National Curriculum Links

Links to the National Curriculum in England

# Chapters 7–9: Addition and subtraction

Pupils should be taught to:

## Year 1

* read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs
* represent and use number bonds and related subtraction facts within 20
* add and subtract one-digit and two-digit numbers to 20, including zero
* solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ▢ – 9

## Year 2

* solve problems with addition and subtraction:
  + using concrete objects and pictorial representations, including those involving numbers, quantities and measures
  + applying their increasing knowledge of mental and written methods
* recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
* add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  + a two-digit number and ones
  + a two-digit number and ten
  + two two-digit numbers
  + adding three one-digit numbers
* show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
* recognize and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems
* find different combinations of coins that equal the same amounts of money
* solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

## Year 3

* add and subtract numbers mentally, including:
  + a three-digit number and one
  + a three-digit number and tens
  + a three-digit number and hundreds
* add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
* estimate the answer to a calculation and use inverse operations to check answers
* solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction
* add and subtract amounts of money to give change, using both £ and p in practical contexts

## Year 4

* add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
* estimate and use inverse operations to check answers to a calculation
* estimate, compare and calculate different measures, including money in pounds and pence
* solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

## Year 5

* add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
* add and subtract numbers mentally with increasingly large numbers
* use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
* solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

## Year 6

* perform mental calculations, including with mixed operations and large numbers
* solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
* use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy

Links to Curriculum for Excellence in Numeracy and Mathematics in Scotland

# Chapters 7–9: Addition and subtraction

## Early

***Experiences and outcomes:*** *I use practical materials and can ‘count on and back’ to help me to understand addition and subtraction, recording my ideas and solutions in different ways.* ***MNU 0-03a***

***Benchmark:***

* counts on and back in ones to add and subtract
* doubles numbers to a total of 10 mentally
* partitions quantities to 10 into two or more parts and recognizes that this does not affect the total
* adds and subtracts mentally to 10
* uses appropriately the mathematical symbols +, − and =
* solves simple missing number problems

## First

***Experiences and outcomes:*** *I can use addition, subtraction … when solving problems, making best use of the mental strategies and written skills I have developed.* ***MNU 1-03a***

*I can share ideas with others to develop ways of estimating the answer to a calculation or problem, work out the actual answer, then check my solution by comparing it with the estimate.* ***MNU 1-01a***

***Benchmark:***

* uses correct mathematical vocabulary when discussing the four operations including, subtract, add, sum of, total …
* demonstrates understanding of the commutative law, for example, 6 + 3 = 3 + 6 …
* solves addition and subtraction problems with three digit whole numbers
* adds and subtracts multiples of 10 or 100 to or from any whole number to 1000
* applies knowledge of inverse operations (addition and subtraction)
* uses strategies to estimate an answer to a calculation or problem, for example, doubling and rounding

## Second

***Experiences and outcomes:*** *Having determined which calculations are needed, I can solve problems involving whole numbers using a range of methods, sharing my approaches and solutions with others.* ***MNU 2-03a***

*I can use my knowledge of rounding to routinely estimate the answer to a problem then, after calculating, decide if my answer is reasonable, sharing my solution with others.* ***MNU 2-01a***

***Benchmark:***

* adds and subtracts multiples of 10, 100 and 1000 to and from whole numbers …
* adds and subtracts whole numbers … within the number range 0 to 1,000,000

Links to Curriculum for Wales: Programme of Study for Mathematics, Key Stages 2–4

# Chapters 7–9: Addition and subtraction

Learners should be taught to:

## Year 1

* use number facts within 10, i.e.:
  + doubling and halving, *e.g. 4 + 4*
  + bonds of 10, *e.g. 6 + 4*
* solve one-step problems that involve addition and subtraction, including missing number problems, e.g. 7 + ? = 9, using concrete objects and pictorial representations
* use known number facts when adding three single-digit numbers and realize addition can be done in any order
* understand and use the different mathematical terms for addition and subtraction, e.g. add, combine, find the difference

## Year 2

* understand and use mathematical symbols for addition, subtraction … and equals
* understand and use the different mathematical terms for addition, subtraction … and equals, e.g. find the total
* use mental recall of number facts to 10 to derive other facts, i.e.:
  + doubling and halving, *e.g. derive 40 + 40 from knowing 4 + 4*
  + bonds of 10, *e.g. derive 60 + 40 from knowing 6 + 4*
* mentally add 10 or 20 to a given number up to 100
* mentally subtract 10 or 20 from a given number up to 100
* use mental recall of number facts to 10 and place value to add or subtract larger numbers, e.g. 24 + 4, 30 + 5, 34 + 10
* find a small difference between two numbers by counting on, e.g. 44 – 28 = ?
* solve one- and two-step problems that involve addition and subtraction … including missing number problems, e.g. 40 – ? = 19
* add/subtract 9 or 11 from given number by adding/subtracting 10 and adjusting

## Year 3

* use mental strategies to recall number facts within 20
* find differences within 100
* use mental strategies to add and subtract 2-digit numbers

## Year 4

* find differences within 1 000
* add a 2-digit number to, and subtract a 2-digit number from, a 3-digit number using an appropriate mental or written method

## Year 5

* add and subtract 3-digit numbers using an appropriate mental or written method

Australian Curriculum for Mathematics

This maps entries in the **Australian Mathematics Curriculum (from Foundation Stage to Year 7)** to the content of chapters of Haylock, *Mathematics Explained for Primary Teachers*, 6th edition.

# Chapters 7–9: Addition and subtraction

## Foundation Year

* Represent practical situations to model addition and sharing

## Year 1

* Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts

## Year 2

* Explore the connection between addition and subtraction
* Solve simple addition and subtraction problems using a range of efficient mental and written strategies

## Year 3

* Recognize and explain the connection between addition and subtraction
* Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation
* Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents

## Year 4

* Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies

## Year 5

* Use efficient mental and written strategies and apply appropriate digital technologies to solve problems
* Create simple financial plans

## Year 6

* Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers

## Year 7

* Apply the associative (and) commutative … laws to aid mental and written computation
* Investigate and calculate ‘best buys’, with and without digital technologies