

Crash Test

Overview

Mathematics can help improve road safety.

In this case study, pupils use computer software to explore the impact of car crashes under varying conditions and the effects on a simulated dummy. Pupils can select a car, a crash point and a speed, then watch an animation of a crash and see the results as physical impact on the dummy and as numerical data.

Getting started

This case study is in the form of a self-contained application. Versions are available for MS Windows and Mac OS X. The website or DVD should have given you the correct version for your computer.

All of the required resources can be accessed and printed from within the application. It may be helpful to print The *Teacher's Guide* and pupil worksheets for each of the lessons.

To start the application, double-click **Start**.

If you are using a computer or network with strict security controls you may need to seek advice from your ICT support staff to enable you to run this software.

Mathematical content

Key Stage 3 National Curriculum areas covered include:

- **Key Processes** – Pupils are expected to represent and analyse a situation from the real world. The emphasis in this case study is on interpreting and analysing the data generated, reflecting on its meaning and communicating the results.
- **Number and Algebra** – using rational numbers; their properties and different representations; proportion; accuracy and rounding.
- **Statistics** – Applying the handling data cycle, using graphical representations of data.

Organisation and pedagogy

This case study supports 5 hour-long lessons of classroom activity. Where appropriate, homework tasks are suggested to reinforce the work done in the classroom. A mixture of whole class and small group work is involved.

Crash Test has been devised to support creative thinking in KS3 mathematics with a particular focus on handling data, probability and percentages as well as problem solving in a contextualised environment. An interactive whiteboard or computer and data projector are essential for demonstration purposes. To use the materials, a PC or Mac with a soundcard/speakers and DVD drive is required.

Hardware & software requirements

The minimum PC hardware specification is:

- 600MHz or faster AMD/Intel processor with 64MB RAM
- 6GB hard disk space
- Display resolution of 800 x 600, 24-bit colour
- 2MB graphics RAM
- Speaker or headphones
- UK keyboard and mouse
- Connection to printer and printer driver installed

The minimum Apple hardware specification is:

- 400MHz PowerPC G3 processor with 64MB SDRAM
- 10GB Ultra ATA hard disk drive
- 15" display or larger
- ATI RAGE 128 Ultra with 16MB of video RAM
- Speaker or headphones
- UK keyboard and mouse
- Connection to printer and printer driver installed

Software requirements:

- Windows XP Professional *or*
- Mac OS X

Crash Test Version 1: Produced by Cimex Media Ltd