Knowledge Rich Curriculum Plan

Year 7 Core – Fractions

Lesson objective	Intended Knowledge:	Tiered Vocabulary	Prior Knowledge:	Steps to Success	Feedback
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. • Students will know how to select an equivalent fraction from a list. • Students will know how to order fractions with different denominators using equivalent fractions. **Opportunity for challenge:** • Students will know how to compare fractions using inequality signs, <, > and = .	**Fraction** – a way of representing the parts of a whole **Denominator** – the bottom number in a fraction **Numerator** – the top number in a fraction **Equivalent** – equal in value **Simplify** – make something simpler or easier to manage **Convert** – change a value from one form to another	• Students need to know how to write and represent fractions using a diagram. THIS NEEDS TO BE ADDRESSED ON THE PRIOR KNOWLEDGE CONSOLIDATION IF STUDENTS STRUGGLE! • Students need to know how to find the LCM of two numbers.	<u>Steps to Success – Comparing Fractions</u> **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. <u>Steps to Success – Ordering Fractions</u> **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 and convert fractions.	• Students will know that to simplify a fraction. • Students will know that the simplest form of a fraction is found when they divide the numerator and denominator by the same integer to give the smallest possible integer values. • 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. • Students will know that an improper fraction is a fraction that is greater than 1 or one whole. • Students will know that if the numerator is greater than the denominator then the fraction is an improper fraction. • Students will know that a mixed number is an integer and a proper fraction represented together, which is generally a number between two integers. • Students will know how to convert improper fractions to mixed numbers by dividing the numerator by the denominator to find the integer and use the remainder for the new numerator over the original denominator. • Students will know how to convert mixed numbers to improper fractions. • Students will know how to use a calculator to simplify fractions. • Students will know how to convert improper fractions to mixed numbers using a calculator. • Students will know how to convert mixed numbers to improper fractions using a calculator.	**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 find the HCF of two numbers.	<u>Steps to Success – Simplifying Fractions</u> **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. <u>Convert an improper fraction into a mixed number - Steps to Success</u> **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. <u>Convert a mixed number into an improper fraction - Steps to Success</u> **Step 1:** Multiply the denominator by the whole number. **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.	

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To learn how to add and subtract fractions.	• Students will know how to add fractions with the same denominator by adding the numerators together over 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 fractions with different denominators. • Students will know how to subtract fractions with different denominators. • Students will know to write their answers in the simplest form when possible. • Students will know how to use a calculator to add and subtract fractions, including mixed numbers. **Opportunity for challenge:** • Students will know how to add and subtract mixed numbers.		• Students will know how to add fractions using diagrams. • Students need to know how to find the LCM of two numbers.	**Steps to Success – Adding and subtracting fractions** **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.	
To learn how to multiply fractions.	• Students will know how to multiply fractions by multiplying the numerators and multiplying the denominators. • Students will know to multiply integers by fractions. • Students will know to write their answers in the simplest form when possible. • Students will know how to use a calculator to multiply fractions, including mixed numbers. **Opportunity for challenge:** • Students will know how to multiply mixed numbers.	Integer – a whole number	• 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 divide fractions.	• Students will know how to divide fractions by multiplying the first fraction with the reciprocal of the second fraction. • Students will know to write their answers in the simplest form when possible. • Students will know how to use a calculator to divide fractions, including mixed numbers. **Opportunity for challenge:** • Students will know how to divide mixed numbers.	Reciprocal – The reciprocal of a number is 1 divided by the number	• Students need to know how to express a number as its reciprocal. • Students need to know how to multiply fractions.	**Steps to Success - Dividing fractions** **Step 1:** Convert any mixed numbers into improper fractions and/or write any integers as a fraction over 1 **Step 2:** Keep the first fraction the same, change the divide into a multiply and find the reciprocal of the second fraction. **Step 3:** Multiply the numerators. **Step 4:** Multiply the denominators. **Step 5:** Check whether your answer can be simplified and/or converted into a mixed number.	

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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. e.g. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ • Students will know how to find the fraction of a quantity using fractions with numerators of more than 1. e.g. $\frac{2}{3}$, $\frac{3}{4}$, $\frac{7}{10}$ • Students will know how to calculate fractions of quantities with a calculator. **Opportunity for challenge:** • Students will know how to compare fractions of different quantities.	Quantity - the amount of something	• 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 be able to complete calculations with fractions including the four operations.		Students will know how to simplify fractions and convert fractions.	Use steps from previous lessons.	
Mini-Assessment 3					