

Getting Started

Double-click on **Start** to browse the lesson guides and print resources.

Bowland Maths materials are free for educational use in the UK only. You may install the software on multiple computers or a school network provided it is only accessible to pupils and staff at your school.

Overview

One of the features of Olympic Games history is that women have had to win a series of battles to be able to compete. However, since they have been competing, there have been many cases where the women, at least for a while, have been improving faster than men.

Is this trend likely to continue until women are out-performing men? One source of relevant data to help model the development of men's and women's performances is the winning performance in men's and women's events over successive Olympics. This data is not 'tidy'. There are trends, but there are also many 'outlier' performances – a performance that is quite different from the overall trend. A feature of this case is dealing with this authentic data, recognising and dealing with outlier results and determining how well the data allows the question to be answered.

Mathematical Content

In the Case Study, pupils are involved in all phases of the 'handling data cycle'. Through this, pupils perform calculations involving absolute difference, rates of change and relative proportion. They also sketch graphs, find lines of best fit on scatter plots and extrapolate them to find points of intersection.

Other mathematical content includes estimation, arithmetic applied to calculations and manipulations with rational numbers, units, compound measures and conversions, presentation and analysis of grouped and ungrouped data, applications of ratio and proportion, accuracy and rounding, linear equations, formulae, expressions and identities, and mathematics as evidence. Prior understanding of the number work and graph sketching is necessary, but the case could be used to introduce ideas such as the handling data cycle and finding lines of best fit.

Organisation and pedagogy

This Case Study would be suitable for Year 8 or Year 9 pupils, particularly those with a solid understanding of the content described above. The lesson notes provide suggestions as to how pupils may be extended further. The open nature of this Case Study allows teachers to provide pupils with the degree of freedom that suits their particular capabilities.

This Case Study has been designed for pupils to complete individual work, whilst working as part of a small group. There is the scope to modify this as necessary for individuals or classes. The teacher will set the general direction for this Case Study and initiate changes of activities, however the case provides opportunities for teachers to allow more experienced and capable pupils freedom to decide for themselves how they will proceed.

Homework will be used to complete tasks as well as carry out further research into issues identified in class, therefore teachers and pupils need to recognize that homework completion is a very important aspect of this Case!

Resources provided

This Case Study comes with detailed lesson plans as well as lesson outlines. Vignettes and teacher advice embedded with lesson plans help teachers work through key issues identified by those who have trialled this Case Study. It also comes with worksheets and full worked solutions with advice to teachers for working through specific sections of the enquiries.

Resource requirements (including hardware & software)

The teacher will need access to a computer with a web browser to explore the lesson plans and resources and print out the pupil materials. This can be done prior to the lesson.

Windows users will need [Adobe Reader](http://www.adobe.com/downloads/) to view and print resources. This is available for free download from <http://www.adobe.com/downloads/>.

Computers are not required during the lessons, although the case study does provide opportunity to use ICT, especially graphing programs, if available.

Note: When printing PDF files, Please make sure that 'page scaling' is set to 'none', 'no scaling' or '100%' to ensure that diagrams are printed to scale.

Technical details

Minimum machine and software specifications

Any computer with a reasonably modern web browser and PDF viewer.

Installing on a Web Server

If needed, the case study can be placed on an Intranet server: copy the complete 'olympics' folder to the server and, if necessary, rename "Start.html" to "index.html" or whatever name your server uses for index pages. To comply with the licensing terms, please ensure that access is limited to staff and pupils at your school.