# Year 7 Maths Learning Journey

BOWER PARK ACADEMY

Year 6

**Unit One**
*Algebraic Thinking*
Half term 1

*We are studying sequences and algebraic notation, along with equality and equivalence in the first half term.*

**Unit Two**
*Place Value and Proportion*
Half term 2

*We will then move on to studying place value and proportion with a summative assessment taking place covering all of the content from term 1.*

**Unit Three**
*Application of Number*
Half term 3

*We are studying applications of the four operations.*

*We will be assessed on the four operations as well as fractions and percentages of amounts.*

**Unit Four**
*Directed Number and Fractional Thinking*
Half term 4

*We are studying operations and equations with directed number.*

*We will be assessed on directed number and fractions and the four operations.*

**Unit Five**
*Lines and Angles*
Half term 5

*We are studying geometric notation and reasoning.*

*We will be assessed on constructing, measuring and overall application of the geometry topics covered.*

**Unit Six**
*Reasoning with Number*
Half term 6

Year 8

**Learning Challenge**
Use the fact that
1798 ÷ 29 = 62
to find
1798 ÷ 2.9

*We are studying developing number sense and sets & probability.*

*We will be assessed on number topics as well as probability and primes.*

**Key Vocabulary**
Sequences
Equivalence
Place Value
Integers
Decimals
Fraction
Addition
Subtraction
Multiplication
Division
Percentages
Directed Numbers
Geometric
Measuring
Sets
Probability
Prime Numbers

# Year 8 Maths Learning Journey

BOWER PARK ACADEMY

Year 7

**Unit One**
*Proportional Reasoning*
Half term 1

*We are studying ratio, proportion and operations with fractions.*

*We will be assessed on applications of ratio and proportion, as well as multiplying and dividing fractions.*

*We are studying representing data and the cartesian plane.*

*We will be assessed on analysing and representing data, straight line graphs and basic probability.*

**Unit Two**
*Representation*
Half term 2

**Learning Challenge**
There are 24 chocolates in a box. $\frac{1}{3}$ are dark chocolate and the rest are milk chocolate. Of these, some have a soft centre and the rest have a chewy centre. 5 of the milk chocolates have a chewy centre. 25% of the dark chocolates have a soft centre. Write down the ratio of soft chocolates to chewy chocolates.

**Unit Three**
*Algebraic Techniques*
Half term 3

*We are studying algebraic techniques.*

*We will be assessed on brackets, equations and inequalities, as well as sequences and indices.*

*We are studying developing number.*

*We will be assessed on fractions and percentages as well as standard index form.*

**Unit Four**
*Developing Number*
Half term 4

**Learning Challenge**
Esther adds together three consecutive even numbers. Her total is less than 80. Use an algebraic method to work out the greatest of Esther's three numbers.

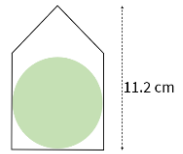
**Unit Five**
*Developing Geometry*
Half term 5

*We are studying developing geometry.*

*We will be assessed on angles in parallel lines and polygons, as well as area of trapezia and circles.*

**Learning Challenge**
The shape is made up of a square and triangle. The circle touches the sides of the square and has radius 3.8 cm.

What percentage of total area of the shape is shaded?




**Unit Six**
*Reasoning with Data*
Half term 6

Year 9

*We are studying reasoning with data.*

*We will be assessed on the data handling cycle, as well as measures of location.*

**Key Vocabulary**
Ratio
Scale
Multiplying
Dividing
Fractions
Cartesian plane
Probability
Brackets
Sequences
Indices
Percentages
Standard Index
Number sense
Parallel lines
Polygons
Area
Symmetry
Reflection
Measurements

# Year 9 Maths Learning Journey

BOWER PARK ACADEMY

Year 8

**Unit One**
*Reasoning with Algebra*
Half term 1

*We are studying reasoning with algebra*

*We will be assessed on straight line graphs, as well as forming and solving equations.*

**Unit Two**
*Two and Three Dimensions*
Half term 2

*We are studying constructing in 2D and 3D.*

*We will be assessed on 2D and 3D shapes, as well as constructions and congruency.*

**Learning Challenge**
List the first 10 prime numbers. Which numbers between 40 and 60 are prime? Explain how you can tell by looking at some numbers whether or not they are prime?

**Unit Three**
*Reasoning with Number*
Half term 3

*We are studying reasoning with number.*

*We will be assessed on number, using percentages and maths and money.*

**Unit Four**
*Reasoning with Geometry*
Half term 4

*We are studying reasoning with geometry.*

*We will be assessed on deduction, rotations and translations and Pythagoras' theorem.*

**Learning Challenge**
'Enlargements by a positive scale factor are larger than those by a negative scale factor'. Is this claim always, sometimes or never true? Justify.

