Maths
Key Stage 3 Framework for Learning
Year 8 2017-2018: Creative Foundations

Autumn 1

Knowledge	**Number** (use the order of operations with brackets, including in more complex calculations; use inverse operations; check a result by considering if it is of the right order of magnitude; find the reciprocal of simple numbers/fractions mentally). **Calculator skills.** **Standard Form.** **Indices and Surds** (know all the squares of numbers less than 16 and be able to know the square root given the square number; extend the patterns by using the index law for division established for positive power answers, to show that any number to the power of zero is 1).
Skills	• Addition • Subtraction • Multiplication • Division • Mental methods • Solving multi step word problems
Assessment	*Marking Point 1* Week 1/2 - This will be a significant piece of work in their exercise book (highlighted by coloured paper) – feedback will be given in the form of two stars and a wish. *Marking Point 2* Week 2/3 Students will be assessed on their written piece of homework Feedback will be given in their books in the form of two stars and a wish. *Marking Point 3* Week 5/6 - students will undertake a topic review test for Number and Indices This will cover the key content as outlined in the knowledge section above. Students will be given feedback in the form of two stars and a wish.
Cultural enrichment	There is a Maths leaders club that runs every Tuesday night. This involves puzzles, games and critical thinking skills. Home learning will encourage pupils to develop their cultural enrichment, by researching key elements of the course. Questions will be posed such as: Can you write the distance from Earth to the sun in meters in standard form? This aims to inspire curiosity and develop communication skills for future class discussion.
Character	 QofS – Optimism **Optimism** – Lots of questions at different levels, enabling students to challenge themselves by moving onto harder questions independently. **Optimism** – make students aware, through a skills ladder, of the learning journey. Understanding that the skills based topics have to be applied in order to achieve higher order thinking questions, which will show that pupils are optimistic about their learning.

Autumn 2

Knowledge	**Proportion and Rates of Change** (set up equations to show direct proportion; use expressions of the form y α x; use compound interest; express a multiplicative relationship between two quantities as a ratio or a fraction). **Surface Area and Volume.** **Collecting Data.** **Vectors** (understand and use vector notation; add and subtract vectors).
Skills	• Division • Multiplication • Addition

	• Recognising different shapes and parts of shapes
Assessment	*Marking Point 1* Week 1/2 - This will be a significant piece of work in their exercise book (highlighted by coloured paper) – feedback will be given in the form of two stars and a wish. *Marking Point 2* Week 2/3 Students will be assessed on their written piece of homework Feedback will be given in their books in the form of two stars and a wish. *Marking Point 3* Week 5/6 - students will undertake a Progress Test that will encompass everything covered in the Autumn Term. Students will be given feedback in the form of two stars and a wish.
Cultural enrichment	There is a Maths leaders club that runs every Tuesday night. This involves puzzles, games and critical thinking skills. Home learning will encourage pupils to develop their cultural enrichment, by researching key elements of the course. Questions will be posed such as: Why is the Earth not a perfect sphere? This aims to inspire curiosity and develop communication skills for future class discussion.
Character	QofS – Empathy **Empathy** – Ask The Expert - students can be provided with a mixture of questions to practise by nominating an expert in each field to teach other groups. Plenty of opportunity for peer and self-assessment throughout all topics.

Spring 1

Knowledge	**Co-ordinates** (generate four quadrant coordinate pairs of simple linear functions). **Transformations** (recognise whether a reflection is correct). **Displaying Data** (interpret simple diagrams and charts; interpret simple pie charts; group data, where appropriate in equal class intervals; use information provided to complete a two-way table; construct a simple (no boundary data) frequency table with given equal class intervals for continuous data). **Functions.**
Skills	• Reading axes • Visualising and drawing shapes • Interpreting data
Assessment	*Marking Point 1* Week 1/2 - This will be a significant piece of work in their exercise book (highlighted by coloured paper) – feedback will be given in the form of two stars and a wish. *Marking Point 2* Week 2/3 Students will be assessed on their written piece of homework Feedback will be given in their books in the form of two stars and a wish. *Marking Point 3* Week 5/6 - students will undertake a topic review test for Proportion, Surface Area and Collecting Data. This will cover the key content as outlined in the knowledge section above. Students will be given feedback in the form of two stars and a wish.
Cultural enrichment	There is a Maths leaders club that runs every Tuesday night. This involves puzzles, games and critical thinking skills. Home learning will encourage pupils to develop their cultural enrichment, by researching key elements of the course. Questions will be posed such as: Why does the UK Government do a census every ten years? This aims to inspire curiosity and develop communication skills for future class discussion.
Character	QofS – Creativity & Curiosity **Creativity** – Students can demonstrate creativity with a series of questioning/describing tasks. This can involve representing fractions in as many different possible ways.

	Curiosity – large number of opportunities for investigative tasks; opportunities to collect Primary Data and display this in numerous ways.

