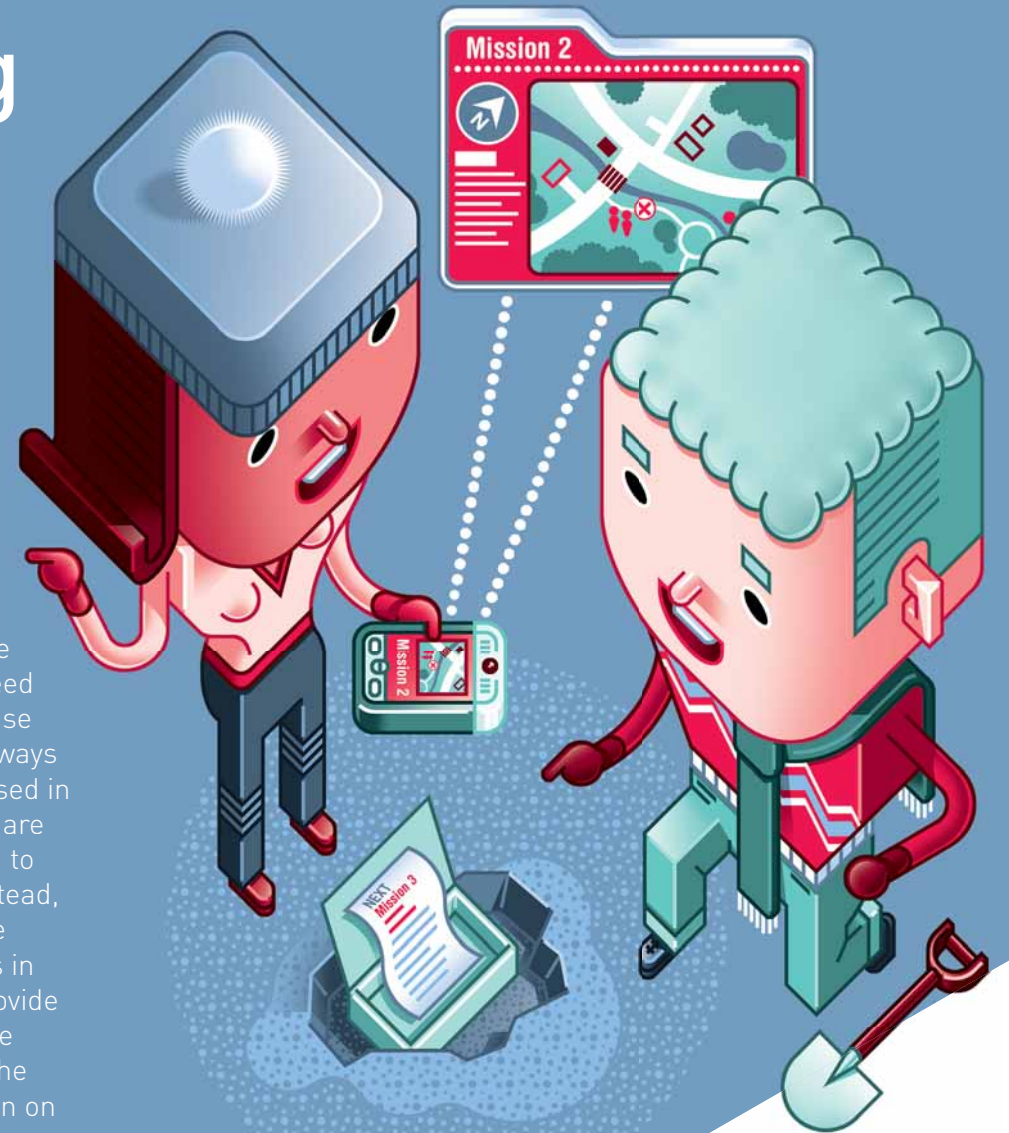


# Possibilities for learning with computer games

These scenarios have been developed to illustrate just some of the ways in which computer games can support children's and young people's learning in schools. They are aimed at school teachers new to the subject, as well as policy makers and those in industry who may be interested in further exploring the potential of computer games use within schools. These scenarios provide a starting point for considering the potential benefits of using computer games in schools, and the challenges that teachers and learners may face around this issue. They are based on the findings from an extensive research project, though do not represent specific individuals. They point to the many diverse opportunities that computer games can provide to enhance and

transform learning, as well as some of the issues and difficulties that need to be considered when we seek to use games in schools. There are many ways in which computer games can be used in the classroom and these scenarios are not exhaustive and are not intended to endorse particular approaches. Instead, inventive teachers will find inventive and practical reasons to use games in schools. These scenarios aim to provide inspiration, not evidence. Please see the General Educator's Report for the background research and discussion on which these scenarios are based.

