Year 6 Unit 1: Integers and decimals (2 weeks)

The strategies for rounding, addition and subtraction introduced in these lessons should be applied regularly across the year. Consider how you will encourage pupils to solve problems in multiple ways and make rounding to estimate a regular part of calculation lessons.

Videos: *Developing understanding of rounding*

Before you start…
- *How secure are pupils in understanding the place value of 5- and 6-digit numbers?*
- *What strategies are pupils aware of for addition and subtraction?*
- *What experiences have pupils had with working with decimal values?*

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Millions	Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
1 000 000	100 000	100 000	1000	100 100 100		1 1 1 / 1 1 1
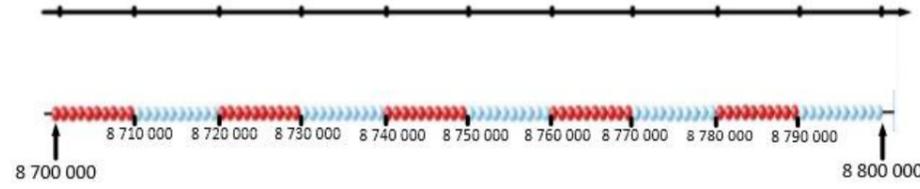
Lesson 5 is a suggested consolidation lesson. You may wish to use this prior to L3 to consolidate rounding skills or extend L4 to consolidate application.

8 700 000   8 710 000 8 720 000 8 730 000 8 740 000 8 750 000 8 760 000 8 770 000 8 780 000 8 790 000   8 800 000

Understanding 7-digit numbers
L1 Read and write 7-digit numbers
L2 Order and compare numbers with up to 7 digits

Pupils begin the unit by developing understanding of integers up to 10 million. Opportunities should be taken for pupils to visualise the relative magnitude of 1 million in different ways e.g. Dienes equipment, use of books such as 'How much is a million?'. Pupils learn how to read, write and say large integers and this should be revisited regularly. A key concept for this lesson is the use of place holders. Representing numbers to ten million is applied in lesson 2 where pupils compare and order integers using place value understanding.

? *How will you encourage and promote reasoning from pupils when exploring large integers?*
? *What representations will you use to help pupils get a 'sense of' 1 million and 10 million?*
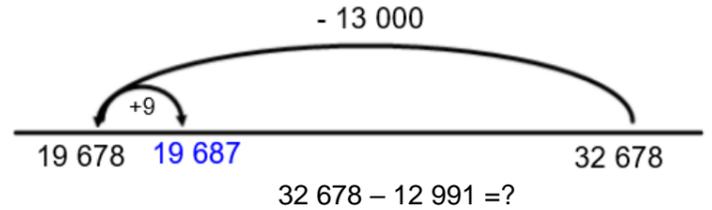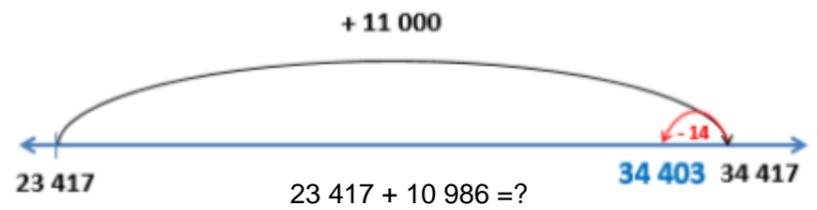
Applying rounding skills
L3 Round integers to required degree of accuracy
L4 Apply rounding to estimate

Pupils should be familiar with strategies for rounding integers to the nearest multiple of different powers of 10 and they extend this to rounding 7-digit numbers, including to the nearest multiple of 100,000. Pupils apply their understanding of rounding to estimate, considering different degrees of accuracy to support estimation. Throughout both lessons, the use of number lines is encouraged to ensure pupils develop a conceptual understanding of the procedure.

? *How confident are pupils in rounding 5- and 6-digit integers to different degrees of accuracy?*
? *How will you model using correct language and representations to support understanding?*

Video: *Exploring addition strategies*

Video: *Exploring subtraction strategies*

Lesson 10 is a suggested consolidation lesson. You may wish to further explore different worded problems involving addition and subtraction in different contexts.

+ 11 000

23 417   - 14   **34 403** 34 417

23 417 + 10 986 =?

- 13 000

+9

19 678 **19 687**   32 678

32 678 – 12 991 =?

Applying addition and subtraction strategies
L6 Explore strategies for addition
L7 Explore strategies for subtraction
L8 Apply strategies to problems involving decimals
L9 Apply strategies to multi-step problems

Pupils consolidate their understanding of different strategies for addition and subtraction, with a focus on mental strategies. Empty number lines are a key representation throughout these lessons to allow pupils to represent and articulate their strategy. Pupils often resort to column methods without considering efficiency e.g. recognising when a 'count on' to find the difference strategy is quicker than column subtraction. Opportunities to model and use different strategies should be provided throughout In lesson 8, these strategies are applied to working with decimal values including multi-step problems involving adding more than two values. Lesson 9 explores different multi-step problems, including 'I'm thinking of a number', to provide opportunities for pupils to consolidate the strategies developed and consider whether the problem requires addition or subtraction. Throughout these lessons, pupils should be encouraged to apply their rounding skills to estimate and check the response is reasonable.

? *How will you support pupils in applying their existing strategies to larger integers and decimals?*

Video: *Column addition with place value counters*

Video: *Column subtraction with place value counters*