Pupils Aged 7+

iCompute

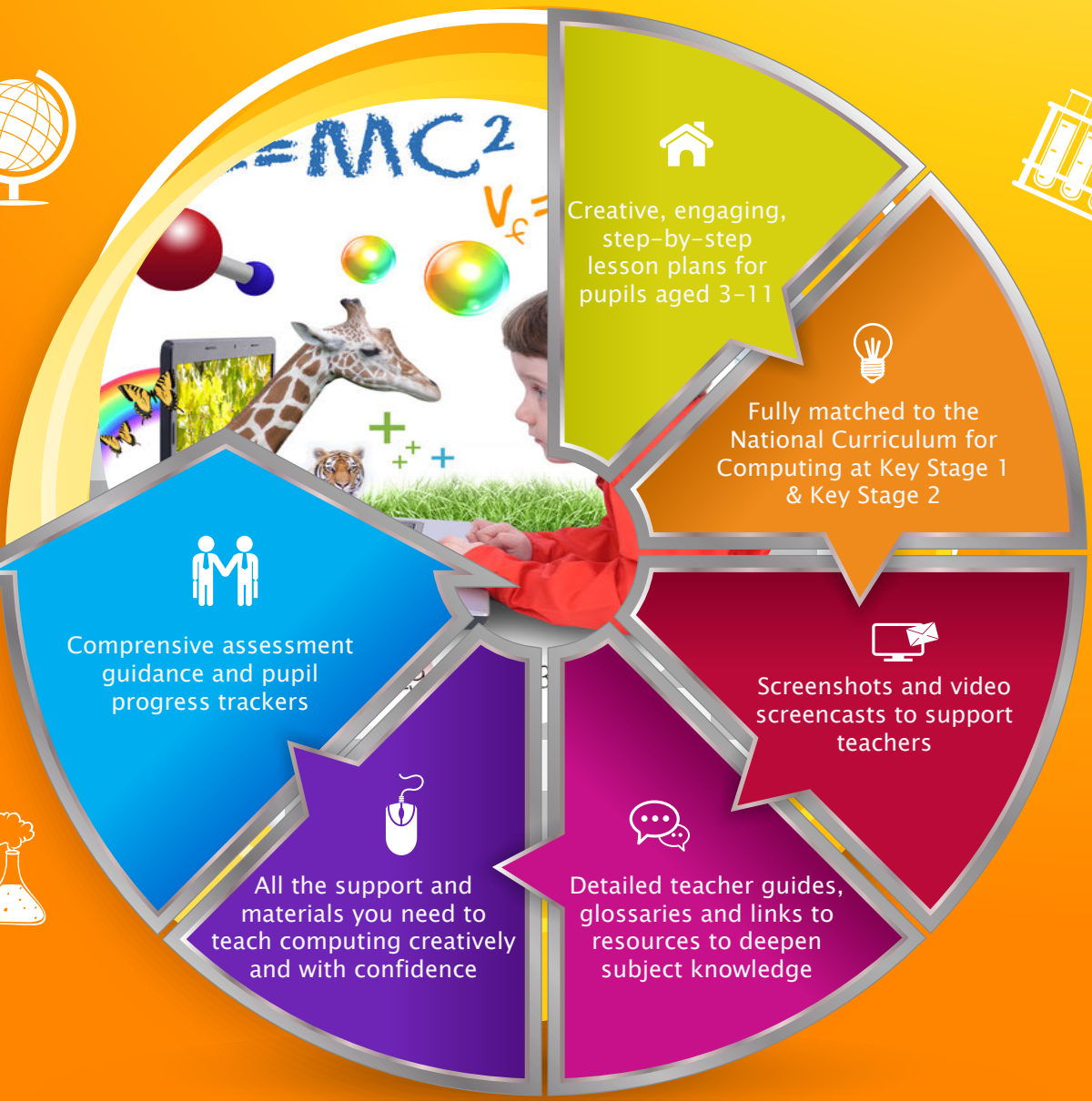
iHide Eggs

An Easter Egg Hiding Coding Activity

iCompute
www.icompute-uk.com

sphero edu

iCompute for Primary Schools



iCompute PRIMARY COMPUTING

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iHide Eggs

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Overview

This activity provides pupils with an opportunity to explore physical programming through robotics.

