



Principia Education Resources

Calling all teachers! Inspire the next generation to reach for the stars using space in your classroom.

In 2015 Britain's first European Space Agency astronaut Tim Peake will be launched to the International Space Station. His exciting six-month mission presents a unique opportunity to use space as an inspiring context for learning in the classroom.



The UK Space Agency, with its many partners and the European Space Agency, is putting together a comprehensive education and outreach programme that spans a very broad range of subjects and age ranges, all linked to Tim's mission to the International Space Station (ISS). A selection of these programmes is presented here, with more projects and resources planned to be announced over the coming months.



Ages ● 4–7 ● 7–11 ● 11–14 ● 14–16 ● 16–18

The UK Space Education Office (ESERO-UK) uses space to enhance and support the teaching and learning of science, technology, engineering and maths.

Teachers can download free of charge a range of education resources supporting Tim's mission at:
www.esero.org.uk/timpeake

Primary schools will be able to get help in delivering these educational activities from an enthusiastic and experienced team of space ambassadors based around the UK, run by ESERO-UK.

Free education resources available at:



Destination Space: Join the Crew

Ages ● 4 – 7 ● 7 – 11 ● 11 – 14

A national programme of interactive hands-on activities for families and schools at 20 science centres across the UK to celebrate Tim's mission.

Led by the UK Association for Science and Discovery Centres, this exciting and innovative season of astronauts and adventure for families and schools will be coming to a science centre near you from October 2015, with schools workshops starting when Tim is in space in January 2016.

To find out more, contact your local participating science centre or go to:

www.sciencecentres.org.uk

Participating Science Centres:

Satrosphere Science Centre Aberdeen, Dundee Science Centre, Glasgow Science Centre, Centre for Life Newcastle, W5 Belfast, Eureka! The National Children's Museum Halifax, Techniquest Glyndŵr Wrexham, Jodrell Bank Discovery Centre Macclesfield, National Space Centre Leicester, Cambridge Science Centre, Techniquest Cardiff, At-Bristol, Winchester Science Centre & Planetarium, The Observatory Science Centre Hailsham, Science Museum London, Thinktank (Birmingham Science Museum), Royal Museums Greenwich. (Some science centres may charge for their activities)



Rocket Science

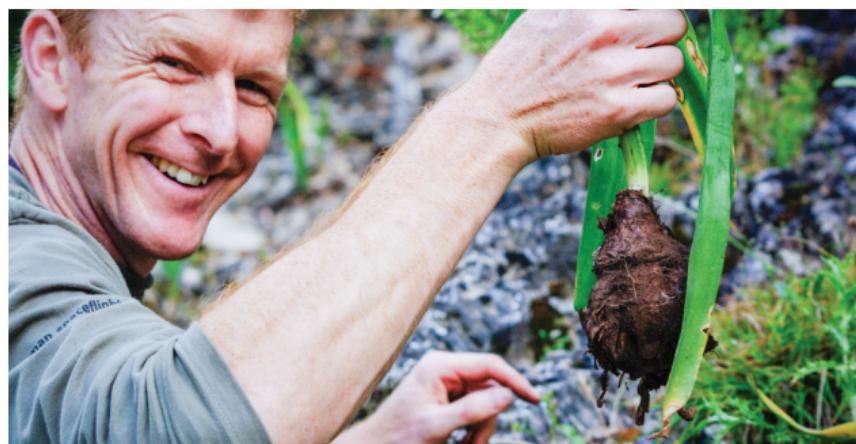
Ages ● 4–7 ● 7–11 ● 11–14 ● 14–16

The UK Space Agency is partnering with the Royal Horticultural Society in an innovative educational project that will give around half a million UK children the chance to become space biologists.

As part of Tim's mission, 2kg of rocket seeds are being sent to the ISS and returned to Earth so that thousands of UK schools can grow and compare these seeds with ones that have stayed on our planet. Participating schools will each receive two packets of 100 seeds to grow and compare, and a collection of fun and inspiring curriculum-linked teaching resources and posters, tailored according to the age of your pupils.

Sample education resources are available on the ESERO-UK site, and you can register your interest in receiving seeds at:

www.rhs.org.uk/schoolgardening



Free education resources available at:



EO Detective

Ages ● 7 – 11 ● 11 – 14 ● 14 – 16

EO Detective is an activity that supports science, geography, maths and computing. Designed by the National Centre for Earth Observation with the Natural Environmental Research Council, it will demonstrate how a vantage point in space, such as the ISS, provides a unique perspective from which people can monitor environmental processes and change.

Students will be given access to photographs taken by astronauts and to images and data collected by satellites during fifty years of observing the Earth from space and use these images to investigate the effects of natural and man-made environmental changes on the Earth. More information and resources will be available in September.





