Previous related lessons

None

Multiplying proper fractions

National Curriculum attainment target

• Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

Lesson objective

Future related lessons Unit 10, Week 2, Lesson 4

• Multiply proper fractions by whole numbers

Prerequisites for learning Success criteria Pupils need to: Pupils can: • understand mixed numbers change the whole number to a fraction understand improper fractions multiply the numerators Vocabulary multiply the denominators proper fraction, multiplying change the answer to a mixed number **Getting Started** • Choose an activity from Number - Fractions. Collins Connect Teach Year 5, Unit 10, Week X Resources mini whiteboard, pen and eraser (per child) 1 Display: Slide 1. Say: In this lesson we will be multiplying proper fractions by whole numbers. • Ask: What is a proper fraction? Establish that a proper fraction is any fraction where the numerator is lower than the denominator. It is the opposite of an improper fraction. Read the calculation to the class. ●\//● Ask: Using your understanding of multiplication and fractions, can you represent a half multiplied by 5 in some way? Ask some pairs to share their ideas. • Click to reveal the five half apples. Say: These five apple halves show us five lots of a half. Ask children for any comments on this. • Say: Multiplication can be seen as repeated addition. Click to reveal the repeated addition calculation. • Say: We have a diagram and a calculation that represent a half multiplied by 5. • Ask: What is the answer to a half multiplied by 5 as a mixed number and as an improper fraction? Establish that it is $2\frac{1}{2}$ or $\frac{5}{2}$. • Display: Slide 2. • Say: Work out the answer to a third multiplied by 8. Ask a pair to explain their working out. Establish the answer is $2\frac{2}{3}$ or $\frac{8}{3}$. • Display: Slide 3. • Say: Work out the answer to three-quarters multiplied by 5. • Ask a pair to share their working out. Establish that with a non-unit fraction, it is more efficient to first work out the answer as an improper fraction and then convert it to a mixed number. • Write on the board: $\frac{3}{4} \times 5 =$. Say: Another way to work out the answer is to change 5 to a fraction. The simplest way to do that is not to change it to fifths, but to write it as 5 over 1 or five lots of one whole. • Say: We can then work out the answer by multiplying the numerators and then the denominators.

• Point to the numerators and say: **3 times 5.** Write this with a fraction line underneath.

- Point to the denominators and say: 4 times 1. Write this under the line. e.g. $\frac{3\times5}{4\times1}$
- Say: Now we can work it out. 3 times 5 is 15, and 4 times 1 is 4. Write $\frac{15}{4}$.
- Ask: This gives us the answer as an improper fraction, what is it as a mixed number?
- Write on the board: $\frac{2}{3} \times 7$ = Work through this calculation with the class.
- Write on the board: $\frac{4}{5} \times 6 =$



- Say: Work out the answer to this together. Show your working out. Model the calculation on the board asking different pairs to tell you the next steps.
- Write on the board: $\frac{2}{6} \times 4 =$
- Say: Work out the answer to this, show your working out. Check children's working out and discuss any steps that children have found challenging.

Individualised Learning

Refer to Activity 3 from the Learning activities on page 397.

 Pupil Book 5C: – Page 40: Multiplying proper fractions
 Progress Guide 5: – Extension, Year 5, Unit 10, Week 2, Lesson 3: Pizza fractions

Plenary

Resources mini whiteboard, pen and eraser (per pair)

.....

- Display: Slide 4. Read the problem to the class.
 Children who have worked on the Extension ac
 - Children who have worked on the Extension activity have worked on similar problems. Ask them to be ready to contribute.
 - Say: Work out how many pizzas were ordered. Work it out as a class using suggestions from pairs.
 - Establish that by first finding the total number of slices eaten $(\frac{4}{6} \times 5 = \frac{20}{6})$, then we can work out that three whole pizzas and $\frac{2}{6}$ of a pizza were eaten.
 - Say: As only whole pizzas can be ordered, the friends must have ordered four pizzas.

Homework Guide 5

Year 5, Unit 10, Week 2, Lesson 3: Pizza problems

Overcoming Barriers

• Children will find multiplying fractions very challenging unless they have a very secure understanding of fractions, improper fraction and mixed numbers. Spend more time on whichever aspect they are not secure with.