To download scenarios online or for further information go to:  
[www.futurelab.org.uk/projects/games-and-learning](http://www.futurelab.org.uk/projects/games-and-learning)



## 1. Maths rocks: relating maths to music

### The story so far

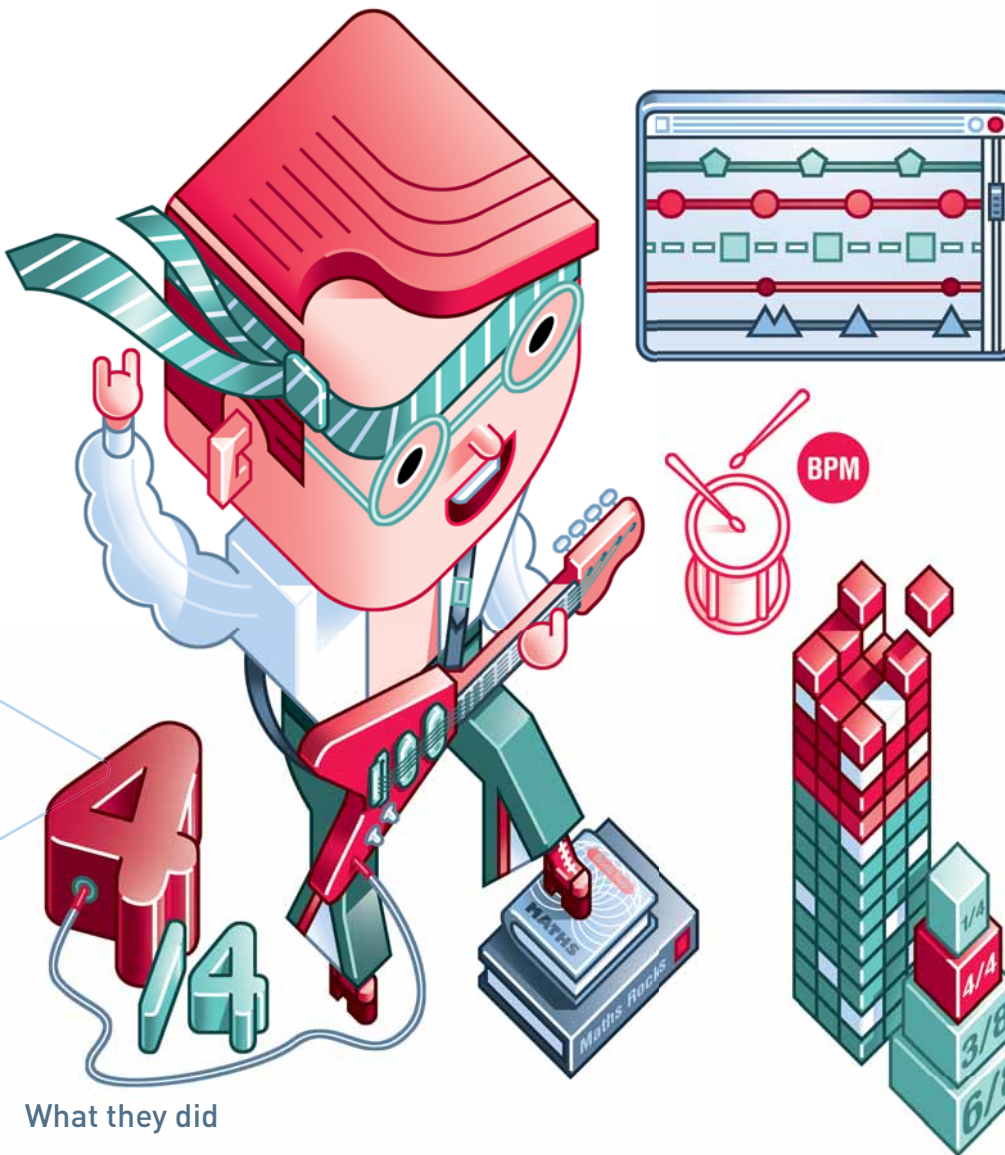
Lucy teaches maths and devises a half-term scheme of work for Year 10 linking maths to other curricular subjects and students' own interests and everyday lives through focusing on music.

Her own children enjoy playing the game Rock Band, which requires players to play along to classic guitar songs, at home, and she has become interested too despite not usually enjoying videogames. This becomes the focus for a module on 'Maths, Music and Media', which she asks colleagues from music and English to help her plan.

### Challenges

Inspired by reading books on everyday statistics, Lucy believes it is important that students understand how mathematics connects to some of the most pleasurable everyday experiences in life, such as listening to and playing music.

A lack of games technology at school means being creative to ensure everyone plays on the single machine she can provide, without just a few students dominating or the activity distracting from everything else.



### What they did

Lucy demonstrates how Rock Band depends on musical maths - the mathematics of sound. Students study the maths of tracks they perform, starting by identifying rhythmic patterns, BPM and time signatures. They explore the maths of sound, with students learning how the game depends on maths.

As a class competition, students create bands whose success depends on their

performance in the game, which they track using spreadsheets and use as data to create patterns and graphs.

Lucy differentiates by setting a challenge around the algorithmic properties of music - as a form of physical movement that can be analysed - and by setting tasks on the psychological and emotional effects of music.

