

Tutor notes for Module 1: Data handling and statistics



Module 1: Data handling and statistics, Section B, Challenge 2

Challenge title	Sport for all		
Challenge	Collect data from a major sport or sporting event. Write a hypothesis about what you think you might find. Use graphs and calculations to find out if your statement is true and present your evidence to back up what you have found.		
Aim	<ul style="list-style-type: none"> • To practice data collecting and analysis skills and bring them together in a context • To develop an understanding of how things are represented in the media • To challenge misconceptions and stereotypes in sport and the media 		
Challenge ref.	1B2	Session time	10 hours
Skills	Calculating averages; Collecting and displaying data; Constructing and interpreting graphs and charts; Constructing hypotheses; Interpreting data and summary statistics; Making comparisons; Planning and organisation; Reasoning; Testing hypotheses; Understanding the data handling cycle.		

i Suggested approach

This is an open ended task that enables students to practise many of the skills developed in section A within one project. Tutors should structure what students do in order to ensure the data they produce allows them to practise higher level skills. If left to decide for themselves, students will often stick to low level skills like simple bar charts.

This challenge could be used as an opportunity to challenge stereotypes and misconceptions about particular sports (eg women's sport in traditionally male dominated sports, analysing data from the Paralympic Games). If this approach is taken, be careful to ensure that the outcome is not to reinforce unwanted discriminatory opinions or beliefs.

Whatever direction is taken, it is worth tutors taking time to create a pool of data that they are confident in, so that it throws up conclusions that tutors are comfortable with and is easy to interpret. It is strongly recommended that the data for this project is thoroughly interrogated before students start to work with it as a random set of unknown data can easily produce difficulties that make the challenge hard to complete.

It may be easier to consider a collection of player statistics in a particular sport rather than data for an individual event, as player information is often easier to find out.

A suggested structure for this challenge is set out below:

Plan

Students plan what they are doing with guidance from the tutor. They need to come up with a hypothesis to test out, for example:

- Most people that play professional rugby are under 25
- Attendance at cricket matches is 50% higher at weekends

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Module 1: Data handling and statistics, Section B, Challenge 2 Continued...

Collect data

Students should construct tally charts to record the data they need from each of their articles. Ensure that students collect some data with numerical values that can be used to calculate an average. Tutors should guide students towards using a grouped tally chart for at least one set of data, so that they can calculate an estimate of the mean.

Calculations and presentation

Students need to calculate appropriate averages for their data. Practising calculating an estimate of the mean is ideal, but at the least they should be calculating a mean from a table and not just a list of numbers.

Students will need to be guided into producing pie charts as well as bar graphs. If they have two sets of data that could be compared in a scatter graph then encourage them to use one and talk about the correlation (eg age of player compared with average minutes played per game).

Comparisons and conclusions

Students should compare their two articles and comment about what they have found. These comments need to reference the graphs and calculations they have done (eg my scatter graph shows that as rugby players get older, the average time they play in a game is reduced).

When students make their conclusions they should consider the validity of their work and how reliable it is in terms of drawing conclusions (eg are published player statistics accurate – why might they be inaccurate and does this matter when comparing like with like? If conclusions are drawn from a questionnaire about sport, is it right to project that as an international trend?).

Encourage students to question what they are doing and its accuracy, then decide if they can use this as a firm conclusion. The answer to that is likely to be no, so students should then explore what additional work would be needed to make their conclusions more valid (eg collecting more data from a wider variety of sources).

Suggested resources

The following learner resources are provided for this challenge:

- Challenge walkthrough 1B2