CENTRES FOR EXCELLENCE IN MATHS

FE centre resource

Pearson

Lesson plan

Division and estimation

Level 1

1. Lesson objectives

- Explore and evaluate different representations for division, identifying any potential misconceptions
- Apply various division methods and representations to a context involving integers and decimals
- Apply inverse operations to division problems to check accuracy of answers
- Apply rounding to divisions in order to check accuracy of answers

2. Functional skills Level 1 curriculum

Using numbers and the number system
3 Multiply and divide whole numbers and decimals by 10, 100, 1000
4 Use multiplication facts and make connections with division facts
11 Add, subtract, multiply and divide decimals up to two decimal places
12 Approximate by rounding to a whole number or to one or two decimal places

3. Lesson plan

This is an overview of the lesson. More notes can be found in the notes in the lesson slides.

Activity	Purpose of this activity	Time (min)	Guidance	Materials
Recap	Recap what learners have learned about multiplication to address any remaining misconceptions	5	Ask learners to answer questions. Revisit visual representations from multiplication lesson, if appropriate.	Slide 2 Mini whiteboards
Explore 1	Assess prior knowledge and understanding	5	Learners attempt eight division questions chosen to highlight any misconceptions. Ask learners to work in pairs and answer on mini whiteboards.	Slide 3 Mini whiteboards
Discuss 1	Reinforce that division is the inverse of multiplication and introduce the use of the area diagram for division	15	Recap the use of arrays from previous lesson and then quickly transition to area diagrams. Ensure throughout discussion that correct vocabulary is reinforced, including the terms ‘factor’, ‘multiple’ and ‘product’. This is extended to include decimals and the idea of partitioning the numbers to make division questions easier to answer. Engage learners in further discussion on using the ‘bus stop’ method when dealing with a remainder, as a whole and as a decimal.	Slides 4–16

Activity	Purpose of this activity	Time (min)	Guidance	Materials
Explore 2	Ensure learners are able to check that their answers are sensible	10	Show learners a question on division and two different ways to estimate the answer. Ask which is correct (think/pair/share). There are two examples shown, one involving whole numbers only and one involving decimals. Show learners the three questions on Slide 19 and ask them to estimate the answers.	Slides 17–20 Mini whiteboards
Explore 3	Apply the concepts learned to a real-life scenario	5	Introduce real-life scenario: planning a party for a friend. Show learners the two questions and ask them to answer on mini whiteboards, using a formal and informal method.	Slide 21 Mini whiteboards Multilink cubes
Explore 4	Investigate whether a chosen method works for a 3-digit number	5	Give learners a few minutes to solve the division questions that involve 3-digit numbers before asking them to share their answers. Remind learners about ratio tables. Use Slide 23 to show the answer using a ratio table. Slide 24 shows how numbers can be ‘chunked’ to make calculations simpler (make link with the area models used in the multiplication lesson).	Slides 22–24 Mini whiteboards
Discuss	Using compensation to simplify division calculations	10	Introduce and discuss the idea of simplifying calculations by compensation. What do they notice? Learners practise simplifying the calculations on Slide 27.	Slides 25–27
Explore 5	Understanding the meaning of a remainder in context	5	This example involves an answer with a remainder. Allow learners to answer using whichever method they are comfortable with. Ask if learners notice anything different about the question; i.e. the remainder and lead a discussion on the meaning of the remainder in this context.	Slide 28 Mini Whiteboards

Activity	Purpose of this activity	Time (min)	Guidance	Materials
Discuss 2	Checking understanding by spotting misconceptions	15	Ask learners to work in pairs to spot the errors.	Slide 29 'Misconceptions' handout
Explore 6	EXTENSION Division with a decimal value	(10)	Further question involving decimals. Tutor to lead a discussion on ensuring the units are appropriate and consistent; in particular, to ensure learners are aware £1 = 100p and how they can use this. Editable slides available showing solution with a ratio table (depending on the calculation chosen). Use Slide 38 to discuss how a ratio table can be used for the calculation.	Slides 30–38 (hidden) Mini whiteboards
Practice question	Learners check and consolidate their understanding by answering exam questions.	10	Ask learners to answer the exam questions and after a few minutes discuss their thinking.	Slides 39–40 'Exam questions' handout
Review	To summarise the key learning points	5	Review the learning objectives for the lesson.	Slide 41