

Dividing fractions (2)

National Curriculum attainment target

- Divide proper fractions by whole numbers (for example, $\frac{1}{3} \div 2 = \frac{1}{6}$)

Lesson objective

- Divide proper fractions by whole numbers

Previous related lesson

Unit 7, Week 1, Lesson 3

Prerequisites for learning

Pupils need to:

- understand proper fractions

Vocabulary

divide, numerator, denominator

Future related lessons

None

Success criteria

Pupils can:

- multiply the denominator by the divisor
- write the new fraction
- simplify the fraction when appropriate
- apply to problems



Getting Started

- Choose an activity from Number – Fractions.

**Collins
Connect**
Year 6, Unit 10,
Week 2

Teach

Resources

mini whiteboard, pen and eraser (per child)



- Display: Slide 1.
- Tell your partner what you know about dividing fractions by whole numbers. Ask some pairs to feed back what they know. Say: **Fractions are divided by whole numbers by keeping the numerator the same and multiplying the denominator by the whole number. Let's work it out and then look at the diagram.**
- Say: **As $\frac{2}{3}$ is being divided by 4, the denominator 3 is multiplied by 4. This is the first step.** Write $= \frac{2}{3 \times 4}$ next to the calculation.
- Say: **Next we work out the multiplication and make a new fraction. Remember the numerator does not change.** Write $= \frac{2}{12}$ next to the calculation.
- Say: **So $\frac{2}{12}$ is the answer. Let's look at the rectangle. The two thirds are divided into four sections.** Draw the sections on the rectangle. Say: **I am going to draw the segments on the third we are not dividing too.**
- Ask: **What fraction of the whole rectangle is each piece?** Establish that they are one twelfth.
- Say: **If this was cake and we were sharing it between four people each person would get $\frac{1}{12}$ from each third, so from two thirds they would get $\frac{2}{12}$ in total.**
- Ask: **Can $\frac{2}{12}$ be simplified?** Establish that it can be simplified to $\frac{1}{6}$.



- Display: Slide 2.
- Say: **Work out this division using exactly the same method.** Model the steps on the board focussing on any problematic areas.
- Display: Slide 3.
- Say: **Work out this fraction division.** Remind children to simplify their answers.
- Say: **Think of a time in real life when fractions may need to be divided.** Ask some pairs to share their ideas. Have an idea of your own ready to share.
- Say: **We are going to work out some problems involving dividing fractions.** You could make a problem based on the suggestions of children as an alternative to the following problems.
- Display: Slide 4. Say: **Draw a diagram to go with this problem.** Ask a pair to show and explain their diagram to the class.
- Say: **Now write the calculation and work out the answer.** Write $\frac{5}{8} \div 2 =$ on the board. Work it out as a class. Say: **So each dog gets $\frac{5}{16}$ of the food that was in the tin.**

Work through
this next
problem.



- Ask: **If she had three dogs how much would each dog get?** Check children's working out.
- Display: Slide 5. Read the problem to the class.
- Say: **Write the calculation for this problem and work out the answer.** Discuss it as a class and establish that $\frac{3}{24}$ kg or $\frac{1}{8}$ kg of flour is used in each pie. Ask children to simplify the fraction if they have not already.
- Ask: **How many grams of flour were used in each pie?** Discuss how this could be worked out. Establish that the amount of flour in a kilogram needs to be converted to grams. (1 kg = 1000 g) Then it can be divided by eight to find one eighth. So 125 g of flour is used in each pie.

Individualised Learning

Refer to Activity 4 from the Learning activities on page 403.

Pupil Book 6C – Page 42: Fraction division problems
Progress Guide 6 – Support, Year 6, Unit 10, Week 2, Lesson 4:
Share it out

Plenary

Resources

mini whiteboard, pen and eraser (per child)



- Write $\frac{3}{24}$ on the board.
- Say: **Write down a fraction division where $\frac{3}{24}$ would be the answer.**
- Ask a pairs to share their answer and how they worked it out. Write the answers on the board.
- Say: **Write an answer on your board, and then swap boards with your partner.** Children write the calculation for their partners' answer.
- Say: **Do that again, this time make it more challenging.**

Overcoming Barriers

- Children need to have a very secure understanding of fractions and the whole amount, if they are to understand dividing fractions.