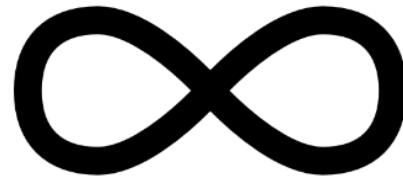
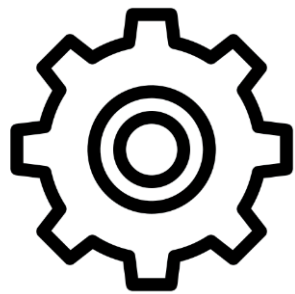
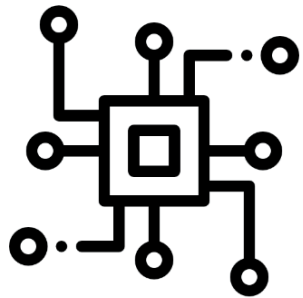
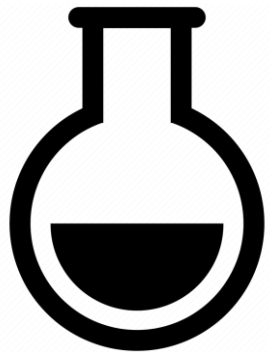
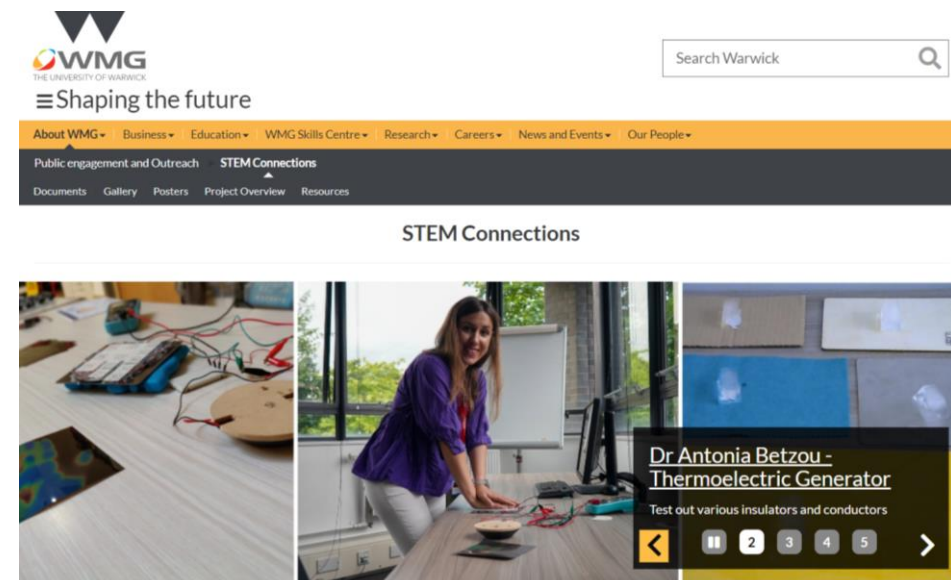


STEM Connections



STEM Connections

STEM Connections is a Research England funded project at the University of Warwick that highlights the technology that is being researched at the university, the impacts that research could have on the local population and wider society, and the personal stories of the people involved in that research.



STEM Connections

Meet the Academic

Dr Jiaqi Duan

What skills are required for your role?

Good researchers need the ability to manage time effectively, to complete tasks efficiently. To be able to quickly acquire new knowledge, research requires continuous learning. Critical thinking is needed to evaluate and question information.

Find out more:



www.warwick.ac.uk/stemconnections

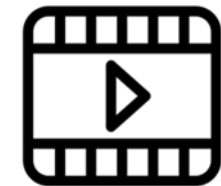


WARWICK
THE UNIVERSITY OF WARWICK

Steel Structure – Jiaqi Duan



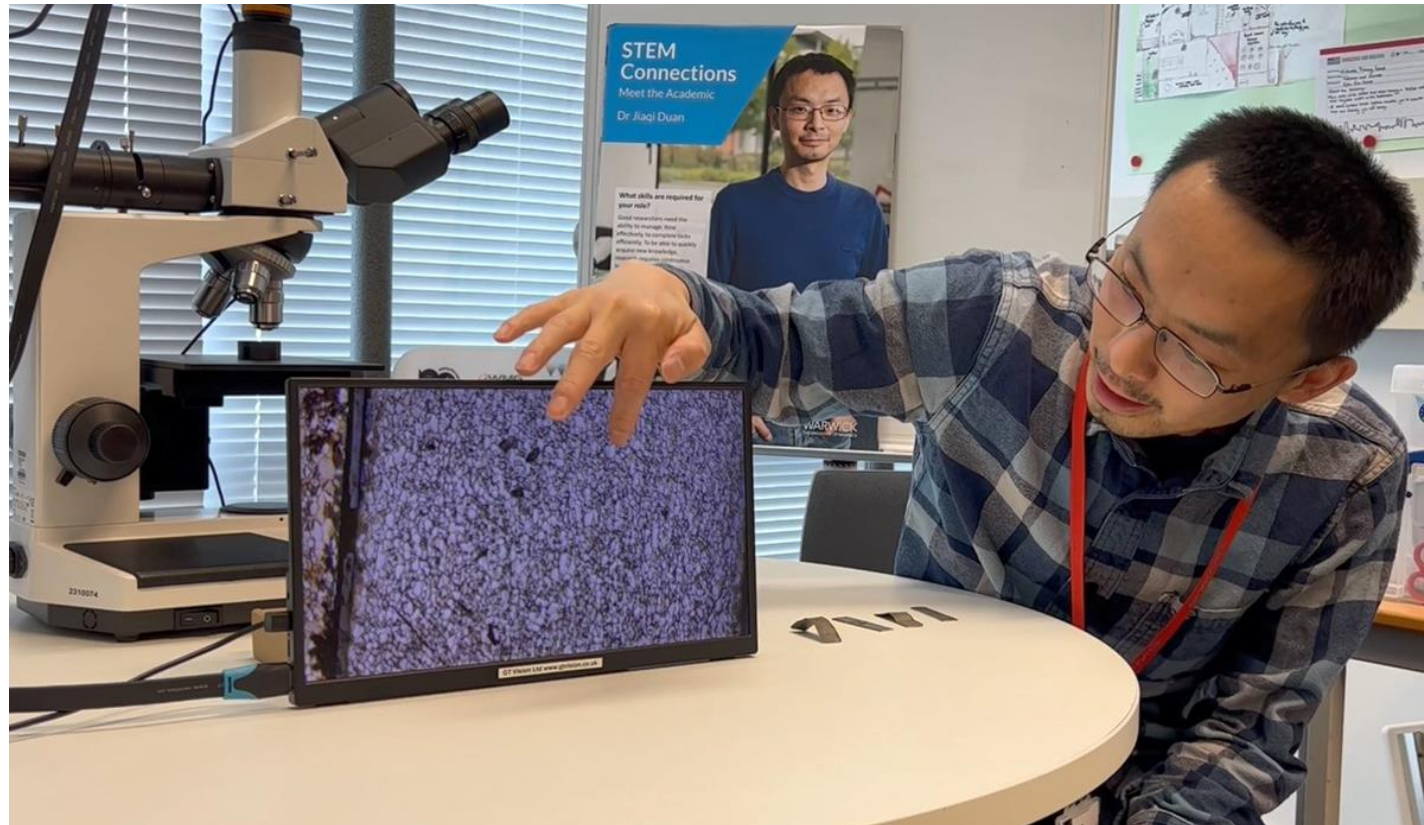
Steel microstructure is all the detail in the material that is hidden from human eyes. Each tiny crack, domain, or crystal adds up and make differences in steel you can hold. Jiaqi has been using microscopy to reveal this hidden world to people.



PLAY VIDEO

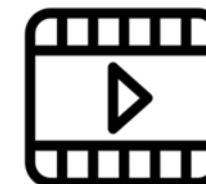
Steel Structure – Jiaqi Duan

Meet Jiaqi Duan, a research fellow who wants to show the world how important steel microstructure is. The tiny details inside metals are too small for the eye to see but they make huge differences to the strength of those materials.



Dr Jiaqi Duan

**STEM
Connections**



PLAY VIDEO

Material strength

Materials Required:

- Materials for strength test= 1 Wooden stick, 1 metal wire, 1 paper strip.
- Nano tape to stick the materials.
- A paper/ plastic cup
- Water
- Marker
- Scissors
- Plastic thread



Step by Step Instructions:

1. Place two equal-height tables or chairs or cardboard boxes next to each other. Leave a gap in between them that is slightly shorter than the length of the testing materials.



2. Stick any one of the testing material into the tables using a nano-tape.



3. Punch two holes near the top edge of the cup with a wooden skewer and tie a loop of string through the holes to make a "handle".