Using a drag-and-drop programming environment and a programmable robotic sphere, pupils design algorithms to program a robot to hide Easter eggs.

National Curriculum

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Assessment

P5 contains assessment guidance

Hardware

- Sphero
- Tablets

Software/Tools

Suggested software & apps (see Preparation)

Curriculum Links

- Science
- Mathematics

Preparation

- Ensure each Sphero is fully charged and each tablet you are using has the latest version of Sphero Edu (links)
- Measure out one circle per group approx 2 metres in diameter in the space you will be using
- Place six golf tees (or plastic cups or other markers) at equal intervals around the circle's circumference
- Mark a starting position for Sphero in the middle of the circle
- Set six hollow eggs (filled with treats if you like) inside the circle

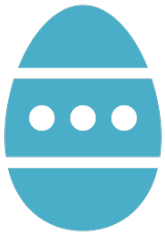
Links

Sphero Edu App
http://icomp.site/sphero-edu

Sphero Edu Commands Helpsheet
http://icomp.site/sphero-command-helpsheet

Resources

- Book out any devices you may need, if necessary
- Ensure that any links to websites are not blocked
- Ensure that the software used is installed on all devices



Resources

Tablets; Sphero; 6 golf ball tees per group; 6 hollow balls (for eggs) per group; treats for inside the 'eggs'

Objectives

- To design and develop algorithms and programs that control physical devices
- To detect and correct errors in programs

Success Criteria

- The children program the Easter Bunny to hide eggs
- They test and debug their work until their programs work as expected

Vocabulary

Design; program; test; debug;

1

- Explain to the children that, in this activity, they will be programming Sphero (the Easter Bunny) to move Easter Eggs into hiding places
- Set the scene by telling the children that it's Easter and the Easter Bunny needs to hide the eggs for the Easter Egg Hunt
- The children must design an algorithm for each of the eggs and program the Easter Bunny to hide all six eggs

National Curriculum

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

2

- Give the class some time to talk about how they could use Sphero Edu to program the egg drops
- Brainstorm ideas and discuss the main considerations (Eg. the distance between the eggs and the hiding places (tees/cups); the speed to travel etc.
- Does the mass of the Easter Egg matter?

3 Core

- The children work together to create an algorithm that will program the Easter Bunny to hide the first egg – push the egg to a pre-determined golf tee/cup/mark
- The children then use tablets and Sphero EDU to turn their algorithm into code
- Encourage testing as they work, correcting errors as they find them (**debugging**) and modifying their programs to improve Sphero's navigation
- They test the program from start to finish for Sphero to successfully navigate hide the 'egg'
- They then repeat the process making any necessary modifications to hide the remaining eggs

Harder

- Harder activities
- Challenge some children to hide the eggs (through code) in the shortest possible time and/or with the least amount of code

Easier

- Some children could hide fewer eggs and/or benefit from adult support

4 Plenary

- The children gallery walk the space watching other groups executing their programs
- They then reflect on their own and each other's work
- Gather back and discuss, what worked well? What not so well? What route worked best? What part of the maze was the hardest to navigate? Which activity did they find hard?
- How would they improve their work if they had another opportunity?

Extension/Enrichment

- Design, decorate and make an Easter Bunny shell to go over Sphero
- Add a narrative by programming the Easter Bunny to speak using speak coding blocks
- Design and build a chariot/trailer for the Easter Bunny to pull
- Then race a partner to find out who can carry the most Easter Eggs across a distance in the fastest possible time

Assessment

Record of progress Write names in the appropriate box, with jottings on children on children whose attainment differs markedly from their group.	Expectations What children know, understand and can do
Some children will have not made as much progress and will:	✶ Know that Sphero can be programmed to perform specific movements ✶ Enter instructions to perform specific actions ✶ Enter instructions to perform specific patterns with assistance
Most children will:	✶ Write and amend computer programs ✶ Recognise patterns of commands and program simple procedures that are repeated ✶ Predict the outcome of an algorithm or program ✶ Test computer programs and correct any errors
A few children will have progressed further and will:	✶ Write an algorithm to produce a specific pattern using repetition ✶ Identify when it would be possible to use repeated commands ✶ Explain how a pattern or effect has been or could be programmed ✶ Test, debug and refine computer programs

iCompute

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