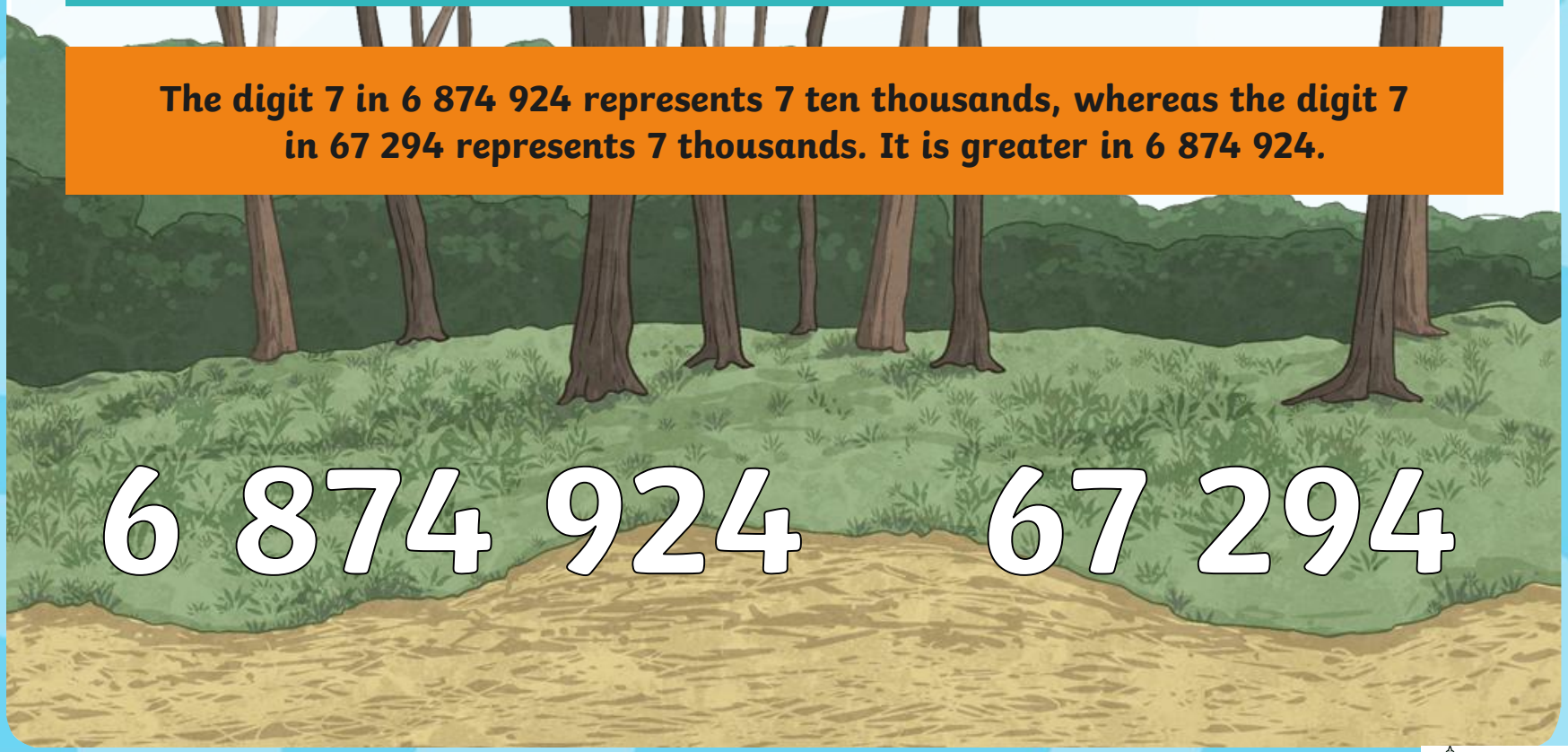
What is the value of this magnified digit?

This digit represents 8 hundred thousands.

Digit Detectives

Whole Class

Which of these magnified digits is greater?