### What next?

#### Possible future learning journeys

Two students in the class have now expressed to Lucy more interest in maths as they realise it could help them train for later work in computing.

Lucy's colleagues in the maths department are considering other cross-curricular links with maths and students' interests, for example, maths and sports.

## 2. Making the media: how games are written

### The story so far

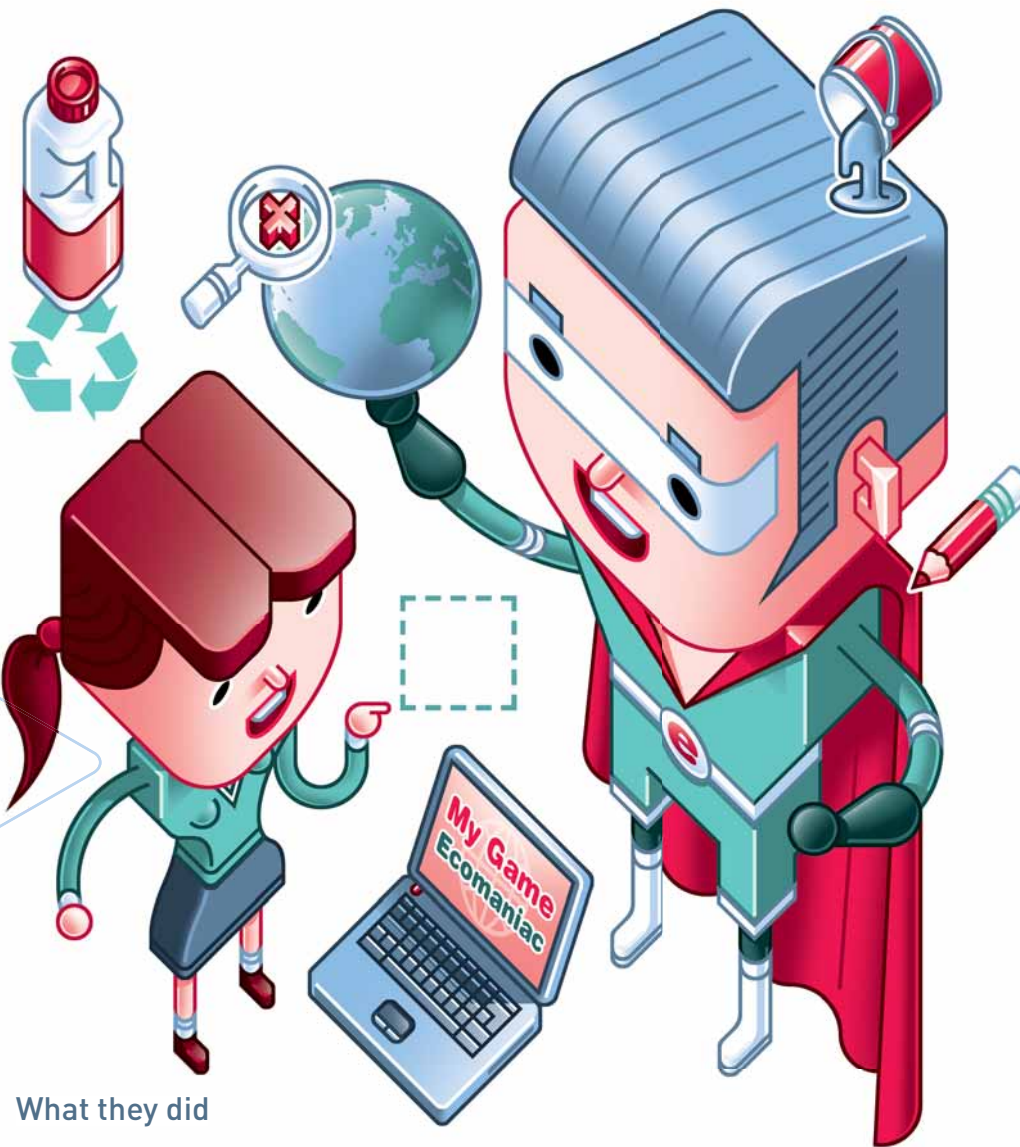
Tim teaches English and media and runs a module in Year 8 on computer games. He believes young people should be creating their own English and media texts, as well as studying them.

By creating their own computer games they can learn a lot about creative processes, as well as about how to read computer games, and about the role of computer games in society. Tim believes school English and media should treat games as an important cultural form.

### Challenges

Although many of the children in Tim's class regularly play computer games, they haven't been taught how games feature themes, characters and stories that are worth studying. For non-players this introduces them to the importance of games as an influential medium.

Tim is also concerned that many of them may not understand how games are produced, by whom, and what biases and assumptions they may contain.



### What they did

"Computer games," Tim tells his Year 8 students, "are sometimes made for us to have fun, sometimes to make us buy things, and sometimes to make us see the world in a new way." Tim locates a range of mini-games on the internet, some produced for marketing and others for social purposes.

