| Acland Burghley Maths | Place Value and Ordering | KS3 Year 7 Unit 1 |
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## Prior Knowledge

- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit
- Identify the value of each digit in numbers given to three decimal places
- Multiply and divide decimals and whole numbers by 10, 100 and 1000
- Recognise and use tenths, hundredths and thousandths and their decimal equivalents
- Identify, name and write equivalent fractions of a given fraction
- Use common factors to simplify fractions
- Use common multiples to find equivalent fractions with common denominators

## Key Learning Points

| | | |
|---|---|---|
| 1 | Understand place value in integers | |
| 2 | Understand place value in decimals, including recognising exponent and fractional representations of the column headings | |
| 3 | Understand the process of simplifying fractions through dividing both numerator and denominator by common factors | |
| 4 | Know how to convert from fractions to decimals and back again using the converter key on a calculator | |
| 5 | Compare negative integers using < and > | |
| 6 | Compare decimals using < and > | |
| 7 | Compare and order fractions by converting to decimals | |
| 8 | Compare and order fractions by converting to fractions with a common denominator | |
| 9 | Order a variety of positive and negative fractions and decimals using appropriate methods of conversion and recognising when conversion to a common format is not required | |
| 10 | Appreciate that, for any two numbers there is always another number in between them | |

| Acland Burghley Maths | Addition and Subtraction | KS3 Year 7 Unit 2 |
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## Prior Knowledge

- Add and subtract whole numbers with more than four digits using mental and written methods
- Solve addition and subtraction methods in contexts
- Solve problems using addition and subtraction
- Use estimation to check answers to calculations
- Use negative numbers in context and calculate intervals across zero
- Measure and calculate the perimeter of rectilinear shapes

## Key Learning Points

| | | |
|---|---|---|
| 1 | Use written methods to add and subtract positive integers | |
| 2 | Use mental methods to add and subtract positive integers | |
| 3 | Understand and apply the mathematical structures that underpin addition and subtraction | |
| 4 | Find the perimeter of a polygon | |
| 5 | Cross over zero using addition and subtraction | |
| 6 | Add a negative to any integer | |
| 7 | Subtract a negative from any integer | |
| 8 | Use written methods to add and subtract directed decimals | |
| 9 | Use mental methods to add and subtract directed decimals | |
| 10 | Add and subtract directed fractions with the same denominator (including mixed numbers) | |
| 11 | Add and subtract directed fractions where the denominators are multiples of each other (including mixed numbers) | |
| 12 | Add and subtract any two directed fractions (including mixed numbers) | |
| 13 | Add and subtract directed fractions and decimals | |

| Acland Burghley Maths | Multiplication and Division | KS3 Year 7 Unit 3 |
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## Prior Knowledge

- Find factors of numbers
- Find multiples of numbers
- Know and identify prime numbers
- Use column method to multiply large numbers
- Divide up to 4-digit numbers by 1- and 2-digit numbers
- Multiply and divide any number by powers of 10
- Convert between mixed numbers and improper fractions
- Find the area of a square, rectangle and triangle

## Key Learning Points

| | | |
|---|---|---|
| 1 | Use divisibility tests for the integers from 2 to 11 | |
| 2 | Find the unique prime factorisation of a number | |
| 3 | Use the prime factorisation of two or more positive integers to identify their highest common factor | |
| 4 | Use the prime factorisation of two or more positive integers to identify their lowest common multiple | |
| 5 | Know the rules for multiplying and negative numbers and apply this to a written method for multiplication | |
| 6 | Know the rules for dividing and negative numbers and apply this to a written method for multiplication | |
| 7 | Find and use the area of a parallelogram and trapezium | |
| 8 | Use mental methods to multiply and divide decimals | |
| 9 | Use a written method to multiply decimals | |
| 10 | Use a written method to divide a decimal by an integer | |
| 11 | Use equivalent calculations to divide by a decimal | |
| 12 | Multiply a whole number by a fraction and understand the equivalence of finding a fraction of an amount | |
| 13 | Multiply any fractions, including mixed numbers | |
| 14 | Divide an integer by a fraction, and apply this to division by a decimal | |
| 15 | Divide any two fractions, including mixed numbers | |

| Acland Burghley Maths | Angles in Polygons & Lines | KS3 Year 7 Unit 4 |
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## Prior Knowledge

- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
- Compare and classify geometric shapes based on their properties and sizes.

**Recall Assessment Topic – Ordering & Place Value**

## Key Learning Points

| | | |
|---|---|---|
| 1 | Convert between metric units for length | |
| 2 | Use a ruler to measure in mm and cm | |
| 3 | Know what an angle is; categorise acute, obtuse and reflex angles | |
| 4 | Know the mathematical conventions for labelling parallel and equal lines, and equal angles | |
| 5 | Measure any angle | |
| 6 | Draw any angle | |
| 7 | Accurately construct a triangle given two sides and an angle, or two angles and a side | |
| 8 | Know and use the fact that angles on a line sum to 180° | |
| 9 | Know and use the fact that angles round a point sum to 360° | |
| 10 | Know and use the fact that vertically opposite angles are equal | |
| 11 | Know and use the angle facts associated with triangles and special triangles | |
| 12 | Know and use the angle facts associated with quadrilaterals and special quadrilaterals | |
| 13 | Know the interior and exterior angle sum of any polygon | |
| 14 | Understand and reason with the angle properties of regular polygons | |
| 15 | Use knowledge of angles to make conjectures about tessellation | |

| Acland Burghley Maths | Order of Operations, Algebraic Manipulation, Substitution & Sequences | KS3 Year 7 Unit 5 |
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## Prior Knowledge

- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- 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.
- Understand and apply the mathematical structures that underpin addition and subtraction

**Recall Topic – Adding, Subtracting, Multiplying & Dividing Integers & Fractions**

## Key Learning Points

| | | |
|---|---|---|
| 1 | Understand that addition and subtraction have equal priority in calculations | |
| 2 | Understand that multiplication and division have equal priority in calculations | |
| 3 | Use the order of operations with addition, subtraction, multiplication and division | |
| 4 | Use brackets to prioritise calculations | |
| 5 | Use the order of operations with indices | |
| 6 | Calculate using priority of operations, including brackets, powers, exponents and reciprocals | |
| 7 | Use the associative, distributive and commutative laws to flexibly and efficiently solve problems | |
| 8 | Know the meaning of and identify: term, coefficient, variable, expression, formula and equation | |
| 9 | Identify like terms in an expression, generalising an understanding of unitising | |
| 10 | Simplify expressions by collecting like terms | |
| 11 | Expand expressions over a single bracket | |
| 12 | Factorise an expression into a single bracket | |
| 13 | Expand multiple single brackets and simplify the expression | |
| 14 | Understand that substituting particular values into a generalised algebraic statement gives a sense of how the value of the expression changes | |
| 15 | Understand the features of an arithmetic sequence and be able to recognise one | |
| 16 | Understand that any term in an arithmetic sequence can be expressed in terms of its position in the sequence (nth term) | |
| 17 | Understand that the nth term allows for the calculation of any term | |
| 18 | Determine whether a number is a term of a given arithmetic sequence | |
| 19 | Be able to find the nth term for an increasing or decreasing arithmetic sequence | |

| Acland Burghley Maths | FDP and Calculating % | KS3 Year 7 Unit 6 |
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## Prior Knowledge

- Understand the concept of a fraction as a proportion
- Understand the concept of equivalent fractions
- Understand the concept of fractions, decimals and percentages being equivalent
- Know standard fraction / decimal equivalences (e.g. ½ = 0.5, ¼ = 0.25, 1/10 = 0.1)
- Know that a percentage means 'out of 100'

## Recall Assessment Topic – Angles in Polygons & Lines

## Key Learning Points

| | | |
|---|---|---|
| 1 | Write a percentage as a fraction | |
| 2 | Write a quantity as a percentage of another | |
| 3 | Calculate percentages of a quantity – Non-Calc (using 50% or 10%) | |
| 4 | Calculate percentages of a quantity – Calculator (using 1%) | |
| 5 | Use calculators to find a percentage of an amount using multiplicative methods | |
| 6 | Use Non-Calc methods to carry out a percentage change | |
| 6 | Use calculators to increase and decrease an amount by a percentage using the multiplier | |
| 10 | Identify the multiplier for a percentage increase or decrease when the percentage is greater than 100% | |
| 7 | Compare two quantities using percentages | |
| 8 | Know that percentage change = (actual change ÷ original amount) x 100 | |
| 9 | Calculate the percentage change in a given situation, including percentage increase / decrease (given start and finish quantities) | |
| 12 | Solve problems involving percentage change | |
| 13 | Calculate the original value, given the final value after a stated percentage increase or decrease (reverse percentage change) | |
| 15 | Solve financial problems including simple interest | |
| 16 | Recognise when a situation involves compound interest | |
| 17 | Calculate the result of a repeated percentage change, including compound interest | |
| 18 | Calculate gross pay based on net pay | |

| Acland Burghley Maths | Speed & Travel Graphs | KS3 Year 7 Unit 7 |
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## Prior Knowledge

- Understand the concept of time – that there are 60 seconds in a minute, 60 minutes in an hour, etc
- Understand the concept of equivalent fractions and simplifying fractions (to simplify fractions out of 60).
- To know standard units for distance, and to be able to convert between metric units for distance.

## Recall Topic:

Choose whichever topics were highlighted by the End of Year Assessment QLAs to focus on for the last few weeks for individual classes.

## Key Learning Points

| | | |
|---|---|---|
| 1 | To convert between seconds, minutes, and hours, including use of scientific calculator | |
| 2 | To calculate time differences | |
| 3 | To be able to read timetables | |
| 5 | To review the standard units for measuring speed (mph, km/h and m/s) | |
| 6 | To be able to calculate a speed from a given distance & time (using proportion – speed being miles PER HOUR, or km PER HOUR, or metres PER SECOND, NOT using the SDT formula) | |
| 7 | To be able to calculate distance or time given two facts, using proportion again | |
| 8 | To be able to convert units for speed (between m/s and km/h) | |
| 9 | To interpret / read key information from a travel graph (distance / time graphs) | |
| 10 | To draw travel graphs from key information (distance / time graphs) | |
| 11 | To calculate speed from a travel graph | |
| 12 | To use information about speed to draw a travel graph | |
| 13 | To compare two travel graphs | |
| 14 | ?Use of computer software to plot travel graphs….. | |
| 1 | To convert between seconds, minutes, and hours, including use of scientific calculator | |