

Catch-up for Year 6: Key skills from Year 5

Unit 1 Day 1: Understanding place value in big numbers

Teach through the **PowerPoint slides**.



Children can then tackle the questions on the **Practice Sheet(s)**.
There might be a choice of either **Mild** (easier) or **Hot** (harder).
Answers are provided.



Children finding it tricky? Try giving **Extra Support**.



Whizzed through the Practice Sheets?
Challenge children to have a go at the **Investigation**.

Practice Sheet Mild

Adding and subtracting 1, 10, 100, 1000, 10,000 and 100,000

- | | | | | | |
|----|---------------------|--------------------|----|----------------------|---------------------|
| 1. | $456,237 + 1,$ | $456,237 - 1$ | 6. | $345,784 + 100,000,$ | $345,784 - 100,000$ |
| 2. | $578,483 + 10,$ | $578,483 - 10$ | 7. | $456,378 + 20,$ | $456,378 - 20$ |
| 3. | $347,329 + 100,$ | $347,329 - 100$ | 8. | $235,429 + 300,$ | $235,429 - 300$ |
| 4. | $235,820 + 1000,$ | $235,820 - 1000$ | 9. | $428,375 + 20,000$ | $428,375 - 20,000$ |
| 5. | $658,231 + 10,000,$ | $658,231 - 10,000$ | | | |

Challenge

Subtract multiples of 1, 10, 100, 1000, 10,000 and 100,000 from 659,174 to give an answer of 111,111.

Practice Sheet Hot

Adding and subtracting 1, 10, 100, 1000, 10,000 and 100,000

1. $345,784 + 100,000$, $345,784 - 100,000$

2. $456,378 + 20$, $456,378 - 20$

3. $235,429 + 300$, $235,429 - 300$

4. $428,375 + 20,000$, $428,375 - 20,000$

5. $324,790 + 10$, $324,790 - 10$

6. $473,699 + 1$, $473,699 - 1$

7. $299,999 + 1$, $299,999 - 1$

8. $500,000 - 1$, $500,000 - 10$

9. $300,000 - 100$, $300,000 - 1000$

Challenge

Subtract multiples of 1, 10, 100, 1000, 10,000 and 100,000 from 659,174 to give an answer of 111,111.

Practice Sheets Answers

Adding and subtracting 1, 10, 100, 1000, 10,000 and 100,000 (mild)

- | | | |
|----|-------------------------------|-------------------------------|
| 1. | $456,237 + 1 = 456,238$ | $456,237 - 1 = 456,236$ |
| 2. | $578,483 + 10 = 578,493$ | $578,483 - 10 = 578,473$ |
| 3. | $347,329 + 100 = 347,429$ | $347,329 - 100 = 347,229$ |
| 4. | $235,820 + 1000 = 236,820$ | $235,820 - 1000 = 234,820$ |
| 5. | $658,231 + 10,000 = 668,231$ | $658,231 - 10,000 = 648,231$ |
| 6. | $345,784 + 100,000 = 445,784$ | $345,784 - 100,000 = 245,784$ |
| 7. | $456,378 + 20 = 456,398$ | $456,378 - 20 = 456,358$ |
| 8. | $235,429 + 300 = 235,729$ | $235,429 - 300 = 235,129$ |
| 9. | $428,375 + 20,000 = 448,375$ | $428,375 - 20,000 = 408,375$ |

Challenge

$$659,174 - 500,000 - 40,000 - 8000 - 60 - 3 = 111,111$$

Adding and subtracting 1, 10, 100, 1000, 10,000 and 100,000 (hot)

- | | | |
|----|-------------------------------|-------------------------------|
| 1. | $345,784 + 100,000 = 445,784$ | $345,784 - 100,000 = 245,784$ |
| 2. | $456,378 + 20 = 456,398$ | $456,378 - 20 = 456,358$ |
| 3. | $235,429 + 300 = 235,729$ | $235,429 - 300 = 235,129$ |
| 4. | $428,375 + 20,000 = 448,375$ | $428,375 - 20,000 = 408,375$ |
| 5. | $324,790 + 10 = 324,800$ | $324,790 - 10 = 324,780$ |
| 6. | $473,699 + 1 = 473,700$ | $473,699 + 10 = 473,709$ |
| 7. | $299,999 + 1 = 300,000$ | $299,999 - 1 = 299,998$ |
| 8. | $500,000 - 1 = 499,999$ | $500,000 - 10 = 499,990$ |
| 9. | $300,000 - 100 = 299,900$ | $300,000 - 1000 = 299,000$ |

Challenge

$$659,174 - 500,000 - 40,000 - 8000 - 60 - 3 = 111,111$$

Extra Support

Is that your final answer?

Focus of activity: Understanding place value in 5-digit numbers; Adding and subtracting 1, 10, 100, 1000 and 10,000.