"Why do you think the creators of these games made them?" he asks. "What might be the effects for the players?"

Students use storyboarding techniques to design their own games on issues they find interesting. Tim supports them to think about why games are produced, who makes them, and what games might suggest about the audiences that play them. They demonstrate their new understanding of games as a persuasive art form.

### What next?

#### Possible future learning journeys

As a whole class, the students study the ways in which the Harry Potter books have been turned into films and games, and compare the similarities and differences, especially the role of the audience for film and the player for games.

Students choose a favourite book, TV programme or film and create a design pitch document for turning it into a game, including making preliminary designs and storyboards, and creating some small-scale prototypes using free game authoring software.

### 3. Media panic: games, marketing, and media effects

#### The story so far

Jim teaches art, design and media at a sixth-form college. He is interested in computer games as art works, creative design, and cultural media phenomena.

The Grand Theft Auto games excite him because they are sophisticated works which have created a 'media panic', and believes they are part of a complex marketing industry which benefits from the 'negative advertising' provided by press criticism.

They are worth studying in detail as media products as well as cultural media 'events'.

#### Challenges

The debate about whether media violence leads to real violence has long been a subject of media studies, but videogames, because of their interactivity, have become the focus for particularly strong press criticism, as well as some notable legal cases.

Jim is not sure his students appreciate that computer games are more than 'just entertainment' but part of a sophisticated media and marketing industry that is highly manipulative in youth culture.

Due to the 'adult' nature of GTA Jim speaks with parents beforehand, ensuring they are fully engaged and understand the module objectives, and recognise the importance of studying the games.

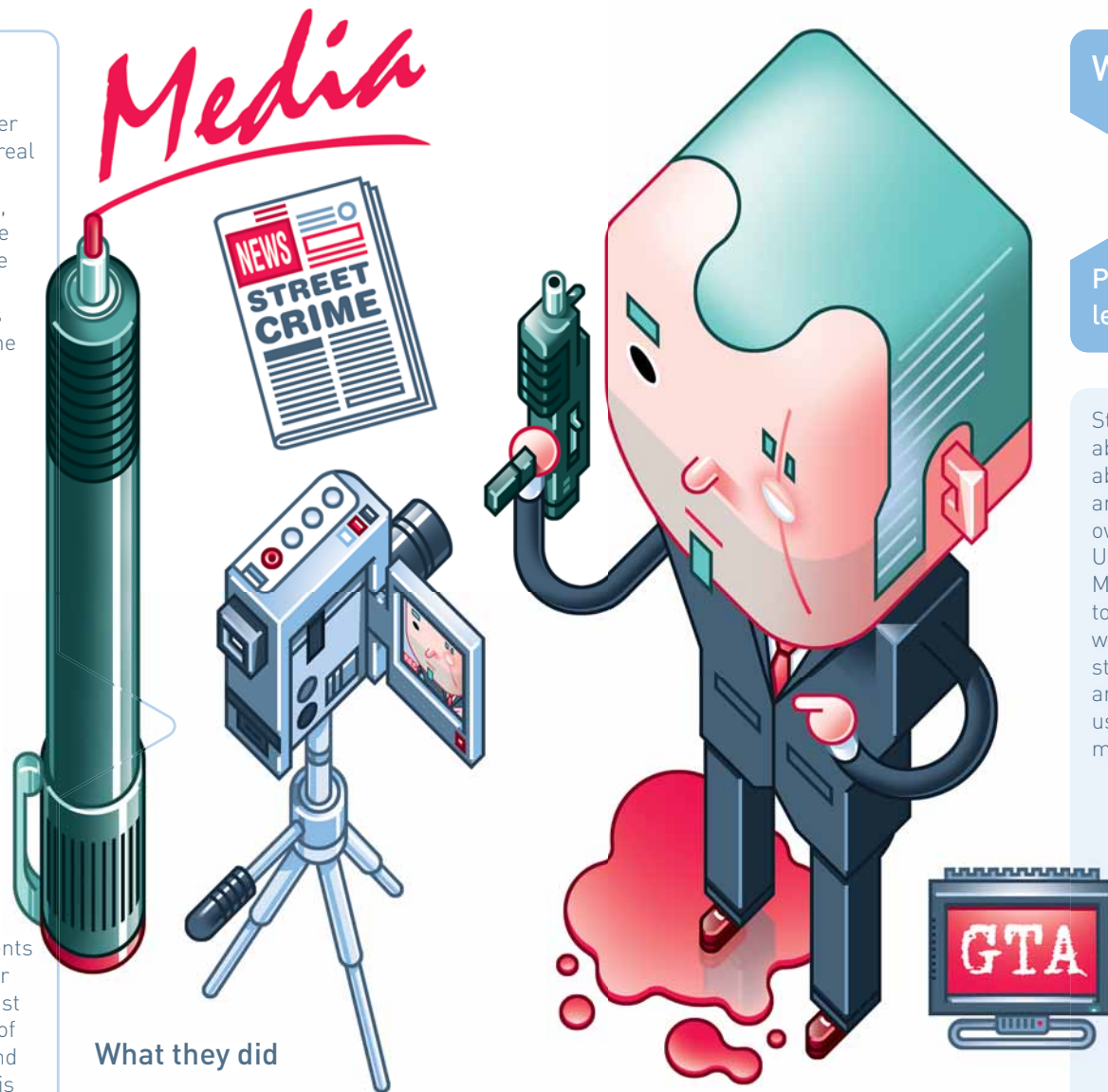
#### What they did

Students play the Grand Theft Auto games to study the art, design and content, and look at GTA marketing campaigns. How has GTA been sold to players? What ideas does it create about intended audience?