The digit 7 in 6 874 924 represents 7 ten thousands, whereas the digit 7 in 67 294 represents 7 thousands. It is greater in 6 874 924.

Digit Detectives

What would you need to add to change the magnified digit into a 7?

The magnified digit represents 4 ten thousands. To change it into a 7, we would need to add 3 ten thousands, or 30 000.

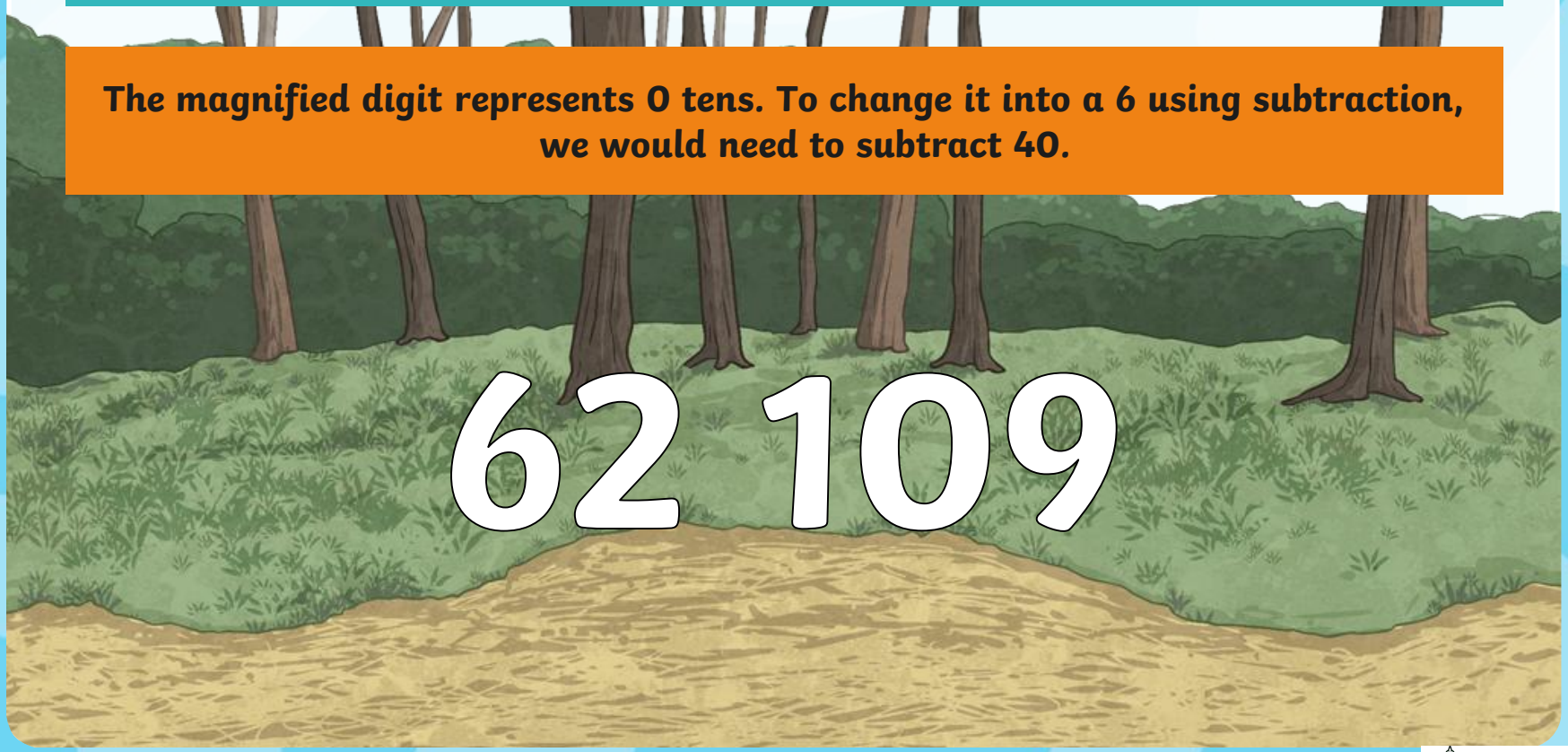
5 349 102

Digit Detectives

Whole Class

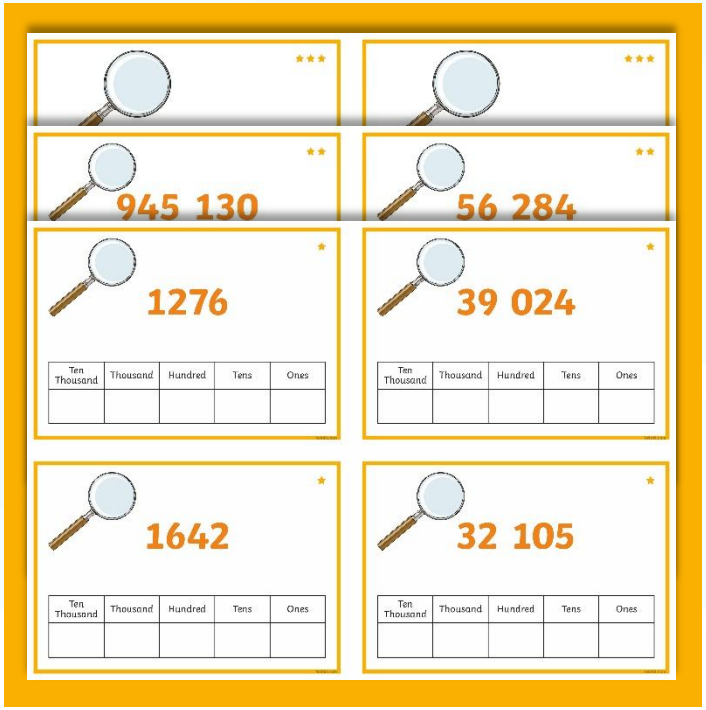
What would you need to subtract to change the magnified digit into a 6?

The magnified digit represents 0 tens. To change it into a 6 using subtraction, we would need to subtract 40.



Digit Detectives Top Cards

Use your set of **Digit Detectives Top Cards** to compare the value of the digits in a number.



