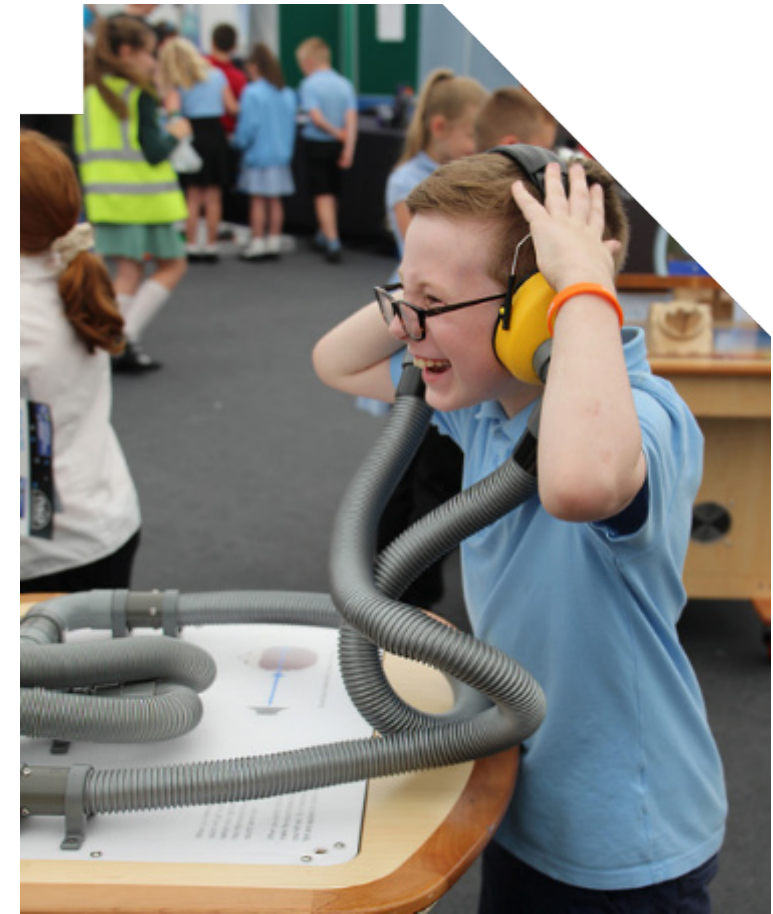


Daresbury Open Week 2023

Free KS2 school event 10th July 2023

As part of the Sci-Tech Daresbury Open Week, we are dedicating two full days delivering activities for school children from upper primary school through to upper secondary school.

- Monday 10 July: Key Stage 2 & Key Stage 5
- Tuesday 11 July: Key Stage 3, Key Stage 4 & Key Stage 5



These exciting days of talks, tours and interactive workshops will fire your students' imagination and inspire them about cutting edge science and technology, as well as STEM career opportunities.

