BOWLAND
MATHS
Case Studies

Football: The beautiful game

Read me

Getting Started

Double-click on **Start** to open the case study – then click on the 'Teacher support' button within the application to view the support materials.

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

Football: The beautiful game is based around video clips of the Swanscombe Tigers youth football team as they train and prepare for a game. There are three activities: pre-match training, passing the ball and penalties. Each activity provides opportunities for pupils to demonstrate their competence in using key mathematical skills and processes, and to encounter a range of curriculum content.

Mathematical content

The activities are aimed at pupils working at NC levels 4 to 7 and beyond. Because the tasks are relatively open, they will be accessible to pupils at different levels of attainment, with appropriate guidance from the teacher.

The tasks are desigined to cover a wide range of Key Concepts and Processes. Each activity includes video and real-life data, giving pupils the opportunity to grapple with realistic problems and decision making. Since there is no single correct answer, pupils are required to justify their own answers or decisions. Specific mathematical content includes similar triangles, 2D and 3D shapes, loci, speed, distance and time, units angles, probability and statistics. Detailed curriculum coverage notes are provided in the teachers' guide for each activity.

Organisation and pedagogy

This Case Study comprises three activities, each designed to take approximately 60 minutes. After a whole-class introduction, most of the lesson is spent working in groups of 2 or 3 sharing a computer. At the end of each lesson, the groups report back to the class in a plenary session.

Although there are suggestions within the Teachers' notes on how to proceed with each activity, pupils should be encouraged to seek their own approaches and solutions where possible, thus giving them greater ownership of the task as well as increased cognitive challenge.

Resources provided

This Case Study is presented as a browser-based application containing a collection of printable and ICT resources, including:

- **Overview** – for teachers – read this first, as it contains more details than this summary.
- **Teachers' notes** – with lesson plans – for each of the three activities.
- **Videos** – which present the activities.
- **On-screen tools** – to help pupils investigate the problems.
- **Pupil worksheets** – to print and hand out.

Resource requirements (including hardware & software)

- The teacher will need a computer with data projector (or interactive whiteboard), sound output and speakers. The software is suitable for a Windows PC or an Apple Mac.
- Each group of 2-3 pupils will require a computer and access to the software. If this is not possible, some parts of the activities could be used on a projector/whiteboard with a whole class.

The software can be run directly from the Bowland Maths website, or you can download the case study and copy it to the computer(s) you will be using during the lesson, or to the school network.

The computer will need a modern web browser with Adobe Flash Player installed. Windows users will also need Adobe Reader to view and print resources. These are both available for free download from http://www.adobe.com/downloads/.

- Each pupil, or group of pupils, will need a printed copy of the work sheets.

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

PC Windows 7, Windows Vista®, Windows XP, Windows Server® 2008, Windows Server 2003, Windows 2000 Intel® Pentium® II 450MHz, AMD Athlon® 600MHz or faster processor or equivalent 128MB of RAM 128MB of graphics memory Internet Explorer 6.0 and above, Mozilla Firefox 2.0 and above, Google Chrome 2.0 and above, Safari 3.0 and above, Opera 9.5 and above, AOL 9.0 and above.

Mac Mac OS X 10.6, Mac OS X 10.5, Mac OS X 10.4 (Intel), Mac OS X 10.4 (Power PC) Intel Core™ Duo 1.33GHz or faster processor Power PC G3 500MHz or faster processor 128MB of RAM Safari 3.0 and above, Mozilla Firefox 3.0 and above, Google Chrome 2.0 and above, Opera 9.5 and above, AOL Desktop for Mac 1.0 and above.

Linux & other systems – we do not officially support this, and the software has not been tested on Linux. However, it should work on systems with Adobe Flash Player installed. Note that although the download is a PC '.exe' it is actually a self-extracting ".zip" file which many Linux systems will be able to unpack.

Installing on a Web Server

If needed, the case study can be placed on an Intranet server: copy the complete “football” 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.

Changing the video root folder/URL

This is only necessary for IT support and Webmasters who want to stream the video from a dedicated media server. All video content is stored in 'content/assets/video' by default. This directory can be changed by editing the file "start.html", looking for the line 'var flashvars = {videoPath: "assets/video/"};' and changing 'assets/video/' to the new directory or URL.