Central Hub Brighton – Curriculum Topic Information Sheet

Subject	Year	Term
Maths	**KS3 A and B (Year 8/9)**	**Spring 2**

Topic/s

Fractions and Percentages; Standard Index Form; Number sense

Content (Intent)

Prior Learning (Topic/s):

Prior Learning (for above Topics) KS2/3 (Primary/Secondary National Curriculum) that include:

- Whole Numbers and Decimals
- Mental calculations and the four operations
- Working with Multiples of 10
- Identify equivalent fractions decimals and percentages

Future Learning (Topic/s) and Links and next steps for current topics

Future Learning (Topics on Overview)

Angles in Parallel Lines and Polygons; Area of Trapezium and Circles; Line Symmetry

Links and next steps for Fractions and Percentages:

- Students could explore converting with other fractions such as multiples of 1/8 and 1/1000
- Students could explore finding the whole when given a unit fraction or a non-unit fraction
- Challenge students to explore multi-step problems, for example an increase by 1/4 followed by a decrease of 1/5. They could also investigate the effect of changing the order of the calculations
- Explore fractions greater than 1, for example 140/100, and their decimal and percentage equivalents
- Explore non-integer percentages of amounts, for example 4.25% of £8500, linking to interest rates and mortgages
- Ask students to explore multiple methods, for example finding 45% as 25% + 20%, 50% − 5% and so on
- Students could explore alternative methods. For example, to reduce an amount by 15%, work out 85% of the amount.

Links and next steps for Standard Index Form:

- Challenge students to explore multiplying powers of 10 such as 102 × 103 to appreciate the addition law for indices
- Challenge students to divide by powers of 10, including looking at calculations where the answer is between 0 and 1
- Students could explore writing numbers such as 24×10^3 and 0.3×10^5 correctly in standard form.

Links and next steps for Number Sense:

- Students can explore alternative strategies, for example working out 4.7 + 2.9 as 4.7 + 3, then subtracting 0.1
- Challenge students to work with alternative strategies when subtracting decimal numbers from integers, for example 10 − 4.38 is equivalent to 9.99 − 4.37
- Students can explore more complex problems involving decimals, for example complex perimeter problems
- Encourage students to develop these skills by multiplying decimal numbers together
- Students could investigate the links between dividing and multiplying, for example dividing by 2 and multiplying by 0.5
- Students will later use rounding when estimating answers to calculations

What Knowledge or Skills will be Taught? (Implementation)	How will your Understanding be Assessed and Recorded (Impact)
Knowledge	**On Going Assessment**
Main scheme steps for Fractions and Percentages: • Convert fluently between key fractions, decimals and percentages	Ongoing Assessment • Q&A throughout the lesson and in the plenary • Mini-whiteboards • Self and Peer assessment

Central Hub Brighton – Curriculum Topic Information Sheet

• Calculate key fractions, decimals and percentages of an amount without a calculator • Calculate fractions, decimals and percentages of an amount using calculator methods • Convert between decimals and percentages greater than 100% • Percentage decrease with a multiplier • Calculate percentage increase and decrease using a multiplier • Express one number as a fraction or a percentage of another without a calculator • Express one number as a fraction or a percentage of another using calculator methods Work with percentage change • Choose appropriate methods to solve percentage problems • Find the original amount given the percentage less than 100% • Find the original amount given the percentage greater than 100% • Choose appropriate methods to solve complex percentage problems **Support scheme steps for Fractions and Percentages:** • Convert fractions and decimals (using equivalence) • Convert fractions and decimals (using a calculator) • Fraction of an amount • Increase or decrease an amount by a fraction • Understand percentages (equivalence) • Find a percentage of an amount with a calculator • Find a percentage of an amount without a calculator • Increase or decrease an amount by a percentage **Main scheme steps for Standard Index Form:** • Investigate positive powers of 10 • Work with numbers greater than 1 in standard form • Investigate negative powers of 10 • Work with numbers between 0 and 1 in standard form • Compare and order numbers in standard form • Mentally calculate with numbers in standard form • Add and subtract numbers in standard form • Multiply and divide numbers in standard form • Use a calculator to work with numbers in standard form • Understand and use negative indices **H** • Understand and use fractional indices **H** **Support scheme steps for Standard Index Form:** • Positive powers of 10 • Multiply by powers of 10 • Convert large numbers to standard form **Main scheme steps for Number Sense:** • Round numbers to powers of 10 and 1 significant figure	• Feedback and Challenge Time

Central Hub Brighton – Curriculum Topic Information Sheet

• Round numbers to a given number of decimal places • Estimate the answer to a calculation • Understand and use error interval notation **H** • Calculate using the order of operations • Calculate with money • Convert metric measures of lengths • Convert metric units of weight and capacity • Convert metric units of area **H** • Convert metric units of volume **H** • Solve problems involving time and the calendar **Support Steps for Number Sense:** • Add decimals • Subtract decimals • Solve addition and subtraction problems with decimals • Multiply decimals Divide decimals • Round with decimals	
Skills	**Formal Assessment**
• Apply the four operations • Work with types of numbers • Using mental methods and a calculator • Using concrete resources to reinforce learning	• Formal Assessment End of term White Rose Maths
SEMH Curriculum Knowledge & Skills	**Assessment of SEMH Development**
To include: • Positive and functional relationships with peers and adults • Classroom skills • Safe working • Group working skills • **Self Esteem:** confidence in one's own worth and abilities; self-respect • **Social Skills:** ability to communicate, empathise, build a rapport with peers and staff, problem-solve and accept accountability • **Emotional Resilience:** self-belief, self-control, emotional awareness of self and others, sense of humour Full details can be found within our **SEMH Curriculum**	• 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.

Central Hub Brighton – Curriculum Topic Information Sheet

Helpful Further Reading/Discussion (including Reading and Vocabulary Lists)	
Reading	**Vocabulary Lists**
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. 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.	Fraction, numerator, Denominator, improper, mixed number, Percentage, Index, Power, standard form, ordinary number,