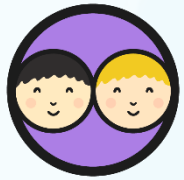
To start the game, shuffle the cards and share them out between each of you. Don't look at the cards as you share them out. Each player should hold their cards so that they can only see the information on the top card.

Decide which player is going to start. This player should read out the value of one of the digits in the number on the card, for example:

the digit in the ten thousands place is a 5.

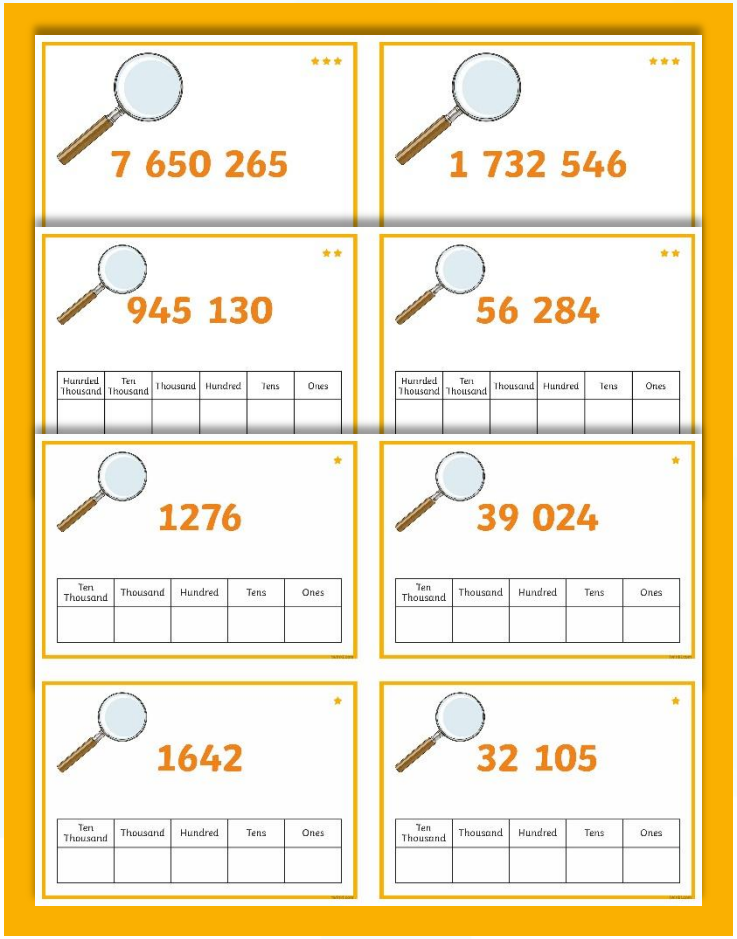
The other player then reads out the digit in the same place from their card. The player with the highest value wins, and that player collects both the top cards, including their own, and moves them to the bottom of their pile. It is then their turn to choose a digit value from their next card.

