CENTRES FOR EXCELLENCE IN MATHS

FE centre resource

Pearson

Lesson plan

Mean and range

Level 1

1. Lesson objectives

- To understand how and when to calculate the mean
- To 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 1 curriculum

Handle information and data

29 find the mean and range of a set of quantities

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 and dealing with the misconception that range is an average	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
			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	15	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 8−10 Handout 1: heights of flowers
Review	A further activity exploring the mathematical structure of mean	20	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 11−13 Handout 2: visit times 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	15	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 14 Whiteboards
Practice questions	FS practice questions on mean and range	10	Learners will work independently. Depending on time and the ability of the learners in the group, you may choose only one or both questions for the class. Discuss methods if appropriate.	Slide 15−18 Handout 3 FS Level 1 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? What have they learned about averages? What have they learned about range? Discuss where they might use these skills in future.	Slide 19