Knowledge Rich Curriculum Plan

Year 7 Support – Fractions

Lesson objective	Intended Knowledge:	Tiered Vocabulary	Prior Knowledge:	Steps to Success	Feedback
To learn how to write and represent fractions	• Students will know that a fraction is a mathematical expression representing the division of one integer by another, indicating part of a whole. • Students will know how to express one number as a fraction of another e.g. $\frac{4}{15}$. • Students will know how to represent fractions by shading parts of a diagram. • Students will know how to write fractions to describe shaded parts of diagrams.	**Fraction** – a way of representing the parts of a whole **Denominator** – the bottom number in a fraction **Numerator** – the top number in a fraction			
To learn how to find and use equivalent fractions	• Students will know how to order fractions with the same denominator. • Students will know how to use diagrams to find equivalent fractions. • Students will know how to use diagrams to compare two or more fractions. • Students will know how to find equivalent fractions by multiplying or dividing the numerator and denominator by the same integer. • Students will know how to select an equivalent fraction from a list. **Opportunity for challenge:** • Students will know how to compare and order fractions with different denominators using equivalent fractions.	**Equivalent** – equal in value **Compare** - note the similarity or dissimilarity	• Students need to know how to represent fractions by shading part of a diagram. • Students need to know how to write a fraction that is represented by a diagram.	**Steps to Success – Comparing Fractions** **Step 1:** Convert the fractions to ensure they all have the same denominator, remembering that whatever you multiply the denominator by, you must also multiply the numerator by. **Step 2:** Compare the fractions, ensuring you pay close attention to what the question is asking. **Steps to Success – Ordering Fractions** **Step 1:** Convert the fractions to ensure they all have the same denominator, remembering that whatever you multiply the denominator by, you must also multiply the numerator by. **Step 2:** Put the fractions in order.	
To learn how to simplify fractions	• Students will know that any simplified version of a fraction is also an equivalent fraction. • Students will know how to simplify a fraction to give the fraction in its simplest form.	**Simplify** – make something simpler or easier to manage	• Students need to know how to find the HCF of two numbers.	**Steps to Success – Simplifying Fractions** **Step 1:** Write the factors of the numerator and denominator. **Step 2**: Determine the highest common factor of numerator and denominator. **Step 3**: Divide the numerator and denominator by their highest common factor (HCF). The fraction obtained is in the simplest form.	
To learn how to convert mixed numbers and improper.	• Students will know how to convert improper fractions to mixed numbers. • Students will know how to convert mixed numbers to improper fractions. • Students will know how to convert mixed numbers to improper fractions using a calculator. • Students will know how to convert improper fractions to mixed numbers using a calculator.	**Convert** – change a value or expression from one form to another **Improper Fraction** – a fraction where the numerator is larger than the denominator **Mixed Number** – a number consisting of an integer and a proper fraction.	• Students need to know how to multiply and divide integers.	**Convert an improper fraction into a mixed number - Steps to Success** **Step 1:** Divide the numerator by the denominator to find out how many whole numbers there are. **Step 2:** Find the remainder by finding out how many are left over when the product of the denominator and whole number are subtracted from the numerator. **Step 3:** Write out the remainder making sure to place it over the original denominator. **Step 4:** Simplify your fraction if possible. **Convert a mixed number into an improper fraction - Steps to Success** **Step 1:** Multiply the denominator by the whole number.	

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				Step 2: Then add this to the numerator to get the value of the new numerator. **Step 3:** Place your new numerator over the original denominator. **Step 4:** Simplify your fraction if possible. <u>**Converting improper fractions to mixed numbers on a calculator:**</u> Step 1: Type in the improper fraction Step 2: Press the equals sign Step 3: Press shift and then the S<>D button, this will convert your answer to a mixed number. <u>**Converting mixed numbers to improper fractions on a calculator:**</u> Step 1: Press shift and the fraction button Step 2: Type in the mixed number Step 3: Press the equals sign, this will give the improper fraction	
To learn how to add and subtract fractions.	• Students will know how to add fractions using diagrams. • Students will know how to add fractions with the same denominator • Students will know how to subtract fractions using diagrams. • Students will know how to subtract fractions with the same denominator. • Students will know how to add and subtract fractions with a calculator. **Opportunity for challenge:** • Students will know how to add and subtract fractions with different denominators.	Fraction – a way of representing the parts of a whole or collection of objects. Fractions have a numerator and denominator.	• Students need to know how to find the LCM of two numbers. • Students need to know how to find equivalent fractions.	<u>**Steps to Success – Adding and Subtracting with the same denominator**</u> **Step 1 -** When adding and subtracting fractions with the same denominator add or subtract the numerators, remembering to keep the denominator the same. **Step 2 -** If possible simplify your answer. <u>**Steps to Success – Adding and subtracting fractions**</u> **Step 1:** In order to add and subtract fractions, you need both fractions to have a common denominator. There are two main methods for choosing a common denominator: • Use the lowest common multiple (LCM) of the two denominators. • Use the product of the two denominators. **Step 2:** Once you have chosen your common denominator you have to ensure you keep the fractions equivalent to the original fractions in the question. This means that whatever you have done to the denominator of the original fraction, you must also do to the numerator. **Step 3:** You can now just need to add or subtract the two numerators. The denominator stays the same. **Step 4:** Check whether your answer can be simplified and/or converted into a mixed number.	

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To learn how to multiply fractions.	• Students will know how to multiply fractions. • Students will know to write their answers in the simplest form when possible. • Students will know how to multiply fractions using a calculator. **Opportunity for challenge:** • Students will know to multiply integers by fractions.	**Integer** – a whole number **Fraction** – a way of representing the parts of a whole or collection of objects. Fractions have a numerator and denominator.	• Students need to know how to simplify fractions.	**Steps to Success - Multiplying fractions** **Step 1:** Convert any mixed numbers into improper fractions and/or write any integers as a fraction over 1. **Step 2:** Multiply the numerators. **Step 3:** Multiply the denominators. **Step 4:** Check whether your answer can be simplified and/or converted into a mixed number.	
To learn how to find the fraction of a quantity.	• Students will know that to find the fraction of a quantity by dividing the quantity by the denominator and then multiplying the result by the numerator. • Students will know how to find the fraction of a quantity using simple fractions with numerators of 1. eg. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ • Students will know how to find fractions of an amount using a calculator. **Opportunity for challenge:** • Students will know how to find the fraction of a quantity using fractions with numerators of more than 1. eg. $\frac{2}{3}$, $\frac{3}{4}$, $\frac{7}{10}$	**Quantity** - the amount or number of a material or abstract thing	• Students need to know how to multiply and divide integers.	**Steps to Success – Fractions of an Amount** **Step 1:** Divide the quantity in the question by the denominator. **Step 2:** Now multiply the answer by the numerator.	
To consolidate understanding of fractions	• Students will know how to identify the type of calculation they are completing with fractions. • Students will know how to simplify fractions • Students will know how to add and subtract fractions (same denominator) • Students will know how to multiply fractions. • Students will know how to calculate fractions of quantities. **Opportunity for Challenge:** • Students will know how to add and subtract fractions with different denominators.			Use steps from previous lessons	
		Mini-Assessment 3			