TOPIC OVERVIEW DOCUMENT

YEAR 7

TOPIC OVERVIEW:

Application of Number develops your fluency, confidence and reasoning when using numbers in a range of mathematical and real-life contexts. You will apply the four operations to whole numbers, decimals, fractions and directed numbers, choose efficient calculation methods, use inverse operations and solve multi-step problems. You will develop your understanding of fractions, decimals and percentages, use estimation to check the reasonableness of answers, and apply factors, multiples and algebraic thinking to solve problems accurately and efficiently.

This links to previous learning by building on students' understanding of the four operations, place value, negative numbers and the number line. It develops earlier work on fractions, including equivalence, simplifying and finding common denominators. Students also apply prior knowledge of angles and properties of shapes to understand angles in quadrilaterals. Throughout, students strengthen earlier mental and written calculation skills and use them in more complex mathematical and real-life problems.

his prepares you for future learning by developing the number fluency, reasoning and problem-solving skills needed for more advanced mathematics. A secure understanding of operations, fractions, decimals, percentages and directed numbers will help you progress to ratio and proportion, algebra, equations, sequences, probability and geometry. Choosing efficient methods, estimating, checking answers and applying mathematics to unfamiliar contexts will also help you become a more confident and independent mathematical thinker.

Key Vocabulary (T2)	Key Vocabulary (T3)	Core knowledge	Disciplinary Skills
Interpret, identify, classify, construct, measure, estimate, calculate, simplify, compare, combine, apply, represent, explain, justify, accurate, efficient, appropriate, relationship, equivalent, strategy, method, reasonableness, fluency, reasoning, context, derive, analyse, solution, criteria, numerical, position.	Percentage. Square number. Improper fraction. Mixed number, Lowest common multiple Angle. Parallel. Perpendicular. Angles on a straight line. Angles around a point.	This section develops understanding of directed numbers, including values below zero, and how to compare, order and use them in calculations, equations and problem-solving. Students develop confidence with fractions by adding, simplifying, comparing and ordering fractions, including mixed numbers and improper fractions. They also develop fluency with mental calculations and the four operations, while learning that angles in a quadrilateral total 360° and applying this knowledge to shapes such as kites and parallelograms.	This section develops your fluency, reasoning and confidence across number and geometry. You will work with positive and negative numbers, perform all four operations and solve equations involving directed numbers. You will add and subtract fractions, including those with different denominators and mixed numbers, and apply these skills to problems. You will develop geometric skills by accurately drawing and measuring lines and angles, constructing triangles, classifying polygons and interpreting pie charts. You will also strengthen your number sense through mental strategies, estimation, factors and multiples, choosing efficient methods and applying algebraic reasoning to numerical and real-life problems.

Checkpoint: Vocab/ Knowledge/ Disciplinary skill(s)	What does this assessment look like?	Which disciplinary skills do I need to be successful?

TOPIC OVERVIEW DOCUMENT

Checkpoint 1: Solving problems with addition and subtraction	You will complete a skills check You will be reassessed during the Mastery lesson	You need to choose the correct operation, use efficient mental or written methods, apply place value accurately, check answers using inverse operations or estimation, and explain your reasoning clearly.
Checkpoint 2: Solving problems with multiplication and division	You will complete a skills check You will be reassessed during the Mastery lesson	You need to choose the correct operation, use efficient mental or written methods, apply place value accurately, check answers using inverse operations or estimation, and explain your reasoning clearly.
Checkpoint 3: Fractions and percentages of amounts	You will complete a skills check You will be reassessed during the Mastery lesson	You need to recognise fraction and percentage relationships, choose efficient methods, calculate accurately, use proportional reasoning, interpret problems, estimate and check answers, and explain your mathematical reasoning clearly.
Checkpoint 4: Operations and equations with directed number	You will complete a skills check You will be reassessed during the Mastery lesson	You need to apply operations accurately, use inverse operations, recognise patterns, solve and check equations, choose efficient methods, and explain your mathematical reasoning clearly.
Checkpoint 5: Addition and subtraction of fractions	You will complete a skills check You will be reassessed during the Mastery lesson	You need to recognise equivalent fractions, find common denominators, convert between mixed numbers and improper fractions, add and subtract accurately, simplify answers, check whether answers are reasonable, and explain your mathematical reasoning clearly

Milestone assessment: The average of the following skills checks : Sequences: Understand and use algebraic notation; Equality and equivalence		
Vocab quiz: Percentage. Square number. Improper fraction. Mixed number, Lowest common multiple Angle. Parallel. Perpendicular. Angles on a straight line. Angles around a point.	**Knowledge tasks:** This section develops understanding of directed numbers, including values below zero, and how to compare, order and use them in calculations, equations and problem-solving. Students develop confidence with fractions by adding, simplifying, comparing and ordering fractions, including mixed numbers and improper fractions. They also develop fluency with mental calculations and the four operations, while learning that angles in a quadrilateral total 360° and applying this knowledge to shapes such as kites and parallelograms.	**Disciplinary tasks:** This section develops your fluency, reasoning and confidence across number and geometry. You will work with positive and negative numbers, perform all four operations and solve equations involving directed numbers. You will add and subtract fractions, including those with different denominators and mixed numbers, and apply these skills to problems. You will develop geometric skills by accurately drawing and measuring lines and angles, constructing triangles, classifying polygons and interpreting pie charts. You will also strengthen your number sense through mental strategies, estimation, factors and multiples, choosing efficient methods and applying algebraic reasoning to numerical and real-life problems.

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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