Year 10

September	October	Nov

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Fractions		Decimals		Percentages		Indices		Half term	Indices

November	December	January

Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
Probability		Algebraic manipulation		Sequences	Graphs	Christmas Holiday		Graphs	

January	February	March

Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30
Equations and quadratics		Assessment and feedback	Equations and quadratics	Half term	Inequalities	Ratio & Proportion			Angles

March	April	May	June

Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	Week 40
Angles	Easter Holiday		Area and volume		Pythagoras and trigonometry			Half term	Trigonometry

June	July

Week 41	Week 42	Week 43	Week 44	Week 45	Week 46				
Revision & exam technique	Assessment and feedback		Statistics		Year 11 intro	Summer Holiday			

Week 1-2 – Fractions

Foundation	Higher only
• Fraction of amount • Ordering fractions and use of $=, \neq, <, >, \leq, \geq$ • 4 operations including with mixed numbers	• Algebraic fractions – simplifying/ adding • Solving ratio problems by converting to fractions

Misconceptions

- Numerator and denominator mixed up.
- Can only simplify if dividing by 2
- Add without getting common denominator

Prior knowledge

- Simplifying
- Ordering
- Mixed to improper
- 4 operations

Year 11	
Foundation	**Higher**
• Review	• Algebraic fractions

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 3-4 – Decimals

Foundation	Higher only
• Round to decimal places and significant figures • Ordering decimals and use of $=, \neq, <, >, \leq, \geq$ • Multiply and divide decimals • Convert Fraction – Decimal – Percent • Estimations/ approximations	• Change recurring decimals to fractions • Calculate upper and lower bounds and use in calculations

Misconceptions

- 0.23 is bigger than 0.7
- 0.2 x 0.3 = 0.6
- Dividing will always make an answer smaller

Prior knowledge

- Ordering decimals
- 4 operations
- Round to decimal place

Year 11	
Foundation	**Higher**
• Review of FDP • Bounds • Error intervals	• Review of FDP • Bounds calculations

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 5-6 – Percentage

Foundation	Higher only
• Find percentage of amounts using calculator and non calculator methods • Increase & decrease amounts by a percentage • Calculate percentage change *Knowledge and use of: profit, loss, cost price, selling price, debit, credit, balance, income tax, VAT and interest*	• Reverse percent to find original amounts • Calculate compound interest and depreciation

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Misconceptions

- 10% is removing a zero
- 34% = 3.4
- Reverse percent is find the percent and add/ take it

Prior knowledge

- Percent of amount
- Increase/ decrease

Year 11	
Foundation	**Higher**
• Compound interest • Reverse percent	• Review

Return to overview

Week 7-10 – Indices

Foundation	Higher only
• Recap calculating indices e.g. find the value of 2^5 and calculate roots e.g. $\sqrt[4]{16}$ • Simplify numeric and algebraic indices • Estimate roots and powers e.g. $\sqrt{50} \approx 7$ • Write numbers in standard form • Standard form calculations	• Knowing -1 is the reciprocal and defining that • Simplify surds • Calculate values and simplify with negative and fractional indices • 4 operations with surds

Misconceptions

- Squaring is multiplying by 2
- Standard form – just count the zeros
- Surds with different base can be added

Prior knowledge

- Powers of 10
- First 3 laws of indices
- Square/ cube numbers and roots
- Change numbers to and from standard form

Year 11	
Foundation	**Higher**
• Review	• Surds

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 11-12 – Probability

Foundation	Higher only
• Calculate probability of single event fraction/ decimal/ percent • Sample space diagram • Experimental probability • Expected results • Frequency trees • Apply systematic listing strategies	• Probability from tree diagram as decimal/ fraction with and without replacement • Use of the product rule for counting (link to listing strategies)

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Misconceptions

- Not totalling for denominator of fraction
- Adding as you move along tree diagram

Prior knowledge

- Probability scale using words/ fraction/ decimal
- Single event probability
- Basic Venn diagram probability
- Frequency trees

