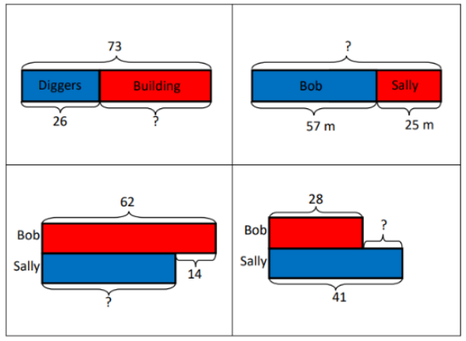
Year 2 Unit 9: Addition and subtraction (2 weeks)

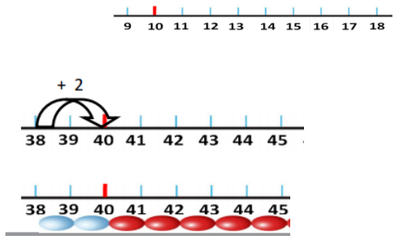
Video: *Deriving new facts from known number bonds*



Before you start…

- *What have pupils already practiced and experienced with addition and subtraction?*
- *How secure are pupils in using strategies such as 'Make Ten'?*
- *Do Maths Meetings need to be used to practice some of the key facts?*

9 + 6 =



Pupils are exposed to different partitioning strategies (partition one number or partition both) as well as different models (part-whole model and number line) throughout this unit.

Progress through this unit at the pace required by your pupils – you may wish to use consolidation lessons to explore one strategy alongside one model.

Developing Number Sense!

It can be tempting to teach pupils to use column methods, however the focus of this unit is to develop pupils' number sense, fluency and flexibility with a range of ***mental*** *calculation methods, even when regrouping is involved. Encourage pupils to get a sense of the numbers within a given calculation and to flexibly choose a suitable strategy. Pupils who rely solely on the column method will be at a disadvantage when faced with 100-99!*

Video: *Addition partitioning and regrouping with Dienes.*

Using 'Make Ten' and regrouping for addition

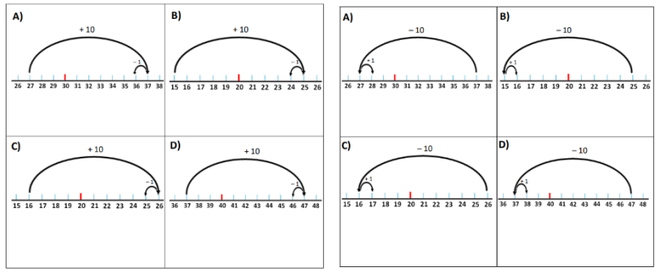
L1 Use the 'Make Ten' strategy to add ones
L2 & 3 Regroup when adding

Pupils apply the 'Make ten' strategy, introduced in Year 1, to add ones to 2-digit numbers. Pupils pattern seek to identify that the 'Make ten' strategy is only applicable for equations bridging ten. Discussion around number bonds and equality further support pupils with this. Make connections between the abstract representations 7 + 4 = 7 + 3 + 1 with colour groupings on a bead string to develop conceptual understanding around this.
Pupils then further apply their knowledge of the 'make ten' strategy when regrouping is required to add a 2-digit number to a 2-digit number. Pupils also activate their prior knowledge from earlier in the year a) Dienes allow pupils to partition when mentally calculating b) pupils draw on known facts to derive facts and c) part-whole language is used alongside the part-whole model. The two partitioning methods are revisited in the context of regrouping by partitioning either one or both numbers. Allow time for pupils to explore both these methods, engaging in dialogue to secure understanding. In Lesson 2, pupils will demonstrate their mental calculations on a part-whole model before moving to a number line in lesson 3. Encourage flexibility with number lines as pupils may wish to draw their own 'empty number line' or use an interval marked number line. They may also wish to draw larger jumps e.g. of 20 or 'smaller jumps' adding in increments of ten each time.

Using 'Make Ten' and regrouping for subtraction

L4 Use the 'Make Ten' strategy to subtract ones
L5 Regroup when subtracting
L6 Solve addition and subtraction word problems

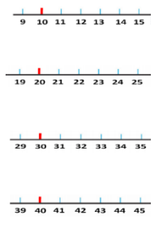
Mirroring learning from lesson 1, pupils first apply the 'Make ten' strategy to subtract ones from 2-digit numbers. Learning is again mirrored from lesson 2 and 3, as pupils then apply their knowledge of the 'make ten' strategy when regrouping is required to subtract a 2-digit number from a 2-digit number. Drawing upon learning from Unit 2, pupils explore mentally partitioning the number to be subtracted using Dienes on a part-whole model (lesson 5) and using a number line (lesson 6). Use opportunities to check calculations using the inverse. In lesson 6, pupils apply all the learning in this unit so far, using bar models to identify the calculations needed to solve a variety of additive word problems. Encourage pupils to apply the strategies learnt to so far (partitioning, regrouping, the 'Make ten' strategies) and representations to demonstrate their mental calculations (e.g. part-whole models, Dienes, number lines). Provide pupils with opportunities to engage in dialogue to make connections between the different strategies and representations.

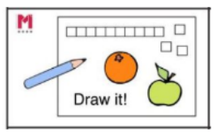


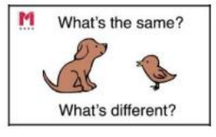
Video: *Near doubling strategy on the part-whole model*

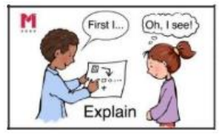
Variation
Some procedural and conceptual variation is built into the task. Consider how this can support pupils in developing their understanding.

9 + 6 =
19 + 6 =
29 + 6 =
39 + 6 =









Using near multiples to add and subtract

L7 Add near multiples of ten
L8 Subtract near multiples of ten

Pupils are introduced to the mental 'round and adjust' strategy to add and subtract near multiples of ten. This is an alternative to the regrouping strategies previously explored in this unit. Pupils draw upon their knowledge of fluently adding and subtracting multiples of ten (using known facts e.g. $3 + 2$ to derive facts e.g. $30 + 20$) using the 'If I know…then I know…' language structures to support this. Number lines are a useful representation here as a visual reminder to pupils which way to 'adjust' once the 'rounding' has taken place. As in previous lessons, encourage flexibility in the use of number lines to suit each pupils' needs.

Mentally adding with near doubles

L9 Add near doubles using mental strategies

Pupils apply their knowledge of partitioning to add near doubles (e.g. $21 + 20 = 20 + 20 + 1$) as well as their knowledge of 'adjusting' in lesson 7 and 8 (e.g. 20 + 19 = 20 + 20 – 1). Use the opportunity to make connections between doubling and the multiplication table of two. Pupils can use bead strings to explore the near double strategy or Dienes on a part-whole model.

Video: *Near doubling strategy on the bead string*