Spring 2

Knowledge	Ratio (express a multiplicative relationship between two quantities as a ratio or a fraction). Probability (use the vocabulary of probability; apply the property that the probabilities of an exhaustive set of outcomes sum to 1; identify all possible mutually exclusive outcomes of a single event; identify all mutually exclusive outcomes for two successive events with two outcomes in each event; write probabilities in words, fractions, decimals and percentages; find and justify probabilities based on equally likely outcomes in simple contexts; use tree diagrams to calculate the probability of two dependent events; use tree diagrams to calculate the probability of two independent events). Constructions (use straight edge and compasses to construct the mid-point and perpendicular bisector of a line segment; draw the locus equidistant between 2 points or from a point; produce shapes and paths by using descriptions of loci). Sets.
Skills	• Division • Multiplication • Use of mathematical equipment • Use of language of probability
Assessment	*Marking Point 1* Week 1/2 - This will be a significant piece of work in their exercise book (highlighted by coloured paper) – feedback will be given in the form of two stars and a wish. *Marking Point 2* Week 2/3 Students will be assessed on their written piece of homework Feedback will be given in their books in the form of two stars and a wish. *Marking Point 3* Week 5/6 - students will undertake a Progress Test that will encompass everything covered in the Autumn and Spring Term. Students will be given feedback in the form of two stars and a wish.
Cultural enrichment	There is a Maths leaders club that runs every Tuesday night. This involves puzzles, games and critical thinking skills. Home learning will encourage pupils to develop their cultural enrichment, by researching key elements of the course. Questions will be posed such as: What is the chance of winning the national lottery? How do they work it out? How would the probability be affected if we had more or less numbers? This aims to inspire curiosity and develop communication skills for future class discussion.
Character	 QofS – Responsibility & Reflection Reflection – large number of opportunities for peer assessment contained within topics. Reflection - Students can use real life situations to create sensible exam style questions on ratio and proportion.

Summer 1

Knowledge	Recap of Symbols (simplify algebraic expressions by collecting like terms; construct expressions from worded descriptions, using addition and subtraction). Linear graphs (plot the graphs of simple linear functions in the form y = mx + c in four quadrants; know that the gradient of a line is the change in y over change in x). Statistical Measures. Further Graphs.
Skills	• Drawing and labelling axes • Interpreting data • Comparing and interpreting averages • Simplifying • Identify parallel and perpendicular lines
Assessment	*Marking Point 1* Week 1/2 - This will be a significant piece of work in their exercise book (highlighted by coloured paper) – feedback will be given in the form of two stars and a wish.

	Marking Point 2 Week 2/3 Students will be assessed on their written piece of homework Feedback will be given in their books in the form of two stars and a wish. *Marking Point 3* Week 5/6 - students will undertake a topic review test for Symbols, Graphs and Statistical Measures. This will cover the key content as outlined in the knowledge section above. Students will be given feedback in the form of two stars and a wish
Cultural enrichment	There is a Maths leaders club that runs every Tuesday night. This involves puzzles, games and critical thinking skills. Pupils have the opportunity to take part in the Junior Maths Challenge. Home learning will encourage pupils to develop their cultural enrichment, by researching key elements of the course. Questions will be posed such as Can you find a bar chart or another chart from a recent newspaper and describe what it shows? This aims to inspire curiosity and develop communication skills for future class discussion.
Character	![Practice and Resiliency icons] QofS – Practice & Resiliency **Practice** – lots of opportunities to practise conversions between fractions, decimals and percentages through interactive activities. **Resiliency** –Algebra is a difficult topic to master and questions can be posed in many guises. Students must develop their resiliency through problem solving exercises. **Resiliency** –Can students use mathematical symbols to describe a scenario? e.g. Emma has x sweets, Pete has five more than Emma, write an expression for the number of sweets Pete has.

Summer 2

Knowledge	**Similarity, Congruence and Scale** (Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS); identify congruent shapes; know that enlargements of 2D shapes produce similar shapes; understand that the ratio of any two sides is constant in similar right-angled triangles)**.** **Formulae.** **Circle Theorems** (know that the perpendicular distance from a point to a line is the shortest distance to the line; solve problems involving angles, triangles and circles).
Skills	• Reading maps and scales • Division • Multiplication • Substitution
Assessment	*Marking Point 1* Week 1/2 - This will be a significant piece of work in their exercise book (highlighted by coloured paper) – feedback will be given in the form of two stars and a wish. *Marking Point 2* Week 2/3 Students will be assessed on their written piece of homework Feedback will be given in their books in the form of two stars and a wish. *Marking Point 3* Week 5/6 - students will undertake a Progress Test that will encompass everything covered in the Autumn, Spring and Summer Term. Students will be given feedback in the form of two stars and a wish.
Cultural enrichment	There is a Maths leaders club that runs every Tuesday night. This involves puzzles, games and critical thinking skills. Paper-based homework investigations will include elements of cultural Mathematics. Home learning will encourage pupils to develop their cultural enrichment, by researching key elements of the course. Questions will be posed such as: If the base and height of a triangle are doubled (enlarged by a scale factor of 2), how much bigger is the area? This aims to inspire curiosity and develop communication skills for future class discussion.
Character	![Motivation icon]

	QofS – Motivation **Motivation** – Geometry ranges from being very simple to very complex. By students understanding the learning journey for this topic, this provides motivation for their achievement.