

Generation Code Intermediate

**Information for teachers
and group leaders**

Workshop Synopsis

Pupils will have fun getting to grips with computer programming in our interactive coding workshops. In these practical sessions we'll be using the latest child-friendly Raspberry Pi computers and Mirobots to inspire children to get creative with technology. Children will go beyond using screens to use basic coding languages, to control real world objects in fun and unexpected ways.

In the Intermediate workshop, children will learn how to control and program a BBC Micro:bit using a block based language similar to Scratch. Using this knowledge they will then write a program to test various items for their conductivity using the BBC Micro:bit

Designed for classes that have already covered the basics of computing and want something more challenging to cover some of the higher level curriculum points.

What will the workshop involve?

Generation Code is an exciting 1 hour interactive workshop that covers key parts of the Primary Computing curriculum, and is designed for students that have already done some computing and coding in class. The children will have the opportunity to use a Raspberry Pi computer to program a BBC Micro:bit. By doing this they explore how to combine digital and physical systems for specific purposes, in this case testing conductivity.

The workshop is led by our expert Enablers and will provide opportunities for children to use equipment and resources they may not otherwise get the chance to.

Is there anything I need to do to prepare the children before the visit?

This 1 hour workshop is designed for classes that have already done some computing in the classroom. The students should ideally have some experience of using Scratch and the basics of computing, however they do not need to much experience.

Risk assessment

- Please visit our website <https://www.eureka.org.uk/education/resources/> to download both the general museum risk assessment and the one for your chosen session.
- We advise you to make a preview visit to carry out your own risk assessment for the overall visit.

Evaluation

Eureka! constantly aims to improve its programmes for school groups and feedback from adults and children is an essential part of this. We value all comments made and will always try our best to act upon them. An evaluation form will be given to you at the end of your session and we ask that you complete and return to us as soon as possible using the pre-paid envelope provided. A copy of the evaluation form is also included in this pack should you wish to complete and return to us via email.

Additional resources & information

The following pages contain various supporting resources and information related to the workshop.

Please find the following documents in this pack:

- **National Curriculum links** – *showing how the workshop fits in with the national curriculum for science.*
- **Equipment Used** – *description and links to the equipment used in the workshop.*
- **Teacher's assessment chart** – *this outlines the aims and objectives of the show, including the key activities which children will be taking part in and their learning outcomes.*
- **Evaluation form** - *a copy of the form which will be handed to you at the end of your session.*

Generation Code Intermediate Workshop

Primary National Curriculum links

Computing

1. design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
2. work with variables and various forms of input and output

Science

1. recognise some common conductors and insulators, and associate metals with being good conductors

Generation Code Advanced Workshop

Equipment



Raspberry Pi is a low cost basic computer intended to spur interest in computing for school age children.



pi-topCEED is an exciting and easy way to create a desktop computer using a Raspberry Pi. It's plug and play ready, all you need is a Raspberry Pi, keyboard and mouse.



The BBC micro:bit is a powerful handheld, fully programmable, computer designed to encourage children to get involved in writing software and building new things that will be controlled by it.

Generation Code Intermediate Workshop

Teacher assessment chart

Aims and objectives – by the end of this workshop children should have learned:

- How to use the Micro:bit coding interface to program a Micro:bit with simple programs.
- How to use input and output in a Micro:bit program.
- What materials conduct electricity.
- How to use conditional statements when writing computer programs.
- How to write a simple program that uses a Micro:bit to test if an item can conduct electricity.

Overview: Through a series of interactive activities, powerpoint presentation and discussion, this workshop will look at the creating a simple program on a BBC Micro:bit to test electrical conductivity.

Activities	Learning Outcomes
Introduction to the session, the Micro:bit and the interface for writing programs to it.	<i>What a Micro:bit is and how to write programs to it.</i>
Write a simple program to the Micro:bit	<i>How to use the Micro:bit interface to write a simple program that displays something on the leds on the front.</i>
Incorporate input into a program on the Micro:bit	<i>How to modify the simple program previously written so that it responds to the buttons on the Micro:bit.</i>
Conductivity: discuss and predict the conductivity of some given items.	<i>What kinds of items conduct electricity.</i>
Write a simple program including input, output and conditionals to test conductivity.	<i>How to use what they learnt about writing a simple program with inputs and outputs, and incorporate conditionals to test for conductivity.</i>
Test the items for conductivity.	<i>What materials actually conduct electricity.</i>
Plenary for the session.	<i>Recap of the workshop and reinforce the main learning objectives.</i>

<i>Date of visit</i>	<i>School name</i>	<i>Year Group</i>

1. Was this your first school visit to Eureka!? (please circle) Yes No

2. Was the workshop the main reason you decided to make a school booking? Yes No

3. How did you find out about the Science Show? (please tick)

- Eureka! Email
 Eureka! Website
 Social Media
 Word of Mouth
 Other

Other, please state _____

4. **Measuring impact** - Please read the following statements and tick the option which most applies to you.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Impact on my class					
I feel this visit inspired my class					
My class learnt something new about Science					
I feel my class will be more interested in Science than before they came					
Eureka! is a good place to learn about science in a different way to school					
About Me					
I discovered something new during my visit					
The visit made me feel more confident about supporting my class in learning about Science					
The visit made me feel more confident about science					
I would recommend a visit to other teachers					

5. What do you feel were the highlights of the workshop?

6. Is there anything we could have done to improve the workshop?



7. *Would you consider attending another workshop at Eureka!?* (please circle)

