

Ingenious - Engineering Fair at M Shed Museum - 12th -14th July

Engineers from businesses providing an ingenious learning experience for schools and public linked to Bristol's unique engineering heritage



Schools sessions - July 12th and 13th. 10.00 am to 2.00pm

Each session incorporates practical workshops on a chosen engineering theme and visits to the 'Ingenious' market stalls throughout M Shed where visitors meet engineers around a practical engineering activity.

Workshops will present real engineering challenges as well as opportunity for younger visitors to collect a full set of Engineers-Top-Trumps-Cards to take back to school.

Thursday July 12th

- a) Flight and hydraulics – Key stages 2 -3 - 4
- b) Design and Construction – Key stage 2

Friday July 13th

- a) Flight and hydraulics Key Stage 2 -3 - 4
- b) Design and Construction – Key Stage 3 -4
- c) Radioactivity – Key Stage 5

Public sessions - Saturday Afternoon July 14th

The 'Ingenious' engineering stalls will be open throughout the museum and workshops suitable for mixed ages can be booked in advance.

- A- 12:00 -13:00 – Radioactivity
- B- 13:00 – 14:00- Flight
- C- 14:00 -15:00 – Radioactivity
- D- 15:00 – 16:00- Flight

To book or find out more contact Hugh Thomas – 0117 3290387 / hugh@myfuturemychoice.co.uk



Workshop overviews – (content and availability may change)

Each workshop is an hour long with time in between for groups to explore the stalls, the museum exhibits, the activities on the harbour side and have lunch.

Flight - Understand how air planes create lift, the use of bio-mimicry. Using a testing device from the history of aviation to create an engineering challenge, participants will create a wing and measure its effectiveness. Led by the Arkwright Scholarship and supported by aviation engineers.

Hydraulics- Mechanical power and control systems. Practical demonstrations using basic hardware to understand how helicopters fly. Led by engineers from Claverham .

Design construction – Design and engineering challenges using

- Methods of construction. Led by the Institution Of Structural Engineers.
- Air as power or function - led by the Dyson Foundation
- Automaton – using gears and cams

Radioactivity – Understanding the atom by moving and reacting like atomic particles. Led by EDF

Ingenious Stalls and Exhibits overview

- **Urban Olympics Exhibition** – The ingenious use of the urban landscape for sport. Including a Skate ramp built and designed by young people
- **Cycle to generate electricity** – Feel the concept of electrical energy by making your own
- **Cranes and trains** – Functioning Engineering in use on and around the docks
- **Model Engineering** - Working steam driven models and the materials and processes needed to produce them
- **Knotting, knitting and weaving** – Engineering fabrics that engineer spaces
- **Gravity**– How do satellites stay up
- **Dyson kits** – Dissecting a vacuum cleaner to understand how it works
- **Modular building structures**- Timed design challenges using a unique modular system
- **Engineering artefacts** –Hands on experience with items from the past such as cameras, telephones, typewrites
- **Sound engineering**- Using vibration probes and oscilloscopes to understand sound waves
- **Rockets** – Small and large water powered rockets
- **It was Rocket Science** – Students from Bristol Brunel Academy demonstrate their project on rockets with industry engineers –science, politics, history and engineering.

Exhibits and engineers may vary from day to day. To see more go to <http://bit.ly/KrBfmU>

Engineers Top-Trumps-Card-Game – Using a popular game format, engineers have created cards that represent their jobs. By exploring and questioning you can collect a set of 40 cards to take away.