Students research the companies responsible for creating, financing, marketing and distributing GTA, and explore the 'media effects' debate about videogame violence. They locate media coverage

(including evidence of media panics) about GTA and debate it.

The GTA study culminates with students writing an analytical essay about 'GTA and the press', and designing a provocative marketing campaign for a new game about teenage street crime. The module demonstrates students' awareness about the media effects debate, the games marketing industry, and new media theory.



#### What next?

#### Possible future learning journeys

Students would like to be able to extend their creative abilities by designing and prototyping their own computer games. Using software such as MissionMaker, they are able to create indicative content, which they supplement with storyboards and designs and a TV campaign created using the college's new media production suite.

## 4. Mobile map-making: geography and mobile games

### The story so far

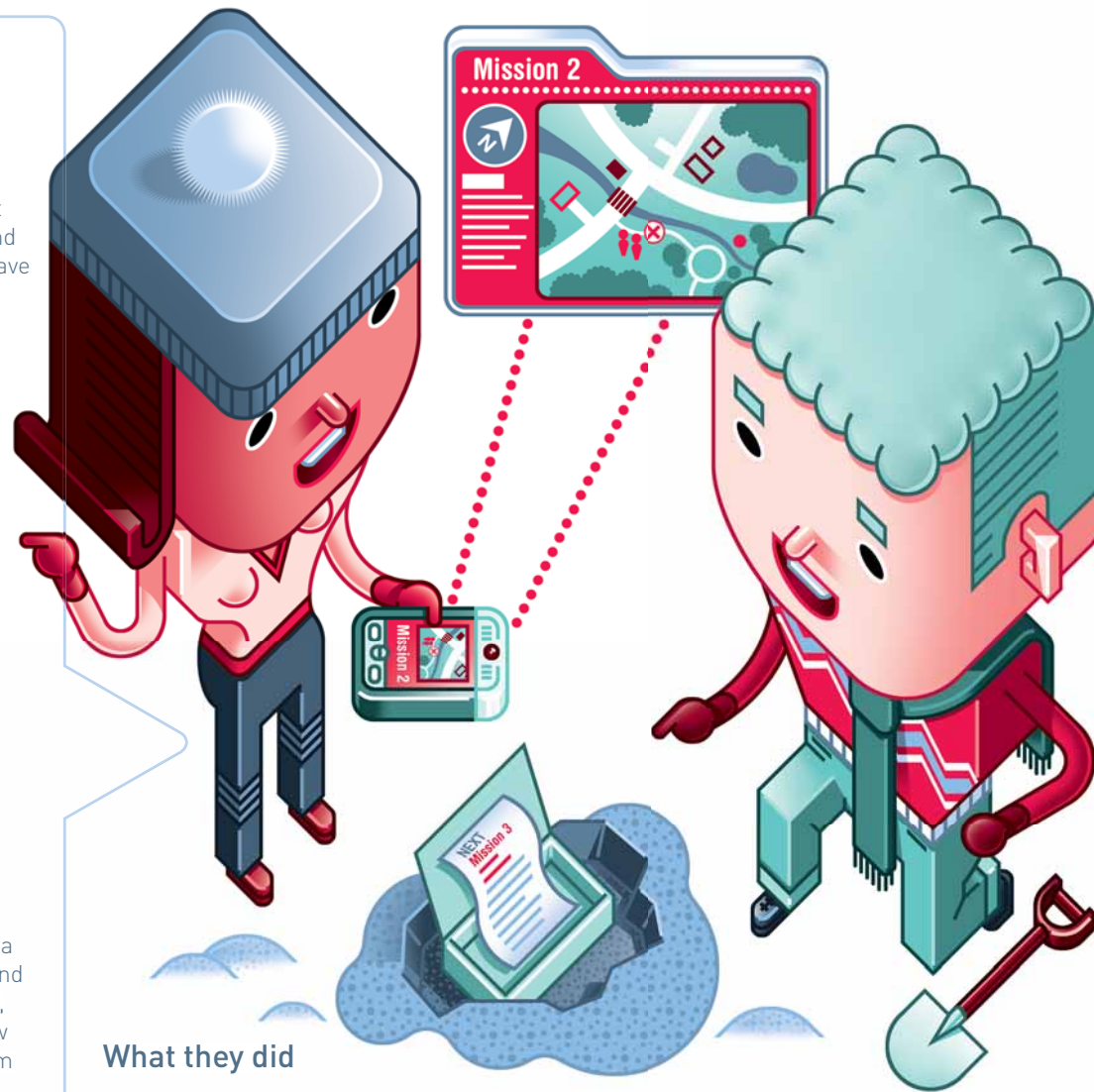
Bethany teaches at a rural primary school in a small village in the Welsh mountains. Her class includes children from 9-11 years old. A lot of them enjoy playing in the nearby countryside, and Bethany wants to teach local geography as well as how to use maps. She prefers to keep activities playful and makes use of the outdoors so learning takes place in context. The local authority recently bought small handheld computers for all local primary school children.

