CENTRES FOR EXCELLENCE IN MATHS

FE centre resource

Pearson

Lesson plan

Averages

Level 2

1. Lesson objectives

- Understand the difference between mean, mode and median
- To be able to use the appropriate average for different purposes
- Understand that range is the data spread and not an average
- Use appropriate checking procedures and evaluate their effectiveness at each stage

2. Functional skills Level 2 curriculum

Handling information and data

23 calculate the median and mode of a set of quantities
24 estimate the mean of a grouped frequency distribution from discrete data
25 use the mean, median, mode and range to compare two sets of data

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
Introduction Whole Group Discussion	Exploring the concept of average	5	What is average? Whole group discussion about the nature of average. It is likely that learners will ask about median and mode. Feel free to encourage discussion on these concepts, but specify that for the purpose of this qualification, we will only be looking at mean and range.	Slides 2−3
Introduction of the context	Introduce the garden centre and how averages might be used in the workplace	5	James has started work in a garden centre. Provide a very brief explanation of this using Slide 4. Slide 4: James has been given the task of finding a flower that is not too short or too tall. Discuss with the group what this means.	Slides 4−5
Collaborative/ dialogic learning approach	Using prior knowledge to calculate averages (mean, mode and median) and dealing with the	15	Learners discuss how the average height of six flowers might be found, then consider calculations how some have James' friends have gone about this – and what type of average they have calculated.	Slides 6−7 Mini whiteboards

Activity	Purpose of this activity	Time (min)	Guidance	Materials
	misconception that range is not an average		Ask learners which one has calculated the mean and which one the range – and how they did it. Discuss Kenji's choice of the range and ask, "Is this an average?" Discuss the concept of range and how it might be used.	
Discuss	Challenge learners with new scenario, and check understanding	5	On slide 8, one of the flowers has been removed, and learners discuss the impact of this on the mean and range Slide 9 provides a simple exercise for learners to practise calculating the mean and range of sets of flower heights, and also an opportunity to carry out reverse calculations to check their answers. This needs to be a point of discussion. A key ideas slide is used to capture learners' understanding of the averages and when they are useful.	Slides 8−9
Review	A further activity exploring the mathematical structure of mean	15	In this activity, the garden centre has some missing information about the mean average time of how long visitors stayed there. Learners work individually and then in pairs to work backwards from the known averages to fill the gaps in the data Learners ideas and methods are then discussed as a class, with learners encouraged to explain how they worked out the missing.	Slides 10−12 Handout 1: Times of customer visits Mini whiteboards

Activity	Purpose of this activity	Time (min)	Guidance	Materials
Discuss	Paired activity and whole group discussion analysing delivery times to determine the most consistent delivery service	10	Which delivery service? Introduce the task and explain that the garden centre wants a delivery service with the most consistent times. Data about delivery times of two companies is provided; learners discover that the mean delivery times are the same, but the range of times is smaller for one company – with the link made to consistency.	Slide 13 Whiteboards
Explore	Grouped data and averages concept	15	This introduces the concept of grouped data in a table and the need to identify mid-point of a group – emphasise that this only provides an estimate of the mean. Probe to relate the methods to the 'basic' method of calculating the mean. Finish by discussing whether the median, mode or range could be calculated from grouped frequencies.	Slide 14 Handout 2: Grouped frequencies
Practice questions	FS Practice questions on mean, median and mode	15	Learners will work independently. Depending on time and the ability of the learners in the group, you may choose only one or more questions for the class. Discuss methods if appropriate.	Slides 15−19 Handout 3: FS Level 2 exam questions
Review	Reviewing learning	5	When the exam questions have been completed, ask learners whether they have used a different approach to that used prior to the lesson when solving average problems. Has their thinking changed? Discuss where they might use these skills in future.	Slide 20