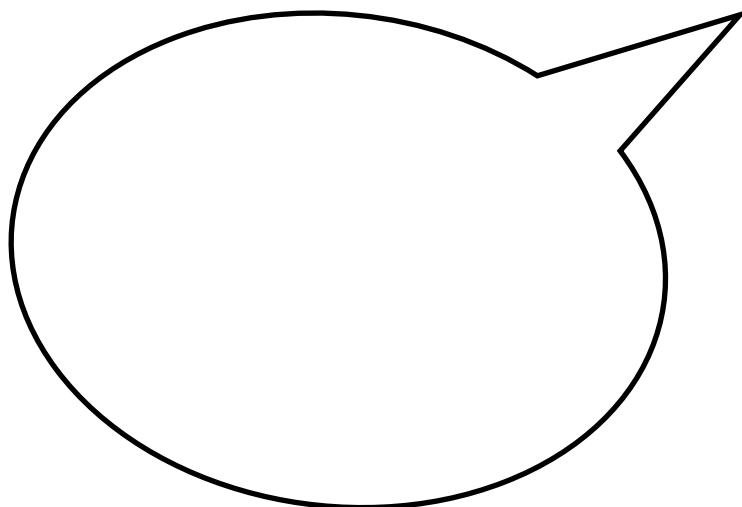
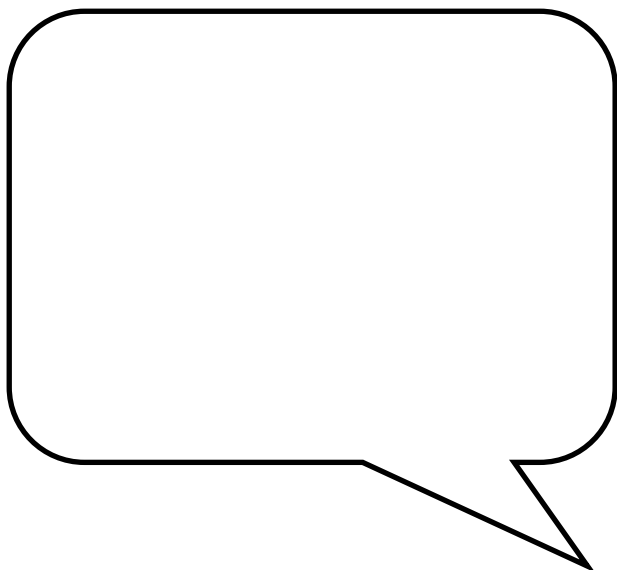
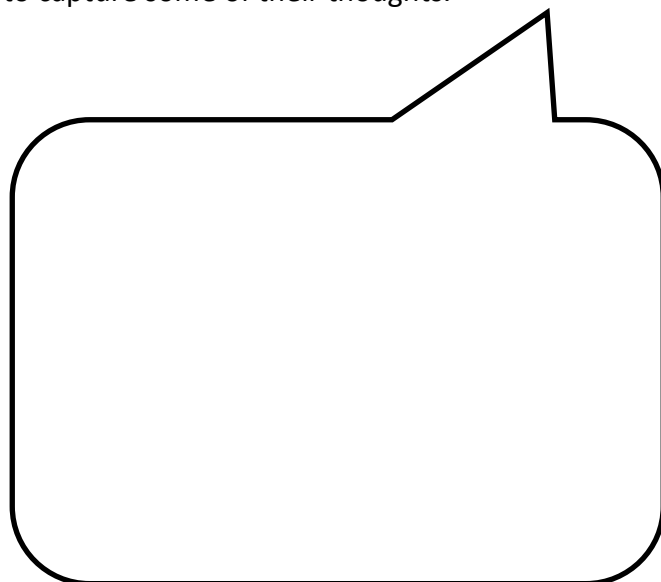
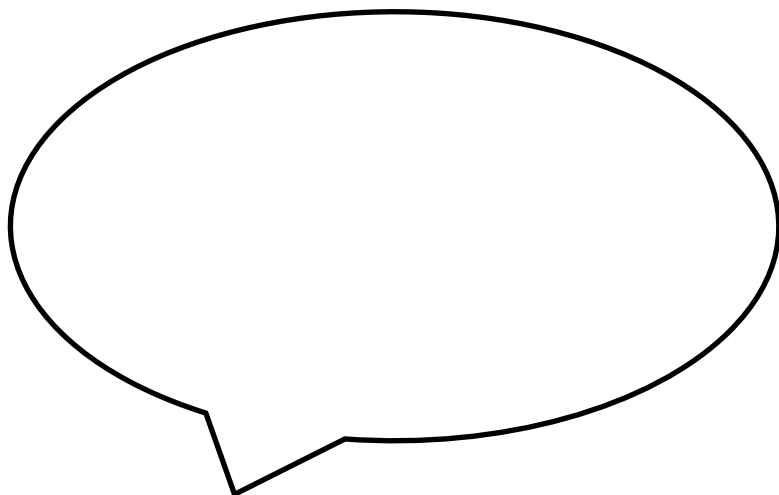
Yes

No

If NO would you like to tell us why not?

8. *Is there anything else you would like to tell us either about the workshop or any other aspects of your visit?*

We'd love to hear what the children thought about the session too. As a follow-up activity the day after why not ask the children what they can remember about the science show and their visit to Eureka! and use the speech bubbles below to capture some of their thoughts.



Thank you for your comments.

Please return to: **Leanne Wise, Play & Learning Officer**, Eureka! The National Children's Museum, Discovery Road, Halifax, West Yorkshire, HX1 2NE, leanne.wise@eureka.org.uk