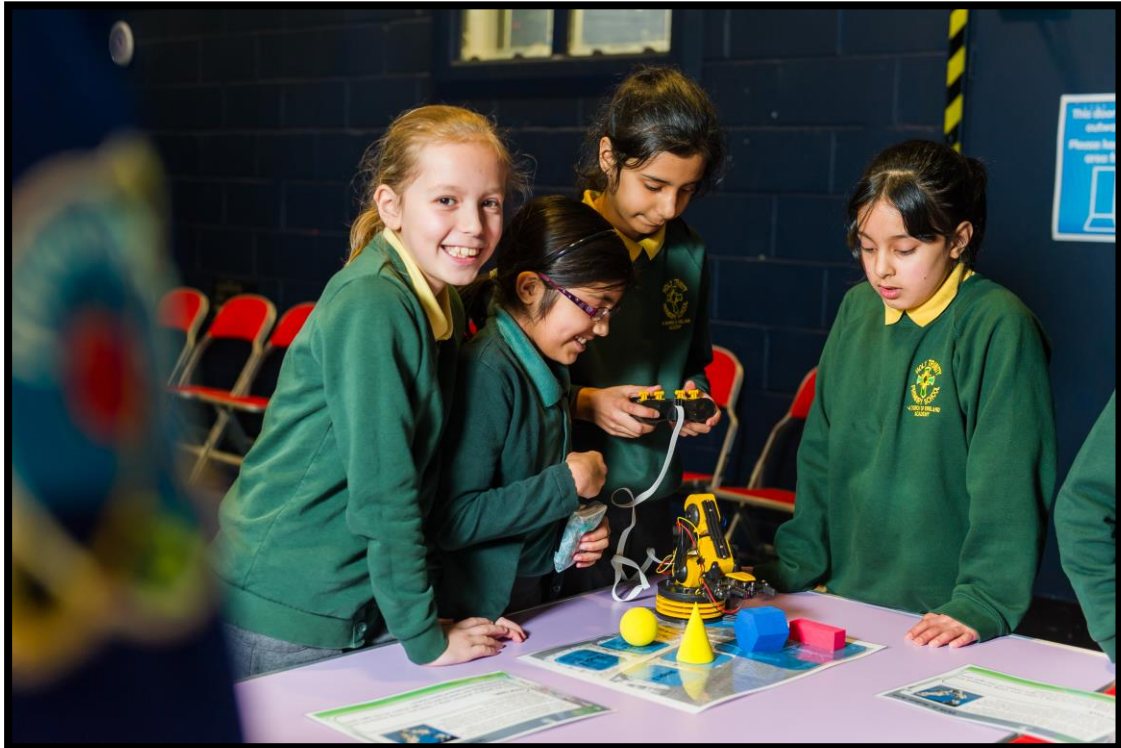




Information for KS2 teachers and group leaders

Workshop synopsis.

Inspired by British ESA astronaut Tim Peake's mission to the International Space Station, we're looking to recruit and train the next generation of space scientists. This workshop focuses on some of the key skills needed to be not only an astronaut, but a scientist or engineer working in the space industry.

After a brief bit of training and a demonstration and explanation of how astronauts get off the ground, the simulated mission activities begin. Through problem solving and experiments students get a chance to use their communication, mathematical, English and team working skills to control a robot arm and investigate two of the problems facing astronauts in space; floating liquids and the effects of a vacuum.

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

This 1 hour session focuses on the topic of human spaceflight and looks at some of the science, technology, engineering and maths involved in being part of the space crew. Although it's not essential that the children have any prior knowledge of the subject, if you're not already doing space themed activities at school it might help set the context for the workshop if you talk to the children beforehand about the International Space Station and British ESA astronaut Tim Peake. You can find lots of useful information on <http://www.destinationspace.uk/> and https://www.esa.int/Our_Activities/Human_Spaceflight/Principia/About_Principia

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.*
- **Teacher's assessment chart** - *this outlines the aims and objectives of the session, 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.*

Space Crew: KS2 Workshop

Primary Science National Curriculum links

Year	Programme of study	Links to:
3 & 4	Working scientifically	• Asking relevant questions and using different types of scientific enquiries to answer them. • Setting up simple practical enquiries, comparative and fair tests. • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units. • Recording findings using simple scientific language • Reporting on findings from enquiries, including oral and written explanations. • Using results to draw simple conclusions.
3	Animals, including humans	• Identify that humans and some other animals have skeletons and muscles for support, protection and movement.
5	Properties & changes of materials	• Know that some materials will dissolve in liquid to form a solution. • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning.
5	Forces	• Explain that unsupported objects fall towards Earth because of the force of gravity acting between the Earth and the falling object.

Space Crew: KS2 Workshop

Learning Outcomes

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

- That ESA stands for European Space Agency; that the UK is part of ESA and that Tim Peake is the first British ESA astronaut.
- That the International Space Station is a big science lab in space where astronauts like Tim, live and work.
- About the different roles involved in sending astronauts into space and the training astronauts undergo.
- The effects living and working in microgravity has on the human body.
- The basic principal of how rockets work.
- How to work effectively as a team and develop their investigation and scientific enquiry skills.
- How water is absorbed to prevent unwanted floating liquids in spacesuits.
- Why spacesuits are pressurised by observing the effects of low and high pressure.

Overview: Space exploration requires a whole field of experts including scientists, trainers, engineers and astronauts. This workshop 'recruits' and 'trains' the next generation of space explorers. Packed with experiments, investigations and problem-solving activities linked back to human space flight young crew members will leave inspired.