### Challenges

Bethany needs content to use on the students' handheld computers. Currently, these are just being used as diaries and Bethany believes they have much more innovative potential.

Working in a remote area makes it hard to meet and talk with other teachers, so Bethany spends a few evenings on a chat forum for geography teachers which she has used several times before to locate and share resources. This professional networking is essential for a rural teacher.

On the forum she finds out about Create-a-Scape, a playful locative map-based application for GPS-enabled handhelds.



### What they did

Using Create-a-Scape, children create map-based missions in real locations for other students to then play. They spend time studying what makes a good outdoors game and what makes a good computer game.

Students spend a day outdoors making their map-based missions. They have to make content using the in-built camera and audio recorder to add to the mission. Many of them create variations on Treasure Hunt, with local physical

features being used as apparatus for the game.

A group of boys design their game as a mountain survival guide: the mission involves locating and collecting natural materials.

The children play each others' missions, and demonstrate what they have learnt about the local geography and about using maps for orienteering.

### What next?

#### Possible future learning journeys

Bethany invites a colleague to try out the same task with younger students, and the two classes end up playing each others' missions.

In the summer, a group of students design an adventure hike for a whole-school outing, and create a series of mini GPS games to help young children understand principles of map reading and orienteering.

The excitement generated by the activity galvanises teachers at the school to spend a day of in-service training exploring other innovative uses of handhelds, and they later share their experiences with other teachers on online forums.