Year 11	
Foundation	**Higher**
• Tree diagrams • Basic Venn notation	• Venn and notation

Week 13-14 – Algebraic manipulation

Foundation	Higher only
• Substitute into expressions • Expand and simplify single brackets • Factorise linear expressions • Expand and factorise quadratics • Change the subject of simple formula	• Expand and simplify up to triple brackets • Factorise $ax^2 + bx + c$ where $a \neq 1$ • Change the subject of formula when subject appears more than once

Misconceptions

- $x \times x = 2x$
- $(x + 3)^2 = x^2 + 9$
- If d = 5 then 7d = 75

Prior knowledge

- Collect like terms
- Substitution
- Expand single brackets
- Factorise linear expressions

Year 11	
Foundation	**Higher**
• Review	• Complete the square

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 15 – Sequences

Foundation	Higher only
• Write terms from rule • Find nth term of linear • Is a term in a sequence by reasoning or forming and solving equation	• Write a quadratic sequence from a rule • Find nth term of quadratic

Misconceptions

- N+4 instead of 4n
- 2n+5 instead of 2n-5

Prior knowledge

- Finding missing term
- Term to term rule
- Special sequence
- Nth term

Year 11	
Foundation	**Higher**
Not taught again	

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 16-20 – Graphs

Foundation	Higher only
Plotting graphs • Draw linear and basic quadratic graphs using table of values • Recognise shapes of graphs e.g. reciprocal/ cubic	**Plotting graphs** • Plot quadratic/ cubic/ reciprocal/ exponential graphs
Interpreting graphs • Find equation of a straight line • Find equation of parallel lines using y=mx+c • Equation of line using points/ gradient	**Interpreting graphs** • Y=mx+c for perpendicular lines

Misconceptions

- - x - = -
- Gradient is x/y
- Intercept of x axis not y
- Perpendicular and parallel mixed up

Prior knowledge

- Plot coordinates
- Complete table of values
- Plot straight line
- Find gradient

Year 11	
Foundation	**Higher**
• Conversion graphs • Real life graphs	• Transformation of graphs • Area under curves • Trig graphs

Problem solving questions applied wherever possible

Return to overview

Topic – could be attempted by foundation pupils

Week 21-24 – Equations and quadratics

Foundation	Higher only
• Form and solve equations • Equations with unknown on both sides • Simultaneous equations • Solve quadratics by factorising and link to roots of quadratic graphs • Set up and solve quadratics by factorising	• Factorising quadratics where a > 1 • Completing the square • Quadratic formula • Quadratic simultaneous equations

Misconceptions

- Not balancing correctly
- Simultaneous only getting x solution
- Quadratics only getting one solution
- Negatives in quad formula

Prior knowledge

- Solving 1 and 2 step equations
- Equations with brackets

Year 11	
Foundation	**Higher**
• Quadratics	• Quadratics

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 26 – Inequalities

Foundation	Higher only
• List integers from an inequality • Solve an inequality including double sided • Show an inequality on a number line	• Plot inequalities and find regions • Set up inequalities and plot, use for reasoning.

Misconceptions

- Inequality symbols wrong way round
- Circles on number line mixed up
- Dashed line/ solid line for regions
- Flipping sign when dividing by negative

Prior knowledge

- Knowing symbols and listing integers

Year 11	
Foundation	**Higher**
• Review	• Quadratic inequalities

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 27-29 – Ratio and proportion

Foundation	Higher only
• Simplify a ratio – 1:n • Write fraction as ratio and vice versa • Share in a given ratio • Missing parts using ratio • Difference using ratio • Basic proportion • Best buy • Express a multiplicative relationship between two quantities as a ratio or a fraction	• Direct and inverse proportion numerically and algebraically • Solve equations with two equivalent ratios e.g. $x: y = 3: 5 \; and \; 2x: 3y = 4: 7$

Misconceptions

- 1:2 = ½
- Sharing in a 2 part ration by dividing by 2
- Missing part is the total
- Inverse and direct mixed up

