

<p>Objectives</p> <ul style="list-style-type: none"> • Compare fractions. • Add and subtract fractions. • Use fractions to solve problems. 	<p>Resources</p> <p>Calculators</p>
<p>Prior knowledge</p> <ul style="list-style-type: none"> • Identify equivalence in fractions. • Identify the denominator of a fraction. • Identify the numerator of a fraction. 	<p>Key words</p> <p>Denominator, unit fraction, numerator</p>
<p>Literacy objective</p> <ul style="list-style-type: none"> • Use correct mathematical vocabulary. • Understand and identify the key words ‘equivalence’, ‘common denominator’, and ‘numerator’. 	<p>Spec links</p> <p>N2, N4, N8</p>
<p>Common errors and misconceptions</p> <ul style="list-style-type: none"> • Some students may incorrectly add the numerators and the denominators, as in this example: $\frac{3}{4} + \frac{2}{5} = \frac{5}{9}$. Ensure students have a clear understanding that the fractions must have the same denominator before adding or subtracting the numerators. • Some may not understand how to correctly work with equivalent fractions. Remind students to find equivalent fractions, not just to change the denominators to match, as in this example: $\frac{3}{5} + \frac{2}{4} = \frac{3}{20} + \frac{2}{20} = \frac{5}{20} = \frac{1}{4}$ • Some students may not use the LCD. Using a larger common multiple is not wrong, but it is inefficient: more calculation needs to be done to find the equivalent fractions and to simplify at the end. 	<p>Topic links</p> <p>Probability</p> <p>ActiveLearn Digital Service</p>
<p>Question tags</p> <p>Q1 Fluency, Q7, Q8 Reasoning, Q9 Problem-solving, Q12, Q14 Reasoning, Q17 Reflect, Q20 Reasoning Q22, Q24 Problem-solving</p>	
<p>Pearson Progression Steps</p> <p>3rd – 6th</p>	

Prior knowledge check

- Diagnostic test of the knowledge and skills students need to be fluent in to successfully tackle the unit.
- Questions are all A01 type and appear under one of these headings: numerical fluency, algebraic fluency, geometrical fluency, graphical fluency, fluency with measures, fluency with probability, and fluency with data. This helps identify where students’ strengths and weaknesses lie, and where they may require additional practice and support.

Starter

Display the following words and symbols in no particular order.

Lowest common multiple < > Equivalent fractions Common denominator Unit fraction

Ask students to explain the meaning of each word / symbol. Give examples. This will elicit meaning.

Write down fractions in common use, such as $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$.

Ask students to place them in (ascending or descending) size order.

Alternative starter

Front-of-class resource – 4.1 Starter activity

Main lesson

Notes for non-specialist and NQTs

- Display the **Key point** on page 99 to emphasise the necessity of using a common denominator to compare fractions. Display **Q9** and **Q9 hint**, working through this together.
- Display the first **Example** on page 100 to illustrate how to put fractions in size order. Emphasise the need to use the original fractions when writing your answer.
- Display the **Key point** and the second **Example** on page 100 to show how to add (or subtract) fractions. Ensure students understand that you can add the numerators of fractions only when the denominators are the same.
- Display the **Key point** on page 101 to highlight important vocabulary.
- Ensure that students understand that denominators must be the same before they begin comparing, adding or subtracting fractions.
- Ensure that the process of finding common denominators is embedded as a necessary prerequisite to adding or subtracting fractions. Encourage students to try to find the lowest common denominator, as this will make the rest of their calculations easier. If they are unsure what number to use, it is always possible to find a common denominator by multiplying the denominators together.
- Introduce unit fractions. Students may not be conversant with this terminology. Use unit fractions to consolidate operations with fractions.
- Consolidate understanding – ask students to explain how to compare fractions.

Question notes

Q7 Check understanding of the > sign. Make sure students show clear working and give clear reasons for their answers.

Q11 Read the question carefully to make sure the fractions are in the correct order.

Q14 Ask students how they predicted which fraction is the smallest. Display the processes that students used. Discuss the methods used.

Q16 Compare with **Q15**, when only one fraction needed to be changed. The concept of the LCM needs to be established: refer to **Q6a hint**. The LCD is the LCM of the two denominators. This is a challenge for some students. Use alternative language, *What is the smallest number that they all 'go into'?* Does 5 go into 15? Does 7 go into 20? Why not? Establish this through repeated verbal cues if necessary.

Q20 Emphasise the importance of method, not just the answer.

Plenary

Explain why $3 - \frac{1}{2} = 2\frac{1}{2}$. Display responses. Explain alternative mental approaches and get students to share their own methods. Repeat the process for different questions in the form (integer) – (unit fraction) and (integer) – (non-unit fraction). Ask students to set some questions for each other. Each answer they give must include the method they used.

You may wish to develop this to (large fraction) – (small fraction), building to (small fraction) – (large fraction). This introduces students to the concept of a negative fractional answer (useful for Lesson 4.2).

What are the most common fractions used in real life? When / where do you use them? Why do you use fractions rather than decimals or percentages? List student responses.

More practice and homework

Homework, practice and support – 4.1 assignment

Homework worksheet 4.1

Purposeful Practice Book – Foundation, Unit 4 Fractions and Percentages