Digit Detectives Top Cards

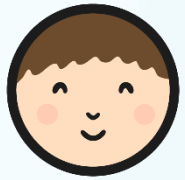


If both your cards share the same digit for the chosen value, or if one of the numbers does not have a digit in that particular place, then all the cards should be placed on the table and the player should choose again from their next card. This time, the player with the highest digit value takes the cards from the table as well as the 2 top cards.

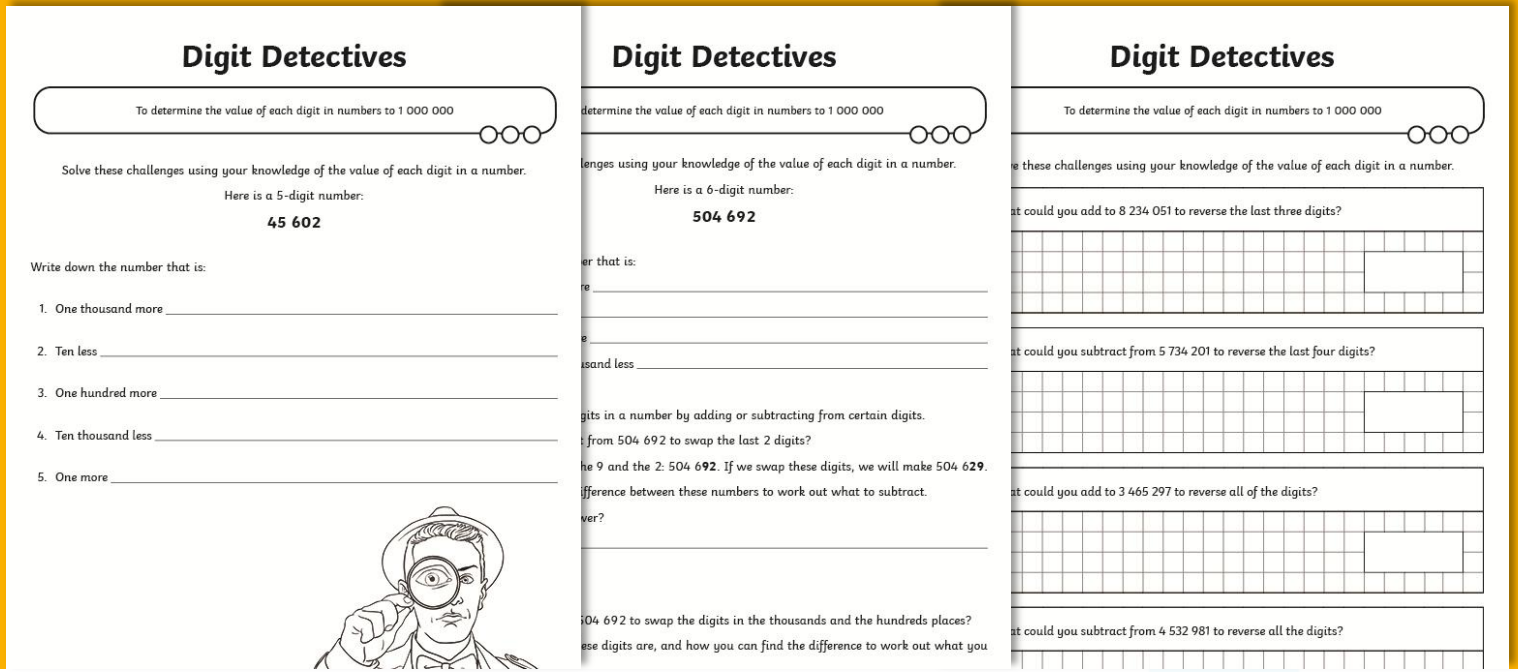
The person with all the cards at the end is the winner.