Working together: conceptual understanding

- Write the number 34,567 on the flipchart. Ask children to read it. Remind them that the digit before the comma tells us how many thousands there are, i.e. 34 thousand. The comma helps us to read the number.
- Give each pair a place value chart (see child instructions). Ask them to ring a number in each column to make 34,567. Compare place value charts. Have they all ringed the same numbers?
- Write 55,555 on the flipchart. Ask children to read it. Point to each digit in turn asking what it represents.
- Under 55,555 write + 10,000. *Which digit will change when we add 10,000?* Ask a child to write the answer underneath.
- Next write -1000 under the answer. *Which digit will change this time?* Ask a child to write the answer underneath.
- Repeat for +100, -10 and + 1.

Up for a challenge?

Write the following missing number additions on the flipchart: $55,555 + \square = 56,555$; $55,555 + \square = 55,655$. Children say what has been added. Ask them to make up their own similar missing number additions.

Now it's the children's turn:

- Children shuffle the +/- 1, 10, 100, 1000 and 10,000 cards. They take three. They both write 55,555 at the top of a piece of paper, and then add and subtract according to the cards, writing the answers underneath each other on their piece of paper. They both say their final answer. Do they say the same number? If so, they win 1000 points. Can they reach 10,000 points before time is up?
- Go round the group and observe them as they play. Are they confident in which digit needs to change? You may wish to make notes as a record.

S-t-r-e-t-c-h:

If children cope well, ask them to secretly chose a card. They start with 55,555, add/subtract the number on the card and write the answer. They show the answer to their partner. Can their partner guess what was on the card? Swap roles and repeat.

Things to remember

Remember that when we say, 'place value', we mean the value of the digit, according to its place in the number. Play the game as a group. Do all children write the same final answer? Well done them! You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

Resources	Outcomes
<ul style="list-style-type: none">• Place value chart (see child instructions)• +/- 1, 10, 100, 1000 and 10,000 cards (see child instructions)	<ol style="list-style-type: none">1. Children know the value of each digit in 5-digit numbers.2. Children can add and subtract 1, 10, 100, 1000 and 10,000 to/from 5-digit numbers.3. Children begin to use place value to identify what has been added/subtracted to make a 5-digit number.

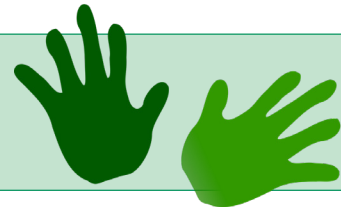
Extra Support

Is that your final answer?

Work in pairs

Things you will need:

- A pencil
- +/- 1, 10, 100, 1000 and 10,000 cards



What to do:

- Shuffle the +/- 1, 10, 100, 1000 and 10,000 cards.
- Take three.
- Both of you write 55,555 at the top of a piece of paper.
- Add or subtract the number on the first card. Write the answer underneath 55,555.
- Add or subtract the number on the next card. Write the new answer.
- Finally add or subtract the number on the last card. Write the answer.
- Both say your final answer. Did you both say the same number? If so, you win 1000 points.
- See if you can win 10,000 points before time is up!

55,555
54,555
54,655
64,655

S-t-r-e-t-c-h:

Secretly choose a card. Start with 55,555 and add/subtract the number on the card. Write the answer and show it to your partner. Can your partner guess what was on the card? Swap roles and repeat.

Learning outcomes:

- I know the value of each digit in 5-digit numbers.
- I can add and subtract 1, 10, 100, 1000 and 10,000 to/from 5-digit numbers.
- I am beginning to use place value to identify what has been added/subtracted to make a 5-digit number.

Extra Support
Is that your final answer?

+1

+10

+100

+1000

+10,000

-1

-10

-100

-1000

-10,000

Extra Support
Is that your final answer?

1 0 0 0 0	1 0 0 0	1 0 0	1 0	1
2 0 0 0 0	2 0 0 0	2 0 0	2 0	2
3 0 0 0 0	3 0 0 0	3 0 0	3 0	3
4 0 0 0 0	4 0 0 0	4 0 0	4 0	4
5 0 0 0 0	5 0 0 0	5 0 0	5 0	5
6 0 0 0 0	6 0 0 0	6 0 0	6 0	6
7 0 0 0 0	7 0 0 0	7 0 0	7 0	7
8 0 0 0 0	8 0 0 0	8 0 0	8 0	8
9 0 0 0 0	9 0 0 0	9 0 0	9 0	9

Investigation

Lost digit

1. Ask your partner to write a six-digit number – all the digits must be different.
2. Add the digits and keep adding to find the digital root of the number. Write this down.
3. Ask your partner to take their original six-digit number and, without showing you, to cross out one of the digits. They note the digit they crossed out and also its value.
4. They write the other digits in order as a five-digit number. They do not show you this number!
5. Ask them to subtract the digital root you wrote down from their new number.
6. Ask them to add the digits of their answer and keep adding to find its digital root. They tell you its digital root, but still do not show you their number!
7. Subtract their digital root from 9. This will be the digit that they crossed out. Say its value (refer to the original number).
8. Repeat, swapping roles.

639572
$6 + 3 + 9 + 5 + 7 + 2 = 32$
$3 + 2 = 5$
639572 70

Try this at least three times each, so you have tried at least six numbers.
Remember their digits must always be different.
Does it always work?

Try different types of number, e.g. five-digit or four-digit numbers; multiples of 10 or 100; even numbers, odd numbers, etc.

Can you make any suggestions as to why 9 is crucial?