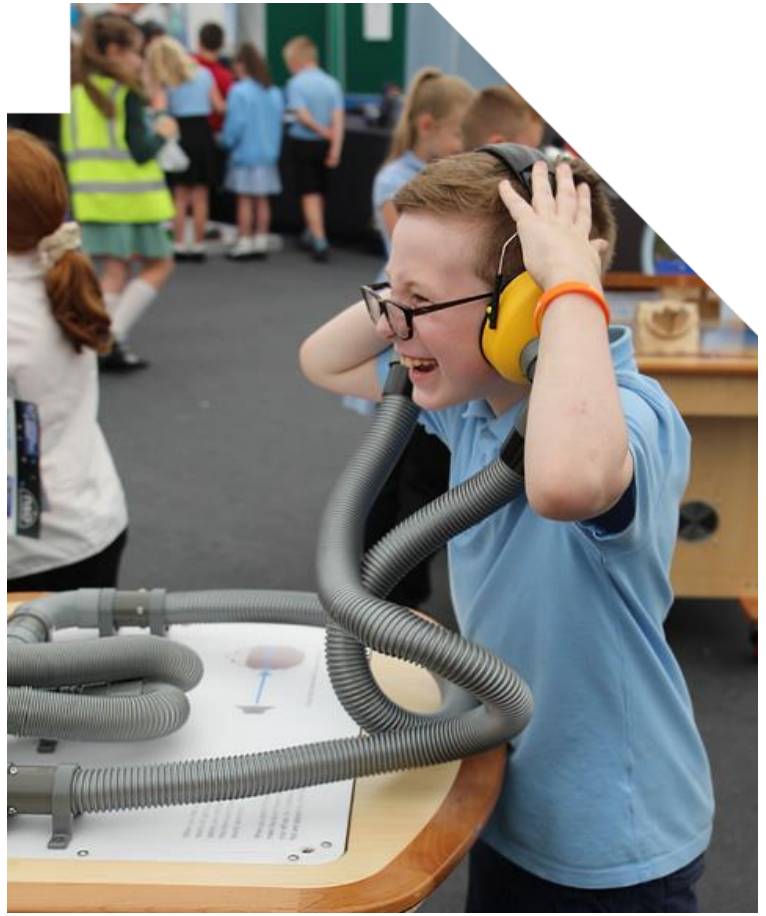
Daresbury Open Week 2020

Free KS2 school event 29th June 2020

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 29 June: Key Stage 2 & Key Stage 5
- Tuesday 30 June: 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.