Step by Step Instructions:

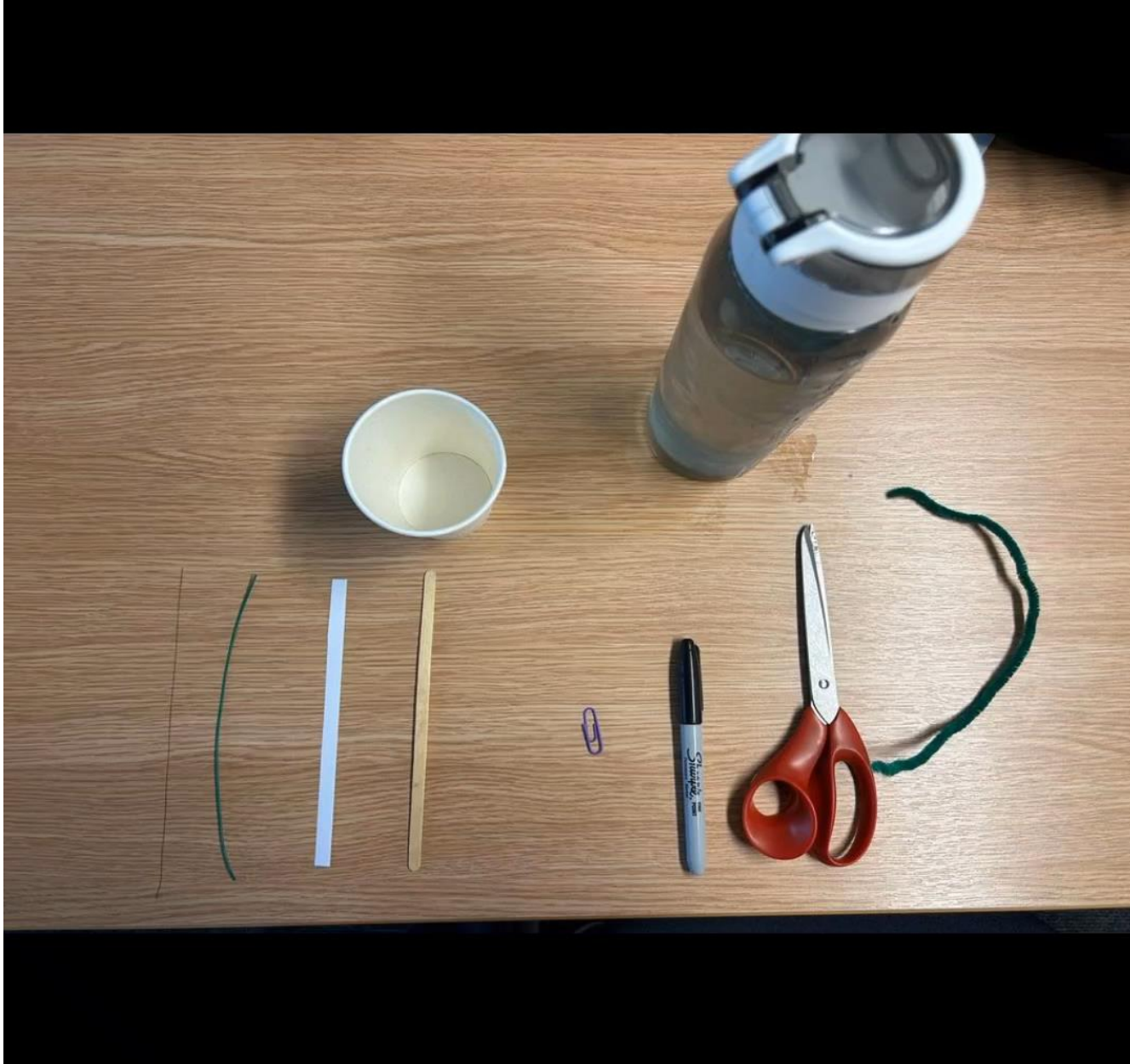


4. Bend a paperclip into a C or S-shaped hook, and attach one end to the loop of string. Hang the other end to the testing material.



5. Slowly start adding water to the cup till the material breaks. Make a note of the amount of water needed to break the material

6. Repeat the same steps with different materials and compare the strength relating with the amount of water required to break it.



PLAY VIDEO

Exploring this concept further:

- Try this experiment for different materials and test their strength.
- Instead of water try with small weights

SECONDARY: Linking Academics area to careers and industry
Other useful websites

PRIMARY: Linking to subjects offered in Secondary schools
Maths, Science (Biology, Chemistry, Physics), Design &
Technology (Engineering)

Thank you!

STEM Connections