## 5. Sim-citizens: simulation games and the real world

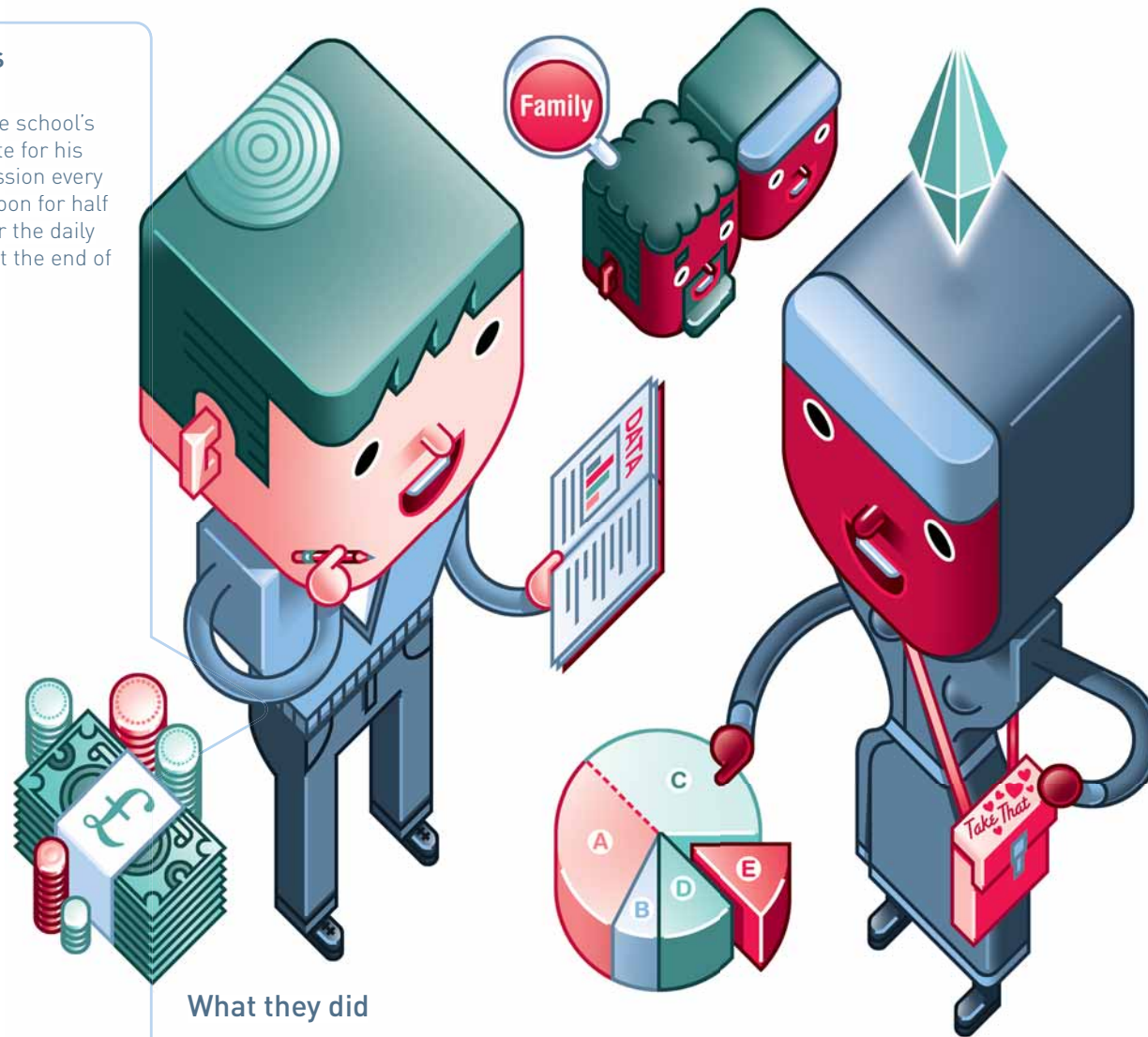
### The story so far

Peter is in his first post at an urban secondary school. Up to 40 first languages are spoken at the school, which puts citizenship as a requirement across the curriculum.

Peter thinks using the videogame *The Sims* with his Year 7 tutor group will introduce key citizenship themes. He wants to show how shopping and consumerism are represented in the game.

### Challenges

Peter books the school's new media suite for his tutor group session every Monday afternoon for half a term, plus for the daily tutor session at the end of each day.



### What they did

The headteacher's motto at Peter's school is, "We can teach them literacy and numeracy but we also want them to be decent young people with decent chances."

Peter's students play *The Sims*, asking themselves, "What is it that makes *The Sims* most happy? Do they ever really truly seem to be happy people? And what makes them sad?"

Peter organises a class debate about whether the game teaches kids that shopping makes people happiest, and students survey their families on what they think are the best ideas for happy living.

To demonstrate their awareness about citizenship issues, student design a new *Sims* game based on students' own communities. Many replace the original consumerist rule system with a new emphasis on tolerance in communities.

### What next?

#### Possible future learning journeys

Peter modifies his teaching plans for the module and presents them to other year group tutors, several of whom decide to try it out themselves later in the year.

Peter posts details of the scheme of work to an online discussion forum for teachers interested in using games in their lessons and receives encouraging feedback from teachers in other schools who want to give it a go themselves.

## 6. Space-time relativity: war games in humanities

### The story so far

Kate teaches geography and history. She has lead planning role for the humanities Year 8 cross-curricular project. The scheme takes place a whole day each week and lasts an entire term.

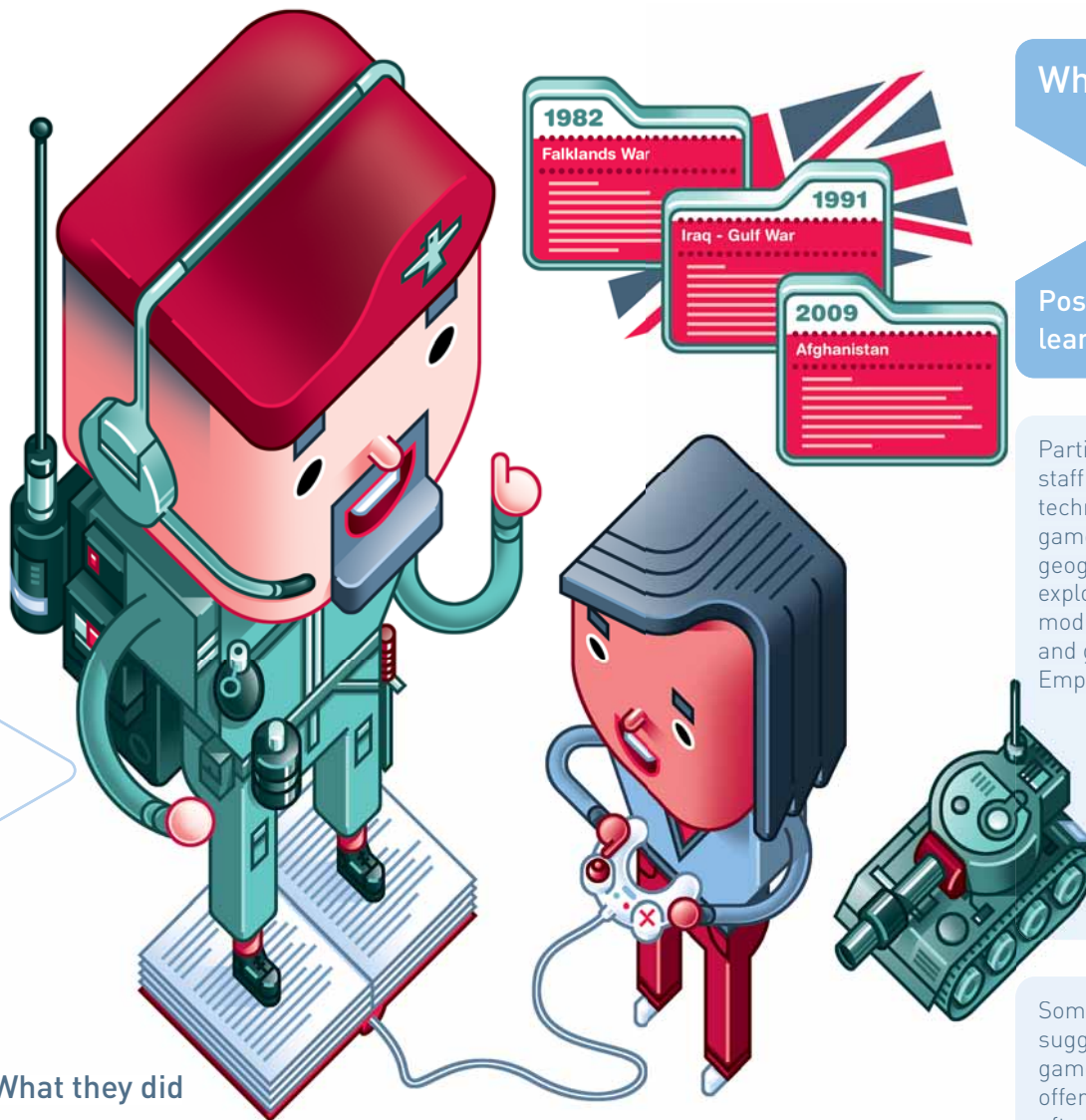
The theme is 'Why wars excite historians, geographers, and videogame designers'. Kate's key objective is to teach how history and geography are represented or used and abused by games designers.