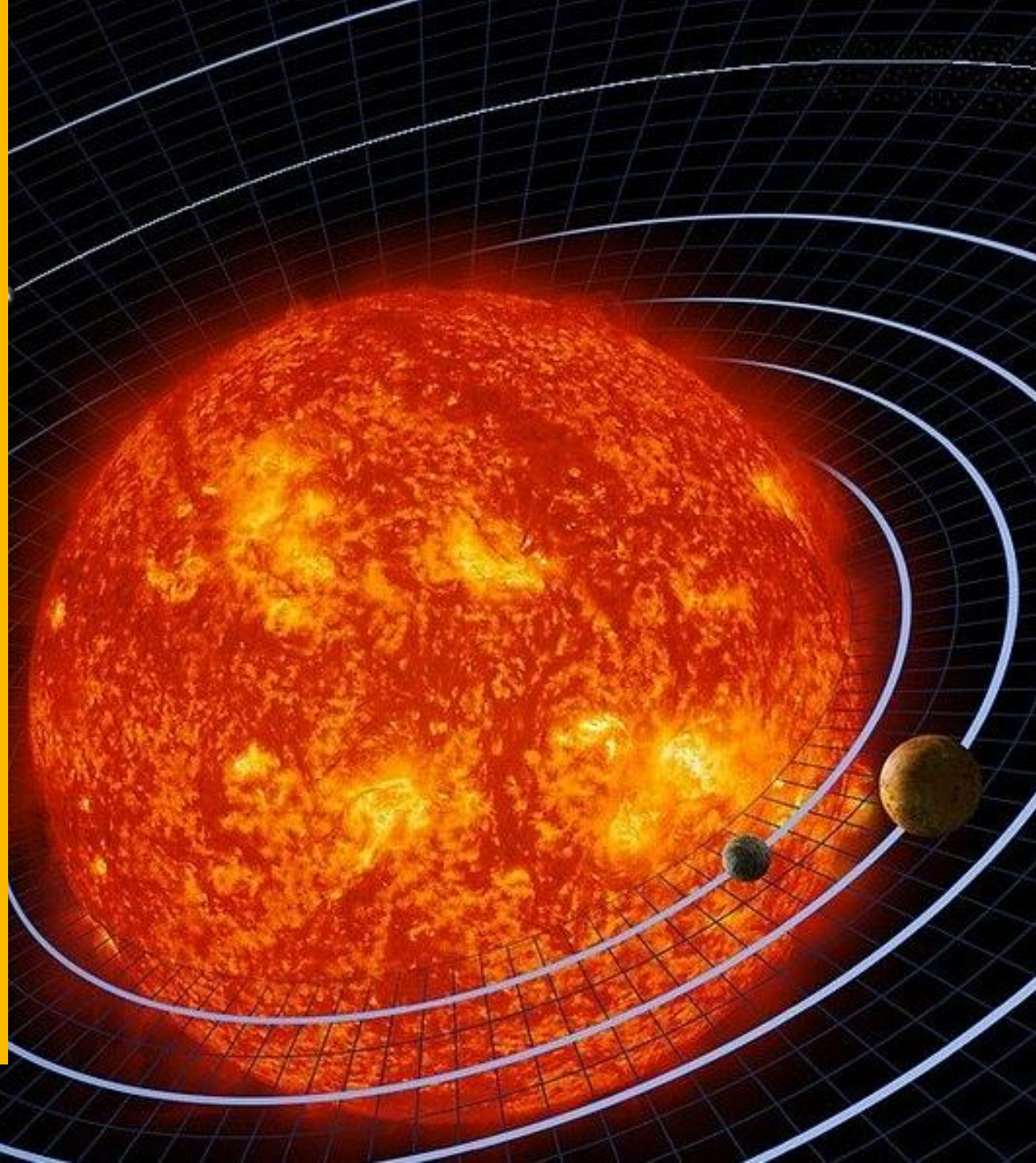
KS2 Option 1

Tour: Mobile Planetarium

In this show, pupils will visualise 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 they 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 we see at night? These are called extrasolar planets, or exoplanets for short. 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 and identify whether they have the potential to harbour life.



