

YEAR 7, STAGE 6 – RATIO AND PROPORTION, MATHS

Rationale and Context of Unit:	Core curriculum content:	Tier 2 & Tier 3 vocabulary explicitly taught
<p><u>Proportional reasoning</u></p> <p>Key Skills:</p> <ul style="list-style-type: none"> Recall multiplication facts for multiplication tables up to 12×12 Recall division facts for multiplication tables up to 12×12 Find fractions of an amount Find multiples of a given number 	<p><u>Proportional reasoning</u></p> <p>Ratio</p> <ul style="list-style-type: none"> You will solve problems involving scaling, sharing and grouping Solve simple problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts; e.g. find the value of the parts, given the whole) Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts; e.g. find the value of the whole and parts, given one part) Use a scale factor to solve problems involving similar shapes Find the scale factor of similar shapes Solve problems involving unequal sharing or grouping problems using fractions <ul style="list-style-type: none"> Solve problems involving unequal sharing or grouping problems using multiples 	<ul style="list-style-type: none"> Proportion, Quantity, Integer, Similar (shapes), Enlargement, Scale factor, Group, Share and Multiples. <p><i>Highlighted words MUST be explicitly taught, defined and recorded in student books as they are first met. Other listed words may be introduced verbally or written in a similar format.</i></p>

Challenge and Support:	World wide learning/ links to 21 st century:	Cultural capital/ Industry/ Enrichment:
<ul style="list-style-type: none"> (Given a recipe for 4 people) show me an amount of food that is needed for 8 people, 6 people, 9 people. Show me an amount of food that is needed for a number of people of your choice. And another. And another ... Convince me that the second shape is an enlargement of the first shape Kenny has no sweets. Jenny gives $\frac{1}{3}$ of her sweets to Kenny. Jenny now has 18 sweets. Kenny thinks that Jenny had 54 sweets to start with. Kenny is wrong. Explain why. NCETM: Ratio and Proportion Reasoning 	<ul style="list-style-type: none"> Outside of the maths class, it is easy to recognize ratios in the real world. Common examples include comparing prices per ounce while grocery shopping, calculating the proper amounts for ingredients in recipes and determining how long car trip might take. Other essential ratios include pi and phi (the golden ratio). 	<ul style="list-style-type: none"> NRICH provides thousands of free online mathematics resources for ages 3 to 18 - completely free and available to all via their website (nrich.maths.org/). These resources aim to: <ul style="list-style-type: none"> Enrich and enhance the experience of the mathematics curriculum for all learners Develop mathematical thinking and problem-solving skills Offer challenging, inspiring and engaging activities Field trips: Norwich Castle Students are taken to Norwich Castle to complete various activities. One activity requires to students to measure the castle's stone wall and compare this to the total surface area of the sides.
Historical, Social, Moral, Spiritual, Cultural context:	Cross curricular links/ literacy/numeracy:	Common misconceptions:
<ul style="list-style-type: none"> Ratio is used in many different real life situations. Converting between different currencies, working out which packet of crisps is the best value, mixing cement and scaling up a recipe all involve using ratios 	<ul style="list-style-type: none"> Science: science can provide the context for many basic ratio problems such as concentration of substances within a chemical compound. Geography: statistics on populations in different parts of the world at different 	<ul style="list-style-type: none"> Many pupils will want to identify an additive relationship between two quantities that are in proportion and apply this to other quantities in order to find missing amounts

	<p>periods, given as ratios and categorised according to the requirements/limitations of the data.</p> <ul style="list-style-type: none"> • Art: see proportion wheel for creating art cards of different sizes by reducing pictures in different proportions. • Literacy: Interpretation of written problems with conversion between these types of problems to pictorial and number representation. Correct use of specialised vocabulary. 	<ul style="list-style-type: none"> • When finding a fraction of an amount some pupils may try to use a rule formed without the necessary understanding. As a result, they will muddle the operations, dividing by the numerator and multiplying by the denominator. <ul style="list-style-type: none"> ○ When constructing an enlargement some pupils may only apply the scale factor in one dimension; for example, ‘enlarging’ a 2 by 4 rectangle by a scale factor of 2 and drawing a 2 by 8 rectangle.
<p>Assessment timeline:</p>		
<ul style="list-style-type: none"> • Topic test assessments (BAM tests) are conducted at the end of each topic. These are roughly after 2 weeks per topic, but this may vary. • Pre-checks are conducted at the start of the topic to test student prior knowledge. This informs lesson planning and delivery. • Tracking assessments are conducted once a term with end of year formal exams, for reporting and checking cumulative knowledge. • Testing data leads to discussions about setting, intervention groups and individual in-class intervention. • All students have access to a wide range of resources to develop their understanding. 		
<p>Home learning</p>		
<ul style="list-style-type: none"> • Homework is set weekly for each group. This will often be via interactive websites with immediate feedback and support. • Teachers have the autonomy to use whichever resource they wish within the criteria set for the topic. • Students have access to lots of resources at home, including: Kerboodle, MyMaths, Mathswatch, PiXL Maths APP, PiXL Tmes Table App. 		
<p>Feedback</p>		
<ul style="list-style-type: none"> • Feedback is given after each topic test, tracking assessment and end of year exams. After tracking and end of year exams, this will include “Formative Marking” sheets which give feedback question by question to help support the students with priorities for further work. 		

Length of unit (duration indicated in lessons)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Unit:																													