10. Calculating fractions, decimals and percentages.	**Content of the Unit**	**Assumed prior learning** (tested at the beginning of the unit)
Number of lessons (between 6 & 9)	• Recognise when a fraction (percentage) should be interpreted as a number • Recognise when a fraction (percentage) should be interpreted as a operator • Identify the multiplier for a percentage increase or decrease when the percentage is greater than 100% • Use calculators to increase an amount by a percentage greater than 100% • Solve problems involving percentage change • Solve original value problems when working with percentages • Solve financial problems including simple interest • Understand the meaning of giving an exact solution • Solve problems that require exact calculation with fractions	• Identify if a fraction is terminating or recurring • Recall some decimal and fraction equivalents (e.g. tenths, fifths, eighths) • Write a decimal as a fraction • Write a fraction in its lowest terms by cancelling common factors • Identify when a fraction can be scaled to tenths or hundredths • Convert a fraction to a decimal by scaling (when possible) • Use a calculator to change any fraction to a decimal • Write a decimal as a percentage • Write a fraction as a percentage
Assessment points and tasks	**Written feedback points**	**Learning Outcomes (tested at the end and related to subject competences)**
Pre test Post test (half term exams/ mock exams)	Diagnostic marking (TF)-(green sticker)-(PF)/(SF) Traffic lighting of exam papers For diagnostic marking use the topics in the adjacent 'Learning Outcomes' box. Use diagnostic marking in revision lesson.	Pupils can: • Recognise when a fraction (percentage) should be interpreted as a number • Recognise when a fraction (percentage) should be interpreted as a operator • Identify the multiplier for a percentage increase or decrease when the percentage is greater than 100% • Use calculators to increase an amount by a percentage greater than 100% • Solve problems involving percentage change • Solve original value problems when working with percentages

		• Solve financial problems including simple interest • Understand the meaning of giving an exact solution • Solve problems that require exact calculation with fractions

Lesson	Clear learning intentions	Clear success criteria	Hook	Presentation of content	Guided practice	Independent practice (homework)	Closure
1	Review of fractions and the four basic operations	Consolidate previous work on fractions Improve fluency when working with fractions Appreciate that fractions give exact solutions and can be more accurate than decimals.	GCSE FOUNDATION p93 Q1-4	GCSE FOUNDATION p94-95 Boardworks KS3 N5 s23-49	GCSE FOUNDATION p94-95 Q6-18 Challenge / Extension work GCSE FOUNDATION p94-95 Q16		Discussion. When are fractions more accurate than decimals? What is the problem with representing, for example, 1/3 as a decimal? Why is it not 0.3? or 0.33?
2	Find a fraction of a quantity or a given measurement.	Can find fractions of amounts Appreciate that in this context 'of'' means multiply Can appreciate the difference between a fraction as a number and 'a fraction of an amount' (acting as	GCSE FOUNDATION P96-97 Q1-Q4 . Fraction review.	GCSE FOUNDATION P96-97 Example 3. Q5 hint. Boardwords KS3 N6 S34-39	Fractions of Amounts worksheet . GCSE FOUNDATION P96-97 Q5-12		Discussion of fractions as numbers and fractions as operators.

		an operator).					
3	To be able to calculate percentages of amounts.	To be able to calculate percentages with an appropriate decimal multiplier. E.g. 110% - multiply by 1.1 Through decimal-percentage conversion, be able to calculate percentages of amounts (both greater than and less than 100%)	GCSE FOUNDATION P1056 Q1-3 Recap of unit 6 work on decimal percentage conversion	BOARDWORKS KS3 N7 S29-38 GCSE FOUNDATION P106-107 Key Point 10	GCSE FOUNDATION P106-107 Q6-20		Plenary with mini whiteboards associating percentages with the appropriate decimal multiplier.
4	To be able to calculate percentage increases and decreases.	Can associate a percentage increase / decrease with the appropriate decimal multiplier. Can see the link between the above LO and the previous lesson's work (e.g. 15% increase is 115% of a given amount) Can solve percentage change problems.	GCSE FOUNDATION p102 Q1-3	BOARDWORKS KS3 N7 S46-57 GCSE FOUNDATION P109-110 Key point 12 and 13 Q2-11	GCSE FOUNDATION P109-110 Q1-11	PiXL resources Grade C Percentage Change 1 & 2	Exit ticket: GCSE FOUNDATION P109-110 Q12

5	Solve financial problems involving simple interest	Understand simple interest Be able to tackle worded financial problems involving interest	Recap of decimal multipliers. Convert both ways between a set of given percentages and decimal multipliers (e.g. 105% and 1.05)	GCSE FOUNDATION p108 Key point 11 & Example 11	GCSE FOUNDATION p108 Q21-25		Design their own simple interest real life worded problem. Swap books with partner and answer each other's question.

6	Solve financial percentage change problems involving income tax and value added tax	To be able to tackle worded problems involving percentage change To relate percentage problems to tangible problems involving VAT and income tax	Match percentage changes to appropriate decimal multipliers (e.g. 5% increase to 1.05)	BOARDWORKS KS3 N7 S46-57 GCSE Foundation p110	GCSE Foundation p110 Q13-19		Design their own percentage change real life worded problem. Swap books with partner and answer each other's question.
8	Homework & Feedback	Mark and go through set homework. Tackle any misconceptions Give yellow and orange stickers for peer and self-feedback,					
9	Feedback response and Revision	Students respond to given teacher feedback green stickers. Students revise according to their needs using GCSE FOUNDATION and/or mathswatch questions.					