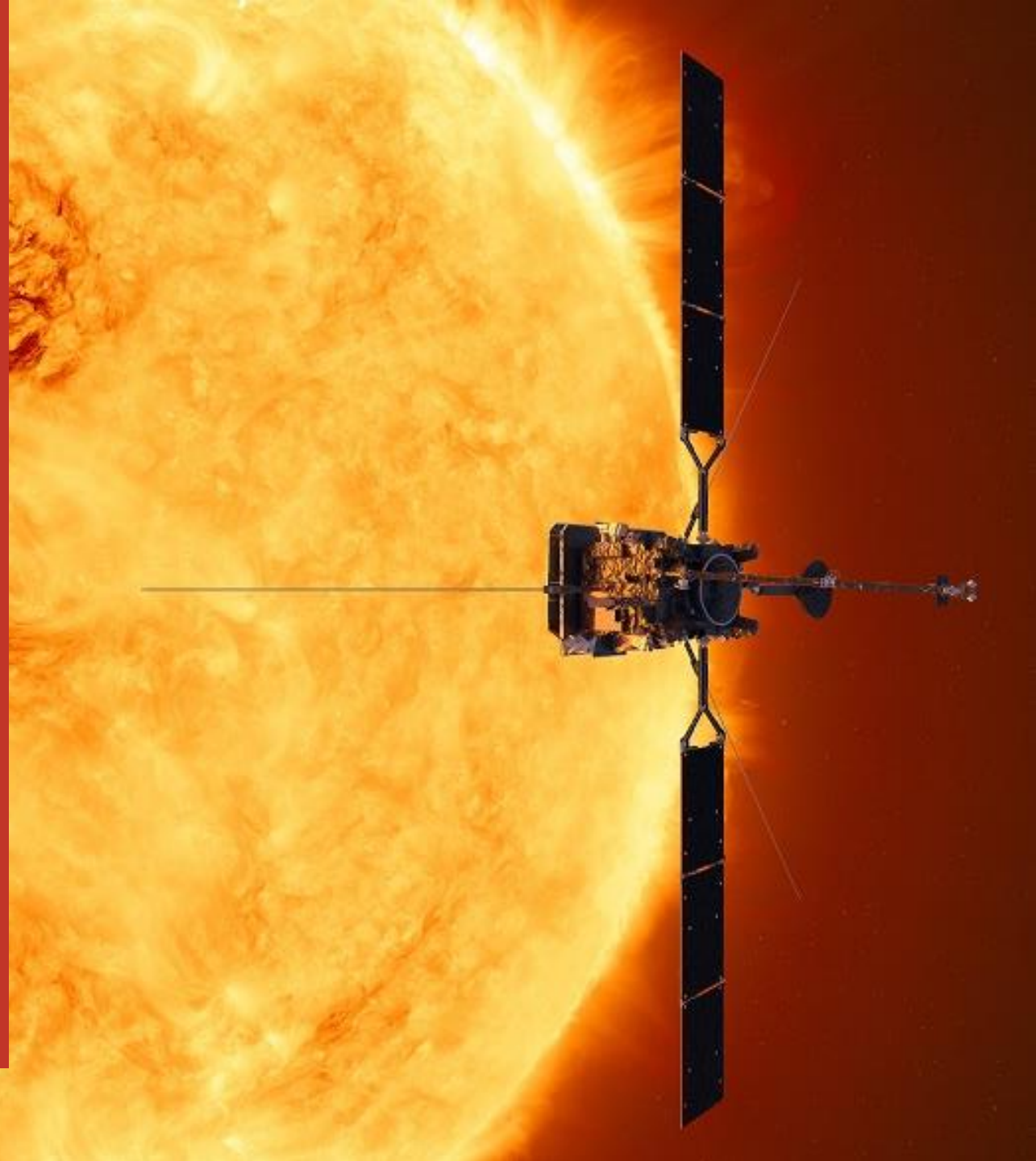
KS2 Option 2

Tour: SUN! Exhibit

Prepare to be dazzled by a seven-metre diameter suspended sphere that will be illuminated to reveal the normally invisible details of the Sun! Several months of the Sun's life will be displayed over the course of minutes, allowing pupils to experience the wonders of our neighbouring star first-hand. Dynamic and inspiring images have been used to highlight the intricate features of our Sun, which would otherwise be lost. Cycling through different temperatures from a cool 4,500 degrees Celsius to an impossibly hot 10 million degrees Celsius, SUN will reveal our star in a completely new light.

Workshop: Solar Satellite Card – SunSpaceArt

The Sun - our star, sits at the centre of our solar system giving us light, warmth and life on Earth. This STEAM workshop is an opportunity to learn about the science of the Sun with solar physicist, Dr Helen Mason and specialist space artist, Helen Schell. By combining science and art, the children will be able to create a 'Solar Satellite' pop-up card with data, which will introduce pupils to two satellites: the Parker Solar Probe (NASA) and Solar Orbiter (ESA). Children will learn about light, energy, scale, distances and the effect the Sun has on planet Earth.



KS2 Option 3

Tour: Supercomputers and Robots

One of the UKs 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 Super Computing 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. Soon it will even be normal for machine learning systems to drive our cars, and help 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 new found machine learning techniques.

KS2 Option 4

Tour: ‘Immerse’ Data Visualisation Suite

One of the UKs 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 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 Super Computers to tell us the history of our Universe.

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KS2 Option 5

Tour: Engineering Technology Centre

The Engineering Technology Centre and Campus Technology Hub is home to a number of our engineers and technicians, who work in teams developing new ideas and delivering global engineering projects. We manufacture mechanical and electrical equipment for use on inspiring scientific machines, including our cutting edge particle accelerators that have better vacuums than outer space! During this tour pupils will learn how we train our future engineers before entering our engineering workshops, to see and discuss our current projects. Pupils will see hi-tech 3D printers at work, visit precision machine workshops, see our large assembly areas and ultra-clean rooms that are cleaner than a hospital operating theatre!

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 our air up? 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.

Science Fair

The Daresbury Open Week Science and Careers Fair 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 Rubiks 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 on **Friday 27 March 2020**.

All schools will be contacted by email by **Friday 3 April 2020** to confirm whether or not they have been selected.

Schools that opt to be placed on a waiting list will be contacted again 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 at https://www.smartsurvey.co.uk/s/LYMIU/

UKRI Science and Technology Facilities Council

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 (this does not include transport costs)
4. Head Teachers from all selected schools will be required to give a written guarantee of attendance on behalf of their school
5. Schools will be required to arrange their own transport to and from Sci-Tech Daresbury
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 selected schools prior to the event

UKRI Science and Technology Facilities Council

How places will be allocated

There will be 1,450 pupil places available enabling up to 50 schools to participate. School places will be allocated by blind ballot with the following weightings:

- 52% of KS2, KS3, and KS4 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). 52% corresponds with the IMD profile of the population living within the 40% most deprived areas that are up to 60 minutes' drive from Sci-Tech Daresbury
- Allocated school places will reflect the different localities of schools who register for the event
- 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

UKRI Science and Technology Facilities Council

Ask Wendy

Register your interest here.

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

Please note: Although we do not intend to make any changes to the programme, we reserve the right to make changes should the need arise.

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