Year 8 Standard for 3D Shapes (Summer 1)

Fluency

- I can name different 3D shapes and parts/properties of these.
- I can count squares or cubes to find surface areas or volumes.
- I can find the volume of cubes, cuboids, triangular prisms, cylinders and other prisms.
- I can find the surface area of cubes, cuboids, triangular prisms, cylinders and other prisms.

Reasoning

- I can draw nets and visualise a net folding up to understand how it will work and what 3D shape it makes.
- I can justify whether shapes are congruent, similar or neither.
- I can use plans and elevations of 3D shapes.
- I can use the volume of 3D shapes to work backwards to find missing lengths.

Problem-Solving

- I can solve worded problems involving 3D shapes.
- I can apply knowledge of individual shapes to find the surface area and volume of compound shapes.
- I can work with 3D shapes in contexts involving different types of numbers and algebra.
- I can investigate the effects of enlargement on the surface area and volume of any 3D shape.

Year 8 Standard for Statistics (Summer 2)

Fluency

- I can draw accurate bar charts, line graphs, pie charts, pictograms and box plots.
- I can calculate the mean, mode, median and range from a list or a tables.
- I can draw a line of best fit on a scatter graph and identify the correlation.
- I can calculate cumulative frequencies and draw a cumulative frequency graph

Reasoning

- I can interpret bar charts, line graphs, pie charts, pictograms, scatter graphs, cumulative frequency graphs and box plots.
- I can use data given in a variety of tables.
- I can explain how surveys could be improved and identify how diagrams or averages might be not accurate, not reasonable, or limited in their use.
- I can comment on trends or conclusions drawn from calculations or diagrams.

Problem-Solving

- I can use worded information to complete diagrams.
- I can choose the diagram or calculation appropriate to answer a given question.
- I can apply knowledge of ratio and proportion to diagrams such as scatter graphs, pictograms and pie charts.
- I can solve problems involving averages and range and interpret the answers in the context of the question.

Expected Standards Mathematics Year 8

Inside this booklet you will find a summary of all the knowledge and skills that the academy expects you to master in this subject by the end of the year.

These are the **minimum standards** that we set for all students. If you achieve this you should be on track to achieve at least a **grade 5/6 in your GCSE** in year 11.

During each half-term you will have regular **'learning checks'** to assess how well you are progressing against the expected standards. If you do not reach the expected standard in any of these checks you should be seeking help from your teacher, asking for study supports and using the materials on TGiSpace to help you improve.

If you wish to push yourself further your teacher will also be sharing with you examples of how to go **beyond the expected standards**

Tudor Grange Academy Solihull

Year 8 Standard for Percentages (Autumn 1)

Fluency

- I can find any percentage of any amount.
- I can increase and decrease by a percentage.
- I can calculate repeated percentage changes using multipliers.
- I can express one number as a percentage of another.

Reasoning

- I can select the best method to calculate a percentage.
- I can convert between fractions, decimals and percentages.
- I can interpret a ratio as a percentage.
- I can apply percentages to stratified sampling and the percentage increase/decrease in area/volume of a shape.

Problem-Solving

- I can solve worded problems involving percentages.
- I can solve problems involving reverse percentages.
- I can solve problems involving simple/compound interest and depreciation.
- I can use connections between percentages and number/algebra to understand and model situations.

Year 8 Standard for Linear Equations Sequences Graphs (Autumn 2)

Fluency

- I can solve equations, with unknowns on one or both sides.
- I can plot linear graphs given the equation of the line.
- I can find the nth term of a linear sequence.
- I can use graphs to start to solve simultaneous linear equations.

Reasoning

- I can decide and justify whether a mathematical object is an expression, equation, identity or formula.
- I can find the next diagram or term in a sequence and be able to explain whether a term is in the sequence or not.
- I can draw and interpret a linear graph representing a real-life scenario.
- I can identify and interpret the gradient and y-intercept of a line.

Problem-Solving

- I can explore relationships between different patterns in order to generalise.
- I can understand how to apply connections between linear equations, sequences and graphs.
- I can solve problems framed within a shape context and worded problems involving linear equations, sequences and graphs.
- I can find the equation of a line given two points or another parallel or perpendicular line.

Year 8 Standard for Ratio and Proportion (Spring 1)

Fluency

- I can write ratios from given information.
- I can give equivalent ratios, including simplifying and writing ratios in the form 1:n and n:1.
- I can divide a number into a given ratio.
- I can find missing values through applications of direct and inverse proportion.

Reasoning

- I can represent ratios in different forms; including as fractions, decimals, percentages, algebraically and graphically.
- I can recognise graphs which represent direct and inverse proportion.
- I can interpret the gradient of a straight line graph as the rate of change.
- I can use equality of ratios to find missing values when one or both shares have changed.

Problem-Solving

- I can use direct and inverse proportion, when shown as a worded problem or as a graph.
- I can solve worded problems involving ratios.
- I can apply understanding of proportion to solve value for money problems and reverse percentage problems.
- I can relate knowledge of ratio and proportion to length, area and volume (including use of scale factors, similar shapes and converting units).

Year 8 Standard for Angles (Spring 2)

Fluency

- I can measure and draw angles accurately (including bearings), and recognise different types of angles.
- I can measure and draw lines accurately, and recognise parallel and perpendicular lines.
- I can recall angle facts and apply to simple scenarios.
- I can draw accurate diagrams, including use of a given scale.

Reasoning

- I can decide if shapes tessellate or not and explain why.
- I can classify types of quadrilaterals and triangles using their definitions and properties (given through words or notation).
- I can verify and prove angle facts, such as the fact that angles in a triangle sum to 180 degrees.
- I can justify whether two shapes are congruent, similar or neither.

Problem-Solving

- I can solve missing angle problems using a variety of angle facts, including those relating to parallel lines, types of shapes and bearings.
- I can form and solve equations relating to angle problems.
- I can discover, understand and use the formulae for interior and exterior angles of polygons.
- I am starting to discover, use and prove some circle theorems, through measuring angles and making deductions.