Prior knowledge

- Simplifying
- Sharing
- Best buy
- Scale
- Proportion – unitary method
- Exchange rates

Year 11	
Foundation	**Higher**
• Conversion and proportion graphs	• Velocity graphs and finding gradient at a point

Topic – could be attempted by foundation pupils

Problem solving questions applied wherever possible

Return to overview

Week 30-31 – Angles

Foundation	Higher only
• Use conventional terms/notation: parallel lines, perpendicular lines, right angles, polygons, regular polygons, polygons with rotational/reflection symmetries • Angles on parallel lines • Bearing from A to B • Bearing of a 3rd point • Bearings not to scale (using parallel lines and angle facts) • Angles in polygons and properties of polygons	• Circle theorems

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Misconceptions

- Wrong side of protractor of measuring
- Not measuring north for bearing
- Exterior is all of outside
- FZXC instead of proper names

Prior knowledge

- Types of angles
- Measuring/ drawing
- Missing angles

Year 11	
Foundation	**Higher**
• Constructions • Congruence and similarity	• Congruence and similarity

Week 34-36 – Area and volume

Foundation	Higher only
• Use conventional terms/notation: points, lines, vertices, edges, planes, parallel lines, perpendicular lines • Calculate the area of 2D shapes using formulas/ compound area by splitting shapes/ compound shapes. • Area/ circumference of circles (in terms of Pi) • Volume and surface area of prisms and cylinder • Area and perimeter of basic sectors	• Area of segments

Misconceptions

- Area is perimeter and vice versa
- Wrong units/ squaring answer
- Not halving diameter
- Not halving triangle/ wrong height

Prior knowledge

- Properties of 2D/ 3D
- Area/ perimeter/ volume of basic
- Circles

Year 11	
Foundation	**Higher**
• Cone/ spheres/ pyramid	• Frustums

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Week 36-40 – Pythagoras and trigonometry

Foundation	Higher only
• In right angled triangles find missing sides using Pythagoras • In right angled triangles find missing sides and angles using trigonometry • Applied pythagoras and trig e.g. graphs/ other 2D shapes	• Extend to 3D shapes • Unit circle to introduce trigonometry

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Misconceptions

- Add/ take for longest side
- Square root is halving
- Wrong labelling
- Choose wrong ratio for trig
- Not using sin^{-1} for angle
- Incorrect rearranging

Prior knowledge

- Square/ square root
- Solving equations
- Rearranging formula
- Pythag – missing sides

Year 11	
Foundation	**Higher**
• Trigonometry and Pythagoras recap	• Sine/ cosine rule • Area for sine rule • Trig graphs

Week 41 – Revision and exam techniques

Use this week to cover any topics you feel need revisiting or look at past papers in preparation for mock exams following week.

Return to overview

Week 44-45 – Statistics

Foundation	Higher only
• Data types - primary, secondary, discrete and continuous • Calculate averages and the range from lists • Averages from tables • Averages from grouped frequency • Comparing data using averages • Scatter graph – plotting and interpreting & using line of best fit. • Differences between sample and population and limitations of sampling.	• Plot and interpret cumulative frequency/ box plot • Draw and interpret histogram • Stratified sampling

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview

Misconceptions

- Not using midpoints for estimate of mean
- Not using highest value for CF
- Using wrong average for comparison
- Not using Freq density for histogram
- Gaps/ no gaps – bar/ histogram

Prior knowledge

- Averages from lists and tables
- Tally, bar, pie, pictogram, line charts
- Scatter graphs

Year 11	
Foundation	**Higher**
• Time series data and review of Statistics	

Week 46 – Year 11 introduction

Foundation	Higher only
Constructions Speed/ Distance/ Time Density/ Mass/ Volume	Functions Equation of a circle Exact Trig

Use this week to introduce classes to any of these topics you see fit based on recent assessment

Problem solving questions applied wherever possible

Topic – could be attempted by foundation pupils

Return to overview