### Challenges

Kate needs a lot of games, a lot of hardware, and a lot of technical support. The head secures budget to buy some second-hand videogames consoles and games from the local discount games exchange store. A computer technician is dedicated to the scheme each week.

Kate ensures all staff are familiar with the relevant games. They practise beforehand with expert help from Year 11 students.

University students from nearby join in to gain work experience and to provide classroom and technical support.



### What they did

Kate tells students they are going to "play the best war games ever made" and "design the best war games still to be made".

Students play and contrast different war games with information from text books to identify how the games recreate history and places. They compare the games with media coverage of actual conflicts.

Working in teams, students develop new war game designs. They thoroughly research relevant history and geography and compile files of data and images and create mood boards and storyboards of content.

With mentorship from university students they create brief interactive walk-throughs. Finally they present their game designs as 'pitch documents' to show what they have learnt about the use of geography and history in videogames.

### What next?

#### Possible future learning journeys

Participating humanities staff now feel equipped with techniques for analysing games in history and geography, and begin exploring other possible modules, such as cities and games and the Roman Empire and games.

Some enthusiastic students suggest that computer game design could be offered as an extended after-school scheme, which Kate explores with the headteacher. The students also express an interest in visiting the university games design department, and Kate pursues this with her lecturer contact.

## About Futurelab

Futurelab is passionate about transforming the way people learn. Tapping into the huge potential offered by digital and other technologies, we are developing innovative learning resources and practices that support new approaches to education for the 21st century.

Working in partnership with industry, policy and practice, Futurelab:

- incubates new ideas, taking them from the lab to the classroom
- offers hard evidence and practical advice to support the design and use of innovative learning tools
- communicates the latest thinking and practice in educational ICT
- provides the space for experimentation and the exchange of ideas between the creative, technology and education sectors.

A not-for-profit organisation, Futurelab is committed to sharing the lessons learnt from our research and development in order to inform positive change to educational policy and practice.



## About Becta

Becta is the government agency leading the national drive to ensure the effective and innovative use of technology throughout learning. It is our ambition to utilise the benefits of technology to create a more exciting, rewarding and successful experience for learners of all ages and abilities, enabling them to achieve their potential. We do this in many ways. We make sure the right technology is available, we influence the development of policy, and we set standards and provide tools that help establish and promote best practice. We know that technology has the potential to transform learning. We are committed to inspiring education providers to realise that potential, and equip learners for Britain's future success.

supported by



## About this programme of work

Futurelab is undertaking a programme of work - supported by Becta - to contribute to their 'Harnessing Technology: Next Generation Learning 2008-14' strategy which aims to bring about a step-change in the way technology is used across the education and skills system, enabling learners to take greater control of their learning.

As part of this programme of work, Futurelab is investigating the potential of computer games to support learning. We are carrying out research into teachers' and learners' needs and aspirations for the use of games in schools.

This poster is one of the outcomes from this work but for further information, go to: [www.futurelab.org.uk/projects/games-and-learning](http://www.futurelab.org.uk/projects/games-and-learning).

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### Why computer games and learning?

Computer games are now recognised as a medium with as much influence as movies, television and novels. As such an important media form, games therefore demand attention in the classroom, whether as an object of study in English and media studies, to simulate science concepts, or to emphasise moments in history. More and more educators are finding inventive uses for games in school.