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| Year 7 | **Topic: Unit 7 – Ratio and Proportion****Period:** Spring 2 |
| **Overview of topic:**Students will build on the ratio skills introduced in KS2, and the Fractions and Percentages work covered in Unit 5 to further improve their understanding of how to use and apply ratio, set up ratios and simplify them, share in a ratio (in various contexts) and understand basic proportion.* Direct proportion
* Writing ratios
* Using ratios
* Ratios, proportions and fractions
* Proportions and percentages
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| **Key** **knowledge:*** When two quantities are in direct proportion, as one increases or decreases, the other increases or decreases at the same rate.
* This means that when one quantity is zero, so is the other; when one doubles, so does the other; when one is multiplied by 3, so is the other, etc.
* In the unitary method, you find the value of one item before finding the value of more.
* A ratio is a way of comparing two or more quantities.
* Ratios are written as numbers separated by a colon ‘:’
* For example, if in a tile pattern there are 2 blue tiles for 1 red tile, the ratio of blue tiles to red tiles is 2 : 1.
* You can make the numbers in a ratio as small as possible by simplifying. You simplify a ratio by dividing the numbers in the ratio by the highest common factor.
* Multiplying all the numbers in a ratio by the same number gives an equivalent ratio.
* You can use ratios to convert between metric units
* A proportion compares a part with a whole. You can write a proportion as a fraction, a decimal or a percentage.
* A ratio compares a part with a part. A proportion compares a part with a whole.
* You can compare proportions using percentages.
 | **Key skills:** * Use direct proportion in simple contexts
* Solve simple problems involving direct proportion
* Use the unitary method to solve simple word problems involving direct proportion
* Use ratio notation
* Reduce a ratio to its simplest form
* Reduce a three-part ratio to its simplest form by cancelling
* Find equivalent ratios
* Divide a quantity into two parts in a given ratio
* Solve word problems involving ratio
* Use ratios and measures
* Use fractions to describe and compare proportions
* Understand and use the relationship between fractions, ratio and proportion
* Use percentages to describe proportions
* Use percentages to compare simple proportions
* Understand and use the relationship between percentages, ratio and proportion

**Key vocabulary:**

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| Tier 2 | Tier 3 |
| * Quantity
* Proportion
* Ratio
* Equivalent
* Metric
* Fraction
* Percentage
 | * Direct proportion
* Unitary
* Highest common factor (HCF)
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| **Co-curricular opportunities:** Ratio and proportion have applications across many other subjects such as Chemistry, Physics, Engineering, Food Technology and Art. The ability to proportion quantities is applicable across many areas of industry including medical applications, food preparation and automotive. | **Key reading skills taught and key texts:**Clarify – identify key vocabulary in questions and be fluent in understanding the meaningsQuestion – from a worded question, what Maths is required to be done in order to get a solution?**Wider Reading Opportunities/Links:** |
| **How can I use this information at home?*** Conversation starters with your children to discuss their learning
* Support your child in carrying out independent research around the topic
* Visit your local library (or BorrowBox), museums, or other locations to explore the topic
* Promote books/other texts that explore this topic (see reading section)
* Help your child to learn the key vocabulary
* Encourage practice and consolidation through completion of homework, SparxMaths times tables and using other online learning platforms
* Encourage them to practice their mathematical skills in a variety of everyday situations wherever the opportunity arises.
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