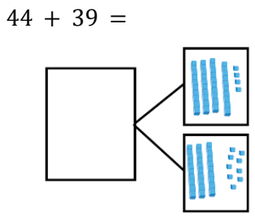
Year 3 Unit 13: Calculation strategies and place value (2 weeks)

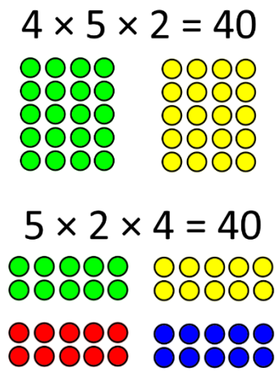
Before you start…

- *How familiar are pupils with these addition and subtraction strategies:*
  - *Partitioning*
  - *Near doubles*
  - *Rounding and adjusting?*
- *Which multiplication facts from this year are pupils fluent with?*
- *Do you have enough manipulatives to begin exploring 4-digit numbers? ie.1000 Dienes blocks and 1000 place value counters?*

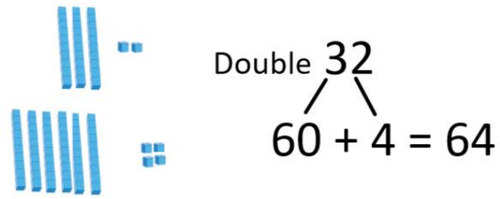


How many ways can you calculate this?

Video: *Near doubles for addition*



Video: *Multiplying three one-digit numbers*



Using and applying mental strategies for addition and subtraction

L1 Apply a range of strategies to add efficiently
L2 Apply a range of strategies to subtract efficiently
L3 Apply addition and subtraction strategies

Pupils are familiar with various addition and subtraction strategies such as using near doubles, rounding and adjusting and partitioning. In this unit pupils explore and share different strategies for the same calculation, reasoning about which one they find most efficient based on the numbers they are working with. They then apply these addition and subtraction strategies in the context of a game.

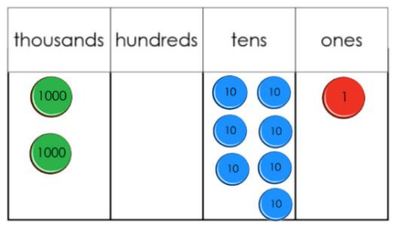
? *What opportunities will you give pupils to explain their choice of strategy?*
? *How can you promote discussions around different strategies for the same calculation?*

Using and applying mental strategies for multiplication and division

L4 Use commutativity, associativity and known facts to multiply efficiently
L5 Use halving or doubling to calculate efficiently

Pupils investigate that varying the order of the factors doesn't change the product when multiplying three single digit numbers. They represent their calculations using arrays to visualise these relationships. Pupils then calculate efficiently by selecting the order in which they complete the multiplication. In lesson 5, pupils explore doubling and halving strategies to calculate.

? *What connections will you make to previous experiences with multiplication from earlier in the year and Maths Meetings?*
? *What Ideas for Depth could you use to promote further mathematical thinking in these lessons?*



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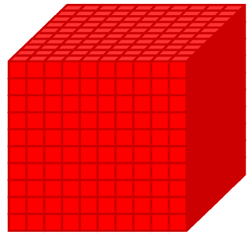
two thousand and seventy one



Video: *Representing numbers using Dienes and place value counters*

Lesson 6 is a suggested consolidation lesson.
You may wish to continue practising mental strategies for all operations, or spend time exploring 1000 before introducing the pupils to four-digit numbers.

Video: *Developing understanding of rounding*

Exploring 4-digit numbers

L7 Represent and describe 4-digit numbers
L8 Compare and order 4-digit numbers
L9 1000 more and 1000 less
L10 Round 4-digit numbers to the nearest multiple of one thousand

In preparation for Year 4, numbers beyond one thousand are the focus of these final lessons. Through exploring representations, pupils gain an understanding of the relative size of 1000 in comparison to 100, 10 and 1. They use Dienes blocks to build, see and describe these relationships. These experiences should explicitly build on existing understanding of 3-digit numbers and our number system. Using place value counters, pupils represent 4-digit numbers on place value charts in order to compare and order. Finally, pupils round to the nearest 1000 supported by representations such as bead strings and number lines.

? *What language are pupils familiar with to describe 3-digit numbers and how can you support them in applying this to larger integers?*
? *What relationships will pupils be able to identify with Dienes blocks and how will you support them in visualizing and describing these?*
? *What other opportunities might you include to support pupils in their understanding of 1000? Do they have experience with units of measure such as kilograms and litres? What about a millennium?*