TOPIC OVERVIEW DOCUMENT

YEAR 10

TOPIC OVERVIEW:
In Year 10, students build on the number, proportional reasoning and probability skills developed in Year 9. They extend their understanding of fractions, ratios and percentages to solve more complex, multi-step problems, including percentage change, reverse percentages and financial applications such as simple and compound interest. Their Year 9 calculation skills are strengthened through more efficient non-calculator methods, with greater emphasis on accuracy, estimation and selecting appropriate strategies. In probability, students build on their understanding of likelihood and simple probability by working with more complex sample spaces, experimental data and tree diagrams. Overall, Year 10 develops greater fluency, independence and mathematical reasoning, preparing students for more demanding GCSE problems.

Key Vocabulary (T2)	Key Vocabulary (T3)	Core knowledge	Disciplinary Skills
Interpret, compare, calculate, estimate, represent, justify, determine, evaluate, analyse, apply, convert, simplify, increase, decrease, equivalent, proportional, likelihood, outcome, accurate, systematic, efficient, relationship, scale, method, reasonableness, predict, conclude, strategy.	Fraction Conversion Percentage Multiplier Recurring Decimal Terminating Decimal Intercept Gradient Probability	Students develop strong number and proportional reasoning through work with ratios, fractions, percentages and interest, applying these skills confidently to real-life and financial problems. They strengthen calculation fluency through accurate mental, written and non-calculator methods, including estimation and checking. Students also develop their understanding of probability by assessing likelihood, comparing theoretical and experimental outcomes, and using sample spaces and tree diagrams to solve problems.	Students develop strong numerical fluency and proportional reasoning through work with ratios, fractions, percentages, interest and non-calculator methods. They apply efficient calculation strategies, estimation and checking to solve both abstract and real-life problems accurately. In probability, students develop logical reasoning by analysing likelihood, representing probabilities, and using sample spaces and tree diagrams to solve single and combined events. Together, these topics strengthen accuracy, problem-solving, financial literacy and mathematical communication.

Checkpoint: Vocab/ Knowledge/ Disciplinary skill(s)	What does this assessment look like?	Which disciplinary skills do I need to be successful?
Checkpoint 1: Percentages	You will complete a skills check You will be reassessed during the Mastery lesson	You need to reason logically, calculate accurately, choose efficient methods and apply your knowledge to a range of problems. You should estimate and check your answers, make connections between ratios, fractions, percentages and probability, interpret mathematical information,

		and clearly explain and justify your methods using appropriate mathematical language.
Checkpoint 2: Ratio and scale	You will complete a skills check You will be reassessed during the Mastery lesson	You need to recognise and simplify ratios, divide quantities in a given ratio, and understand how quantities are related proportionally. You should use scale factors accurately, apply ratio and scale to real-life problems, choose efficient methods, and check that your answers are reasonable.
Checkpoint 3: Working with fractions	You will complete a skills check You will be reassessed during the Mastery lesson	*You need to simplify and compare fractions, recognise equivalent fractions, and convert between fractions, decimals and percentages. You should calculate accurately with fractions using all four operations, choose efficient methods, apply your skills to problem-solving situations, and check that your answers are reasonable.*
Checkpoint 4: Non-calculator methods		You need to calculate accurately without a calculator, choose efficient mental and written methods, and work confidently with whole numbers, decimals and fractions. You should use estimation and rounding to check your answers, apply appropriate strategies to solve problems, and clearly explain your mathematical thinking.
Checkpoint 5: Straight line graphs		To be successful with straight line you need to recognise the structure of y=mx+cy = mx + cy=mx+c and understand the meaning of the gradient and y-intercept. You need to plot graphs accurately, calculate gradients and find the equation of a straight line from graphs, coordinates or other information. You should make connections between equations, tables and graphs, recognise relationships such as parallel lines.
Checkpoint 6: Probability		To be successful with probability you need to calculate and interpret probabilities confidently, use sample spaces and tree diagrams, and understand theoretical and experimental probability. You should apply probability rules accurately, solve multi-step problems, make sensible predictions and clearly explain your mathematical reasoning.

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<table>
<tr><td colspan="3">Milestone assessment:
The average of the following skills checks :
Percentages; Ratio and scale; Working with fractions; Non-calculator methods; Straight line graphs; Probability</td></tr>
<tr><td>Vocab quiz:
Fraction
Conversion
Percentage
Multiplier
Recurring Decimal
Terminating
Decimal Intercept
Gradient Probability</td><td>Knowledge tasks:
Students develop confidence with ratios, fractions, percentages and interest, applying these skills to everyday and financial situations. They improve their mental and written calculation skills, including working accurately without a calculator and checking their answers. Students also explore probability, learning to assess likelihood and use diagrams to solve problems. Together, these topics build confidence, accuracy and problem-solving skills for future learning.</td><td>Disciplinary tasks:
Students develop confidence with key number skills, including ratios, fractions, percentages and interest, applying these to everyday and financial situations. They strengthen their mental and written calculation skills, learning to work accurately without a calculator and to check whether answers are reasonable. Students also explore probability, using diagrams and mathematical reasoning to understand and calculate the likelihood of different events. Overall, these topics build accuracy, confidence and problem-solving skills that support future learning in mathematics.</td></tr>
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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