CENTRES FOR EXCELLENCE IN MATHS

FE centre resource

Pearson

Lesson plan

Graphs and charts

1. Lesson objectives

- Read and interpret pictograms, bar charts and pie charts.
- Understand common errors when constructing graphs and charts.
- Construct pie charts.

2. GCSE curriculum

Statistics
S2 interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical 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	Introduce the topic of graphs and charts in an engaging way	5	Display the signs on the board and discuss with learners why we sometimes need to convey complex information in simply ways. Key questions – why don't we use more detailed images to show these things? What information do we lose by representing them more simply? Why is it important to represent these things visually? How can we represent data to make it more easily and quickly understandable?	Slide 1
Discuss 1	Compare different types of charts and what they are useful for	10	Slides 2-3 3 uses the same data represented by a pictogram, bar chart and pie chart. Ask learners to compare the different representations and draw out their use, and advantages/disadvantages.	Slides 2-3
Explore 1	Make learners aware of common mistakes made when plotting graphs and charts	10	Ask learners to identify things that are wrong with a bar chart displayed on slide 4, then work in pairs to similarly identify errors and omissions on four further charts. Slide 6 highlights key points about including titles, labels and keys on graphs and charts, and checking that data has been plotted correctly.	What's wrong? Handout Slides 4–6

Explore 2	Understanding and interpreting data represented in different types of chart	15	The context of music festivals is used to focus on interpretation of graphs and charts. Start by asking the learners to consider items sold at a festival food stall, and identify what they know from the chart, then reveal four questions relating to the data for discussion. Next, ask learners to work in pairs and with a chart to examine. Ask them to write questions to pass on to another pair to answer.	Writing questions Handout Slides 7–9
Discuss 2	Calculating frequencies from the angles of a pie charts	10	Present slide 10 and ask learners to discuss how they would work out the number choosing each brand of sports clothing from the pie chart. Makes links with proportional reasoning, and model how a ratio table might help to convert from degrees to frequencies.	Slides 10 and 11
Discuss 3	Calculating angles from frequencies to draw a pie chart	10	Use slide 12 to introduce frequency data relating to brands of smartphone. Ask learners how they could convert this to angles to draw a pie chart. Emphasise the links with proportional reasoning again. Slides 13 to 15 can then be used to demonstrate how to use a protractor to draw the pie chart (if required).	Slides 12–15
Explore 3	Consolidate understanding of the relationship between frequency tables, angles and pie charts	18	Ask pairs of learners to work collaboratively, matching frequency tables about smartphones on a grid, with tables of angles and pie charts.	FAPC grid, FAC cards, FACP answers Slides 16 and 17

Review	Summarise plotting and interpreting pie charts	2	Summarise the proportional relationship between frequency tables and the size of sectors in a pie chart, emphasising the multiplier in proportional relationships.	Slide 18
Practice question	Ask learners to answer practice questions relating to graphs and charts	10	Ask learners to answer selection of practice questions and after a few minutes discuss their thinking.	Graphs and charts practice questions Handouts Slides 19–25