

National Science Week and the Solar Eclipse!
13th – 23rd March 2015



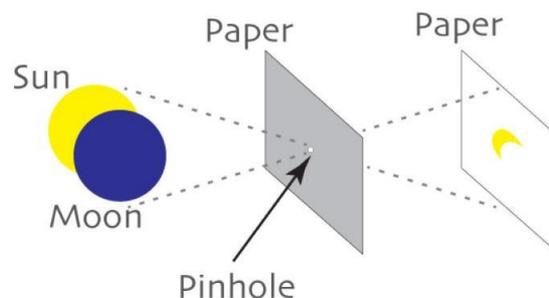
This Monday sees the start of the British Science Week; what's more at the same time as this excellent celebration of everything scientific there will a full solar eclipse happening at roughly 9.30am on Friday 20th March 2015.

The Total Solar Eclipse in Salford -Friday 20th March 2015
Mr Piri's advice...

"You really don't want to miss this, the last eclipse occurred in 1999 and before that 1927. Solar eclipses happen either partial or total on an annual basis, but it is the position on the moon, the Earth's axis and the time of year that are important factors in influencing whether the eclipse can be seen in the UK. When these three factors come together we get a solar eclipse. The next event isn't expected until 2026... on average a total eclipse visible from the same place comes around roughly every 400 years so in the UK over the last hundred or-so years we have been very lucky!"



The Moon will begin charting its way across the Sun from about 08.32am with full coverage expected from 09.27am. The Moon will continue to chart its way across the Sun's surface until 10.47am when the eclipse will finish. To see it best invest in a pair of solar eclipse glasses which are on sale at many small retailers or online. Set your alarm early, get up and out into the fresh air and have a go at observing the clockwork of the universe at work! Another easy way to observe the eclipse is by making a pin-hole camera as shown below



All you need is a pin and 2 pieces of A4 paper!

****Remember never look directly at the sun without proper eye protection the sun's rays can seriously damage the retina****

The science department have purchased 1000 sets of special viewing glasses so that pupils will have the chance to see the eclipse. At 9.15am pupils will be taken down onto the Astroturf, be handed their glasses and will line up in forms. The pupils will be out of lesson for 30 minutes up until 9.45am having chance to observe the eclipse and experience the eerie drop in temperature and dramatic decent into darkness. Period 2 will continue as normal. Pupils will be receiving an assembly about the celestial mechanics (solar clockwork) and the role of momentum and gravity in causing solar orbits this week.



British Science Week

At the same time as this the science department will be celebrating British Science Week with pupils in year 7 and 8 by working on a project to dismantle a NASA Space Shuttle. Pupils will be learning about the conditions of space and the obstacles scientists must overcome when designing vehicles fit for space travel.



Did you know?

- **The temperature in space can be as low as -250°C**
- **When re-entering the Earth's atmosphere the shuttle can experience temperatures as hot as 3500°C**
- **Harmful UV and Gamma radiation is at levels higher than inside a nuclear power station**
- **The shuttle experiences massive forces acting on its structure**
- **Britain is seeking to expand the UK Space Programme which is set to grow and expand in our emerging high skilled Science, Technology, Engineer and Maths (STEM) based economy.**

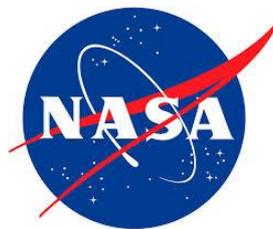
Pupils will be investigating how scientists overcome these barriers and still successfully send manned missions into space. Each pupil will be given an engineers schematic diagram of the TITAN (III) Space Shuttle and access to a selection of different materials to test. Pupils will form teams, developing a bid to NASA to build the safest and shuttle considering the suitability of materials on both safety and cost. Pupils will need to prepare a scientific report to back up their bid as well as research the cost and quantities of the materials.

Pupils will testing:

- ✓ The strength and durability of different fuselage metals
- ✓ The best material for a heatproof exterior coating
- ✓ The best material to make the shuttles exterior door seals
- ✓ Which material to make the nose cone from
- ✓ Which material will best shield the astronauts from harmful gamma radiation?
- ✓ What happens when flesh comes into contact with high doses of radiation?

Pupils will have access to:

- ✓ Radioactive sources
- ✓ Different metals and alloys
- ✓ Different materials for door seals
- ✓ Ceramics and carbon fibre
- ✓ Test tubes, weights and masses
- ✓ Ability to recreate extreme temperatures including liquid Nitrogen, solid Carbon Dioxide and Bunsen burners
- ✓ Access to fume hoods and water baths
- ✓ Guided access to muscle, bone and tissue samples as well as equipment emitting electromagnetic radiation.



Team Science have been busy preparing this exciting project that will engage all of KS3 in science. The best projects will be showcased at the year 7 and year 8 parents evening. Some pupils may be given the opportunity to present their findings in their house assembly the following week!

We are hoping to take lots of pictures which will be available online as we progress through what is set to be another fascinating week at Buile Hill Visual Arts College.

Mr Piri