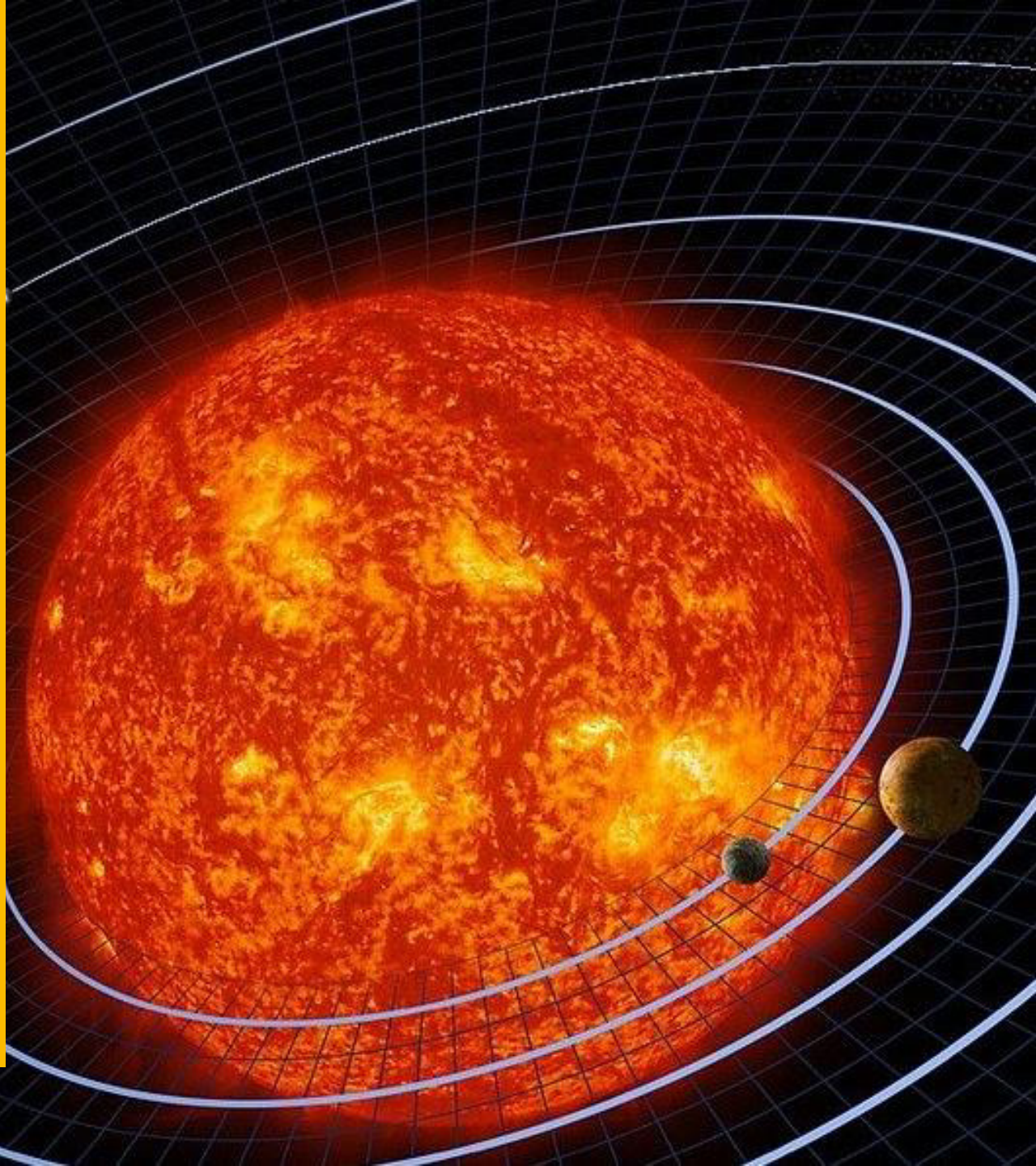
KS2 Option 1

Tour: Mobile Planetarium

In this show, pupils will experience the night sky in all its glory from the comfort of our mobile planetarium. Our demonstrators will show pupils the constellations with some of the mythical stories behind them. In a journey around our Milky Way, children will appreciate just how old and far away the planets and stars that we can see in the sky actually are, whilst learning about the technology that we use to find out more about the Universe we live in.

Workshop: Exoplanets

Our Solar System contains eight planets orbiting our local star, the Sun. Did you know that there are many, many more planets out there in space, orbiting the stars? These are called exoplanets. Discovering exoplanets is extremely difficult. They are so far away, that we cannot look through a regular telescope to see them; they are also very small and faint compared to the stars that they orbit. This means that exoplanet-hunting astronomers need to use some clever techniques to find them! In this workshop pupils will discover and apply one of the techniques astronomers use in finding exoplanets to identify whether they have the potential to harbour life.



KS2 Option 2

Tour: SUN

Prepare to be dazzled by a six-metre diameter suspended sphere illuminated to reveal the normally invisible details of our closest star. SUN features detailed imagery from NASA's Solar Dynamic Observatory with smoke effects to mimic the star's outer atmosphere. Several months of the Sun's life will be displayed over the course of 12 minutes, cycling through different temperatures from a cool 4,500 degrees Celsius to an impossibly hot 10 million degrees Celsius. Certainly, SUN will reveal to pupils the wonders of our life-giving star in a completely new light.

Workshop: Solar pop-up and collage card - SunSpaceArt

The Sun, our star sits at the centre of our Solar System giving us light, warmth and life on Earth. This STEM + Arts workshop is an opportunity to learn more about the science of the Sun with solar physicist, Dr Helen Mason OBE. Helen has worked on many solar space missions with NASA, the European Space Agency (ESA) and Japanese colleagues. She will highlight the recent missions to the Sun - NASA's Parker Solar Probe and ESA's Solar Orbiter satellites. By combining space science and art, the children, supported by a team of artists, will create a 'Solar Pop-up and Collage card'. They will be encouraged to express creatively in art and words, their thoughts about the Sun - light, energy, scale, distances and the effect the Sun has on planet Earth.



