

FULL STEAM AHEAD

RECORDINGS NOW
AVAILABLE!

Thank you for taking part in our two-day virtual STEAM event exploring the opportunities STEAM subjects can offer. In this document you can **access the recordings from the sessions by clicking the session title**. There is also information about any pre-work or equipment needed.

WEDNESDAY 7TH JULY

Decisions, Decisions

Company: EKFB

How does a railway line get built? Which factors have to be considered and what decisions would you make? Join Adam from EKFB to find out about the engineering and design decisions made in major rail projects and have a go at weighing up the importance of things such as cost and the landscape.

Pre-work:

- [Worksheet](#)
- If you can download Google Earth Pro, students will be able to take part in the interactive part of the session

Feeding the World

Company: Bayer

When you think about the food on your plate are you thinking about climate change? Join Emma from Bayer to find out more about sustainable farming and agriculture, the wonderful world of plants and how science and technology are finding solutions to feeding 10 billion by 2050.

Pre-work questions:

- What do you do that's good and bad for the environment?
- Do you ever waste food?
- Where does your food come from?
- How will we grow more food on less land?
- In what ways do you think farming affects climate change?
- If the population keeps on growing, will nations enter famine?

**Please note, Session 1 ('Scientific devices that help to keep us alive') and Session 5 ('Speed and Science') from Wednesday 7th July are not available as recordings.*



Buckinghamshire
LOCAL ENTERPRISE
PARTNERSHIP
THE ENTREPRENEURIAL HEART OF BRITAIN



This collaborative event is being organised in partnership across the Thames Valley Region by STEM NOW, Study Higher, The Careers and Enterprise Company, Oxfordshire LEP, Buckinghamshire Skills Hub, Thames Valley Berkshire LEP and Luton Careers Hub.

WEDNESDAY 7TH JULY

Virtual tour of 3M manufacturing site at Newton Aycliffe, County Durham

Company: 3M

Get the chance to hear from scientists and engineers in 3M's Safety Products business, working on development and manufacturing of disposable and reusable respirators. Many of these products have appeared in the news recently, worn by healthcare workers caring for Covid-19 patients. This is a 20-minute site tour and Q&A. Builds on ~30 minutes pre-work, mostly via video that could be delivered in any lesson.

Pre-work:

- Watch this [smashing stereotypes in manufacturing video](#)
- Students to research 3M and come up with 5 things about 3M they didn't know before.
- Discuss/research as a class the types of roles that scientists and engineers do. Then identify what type of scientist/engineer they are. This is a huge scope – particularly the types of engineers and what the different specialisms are, what environment they work in and what they do day-to-day. This is intended as an exercise to provide context around the company and get students starting to think about what kinds of jobs there could be in science and engineering.

Learn how artificial intelligence is transforming agriculture to feed the world's growing population

Company: University of Buckingham

Dr Harin Sellahewa from The University of Buckingham will talk about example use of AI and data for precision agriculture and the importance of digital skills and life-long learning.

Pre-work:

- Optional pre-work can be completed so that students understand what machine learning is. [Slides 1-14 from session 1](#) from the 'Apps For Good' Machine Learning unplugged course can be used.

THURSDAY 8TH JULY

Surviving extreme temperatures in space

Company: RAL Space

Have you ever thought about what protects spacecraft from -270 degrees C conditions in space? Learn about how thermal space blankets are designed and engineered so space telescopes can survive extreme temperatures when they are close to or far away from the Sun. Hear from Alex, working as a systems engineer for the UK's national space laboratory.

Equipment needed:

- To take part in make-along: 3 ice cubes per experiment, aluminium foil, netting from a pack of oranges/other fruit (enough to wrap the ice cubes a few times over)
- [Worksheet](#)

THURSDAY 8TH JULY

Red Alert! Save the day!

Company: Reading Scientific Services Ltd

We need the help of some budding young scientists to solve our problem! We are working in a factory making Pharmaceutical products, and all of the chemicals are stored in big drum containers. But OH NO! A fire has broken out, and the automatic sprinkler system activated. This washed away all of the labels from the product drums. How can we tell what they are? These will all need to be destroyed! Unless... Can you help Reading Scientific Services identify what the products might be? We need your help to save the day!"

Get Animated

Company: Oxford Brookes University

In this workshop with Oxford Brookes University we'll explore the exciting world of Stop Motion Animation. You'll get a behind-the-scenes look at this technique, which has been used to create some of your favourite films. You will learn everything you need to know to create your own stop motion animation advert!

Demos from the 3M Innovation Centre at Bracknell

Demos of models and a Q+A with STEM role models within 3M.

Pre-work:

- Watch this [smashing stereotypes in manufacturing video](#)
- Students to research 3M and come up with 5 things about 3M they didn't know before.
- Discuss/research as a class the types of roles that scientists and engineers do. Then identify what type of scientist/engineer they are. This is a huge scope – particularly the types of engineers and what the different specialisms are, what environment they work in and what they do day-to-day. This is intended as an exercise to provide context around the company and get students starting to think about what kinds of jobs there could be in science and engineering.

Help us stop climate change

Company: Infineum

How can sustainable chemistries help us address climate change and speed up action towards the goals of COP26, the UN climate change conference being held in the UK later this year? In this session students put their ideas around sustainability to a panel of experts in the Infineum organisation and asked how they are tackling the sustainability challenges of the future.

Pre-work:

Watch these videos:

- Introduction to Infineum film - <https://youtu.be/K9i44JT3ITE>
- Infineum Sustainability film - <https://youtu.be/h7vN-eq4CzQ>

**Please note, Session 6 ('How to tell a Horrid story!') from Thursday 8th July is not available as a recording.*