Digit Detectives Challenge



Use your knowledge of place value to solve these digit puzzles.



Digit Detectives

To determine the value of each digit in numbers to 1 000 000

Solve these challenges using your knowledge of the value of each digit in a number.

Here is a 5-digit number:

45 602

Write down the number that is:

1. One thousand more _____
2. Ten less _____
3. One hundred more _____
4. Ten thousand less _____
5. One more _____

Digit Detectives

determine the value of each digit in numbers to 1 000 000

lenges using your knowledge of the value of each digit in a number.

Here is a 6-digit number:

504 692

er that is:

re _____

e _____

sand less _____

gits in a number by adding or subtracting from certain digits.

from 504 692 to swap the last 2 digits?

he 9 and the 2: 504 6**92**. If we swap these digits, we will make 504 6**29**.

ifference between these numbers to work out what to subtract.

wer? _____

04 692 to swap the digits in the thousands and the hundreds places?

ese digits are, and how you can find the difference to work out what you

Digit Detectives

To determine the value of each digit in numbers to 1 000 000

e these challenges using your knowledge of the value of each digit in a number.

t could you add to 8 234 051 to reverse the last three digits?

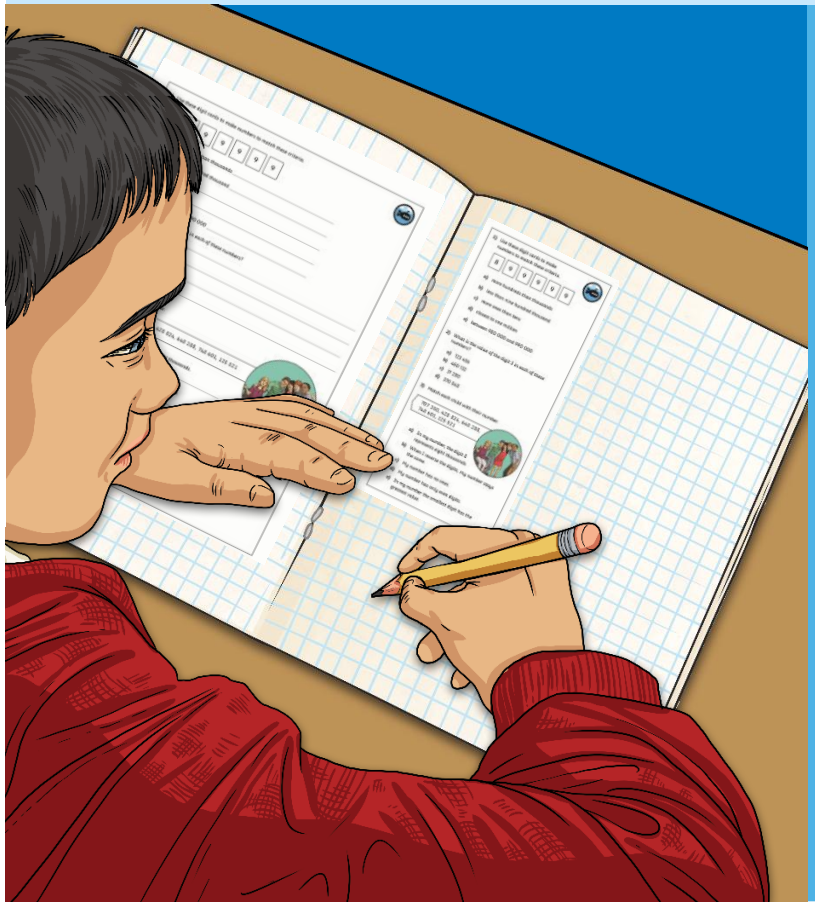
t could you subtract from 5 734 201 to reverse the last four digits?