KS2 Option 3

Tour: Supercomputers and robots

One of the UK's most powerful supercomputers is based here on campus at Sci-Tech Daresbury. It enables us to do some amazing science! During this tour, pupils will take a virtual trip around our supercomputing facility, where they will learn about big computers that operate with big numbers and help us crunch big data. We will then showcase some inspiring computer data visualisations and introduce pupils to our AI robot – Pepper.

Workshop: Machine learning for children

Machine learning systems are all around us and we use them every day without even thinking about it. Machine learning current research has shown its enormous potential in automating and helping with many of our day-to-day decisions, from choosing driving routes, self-driving cars to helping doctors to diagnose and treat our illnesses. In this workshop we will introduce machine learning to pupils by providing hands-on activities. We will use a web-based tool that provides an easy-to-use guided environment for teaching machine learning models that will help pupils recognise text, numbers, images, or sounds. This builds on existing efforts to introduce and teach coding to children by adding these models to existing educational coding platforms such as Scratch and App Inventor. It will also help children create projects and build games with their newfound machine learning techniques.



KS2 Option 4

Tour: 'Immerse' Data Visualisation Suite

One of the UK's most powerful supercomputers is based here on campus at Sci-Tech Daresbury. It enables us to do some amazing science! Your pupils will visit our hi-tech Immerse Data Visualisation Suite, where we will use a huge 4K curved screen to showcase some of the amazing science that we do onsite, and how this impacts and improves our daily lives.

Workshop: Coding without computers

Have you ever wondered how smart a computer really is? Sure they can do lots of mathematical calculations or help you search the internet, but if you asked it to vacuum your house or draw a picture of a bird for you could they do it? The simple answer is computers will only do what they have been programmed to do. In this fun and interactive workshop we will use some very simple Bee-Bot robots to learn a little more about why instructions are so important. We will programme our robots to recreate the journey of the very earliest forms of light in the Universe, created just after the Big Bang. Pupils will learn how these light waves can still be detected today and how the data that we can collect from this light can be interpreted by supercomputers to tell us the history of our Universe.



KS2 Option 5

Tour: Campus Technology Hub

The Campus Technology Hub (CTH) enables businesses to make use of the technology and expertise available at Sci-Tech Daresbury to help them create and/or test new products, often far more quickly than it would normally take using traditional methods. This 'rapid prototyping' involves the use of virtual reality technology to test materials in a virtual universe, as well as highly specialised 3D Printers, that use a variety of materials (not just plastic) enabling products to be physically printed and tested before having thousands, or even millions, of them produced. In this tour pupils will get to see first-hand how we use our virtual reality technology and our hi-tech 3D printers, whilst handling some of the products that we have made on these incredible machines.

Workshop: Understanding the Invisible

Gas molecules and pressure forces on Earth have an effect on your everyday life. You probably haven't even noticed it, however this would all change if you lived in outer space! So what would happen if we take the air away? How strong is the air around us and what if we could see all the molecules and particles that make up our air? Using colourful and interactive demonstrations we investigate these questions, learn about the challenges that astronauts need to overcome in outer space, and explain how ALL of this relates to the science we do here when designing and building our cutting edge particle accelerator machines.



Wonder Marquee

The Daresbury Open Week Wonder Marquee will be a celebration of the Science and Technology being delivered both locally in the North West of England, Nationwide and Internationally. Many exhibitors (including local Universities, Science Discovery Centres, National Sci-Tech companies and National Laboratories) will be on hand to engage pupils in a variety of hands on activities and demonstrations, to showcase the excitement that comes from working within Science, Technology, Engineering and Maths.



KS2 Inspiring Talk

Dr Ken Farquhar, science presenter:

It Doesn't Add Up!

Pick a card any card, count to ten and think of a number. Correct! But does it add up? How does that work? Is it really magic or maths?

Numbers are at the heart of science and what we do at Sci-Tech Daresbury. This inspiring show will take pupils on a numerical and 'mathemagical' journey, showing that our science is less sleight of hand and more a show of numerical dexterity. Amazing magic tricks are performed and amazing maths is revealed. Discover mesmerising card tricks, shape shifting numbers, how to solve a Rubik's Cube, the maths of juggling, and other astounding stunts and marvellous trickery for your pupils to try at home!