**Unit Five**
*Reasoning with Proportion*
Half term 5

*We are studying reasoning with proportion.*

*We will be assessed on enlargement and similarity, as well as ratio and proportion problems.*

**Learning Challenge**
Kim think the inequalities $x \geq 2$ and $x > 3$ are identical. Explain why Kim is wrong giving a numeral example

**Unit Six**
*Representation and Revision*
Half term 6

*We are studying representations.*

*We will be assessed on probability and algebraic representations.*

Year 10

**Key Vocabulary**
Graphs
Forming
Solving
Conjectures
3-Dimensional shapes
Constructions
Congruency
Percentages
Money
Deduction
Rotation
Translation
Pythagoras' Theorem
Enlargement
Ratio
Proportion
Rates
Probability
Representation

# Year 10 Maths Learning Journey

BOWER PARK ACADEMY

Year 9

**Unit One**
*Algebra*
*Half Term 1*

*We are studying algebraic manipulation, equations and inequalities.*

*We will be assessed on algebraic manipulation, solving equations and inequalities as well as quadratic expressions and equations.*

**Learning Challenge**
Think of a number, multiply it by 5 and subtract 12. My answer is 18 greater than my original numbers. Form and solve an equation to find the original number

**Unit Two**
*Number and Proportion*
Half term 2

*We are studying multiplicative relationships.*

*We will be assessed on percentages, patio and scale and working with fractions*

**Unit Three**
*Number, Algebra and Probability*
Half term 3

*We are studying non-calculator methods, straight line graphs and probability .*

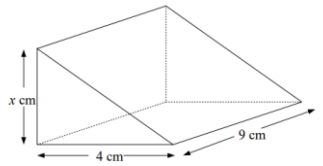
*We will be assessed on written methods of calculations , plotting and interpreting graphs and finding probability.*

**Unit Four**
*Geometry and Statistics*
Half term 4

*We are studying perimeter, area and volume as well as interpreting and representing data.*

*We will be assessed on rounding and estimation, perimeter area and volume, statistics and nonlinear graphs.*

**Learning Challenge**
The diagram shows a triangular prism.
The cross section of the prism is a right-angled triangle. The volume of the prism is 198cm$^3$ . Calculate x




**Unit Five**
*Geometry and Statistics*
Half term 5

*We are studying types of number trigonometry and simultaneous equations.*

*We will be assessed on factors, indices & roots, as well as trigonometry and solving simultaneous equations.*

*We are studying angles, graphs and diagrams and vectors .*

*We will be assessed on the recall of angle facts, statistical graphs and vector geometry.*

**Unit Six**
*Using Number*
Geometry and Algebra Half term 6

Year 11

**Learning Challenge**

(a) Given $\frac{x^6}{x^a} = x^8$

Find the value of $a$.

(b) Simplify $(2m^2)^4$

**Key Vocabulary**
Pythagoras
Hypotenuse
Trigonometry
Equations
Inequalities
Simultaneous equations
Angles
Circles
Vectors
Ratios
Fractions
Percentages
Interest
Probability
Data
Non-calculator
Indices
Roots

# Year 11 Maths Learning Journey

BOWER PARK ACADEMY

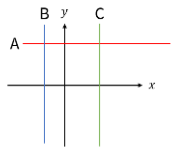
Year 10

## Unit One
*Graphs*
Half term 1

*We are studying graphs.*

*We will be assessed on gradients & lines, non-linear graphs, as well as using graphs.*

**Learning Challenge**
Lines A, B and C are all parallel to one of the axes. Line A passes through the point (2, 7). Line B passes through the point (−3, −5). Lines A and C intercept at (32, $a$) Write down the equation of each line. What is the value of $a$?




## Unit Two
*Algebra*
Half term 2

*We are studying algebra.*

*We will be assessed on expanding & factorising and changing the subject.*

## Unit Three
*Reasoning*
Half term 3

*We are studying transformations and constructions.*

*We will be assessed on transformations, systematic listing, as well as 'show that' problems.*

*We are studying reasoning.*

*We will be assessed on multiplicative, geometric, and algebraic reasoning.*

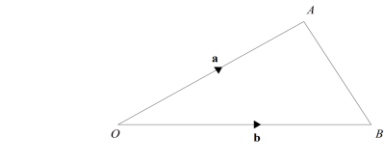
## Unit Four
*Revision and Communication*
Half term 4

## Unit Five
*Public Examinations*
Half term 5

*We are revising key knowledge from prior learning*

*We will be assessed our final written examination paper*

**Learning Challenge**




$\overrightarrow{OA} = \boldsymbol{a}$

$\overrightarrow{OB} = \boldsymbol{b}$

P is the point on AB such that AP:PB = 1:3

$\overrightarrow{OP} = k(3\boldsymbol{a} + \boldsymbol{b})$

Find the value of $k$

## Unit Six
*Public Examinations*
Half term 6

16+

**Learning Challenge**
Create a revision guide to support your recall of key terms

*We are revising key knowledge from prior learning*

*We will be assessed our final written examination paper*

**Key Vocabulary**
Graphs
Gradients
Non-linear
Algebraic
Expanding
Factorising
Subject
Reasoning
Functions
Multiplicative
Geometric
Communication
Transforming
Constructing
Listing
Describing
Revision