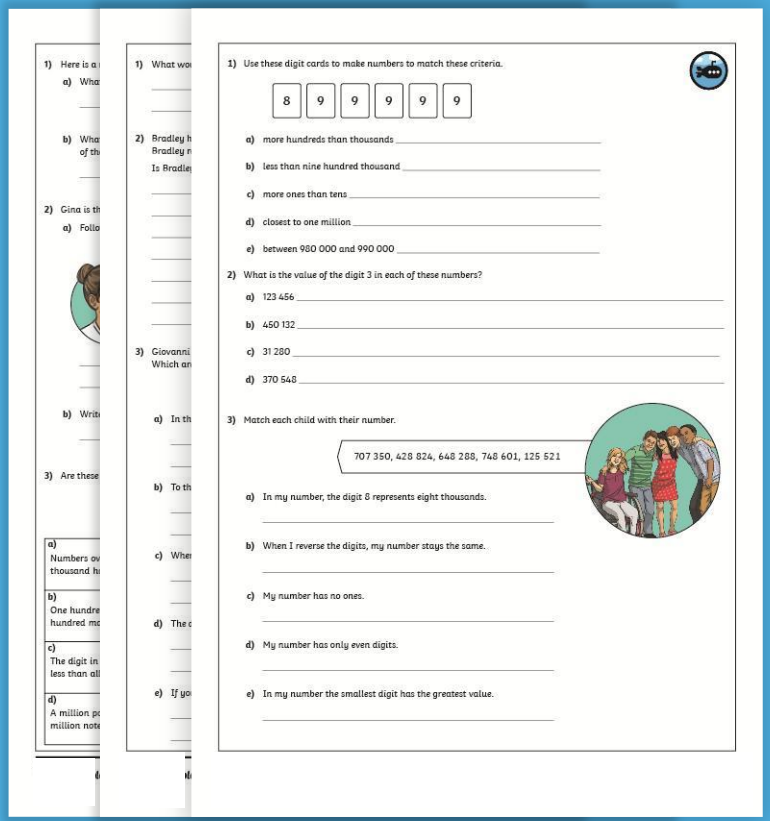
t could you add to 3 465 297 to reverse all of the digits?

t could you subtract from 4 532 981 to reverse all the digits?

Diving into Mastery

Dive in by completing your own activity!





1) Use these digit cards to make numbers to match these criteria.

8 9 9 9 9 9

a) more hundreds than thousands _____

b) less than nine hundred thousand _____

c) more ones than tens _____

d) closest to one million _____

e) between 980 000 and 990 000 _____

2) What is the value of the digit 3 in each of these numbers?

a) 123 456 _____

b) 450 132 _____

c) 31 280 _____

d) 370 548 _____

3) Match each child with their number.

707 350, 428 824, 648 288, 748 601, 125 521

a) In my number, the digit 8 represents eight thousands.

b) When I reverse the digits, my number stays the same.

c) My number has no ones.

d) My number has only even digits.

e) In my number the smallest digit has the greatest value.

Digit Reversal

Reversing the digits in a number means making a new number by writing it backwards. **For example, if we reverse the digits in 387, we get 783.**

Look at this number**: 673 291**

- If we reversed its digits, which digit would be in the thousands place?
- Is the digit in the hundreds place greater in the reversed number or the original number?
- How much less is the digit in the hundreds thousands place in the reversed number than in the original number?

Aim

- To determine the value of each digit in numbers to 1 000 000.

Success Criteria

- I can write numbers correctly into a place value grid.
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