Activities	Learning Outcomes
Introduction to the session, Tim Peake & his Principia mission, ESA and the ISS	<i>To understand that Tim Peake is the first British ESA astronaut; that ESA stands for European Space Agency and that the UK is part of it; that the ISS is a huge science lab in space.</i>
<i>Astronaut training: resistance test</i> The class is split into two teams and a volunteer from each team will compete against each other in a fitness based test.	<i>To understand the effects microgravity has on the body and why astronauts need to exercise every day.</i>
<i>Getting into space: the whoosh bottle experiment</i> A demonstration to show what reaction must take place in order for a rocket to blast off.	<i>The basic principle of how rockets work and what is needed for combustion to happen.</i>
<i>Class activity: robot arm</i> Working in groups of 3 or 4, children will use the robot arms to complete a variety of tasks.	<i>Working on their communication skills and problem solving.</i>
<i>Class activity: survival in space</i> Working in groups of 3 or 4, children will carry out two investigations - the absorbency of different materials and what might happen if an astronaut is exposed to space outside the ISS	<i>Working on their investigation and scientific enquiry skills.</i> <i>Finding out about the space nappy.</i> <i>Understanding why astronauts must wear a special pressurised suit.</i>

Date of visit	School name	Year Group

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

2. Was the science show 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 show?

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

7. Would you consider attending another Science Show at Eureka!? (please circle)

Yes

No

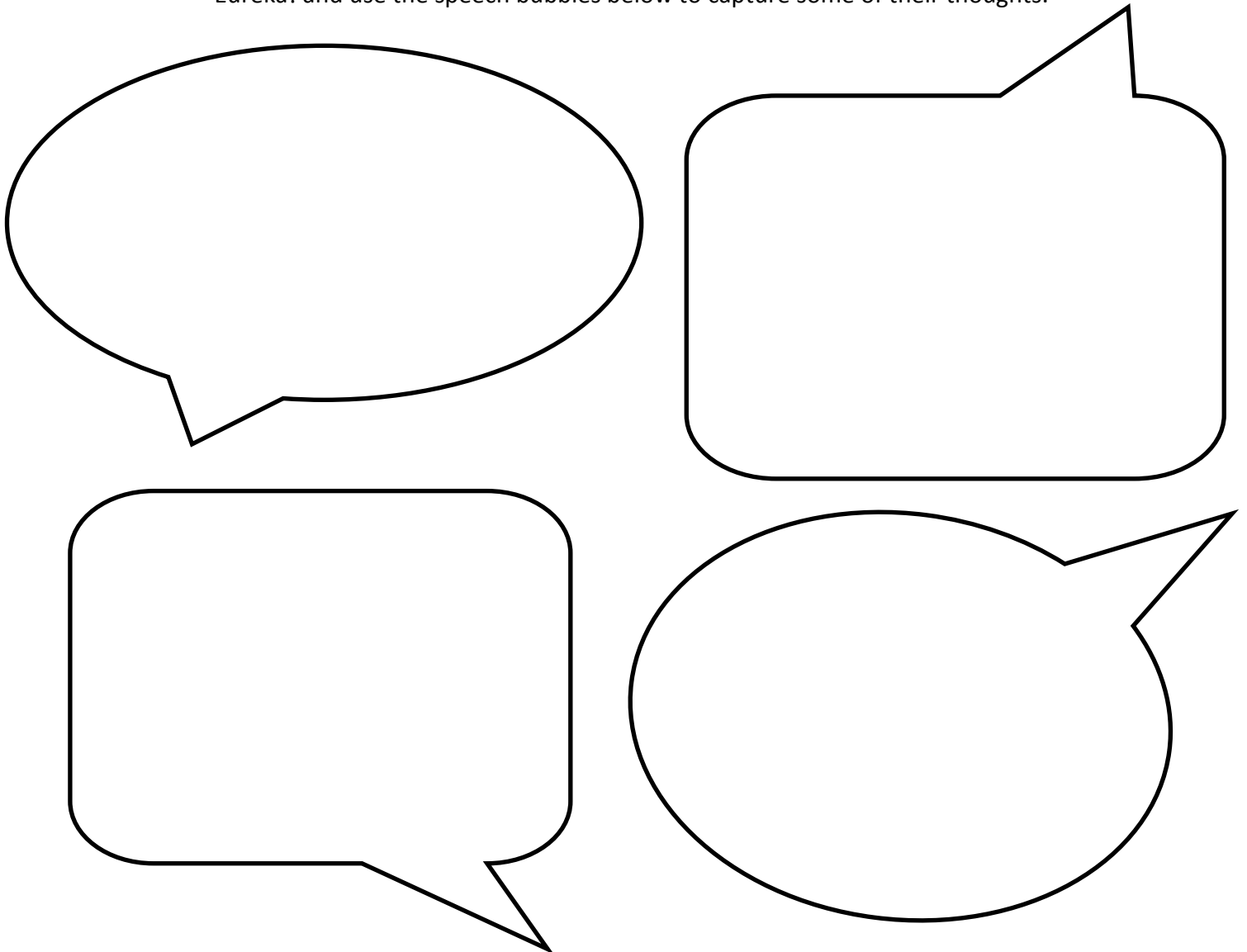
If NO would you like to tell us why not?

P.T.O



8. Is there anything else you would like to tell us either about the science show 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.

Four empty speech bubble shapes are provided for children to write their thoughts. The bubbles are arranged in a 2x2 grid. The top-left bubble is a simple oval shape with a small tail pointing down and to the left. The top-right bubble is a rounded rectangle with a small tail pointing up and to the right. The bottom-left bubble is a rounded rectangle with a small tail pointing down and to the right. The bottom-right bubble is a simple oval shape with a small tail pointing up and to the right.

Thank you for your comments.

Please return to: **Jenny Parker, Play & Learning Manager**, Eureka! The National Children's Museum, Discovery Road, Halifax, West Yorkshire, HX1 2NE, jenny.parker@eureka.org.uk