

## Superheroes Unlimited Teacher Guide

In summer 2022, the Institute of Physics assembled a super team of five science superheroes, called [Superheroes Unlimited](#), that are saving the world with physics. They are inspired by real people working all over the UK, who are helping to protect the environment, keeping people safe and healthy, and creating incredible inventions to make the world a better place. The Superheroes Unlimited exhibition and events ran over the summer holidays and included hands-on physics experiments, craft activities, and building challenges for young people and their families/carers.

Superheroes Unlimited is part of the IOP’s Limit Less campaign, to support young people to change the world and fulfil their potential by doing physics. As teachers, you have a crucial role to play in shaping children’s aspirations about what they can achieve in the future.

To help you be a science superhero for your students and help them to live without limits to their dreams, we have created the Superheroes Unlimited teacher resource. This resource includes a presentation, worksheets, activity instructions and templates, and profiles of diverse science role-models, to embed in your lessons or run a dedicated science superhero workshop.

The activities are recommended for Key Stage 2 students.

If you would like printed copies of the Superheroes Unlimited activity book (which includes more activities and experiment ideas) for your students, please email: [engagement@iop.org](mailto:engagement@iop.org) with the number you require.

We hope that you and your students are inspired to help save the world with science! Please share any feedback and success of using these resources with [engagement@iop.org](mailto:engagement@iop.org). This will help us to improve our materials and showcase you and your student’s super work.

From the IOP Public Engagement Team

### *Example of Science Superhero Workshop (up to 2 hours)*

Activity	Equipment Needed	Approx Time
Design a Science Superhero Workshop	<ul style="list-style-type: none"> <li>Design a science superhero presentation</li> <li>Design a science superhero worksheet</li> <li>Colouring pens and pencils</li> <li>Science superhero profiles (optional)</li> <li>Which science superhero are you quiz (optional)</li> </ul>	20 minutes (presentation) 30 minutes (worksheet) 10 minutes (show and tell to class of designed superheroes)
Pick <b>one</b> from: <ul style="list-style-type: none"> <li>Build a search and rescue robot</li> <li>Make a robot hand</li> </ul>	See index below	Up to 1 hour each
Or pick <b>two</b> from: <ul style="list-style-type: none"> <li>Climate matching game</li> </ul>	See index below	Up to 30 minutes each

<ul style="list-style-type: none"> <li>• Colouring in</li> <li>• Make a paper helicopter drone</li> <li>• Make a superhero badge</li> </ul>		
---	--	--

*Index of Resources*

<b>Name</b>	<b>Equipment Needed</b>	<b>Notes</b>
Build a search and rescue robot (instructions and template)	<ul style="list-style-type: none"> <li>• Instructions and template</li> <li>• Colouring pens and pencils</li> <li>• Scissors</li> <li>• Glue</li> <li>• Sellotape</li> </ul>	If possible, print template on A3 paper.
Climate matching game (instructions and cards)	<ul style="list-style-type: none"> <li>• Instructions and cards</li> </ul>	
Colouring in (sheet)	<ul style="list-style-type: none"> <li>• Sheet</li> <li>• Colouring pens and pencils</li> </ul>	
Design a science superhero (presentation)	<ul style="list-style-type: none"> <li>• Shareable screen</li> </ul>	Script is in presentation notes, to be used with worksheet.
Design a science superhero (worksheet)	<ul style="list-style-type: none"> <li>• Worksheet</li> <li>• Colouring pens and pencils</li> </ul>	
Make a paper helicopter drone (instructions and template)	<ul style="list-style-type: none"> <li>• Instructions and template</li> <li>• Scissors</li> <li>• Paperclips</li> </ul>	
Make a robot hand (instructions)	<ul style="list-style-type: none"> <li>• Instructions</li> <li>• Card</li> <li>• Colouring pens and pencils</li> <li>• Scissors</li> <li>• Paper straws</li> <li>• Sticky tape</li> <li>• String</li> </ul>	
Make a superhero badge (instructions and template)	<ul style="list-style-type: none"> <li>• Felt</li> <li>• Colouring pens and pencils</li> <li>• Scissors</li> <li>• Safety pins (sticky back)</li> <li>• Stickers (optional)</li> <li>• Felt glue (optional)</li> </ul>	
Science superhero profiles	<ul style="list-style-type: none"> <li>• Profiles</li> </ul>	Could be printed as posters.
Superheroes Unlimited Activity Book	<ul style="list-style-type: none"> <li>• Activity book</li> </ul>	If you would like printed copies of these, please email: <a href="mailto:engagement@iop.org">engagement@iop.org</a> .
Which science superhero are you quiz	<ul style="list-style-type: none"> <li>• Quiz and answer sheets</li> </ul>	