Teaching and Learning Content: Maths
Year Group: 8

Autumn Term

Key Questions: (A list of key questions)
Topics:
Multiples and squares
BIDMAS
Area/Volume
Fractions
Probability
Powers/roots

Students will: (A short description of outcomes)

- Recognise factors of numbers less than 100.
- Recognise and derive two digit prime numbers.
- Demonstrate quick recall of basic times tables.
- Use BODMAS/BIDMAS to work out the correct value of a calculation involving more than one operation.
- Solve more difficult problems involving all four operations.
- Find the area of a rectangle using A=lw
- Find the area of a triangle using A=1/2 bh
- Find the volume of cuboids using V=lwh
- Solve problems concerning areas and volumes in a functional setting.
- Find the fraction of an integer quantity
- Find and compare different fractions of different quantities.
- Work out the sum and difference of fractions with different denominators.
- List all the outcomes of two independent events.
- Calculate probabilities from lists or tables.
- Calculate the probability of A not happening, if A happening is known.
- Know that the total probability of all possible outcomes is 1.
- Know how to find powers of numbers and square roots on a calculator.
- Write down and use the square numbers up to 15 x 15.
- Know the cubes of 1, 2, 3, 4, 5 and 10.

Spring Term

Key Questions:
Topics:
Sequences
Scales
Algebra
Shape
Co-ordinates/ distance-time graph
Handling data

Students will:

- Recognise and explain the patterns in number calculations.
- Find any term in a number sequence.
- Substitute numbers into the n^{th} term rule
- Begin to find the n^{th} term of a linear sequence.
- Read a variety of scales with different divisions.
- Convert between the standard metric units.
- Convert from metric to imperial and back again with approximate conversion rates.
- To solve equations such as $4x+7 = 15$
- To form, and then solve, related linear equations of the same type.
- Expand a linear bracket
- Factorise a simple linear expression
- NB: Extension work would be to have unknowns on both sides or fractional coefficients.
- To know and identify the key terms associated with a circle.
- To draw a circle given the radius
- To draw shapes made up of circles.
- Construct line and angle bisectors.
- Construct a triangle using a compass and straight edge.
- Construct an angle of 60 degrees and a perpendicular from a point to a line.
- Given a table of values, be able to plot a linear graph.
- Know, recognise and find the rules for horizontal and vertical lines.
- Read off distances and times from a travel graph.
- Plot a distance-time graph
- Draw and interpret *real life* graphs

- To draw a pie-chart, and label the sections appropriately and accurately.
- Design a questionnaire to find out information.
- Read information from a stem and leaf diagram.
- Find the mean and range from a stem and leaf diagram.
- Draw an ordered stem and leaf diagram.

Summer Term

Key Questions:
Topics:
Shape
Angles
Fractions
3D shapes

Students will:
- Draw lines of symmetry on more complex 2D shapes.
- Find the order of rotational symmetry for complex 2D shapes.
- Know how to translate a 2D shape.
- Enlarge a 2D shape by a whole number scale factor.
- Reflect a 2D shape in a horizontal or vertical line (including the x- or y- axis)
- Rotate a 2D shape about a point (including the origin).
- Tessellate a shape in the 2D space.
- Know, recognise and use the rules of angles relating to angles with parallel lines
- Convert an Improper Fraction to a Mixed Number
- Convert a Mixed Number to an Improper Fraction.
- Solve fraction problems in words.
- Multiply a fraction by another fraction.
- Find the surface area of 3D shapes by counting the squares on the faces.
- Find the surface of a cuboid.
- Measure and draw the net of simple 3D shapes.
- Draw a simple 3D shape on isometric paper.
- Draw or create a shape based on its plan view and elevations.
- Calculate the area of a trapezium.
- Work out the formula for the perimeter, area or volume of simple 2- and 3D shapes.

Suggested resources to support your child's learning:
My Maths