



# Mathematics lesson 2 - Teacher notes

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### Learning aim:

To make informed decisions with statistics.

### Curriculum links and Skills Builder focus skills chart:

England The national curriculum	Statistics Pupils should be taught to construct and interpret diagrams for grouped discrete data and continuous data, i.e. box plots and finding the median, mean and mode.
Scotland National 5 Mathematics	Statistical skills Comparing data sets using statistics.
Wales WJEC GCSE mathematics specification	Statistics Finding the mean, mode and median. Constructing box plots.
Skills Builder Framework Focus Skills	
Creativity – The use of imagination and the generation of new ideas	Creativity step 6 I use creativity in the context of work
Aiming high – The ability to set clear, tangible goals and devise a robust route to achieving them	Aiming high step 4 I work with a positive approach to new challenges.

### Main skills developed and how:

- Calculation and interpretation – Students will be calculating and interpreting the range, mean, mode, median, upper quartile and lower quartile.
- Analysing – Students will be formulating a recommendation based on statistical findings.

### Equipment required:

- Calculators
- Student worksheet
- Answer sheet
- PowerPoint

### Suggested layout of the session:

2 minutes – Introduce the session. Start by explaining the relevance of statistics in making business decisions. Then, introduce the scenario:

You work at the Local Council and part of your role as a Town Planner is to review applications from traders to take part on your popular weekend market. Part of your responsibility is to make suggestions about which pop up shops would be best suited to the market, and which would perform better as shops in the local shopping centre.

Clarify that students will use statistical measures to guide the Town Planner's recommendations.

13 minutes – Distribute student worksheets which include data tables (footfall, age, and salary breakdown). Instruct students to calculate the range, mean, mode, median, upper quartile, and lower quartile for each dataset. Model how to calculate the range, mean, mode, median, upper quartile and lower quartile for the footfall in the market on the board – before the students begin independent work. This will help to address any misconceptions and build confidence.

2 minutes – Run through the answers so that students can mark their work.

8 minutes – Explain that the Town Planner needs to agree one trader for the market based on the statistical analysis. Ask students to work in pairs or small groups to discuss and decide which trader they would recommend – based on their data analysis. Students should consider all the statistical measures they've calculated. To end this section, engage the class in a brief discussion about the recommendations they've formulated. Encourage students to explain the reasoning behind their suggestions.

If time, encourage students to complete the extension activity, to make a recommendation for one of the traders to consider opening a shop in the local shopping centre and to create a marketing plan. The criteria they will need to work towards for the marketing plan includes:

- What are you going to do to market the opening of the shop?
- Why have you chosen to do this?
- How will you incentivise customers to come and visit the shop?

If there isn't enough time for this task in class time, then it can be set as homework.

#### Ways to differentiate:

- This could be an independent, paired or group task.
- Scaffold the warmup and main task and model questions where this input is required.

