Year 6, Unit 10, Week 2, Lesson 2

Adding and subtracting fractions 2

National Curriculum attainment target

 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

Previous related lessons

Unit 2, Week 2, Lesson 3; Unit 2, Week 2, Lesson 4; Unit 7, Week 1, Lesson 2

Prerequisites for learning

Pupils need to:

- have an understanding of equivalent fractions
- understand lowest common denominators

Vocabulary

mixed numbers, equivalent fraction, simplest form, common denominator

Lesson objective

• Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

Future related lessons

None

Success criteria

Pupils can:

- look at the denominators and work out the lowest common denominator
- convert the fractions and add/subtract them
- simplify the answer if needed
- apply this to word problems



Getting Started

• Choose an activity from Number - Fractions.



Teach

Resources

mini whiteboard, pen and eraser (per child)

- Say: As fractions are part of our number system all four operations can be used with them, just as they can be with whole numbers. In this lesson we are going to add and subtract fractions.
- Say: Tell your partner what you know about adding and subtracting fractions.
- Ask pairs to share their ideas.
- Say: When adding and subtracting fractions with different denominators the fractions need to be changed to equivalent fractions with the same denominators so the operation can be carried out.
- Display: Slide 1.
- Say: Add these fractions together.
- Work through the calculation as a class asking different pairs to contribute. Establish what aspects of adding fractions children are confident in, and which they are unsure of. Model clearly how you would like children to show their working.
- Say: Our answer is a mixed number that has an improper fraction, 41⁴⁵/₂₈. Convert it to a mixed number that has a proper fraction. Model how to do this if appropriate. Say: The answer now is 42¹⁷/₂₈.
- Ask: Can ¹⁷/₂₈ be simplified? Establish that as there is no common factor for 17 and 28 this is the simplest form of the fraction.
- Display: Slide 2.
- Say: Add these mixed numbers together, first deciding which common denominator to use so the fractions can be added together. Check children's answers as they are working.
- Display: Slide 3.
- Say: Convert the fractions to equivalent fractions with the same denominator so the fractions can be subtracted.
- Write $32\frac{9}{24} 17\frac{20}{24}$ on the board. Say: Now we have converted them we can see that the second fraction is larger than the first.
- Say: Change 32⁹/₂₄ and then work out the subtraction. Ask some pairs to share their workings, writing the steps on the board as they do.

pairs or as a class.



- Display: Slide 4.
- Say: Subtract these mixed numbers, first deciding what the fractions need to be converted to. Check children's answers as they are working.
- Display: Slide 5. Read this problem to the class.
- Ask: How can we find the answer to this problem? Discuss this as a class.
- Draw a line on the board to represent the race. Say: If we mark the fractions on this line as we read the problem it will help us understand it. Do this as a class.
- Say: To work out the missing fraction, we need to add the first two fractions together. All three fractions added together will equal one as there is one whole race. Write on the board: $\frac{2}{6} + \frac{4}{10} + ? = 1$.
- Say: Add the two fractions together and work out what fraction of the race was the last part.
- Ask children to share their answers. Check the answers are in the simplest form.

Individualised Learning

Refer to Activity 2 from the Learning activities on page 402.

Pupil Book 6C – Page 38: Adding and subtracting fractions (2) Progress Guide 6 – Extension, Year 6, Unit 10, Week 2, Lesson 1: Charity spending Resources: ruler, coloured pencils

Plenary

Resources

mini whiteboard, pen and eraser (per child)

- Write a fraction calculation (addition or subtraction) on the board. Make it appropriate for your class.
- Say: Write a word problem to go with this calculation. You may want to suggest a theme for the problems or children could choose their own.
- Ask some pairs to share their problems with the class. The class discuss if it is a good problem.
- Record some of the problems.
- Say: Choose one of the problems to work out. Check answers as a class.



Year 6, Unit 10, Week 2, Lesson 2: Spin a fraction Resources: paper clip and pencil – for the spinner (per child)

Overcoming Barriers

• In order to be able to add and subtract fractions with different denominators children need to have a strong understanding of common multiples.