

Lift Off

Teacher Notes

Introduction

Real life data is used to get learners to identify similarities and differences between two sets of data for the capacities of lifts in the UK and Europe.

By looking at the number of people and mass that the lift will accept, we can interrogate the data in various ways to see if the data given is consistent in the areas concerned and whether there is any difference between the UK and other EU countries.

Learners can add any other data they find to the lists. This activity is suitable for middle to high attainers at Key Stage 3. Instructions are given within the TI-Nspire document, and the objectives are listed below.

Objectives:

- Interrogate a database
- Draw lines of best fit
- Compare a line of best fit with a linear regression line
- Interpret the gradient of a straight line
- Compare two data sets using scattergraphs
- Interpret box and whisker plots
- Compare two data sets using box and whisker plots

This activity shows how the links between handling data and algebra can be used to strengthen learners understanding of gradient and how outliers may affect hypotheses.

Teaching notes

Learners may have to be shown how to draw a line of best fit by eye by manipulating the inserted line. Brief instructions on getting the line are given on page 1.2, but instructions on manipulating it are not included since it is expected that learners will explore how to do this themselves. Let them explain to others how to do it!

On page 1.3, column C is the results of dividing the mass by the number of people allowed. This gives some idea of what the lift manufacturers expect the average person's mass to be. Learners may wish to discuss the validity of this assumption.

On page 1.7 learners will have to click on the appropriate place on the axes to insert the data they wish to compare on the scattergraph.

On page 1.11 they should realise that it is important to change the scales so they are comparing like with like – the outlier is clearly visible in the UK data, but this is not so obvious from the scattergraph! The reverse happens for the EU data. This was not done on purpose, the handheld set it up that way by default and it was only when I was doing these notes that I realised how rich this activity is!

Possible homework

Collect more lift data – either from lifts nearby or from the internet.
Write the reports comparing the two data sets.