Barefoot

Recommended for
ages 7-11

An introduction to abstraction - Guess what?

Principal partners

BT   **Computing** at School

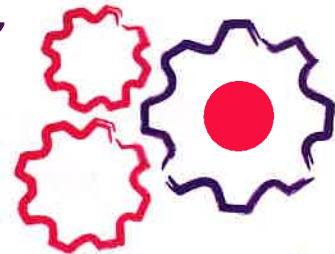🐦 **@BarefootComp**   🅕 **/barefootcomputing**   🌐 **barefootcomputing.org**

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An introduction to abstraction:

Guess what?

- The national curriculum for computing leaves abstraction until key stage 3, although it is part of the overarching aims of the subject, which seeks to ensure that all pupils: **'Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation'**

- Abstraction is such a powerful way of thinking about systems and problems that it seems worth introducing pupils to this whilst they're still at primary school. This doesn't have to be just in computing lessons
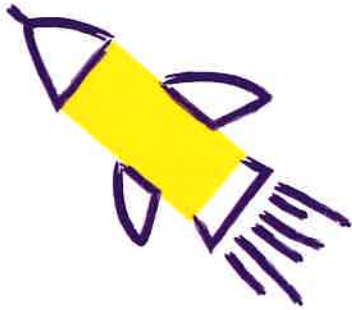
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Item	Include ✓	Ignore ✗

3

Example ideas

Item	Include ✓	Ignore ✗
Rabbit	• Long ears • Small fluffy tail • Nose and whiskers • Carrot	• Size • Colour • Fur • Eyes
Mouse	• Round ears • Dot eyes • Pointy nose • Whiskers • Long tail • Hole	• Size • Colour • Fur • Food
School	• Stick children • Building • Book, pencil	• Classrooms • Teachers • Parents
Lightbulb	• Outline shape • Lines to show glowing	• Electricity • Colour • Ceiling • Room

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Today we are learning about...

Including vs Ignoring

- I can say what is important and I must include
- I can say what is unimportant and I can ignore
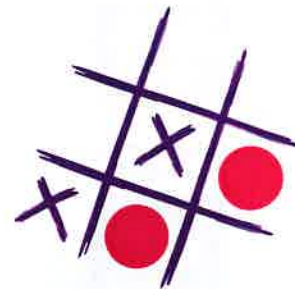- I can say how computer simulations or games use these ideas

Discussion

1. What is included and ignored in a computer simulation you have used or know about? Why?

   e.g. flight, driving, theme park simulator, planets simulator, fossil formation, Viking raid ...

2. What is included and ignored in a computer game you have used or know about? Why?
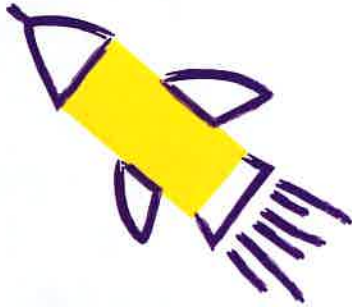
Example simulations (and models)

- http://www.learn4good.com/games/flying/freegame.htm
- http://www.learn4good.com/games/simulation/driverseducation.htm
- http://www.solarsystemscope.com/
- **Clock Simulation:** http://scratch.mit.edu/projects/21409665/
- **Orrery Simulation:** http://scratch.mit.edu/projects/22577359/
- https://www.cgpbooks.co.uk/duckBuilder

Example ideas

Item	Include ✓	Ignore ✗
Fossilisation Animation	• Dinosaur • Layers • Stages	• Detail about place • Detail about animal • Length of time
Solar System animation	• Sun • Earth • Moon • Movement	• Real size • Real shape • Real times • Real orbits
Games looking after imaginary animals	• Simple animals • Walking, feeding • Playing	• Time / getting older • Getting hurt • Dying

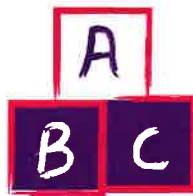## Today we are learning about...

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Get more
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