



Walsall Academy STEM Magazine

In the Nineteenth edition of the Science, Technology, Engineering and Mathematics (STEM) newsletter, we will look at the interesting and exciting activities that students have been involved in.

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Year 13: Spectroscopy in a suitcase

Lecturers from the University of Wolverhampton visited Year 13 Chemistry students to run a lab on chemical analysis and spectroscopy. Year 13 students were able to refresh their learning on infra red spectroscopy and mass spectrometry and also use expensive equipment that is usually only available in University labs.



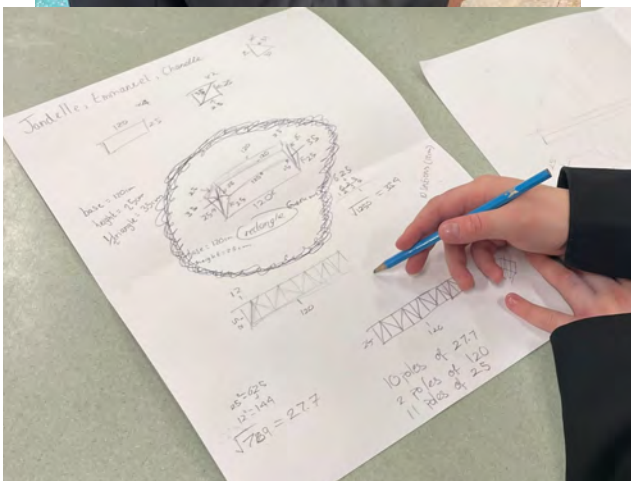
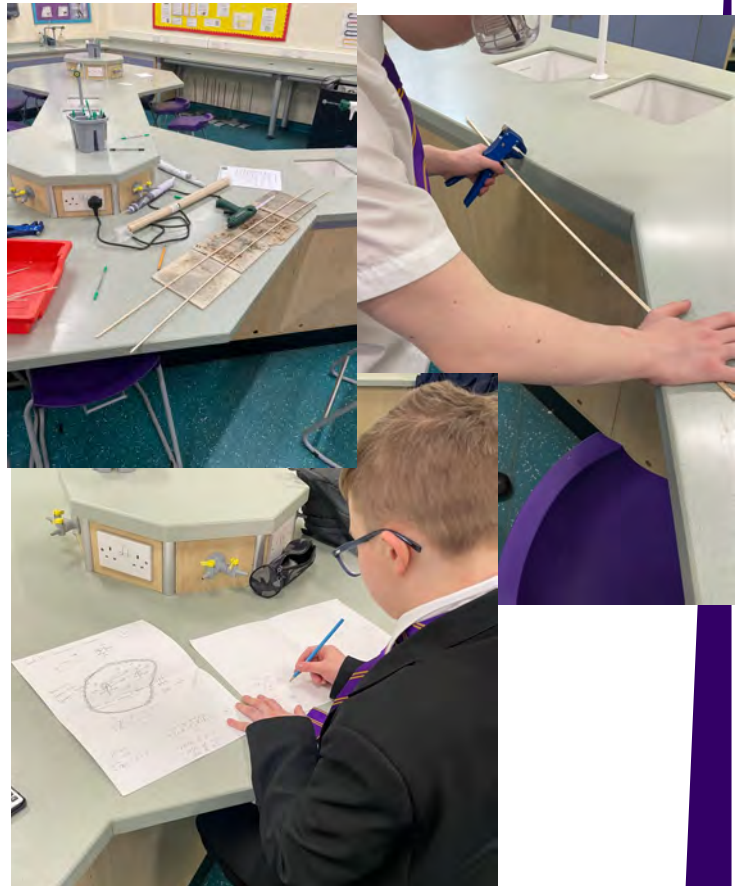
Students used their knowledge and the results from the experiment to work out which footballer had taken banned substances!

