

Central Hub Brighton – Curriculum Topic Information Sheet

Subject	Year	Term
Maths	KS3 A and B (Year 8/9)	Autumn 1
Topic/s		
Ratio and Scale; Multiplicative Change; Multiply and Divide Fractions		
Content (Intent)		
Prior Learning (Topic/s):		
<p>Prior Learning (for above Topics) KS2/3 (Primary/Secondary National Curriculum) that include:</p> <ul style="list-style-type: none"> • Whole Numbers and Decimals • Mental calculations and the four operations • Fractions and Decimals • Ratio and Proportion 		
Future Learning (Topic/s) and Links and next steps for current topics		
<p>Future Learning (Topics on Overview)</p> <p>Work in the Cartesian Plane; Represent Data; Tables and Probability</p>		
<p>Links and next steps Ratio and Scale:</p> <ul style="list-style-type: none"> • Understanding of proportional change and scale factors • Use their prior learning of simplifying fractions to start to think about simplifying ratios • Compare methods for simplifying ratios and fractions • Students can begin to explore simplifying ratios that have different units • explore problems that require unit conversion • explore problems where the difference between the shares is given, rather than one of the parts 		
<p>Links and next steps Multiplicative Change:</p> <ul style="list-style-type: none"> • Students could investigate simple “best buy” problems. • Connections can be made to simplifying and understanding ratio. • Include examples containing simple decimal scale factors, making connections to fraction and decimal equivalence, for example $\times 5 \text{ } 2 = \times 2.5$ • Students can think about how they would change a recipe for 8 people so that there is enough for 9 people • Challenge students, include amounts that are not factors or multiples of each other, for example adjusting a recipe for 4 to 10 • Students could look at examples where either the amount needs rounding to 2 decimal places or the calculator display needs interpreting correctly, for example 15.1 as £15.10 • Connect conversion graphs with currency conversions. • Include conversion graphs that are not in direct proportion, for example converting temperatures between Celsius and Fahrenheit. • Plan an activity such as designing a kitchen or bathroom to scale. Provide blank floor plans on a grid, together with dimensions of familiar items in these rooms 		
<p>Links and next steps Multiply and Divide Fractions:</p> <ul style="list-style-type: none"> • Similar representations will be used to support students when linking fractions and percentages • Students could be challenged to add fractions with the same denominator with results that are greater than 1, or to add simple mixed numbers • Students could explore simple fractional division problems, such as “How many halves/quarters are there in 3 wholes?”, progressing to simple mixed numbers if appropriate • Students could explore simplifying improper fractions and mixed numbers, comparing approaches such as $30/12 = 2 \text{ } 6/12 = 2 \text{ } 1/2$ and $30/12 = 5/2 = 2 \text{ } 1/2$ • Students could explore multiplication written in other forms, for example “Find $3/4$ of 6” • Challenge students to use partitioning to multiply mixed numbers by an integer • Challenge students to multiply mixed numbers by converting them to improper fractions first. 		

What Knowledge or Skills will be Taught? (Implementation)	How will your Understanding be Assessed and Recorded (Impact)
Knowledge	On Going Assessment
<p>Main scheme steps for Ratio and Scale:</p> <ul style="list-style-type: none"> • Understand the meaning and representation of ratio • Understand and use ratio notation • Solve problems involving ratios of the form 1 : n (or n : 1) • Solve problems involving ratios of the form m : n • Divide in a given ratio • Express ratios in their simplest integer form • Express ratios in the form 1 : n H • Compare ratios and fractions • Understand π as a ratio • Understand gradient as a ratio H <p>Support scheme steps for Ratio and Scale:</p> <ul style="list-style-type: none"> • Understand ratio • Link ratios and fractions • Simplify ratios • Divide in a given ratio • Use a part to find other amounts <p>Main scheme steps for Multiplicative Change:</p> <ul style="list-style-type: none"> • Solve problems involving direct proportion • Explore conversion graphs • Convert between currencies • Explore direct proportion graphs H • Explore relationships between similar shapes • Understand scale factors as multiplicative representations • Draw and interpret scale diagrams • Interpret maps using scale factors and ratios <p>Support scheme steps for Multiplicative Change:</p> <ul style="list-style-type: none"> • The unitary method • Use multipliers • Use recipes • Convert currency • Use conversion graphs Scale diagrams <p>Main scheme steps for Multiply and Divide Fractions:</p> <ul style="list-style-type: none"> • Represent multiplication of fractions • Multiply a fraction by an integer • Find the product of a pair of unit fractions • Find the product of a pair of any fractions • Divide an integer by a fraction • Divide a fraction by a unit fraction • Understand and use the reciprocal • Divide any pair of fractions • Multiply and divide improper and mixed fractions H • Multiply and divide algebraic fractions H <p>Support scheme steps for Multiply and Divide Fractions:</p> <ul style="list-style-type: none"> • Representations of fractions 	<p>Ongoing Assessment</p> <ul style="list-style-type: none"> • Q&A throughout the lesson and in the plenary • Mini-whiteboards • Self and Peer assessment • Feedback and Challenge Time (FACT)

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<ul style="list-style-type: none"> • Convert improper fractions to mixed numbers • Convert mixed numbers to improper fractions • Simplify fractions • Multiply a fraction by an integer • Multiply a fraction by a fraction 	
Skills	Formal Assessment
<ul style="list-style-type: none"> • Apply the four operations • Work with Fractions and Decimals • Using mental methods and a calculator • Using concrete resources to reinforce learning 	<ul style="list-style-type: none"> • Formal Assessment End of term White Rose Maths
SEMH Curriculum Knowledge & Skills	Assessment of SEMH Development
<ul style="list-style-type: none"> • Self Esteem • Social Skills • Emotional Resilience <p>Full details can be found within our SEMH Curriculum</p>	<ul style="list-style-type: none"> • Acorns assessment with keyworker • On-going dynamic assessment

How Can Families Help at Home?

Use websites to help reinforce learning and practice skills learnt at school:

Corbettmaths.com

BBCBitesize.co.uk

Practise times tables on a regular basis – Pixl times table App or similar

Encourage your child to use numeracy in their wider world, at home and out of school; and to explore and research Maths for themselves in their everyday lives.

Helpful Further Reading/Discussion (including Reading and Vocabulary Lists)

Reading	Vocabulary Lists
<p>Students should regularly read through Maths problem solving questions to practice interpreting the information which will enable them to pinpoint the Maths skills and knowledge they require to answer the questions.</p> <p>Using Maths revision guides will enable students to become familiar with the meanings of key words which will develop their literacy skills to access further Maths.</p>	<p>Place value, Integer, Decimal, Fraction, Ratio, Decimal place, Percentage, Division, Operations, Inverse, Proportion, Sharing, Unit method, Scale</p>