



YEAR 7 Spring TERM 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning

1. Fractions and percentages of amounts (1 week continued from previous half term, information in previous medium term plan).

2. Directed number. 3. Addition and subtraction of fractions.

UNIT: Directed number (Part 2) (6/7 lessons)

Previously met: See notes from KS2 National Curriculum

- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. (Year 5).
- Use negative numbers in context and calculate intervals across zero. (Year 6).
- Use number lines to add and subtract positive and negative integers as this is in the non-statutory guidance (Year 6 – non statutory guidance).
- Direct number (Year 7 – Aut 1)

To be able to:

- Revisit adding and subtracting directed numbers.
- Revisit multiplication and division of directed numbers.
- Evaluate algebraic expressions with directed numbers.
- Introduction to two-step equations.
- Solve two step equations.
- Use the order of operations with directed number.
- **Roots of positive numbers.**
- **Explore higher powers and roots.**

REMINDER

Pupils have already seen directed number during the first unit of Year 7. For some classes, this may need to be re-taught using manipulatives.

Links and interleaving

- Modelling real life contexts. This fits into all parts of mathematics, any context which requires unknowns.
- Equations could involve decimals, square roots and squares which include negatives.

Addition and subtraction of fractions (6/7 lessons)

Previously met: See notes from KS2 National Curriculum

- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number. (Year 5)
- Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]. (Year 3)
- Add and subtract fractions with the same denominator. (Year 4).
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number. (Year 5).

Curriculum Intent

Skills/Assessment
Objective Links

	<ul style="list-style-type: none"> Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. (Year 6). <p>To be able to:</p> <ul style="list-style-type: none"> Understand represents of fractions. Convert between mixed numbers and fractions. Add and subtract unit fractions with the same denominator. Add and subtract fractions with the same denominator. Add and subtract fractions from integers expressing the answer as a single fraction. Understand and use equivalent fractions. Add and subtract fractions where denominators share a simple common multiple. Add and subtract fractions with any denominator. Add and subtract fractions and mixed numbers. Use fractions in algebraic contexts. Use equivalence to add and subtract decimals and fractions. Add and subtract simple algebraic fractions. <p><u>Links and interleaving</u></p> <ul style="list-style-type: none"> Modelling real life contexts. This fits into all parts of mathematics, any context which requires unknowns. This certainly fits well with any functional questions involving fractions of objects, shapes, quantities. Converting between fractions, decimals and percentages.
Spiritual, moral, social, and cultural development	<p>SMSC: Making choices, looking for patterns which may reflect the natural world, supporting and collaborating with each other, realisation that mathematics is an international language and making cultural links as we explore the history of mathematics.</p> <p>PSHE/British Values: Working collaboratively, being respectful during discussion and valuing contributions made by others</p> <p>Skills Builder: Key skills in numeracy used in all topic areas.</p>
Numeracy	Focus on key skills.
Literacy	<p>Vocabulary Tier 2: Command words displayed in the classroom and italicized/bold font used in shared resources/presentations. These are a constant focus in discussion and questioning,</p> <p>Vocabulary Tier 3: Title slide in all shared resource presentations show the key vocabulary for each topic.</p> <p>Reading: Underlining command words,</p> <p>Writing: Modelling solutions</p> <p>Oracy: Think, pair, share, discussion, verbal feedback (peer to peer), questioning, student modelling</p>
Becoming future ready	<p>Personal Skills: As a Mathematics student you will learn many skills: you will gain opportunities to listen to others supportively and to use questioning to develop your own understanding, you will learn how to cope with challenging questions and how to build up your resilience, you will get the chance to work on your own and with others. You will develop problem solving skills and you will learn how to break a problem down into smaller more manageable steps. You will learn how to collaborate with others when solving problems and you will learn how to articulate your solution to a problem.</p> <p>Employability: Mathematical skills are invaluable in the workplace. There are many transferable skills which are much valued by employers. Specific career paths for each topic are discussed at the beginning of each unit of work.</p>
Adaptation	<ul style="list-style-type: none"> By progressive questioning: exploring pupils' understanding through interactive dialogue. By outcome: different learners will produce different outcomes. By resource: worksheets are clearly presented and accessible. By intervention: by providing different levels of supervision and support. By grouping/setting: according to prior attainment, gender, social preference, preferred learning style. By offering optional activities: In class or as homework, to extend learning.
QFT/SEND Provision	
Implementation	

<p>Curriculum Delivery</p> <p>Learning Outcomes (Most Powerful Knowledge)</p>	<p>Support (S), Core (C), Extension (E).</p> <p>Directed number – small steps</p> <p>The majority of this time should be focused on solving equations as they have already encountered negative numbers for two weeks within AUT 1.</p> <ul style="list-style-type: none"> • Revisit adding and subtracting directed numbers. (S) • Revisit multiplication and division of directed numbers. (S) • Evaluate algebraic expressions with directed numbers. (C) • Introduction to two-step equations. (C) • Solve two step equations. (C) • Use the order of operations with directed number. (C) • Roots of positive numbers. (E) • Explore higher powers and roots. (E) <p><u>Extension tasks – These could be interleaved within the core knowledge</u></p> <ul style="list-style-type: none"> • Solving more complex equations involving multiple steps and fractions and decimals. • Explore that a square root has two solutions and apply this to solving equations. <p>Adding and subtracting fractions – small steps</p> <ul style="list-style-type: none"> • Understand represents of fractions. (S) • Convert between mixed numbers and fractions. (S) • Add and subtract unit fractions with the same denominator. (S) • Add and subtract fractions with the same denominator. (S) • Add and subtract fractions from integers expressing the answer as a single fraction. (S) • Understand and use equivalent fractions. (S) • Add and subtract fractions where denominators share a simple common multiple. (C) • Add and subtract fractions with any denominator. (C) • Add and subtract fractions and mixed numbers. (C) • Use fractions in algebraic contexts. (C) • Use equivalence to add and subtract decimals and fractions. (C) • Add and subtract simple algebraic fractions. (E) <p><u>Extension tasks</u></p> <ul style="list-style-type: none"> • Functional questions/problem solving involving fractions. • Expanding and factorising expressions. • Simplifying algebraic fractions once added or subtracted.
<p>Current learning to be developed in the future within:</p>	<p><u>Directed number</u></p> <ul style="list-style-type: none"> • Order of operations (Year 8, Spr 2) • Revise and extend solving equations and substitution. (Throughout all year) <p><u>Adding and subtracting fractions</u></p> <ul style="list-style-type: none"> • Revisit fraction arithmetic (Year 9, Spr 1) • Revisit and extend KS3 number work (Year 10, Sum 1 and Year 11, Spr 1)
<p>Assessment</p>	<p>Refer to assessment maps for formative and summative assessment opportunities.</p>
<p>Impact</p>	<p>Attainment and Progress – Refer to assessment results / data review documentation.</p>