Students really enjoyed the activities and said that it helped



Science Club

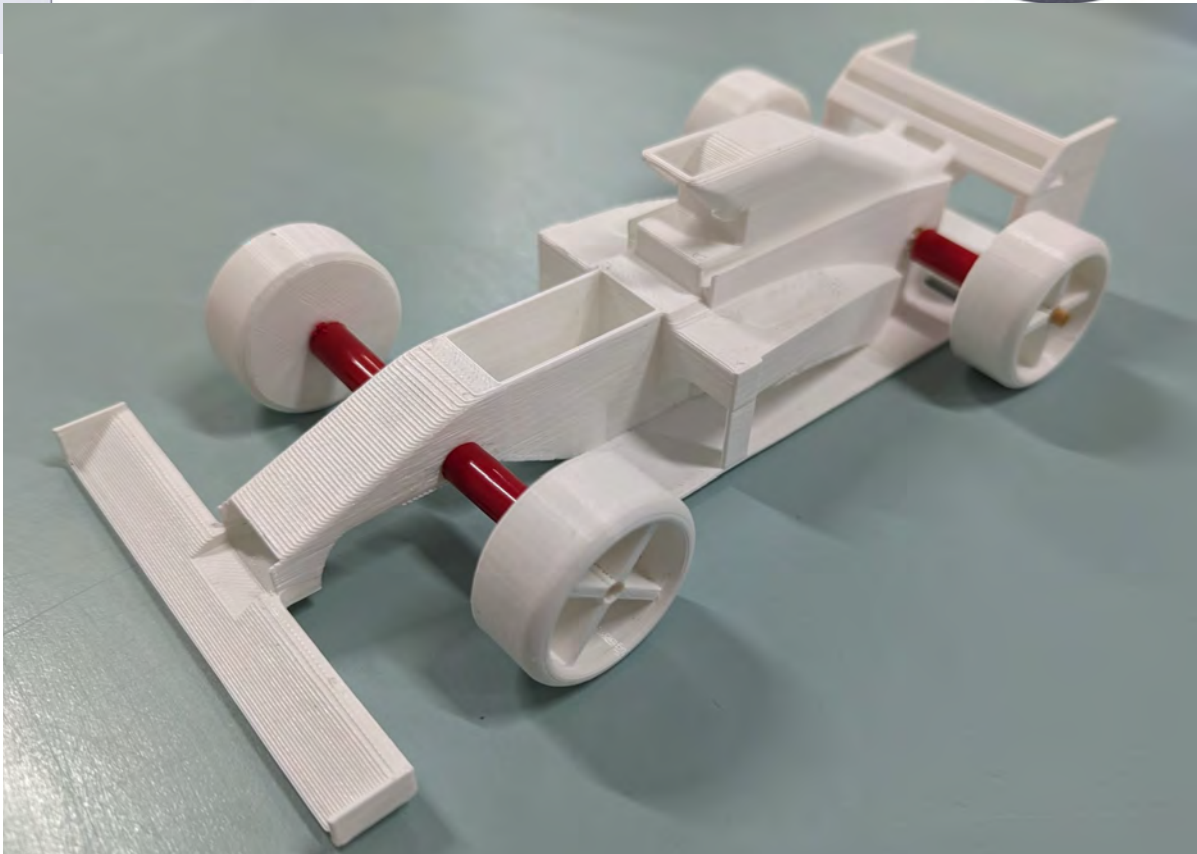
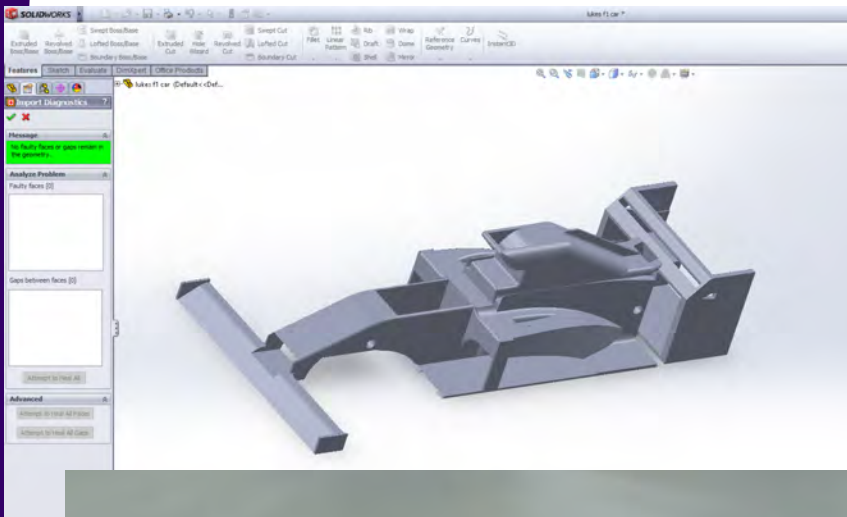
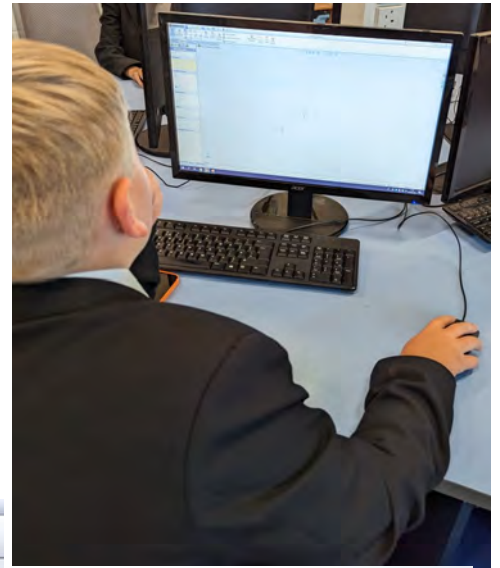
In the week before half term, Science Club decided that they will be pursuing their Bronze crest award. This award's requirements consist of partaking in a 10hr+ practical write-up, for either working individually or as a group. After much discussion, and sharing ideas, the group (of 8) finally decided that they will be working as a team in the research of bridge build design. This study involves designing and building bridges out of wooden dowelling, using mathematical principles like Pythagoras' Theorem and sine rule and practical skills developed in tech, and testing the bridges strength by adding load gradually. There will be two designs of bridge built to test.



