CENTRES FOR EXCELLENCE IN MATHS

FE centre resource

Pearson

Lesson plan

Scatter Graphs

1. Lesson objectives

- To interpret scatter graphs.
- To draw and interpret a line of best fit.
- To understand that correlation does not imply causation.

2. GCSE curriculum

S6 use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends whilst knowing the dangers of so doing.

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
Discuss 1	To introduce scatter graphs and lines of best fit	15	Learners will identify scatter graphs, discuss what they see and the characteristics of lines of best fit. Learners will use white boards to answer questions about interpreting the scatter graph (questions in teachers notes). Misconceptions and a Key Ideas slide will be used to reinforce the key concepts.	Slides 2-5
Discussion and activity	To understand correlation	25	Learners will think about different types of correlation. They will then think of different scenarios that may results in each type. These should be shared with the class and discussed along with the concept of strength of correlation. A key ideas slide follows to reinforce learning. Learners will then match real-life scenarios to scatter graphs showing strong or weak positive or negative correlation.	Slides 6-11 Mash up handout
Explore	To address common misconceptions in relation to scatter graphs	10	Learners are asked to sample learner thinking which involves extrapolation beyond the limits of the data. They are confronted with the validity and accuracy of doing so.	Slides 12-13

Activity	Purpose of this activity	Time (min)	Guidance	Materials
Explore	To plot scatter graphs and consider issues of correlation and causation	25	Using the context of a day out at the seaside, learners are presented with data taken from different days relating to multiple variable. Learners are asked to work in groups to produce scatter graphs from the data and present to the class. This issue of correlation and causation is highlighted and addressed.	Slides 14-16 Scatter graph data handout
Practice questions	To apply learning to exam questions	10	Ask learners to work independently to answer exam questions. After they have completed the task, ask learners to discuss their thinking and review their answers.	Slides 17-21 Practice questions handout
Review	To summarise learning and review the process of interpreting and constructing scatter graphs.	5	Summarise the key points of interpreting and drawing scatter graphs including correlation and line of best fit. Review learning objectives.	Slide 22 Practice questions handout