TOPIC OVERVIEW DOCUMENT

YEAR 8

TOPIC OVERVIEW:

Proportional Reasoning: In Ratio and Scale, students learn to simplify ratios, share quantities in a given ratio, and solve problems involving part-whole relationships and scale drawings. They develop fluency in interpreting and applying scale factors to real-world contexts, such as maps and models. The Multiplicative Change unit builds on this by teaching students to identify and apply multiplicative relationships, including percentage change and conversion between units. They explore how one quantity changes in proportion to another and use this to solve problems involving growth, shrinkage, and comparison. In Multiplying and Dividing Fractions, students consolidate their understanding of fraction operations by learning to multiply and divide both proper and improper fractions, including mixed numbers. They apply these skills to contextual problems and develop strategies for simplifying calculations. Together, these units strengthen students' grasp of proportionality, scaling, and numerical fluency, laying the groundwork for more advanced problem-solving

Key Vocabulary (T2)	Key Vocabulary (T3)	Core knowledge	Disciplinary Skills
Identify Describe Explain Compare Classify Represent Recognise Interpret Example Non-example	Ratio Proportion Highest common factor Mixed number Improper fraction	This topic develops your understanding of ratio, proportion and multiplicative relationships. You will simplify and use ratios, divide quantities in a given ratio, use scale factors and solve problems involving scales and direct proportion. You will recognise and apply multiplicative change, including percentage increases and decreases and decimal multipliers. You will also develop fluency with fractions by using equivalence, converting between mixed and improper fractions, multiplying and dividing fractions, using reciprocals and simplifying answers.	You need to recognise and represent multiplicative relationships, use ratio, proportion, scale factors, fractions, decimals and percentages confidently, and select efficient strategies to solve problems. You need to use diagrams, tables, graphs and equations to represent problems, reason proportionally, estimate and check answers, apply your knowledge to real-life and unfamiliar contexts, and clearly explain and justify your mathematical reasoning.

Checkpoint: Vocab/ Knowledge/ Disciplinary skill(s)	What does this assessment look like?	Which disciplinary skills do I need to be successful?
Checkpoint 1: Ratio and Scale	You will complete a skills check You will be reassessed during the Mastery lesson	You need to recognise and represent ratios, identify multiplicative relationships, simplify and share quantities in a given ratio, use scale factors accurately, find missing values using proportional reasoning, choose efficient strategies, apply ratio and scale to real-life problems, and explain and justify your mathematical reasoning clearly.
Checkpoint 2: Multiplicative change	You will complete a skills check You will be reassessed during the Mastery lesson	You need to recognise multiplicative relationships, use scale factors and multipliers, solve proportional problems, and explain your reasoning clearly.

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Checkpoint 3: Multiplying and dividing fractions	You will complete a skills check You will be reassessed during the Mastery lesson	You need to use efficient methods, simplify fractions, reason about the size of answers, check your calculations, and explain your reasoning clearly.

Milestone assessment: The average of the following skills checks : Ratio and Scale; Multiplicative change; Multiplying and dividing fractions		
Vocab quiz: Ratio Proportion Highest common factor Mixed number Improper fraction	**Knowledge tasks:** Students will develop their understanding of ratio, proportion and multiplicative change, including simplifying and sharing in ratios, using scale factors, and solving real-life problems. They will learn to calculate percentage increases and decreases and recognise proportional relationships. Students will also develop confidence with fractions by using equivalent fractions, converting between mixed and improper fractions, multiplying and dividing fractions, using reciprocals, and simplifying answers. .	**Disciplinary tasks:** Students will learn to recognise and represent ratio, proportion and multiplicative relationships, choosing efficient methods to solve problems involving ratios, scale factors, percentages and fractions. They will make connections between fractions, decimals and percentages, develop confidence in multiplying and dividing fractions, and apply these skills to real-life and unfamiliar problems. Students will also learn to explain their methods clearly, use estimation and inverse operations to check answers, and decide whether solutions are reasonable

How can I **achieve** in this topic?

- Complete tasks on SPARX
- Engage 100% in lessons
- Make good notes/examples in lessons and use them

Further research:

- Home | NRICH
- Maths - BBC Bitesize