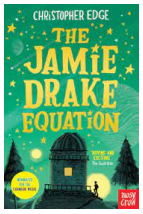
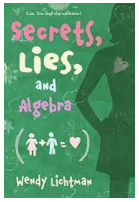
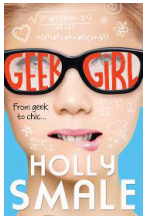
Year 8 MATHS

	Key Learning	Pre-Exposure Tasks	Linked Fiction
Autumn 1	**Proportional Reasoning (including Ratio and Scale, Multiplicative Change and Fractions)** Consider the meaning of ratio and the various models used to represent it. Learn how to share in a ratio when given the whole or one of the parts and use a bar model to ensure the correct approach is used for solving a question. Explore currency conversion graphs to understand the concept of direct proportion. Use maps to understand the need for scale. Consider visual representations of multiplying and dividing fractions and converting mixed numbers to improper fractions and vice-versa.	Investigate currency exchange rates from different countries and convert amounts to and from these foreign currencies.	 **The Jamie Drake Equation** Christopher Edge
Autumn 2	**Representations** Investigate algebraic rules for straight lines. Explore notions of gradient and intercepts. Appreciate the similarities and differences between sequences, lists of coordinates and lines. Introduce the idea of linear relationships when comparing two sets of data. Present data using charts and diagrams. Extend knowledge from Year 7 to deal with both discrete and continuous data. Represent probability through sample space diagrams and tables. Use language and properties precisely to analyse probability and statistics.	Discuss graphs and diagrams that appear on social media or the news. Are they misleading or biassed? How many people were sampled?	
Spring 1	**Algebraic Techniques** Explore expanding over a single bracket and factorising by taking out common factors. Revisit and extend knowledge of solving equations to include brackets and unknowns on both sides. Explore bar models as a recommended model to make sense of the maths. Learn to solve formal inequalities and understand the meaning of a solution set. Investigate sequences with more complex algebraic rules. Explore the ideas behind the addition and subtraction laws of indices whilst using key terminology such as coefficient, base and power.	Can you think of examples of the word “Factor” in everyday life? How does this link to the mathematical definition? Research a balance scale. Find out what they look like (online or in an antique shop)?	 **Secrets, Lies and Algebra** Wendy Lichtman
Spring 2	**Developing Number** Study the relationships between fractions and percentages including decimal equivalents. Work out percentage increase and decrease. Develop financial maths skills through the contexts of profit, loss and interest. Develop both calculator and non-calculator methods throughout. Learn about standard index form building on indices work. Consider context to help make sense of the need for the notation and its uses. Revisit multiplying and dividing by 10, 100 and 1,000 in context. Apply estimation skills and mental strategies to check work.	Where can you see really big and small numbers in real life? Are they written to an exact accuracy, or can they be estimated? How does your calculator deal with really big and small numbers? Why does this happen?	

Summer 1	**Developing Geometry** Explore angles in parallel lines and solve increasingly complex missing angle problems. Make links to the closely connected properties of polygons and quadrilaterals. Create dynamic angle problems with rulers and a pair of compasses. Identify and use the formulae for the area of a trapezium and a circle. Investigate the area of compound shapes. Revisit and enhance knowledge of special triangles and quadrilaterals to support the concept of line symmetry and reflection. Learn and apply key vocabulary such as object, image and congruent.	Where are parallel lines found in real life? Which sports use parallel lines as part of the court/field markings? Where can you see line symmetry in real life? Which sports award additional points for the athletes maintaining good symmetry?	 **Geek Girl** Holly Smale
Summer 2	**Reasoning with Data** Use charts to compare different distributions. Explore when graphs may be misleading (an important real life consideration). Design and criticise questionnaires and how best to collect primary data. Consider calculations involving the median, mean and mode. Find the mean from a grouped and ungrouped frequency table. Exploring through project work, collect data on a chosen subject and make comparisons between two groups using data, calculations and diagrams.	Look through any daily newspaper. How many articles are accompanied by a diagram or chart which aims to simplify the story for the reader? Does this visual representation do the article justice? Is there a danger that the diagram is an over-simplification of a more complex issue?	