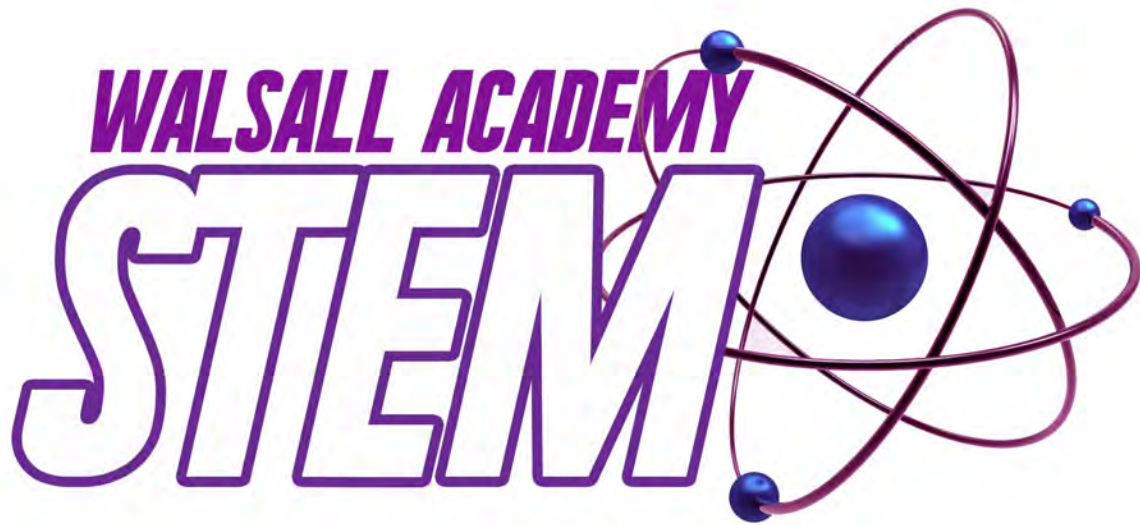
The first bridge design is a 'Warren Bridge' as shown in the **Drawing**. After some time calculating the bridges dimensions, work has started to commence on building the frame. The frame is built out of wooden dowelling and is hot glued together. The length of the bridge is 1.2m, with 0.1m of each end being used as foundation. This means that to test the bridge overall, the distance of the 'valley' (distance between two tables) will be 1m. The group hope to have the bridge built within 2-3 sessions, where next the second bridge design can be built. This means that they can see how efficient they are at building the structure in the first place, and maybe rebuild it, using this first bridge as a test. This means that there will be consistency with the bridge build itself when testing.

STEM club

In Key Stage 3, STEM Club students have been improving their Solidworks skills by developing 3D models. There has been some really impressive work this year with students modelling a variety of different objects from F1 cars to trains and even castles! A stand out project has been Luke's F1 car which was even more impressive when 3D printed. Luke then designed some F1 wheels to allow his design to move independently and assembled his excellent car!



Coming up in STEM!



There is lots to look forward to in STEM coming up in the next term as we approach the summer! STEM Club and Science Club will be running as normal and we encourage Key Stage 3 students to come and have a go whether it be 3D CAD design, bridge building or testing paper aero planes there is always something exciting going on!

We also have a variety of STEM competitions going on such as the Faraday challenge at Thomas Telford UTC where six Year 8 students will be competing against other schools in the Academy trust.

There will also be the annual Inter-Academy STEM Competition later in the year which will be a great experience for Year 9 and a chance to retain our trophy!

Well done to all the students who have been involved in STEM this term and we look forward to seeing more excellent work from you next term!