Year 6

Teaching Maths for mastery involves employing approaches that help pupils to develop a deep and secure knowledge and understanding of mathematics at each stage of their learning, so that by the end of every school year or Key Stage, pupils will have acquired mastery of the mathematical facts and concepts they've been exposed to, equipping them to move on confidently and securely to more advanced material.

- Children should know what 100 is and what it looks like.

- They should be able to find 1 less and 1 more than a given number.

Place value

- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.

- Round any whole number to a required degree of accuracy.

- Use negative numbers in context, and calculate intervals across zero.

- Solve number and practical problems that involve all of the above.

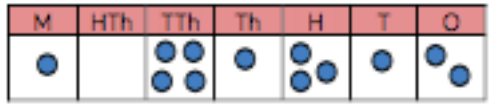
What does a zero in a number represent?

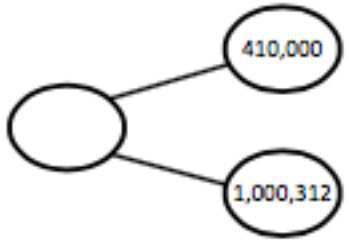
What strategy do you use to work out the divisions on a number line?

How many ways can you complete the partitioned number?

1 Match the representation to the numbers in digits.

One million, four hundred and one thousand, three hundred and twelve





1,041,312

1,410,312

1,401,312

2 Complete the missing numbers.

6,305,400 = _____ + 300,000 + _____ + 400

7,001,001 = 7,000,000 + _____ + _____

42,550 = _____ + _____ + _____

3 Husna's number is 306,042
She adds 5,000 to her number.
What is her new number?

Place Value Reasoning and Problem Solving:

Put a digit in the missing space below to make the sentence correct.

4,62_,645 < 4,623,64_

Is there more than one option?
Can you find them all?

1st digit could be 0, 1, 2
2nd digit could be 6, 7, 8, 9
When 1st digit is 3, 2nd digit must be 6 or above
When 2nd digit is 5, 1st digit must be 0, 1 or 2

Miley has this number:

824,650

She takes forty thousand away.

Her answer is 820,650

Is this correct?

Explain how you know.

No, this is incorrect.
Miley has taken away 4,000 not 40,000
The number should be 784,650

Use the digit cards and statements to work out my number.

0	3	3	5	5	6	7

- The ten thousands and hundreds have the same digit.
- The hundred thousand digit is double the tens digit.
- It is a six-digit number.
- It is less than six hundred and fifty five thousand.

Is this the only option?

Possible options

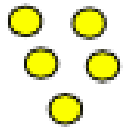
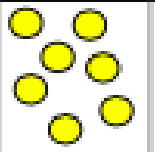
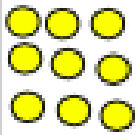
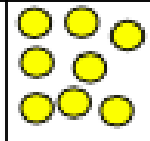
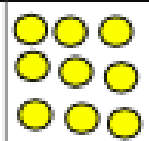
653,537
650,537
650,533

What are the 'rules' we use when rounding?

Which place value column do we need to look at when we round the nearest 100,000?

When is it best to round to 1,000? 10,000? Can you justify your reasoning?

1

100,000s	10,000s	1,000s	100s	10s	1s
					

Round the number in the place value chart to:

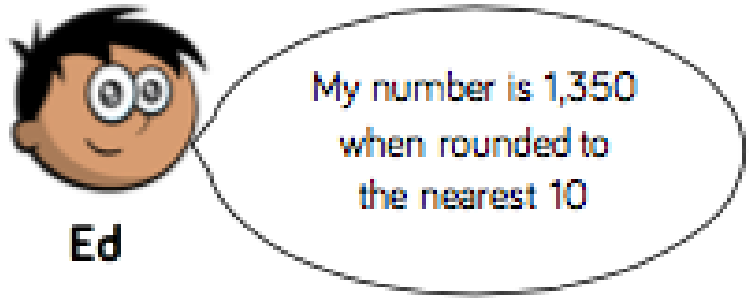
- The nearest 10,000
- The nearest 100,000
- The nearest 1,000,000

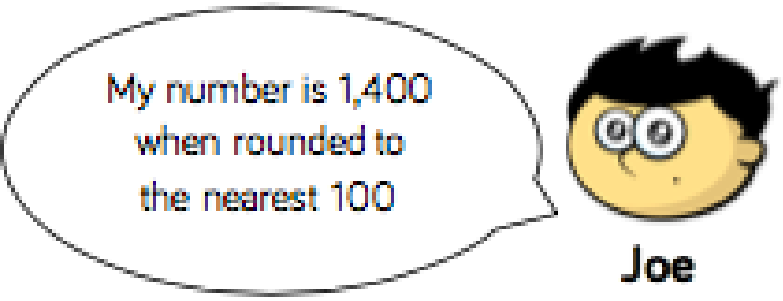
2 Write five numbers that round to the following numbers when rounding to the nearest hundred thousand.

- 200,000
- 600,000
- 1,900,000

3 Complete the missing digits so that each number rounds to one hundred and thirty thousand when rounded to the nearest ten thousand.

12□, 657	1□1, 999	13□, 001





Both numbers are whole numbers.

What is the greatest possible difference between the two numbers?

The greatest possible difference is 104 because:

1,449 – 1,345 = 104

Kiera rounded 2,215,678 to the nearest million and wrote 2,215,000

Can you explain to Kiera what mistake she has made and why she has done it?

-

She has rounded it to the nearest million correctly. However, digits in the other columns should all be zero.

Miss Grogan gives out the following four cards: 15,987, 15,813, 15,101, 16,101

Four children each take a card and give a clue to what their number is:

Marc says, "My number rounds to 16,000 when rounded to the nearest 1,000"

Daryl says, "My number has one hundred."

Tom says, "My number is 15,990 when rounded to the nearest 10"

Adam says, "My number is 15,000 rounded to the nearest 1,000"

Can you work out which child has which card?
Explain your choices.

Tom has 15,987
Marc has 15,813
Adam has 15,101
Daryl has 16,101

Addition subtraction, multiplication and division

- Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.

- Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication.

- Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding as appropriate for the context.

- Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context.

- Perform mental calculations, including with mixed operations and large numbers.

- Identify common factors, common multiples and prime numbers.

- Use their knowledge of the order of operations to carry out calculations involving the four operations.

- Solve problems involving addition, subtraction, multiplication and division.

- Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.

Fractions

- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.

- Compare and order fractions, including fractions > 1

- Generate and describe linear number sequences (with fractions)

- Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example $1 \times 1 = 1$]
$4 \quad 2 \quad 8$

- Divide proper fractions by whole numbers [for example $1 \div 2 = 1$
$3 \qquad 6$

- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

- Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 3]
8

Geometry- Position and Direction

Describe positions on the full coordinate grid (all four quadrants).

Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.