KS2 arrival options

| Time | Arrival Option 1 | Arrival Option 2 | Arrival Option 3 | Arrival Option 4 |
|---------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| 08:45 - 09:30 | Allocated Coach Drop off Time Slot | | | |
| 09:30 - 10:15 | Inspiring Science Talk | Allocated Coach Drop off Time Slot | | |
| 10:15 - 11:00 | Science Fair | Inspiring Science Talk | Allocated Coach Drop off Time Slot | |
| 11:00 - 11:45 | Tour and short break | Science Fair | Lunch (please bring your own) | Allocated Coach Drop off Time Slot |
| 11:45 - 12:30 | Workshop | Lunch (please bring your own) | Inspiring Science Talk | Lunch (please bring your own) |
| 12:30 - 13:15 | Lunch (please bring your own) | Tour | Science Fair | Inspiring Science Talk |
| 13:15 - 14:00 | Allocated Coach Pick up Time Slot | Workshop | Tour and short break | Science Fair |
| 14:00 - 14:45 | | Allocated Coach Pick up Time Slot | Workshop | Tour and short break |
| 14:45 - 15:30 | | | Allocated Coach Pick up Time Slot | Workshop |
| 15:30 – 16:15 | | | | Allocated Coach Pick up Time Slot |

Registering your interest

Registration for expressing an interest in attending is now open with registrations closing at **11pm on Wednesday 22 March 2023**.

All schools will be contacted via email by **Wednesday 29 March 2023** to confirm whether or not they have been successful in gaining a place.

We will put all schools who have not gained a place on a waiting list to be contacted should places become available.

If you want your pupils to find out how science and technology is changing the world, then please register your school's interest via the link below.

Register now: <https://www.smartsurvey.co.uk/s/UXEJQ1/>



Important information

1. Due to the vast amount of effort required for delivery, this is a special event delivered just once every four years
2. This event will involve over 100 staff including scientists, engineers and support staff based at Sci-Tech Daresbury and our partner organisations
3. This event will use public funds to enable schools to attend this event free of charge (in addition corporate sponsorship will be used to subsidise coach transport costs)
4. Head Teachers from successful schools will be required to give a written guarantee of attendance on behalf of their school and failure to attend will result in a charge for the coach transport
5. Schools will be required to liaise with coach transport companies booked by the Daresbury Laboratory Public Engagement Team to finalise their arrangements to and from the event
6. A separate registration form will need to be completed for each class that you would like to apply to bring, therefore schools wanting to register more than one class will need to complete multiple registration forms
7. Pupils, teachers and other accompanying adults will need to bring a packed lunch
8. Due to the volume of schools on site, we request that all pupils wear school uniform to be easily identifiable during activities that involve multiple schools participating together
9. A full information pack will be sent out to schools who successfully gain a place prior to the event

How places will be allocated

There will be 600 pupil places available for KS2 pupils enabling 20 schools to participate. School places will be allocated by a series of blind ballots with the following weightings:

- 50% of KS2 places will be ring fenced for schools located within the 40% most deprived areas of England and Wales (as measured using the English and Welsh Indices of Multiple Deprivation – IMD).
- Allocated school places will reflect the different localities of schools who register for the event. 5 school places will be reserved for hyper-local schools within Halton and Warrington; 7 school places will be reserved for local schools from Cheshire West and Chester, Halton, Knowsley, Liverpool, Salford, St Helens, Trafford, Warrington, Wigan, or Wirral; and 8 school places will be available to schools from any location
- Schools will only be placed into the blind ballot for workshop/tour choices that they have already pre-selected
- Schools will only be placed into the blind ballot for arrival time options that they have already pre-selected

Ask Wendy

UKRI believes that everyone has a right to be treated with dignity and respect, and to be provided with equal opportunities to flourish and succeed in an environment which enables them to do so. We also recognise and seek to maximise the benefits achieved by diversity of thought and experience within inclusive groups, organisations and the wider community.

We work hard to provide young people with opportunities that will open their eyes and minds to science and technology. We love what we do here and want to share that passion with as many young people, from as many different backgrounds, as possible. If you are thinking about registering your school, but have questions, just ask. It could be about physical accessibility, suitability for young people with SEND requirements, links to the curriculum, getting to Daresbury...whatever your question, big or small, get in touch.

If you have any questions that we have not answered, please contact Wendy Cotterill [by email](#) or call 01925 603408.



Register now at:

<https://www.smartsurvey.co.uk/s/UXEJQ1/>