Astro Pi

Ages ● 4–7 ● 7–11 ● 11–14 ● 14–16 ● 16–18

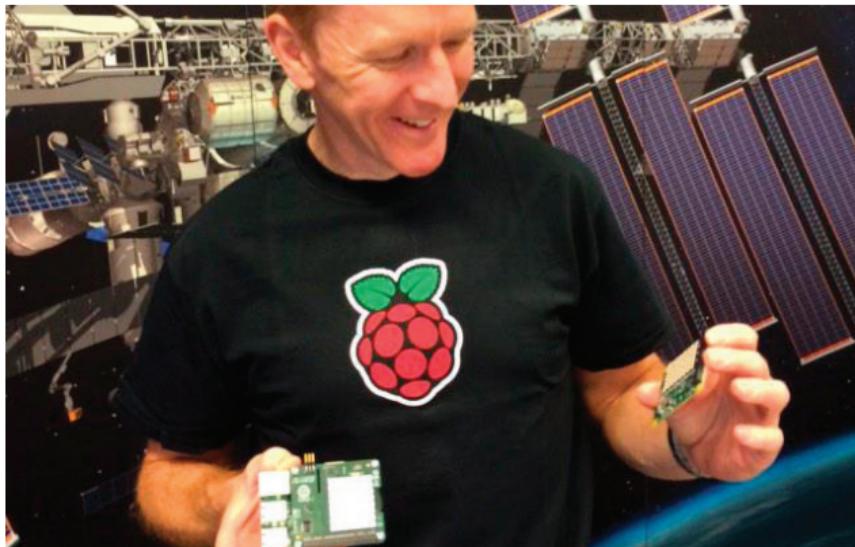
Two Raspberry Pi computers are to be flown to the ISS as part of Tim's mission; both will be connected to a new 'Astro Pi' board, loaded with a host of sensors.

Tim will run a programme to capture data from all the AstroPi sensors while he is on the ISS. Education resources, along with the programme and the data from the ISS will be made available to schools to use on the ground and duplicate using their own Astro Pi to compare and contrast the data sets.

Primary and secondary education resources linking Astro Pi to the curriculum are available at:

www.esero.org.uk/timpeake

For more about Astro Pi, visit **www.astro-pi.org**



Free education resources available at:



Zero Robotics

Ages ● 14 – 16

The Zero Robotics tournament turns the ISS into a gaming arena for European secondary school pupils. The competition challenges youngsters to write instructions that control football-sized satellites through a virtual field filled with obstacles. The tournament is not only about writing code - participants must solve problems, apply their maths and physics knowledge and work in teams to achieve success.

Each year finalists get to attend a winner's event held at a European Space Agency site to see their programs run on the ISS.

The 2015/16 competition will begin in September, with the finals taking place during Tim's mission. More information will be available at:
www.zerorobotics.mit.edu and through the ESERO-UK site.





Mission X: train like an astronaut

Ages ● 7 – 11

Mission X has been developed by NASA and European Space Agency scientists and fitness professionals to inspire students to learn about the science of nutrition and exercise as well as to increase their activity levels. Schools from the UK are invited to take part in the Mission X challenge taking place from January to April 2016 alongside schools around the world. Registration is open until December 2015.

Register at:
trainlikeanastronaut.org



Free education resources available at:



Space to Earth Challenge

Ages ● 7 – 11 ● 11 – 14

The Space to Earth Challenge is a programme that will use Tim's training programme to inspire interest in fitness, science, maths and technology. It challenges students to run, swim, cycle, climb, dance or exercise the 400 km distance from the Earth to the ISS orbit. The activities will be scheduled and adapted to run in parallel with the mission itself and will be supported by educational resources.

You can register your interest for events, challenges and resources at:

www.spacetoearthchallenge.org.uk





Team Tim

Ages ● 4 – 7 ● 7 – 11

Team Tim is an entertaining and interactive science show delivered by a team of trained presenters, which features a ‘live’ satellite interview with Tim Peake. Full of fun, learning and visual effects. Students will help Tim to keep fit, do quick calculations, conduct science experiments and perform a thrilling spacewalk to fix the ISS.

To get Team Tim to come to your school for a modest charge, go to: www.spacefund.co.uk



The Great British Space Dinner

Ages ● 4 – 7 ● 7 – 11 ● 11 – 14

This set of activities, developed by the British Nutrition Foundation, challenges students to design a menu suitable for astronauts to eat in space. Supported by education resources with videos from Heston Blumenthal, it helps to improve understanding of nutrition.

Find resources at: www.esero.org.uk/timpeake



The Astro Science Challenge

Ages ● 7 – 11

The Astro Science Challenge is an interactive, space science adventure for children aged 7-11, being run by Unlimited Theatre during the autumn term, November to December 2015. Students will work in teams to complete six different science-based challenges.

Schools can register their interest at:

www.astrosciencechallenge.com



I'm an Astronaut, Get me out of here

Ages ● 7 – 11 ● 11 – 14 ● 14 – 16 ● 16 – 18

This online activity will give students the opportunity to put their questions to the team behind Tim's mission, members of mission control, researchers, trainers, scientists and engineers. Students get to challenge them over a fast-paced online text-based live chat. Four winning schools will get the chance to take part in a live chat with Tim Peake himself.

Full details can be found at:

www.imanastronaut.uk

Further information, and free resources for all the projects listed can be found at:
www.esero.org.uk/timpeake

Sign up for the Principia newsletter via the UK Space Agency web site at: www.gov.uk/ukspaceagency to get alerts on these education activities and so much more.

Find out about Tim and follow his progress at:

 www.twitter.com/astro_timpeake

 www.facebook.com/ESATimPeake

www.esa.int/timpeake



Credit ESA/NASA
All other images courtesy of ESA

