



Part of the red spectrum of the Sun. The dark line is missing as Hydrogen atoms have absorbed the light. The line is very dark because the Sun is made of mostly Hydrogen.

THE FINGERPRINTS OF THE SUN

Here in York, the Sun often seems to make only fleeting appearances due to the clouds. Despite this, we are able to determine which elements are present in the atmosphere of the Sun simply by looking a little closer at the sunlight itself. We have many different instruments capable of observing the sun without damaging our eyes, from our solar telescopes with filters, to the more sophisticated spectrograph that can channel and isolate specific colours (or wavelengths) of light. This is done by splitting the white light coming from the Sun into a spectrum of colour and looking for what are called spectral absorption lines; black lines in the otherwise continuous spectrum as seen in the pictures above and below.

These lines are created by different elements in the Sun's atmosphere. The Sun is what is known as a black body, which means it is a perfect emitter (and absorber) of light and will emit light at all wavelengths. But as this light leaves the surface of the

Sun, certain wavelengths are absorbed by the elements in the Sun's atmosphere. The atmosphere is full of atoms and molecules, and particular wavelengths of the passing light will happily interact with some of these atoms and excite their electrons. While some wavelengths are absorbed, all the other wavelengths are transparent to the atmosphere, so pass straight through without interacting. When the light is collected by a telescope and split up into a spectrum, any wavelengths that interacted with the atmosphere are not present and appear as black lines against the coloured background. As each element will only absorb specific wavelengths of light, each line is like a fingerprint letting us know which elements are present. For example the line in the red spectrum above indicates hydrogen whereas the two main lines in the spectrum below are from sodium.

So just by looking at sunlight we are able to discover much about the make up of the Sun, allowing us to gain a better understanding of our most important star.

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Part of the yellow/green spectrum of the Sun. The two darkest lines in the spectrum are from Sodium. The Sun looks yellow coloured because most of the light we receive comes from this region.



HAPPY BIRTHDAY ASTROCAMPUS!

British Science Week and stargazing live runs from 16th to 22nd March and amongst all the celebrations, Astrocampus turns one year old! We have lots of exciting events running the whole week long. To kick off we are holding a first birthday party on Monday 16th. There will be a guest lecture from Dr Chris Stewart from the University of Sydney on the value of public outreach in Astronomy, tours of the astrocampus and of course cake!

Astrocampus will also be open every weeknight for observing and astronomy-focused talks and activities. These will be the last regular opening of the season so come visit us! To book free tickets for the birthday celebrations or any of the open evenings on Astrocampus, check out www.astrocampus.org.uk.

Finally, to top it all off, we have a partial Solar eclipse

from 8.30am-10.45am on 20th March. This means the new moon will cover most of the Sun as it moves between the Sun and the Earth. We are expecting about 90% of the Sun to be covered so fingers crossed for good weather! We will be hosting viewings with a special solar telescope and solar safety glasses at the Astrocampus. Feel free to drop by and check it out.

This month we are launching a new Astrophotography competition. We are looking for amateurs of all ages to get out and try catching the night sky in Yorkshire. For full details visit www.astrocampus.org.uk and start pointing your camera skywards!



Best Wishes and Clear Skies!

Dr. Emily Brunsdon
Director of Astrocampus

UPDATE

The winter months make for some great observing, with those long winter nights a real advantage for our younger astronomers! However, it's not just gazing through telescopes. Families have been out in force, with parents and children alike discovering the wonders of space science and astronomy.



These glasses don't just look great, they also allow us to see the rainbow of colours given out by different sources of light. We can use this to work out what stars are made of.



Away from the Sun's warmth, the temperatures in space plummet. We can have fun recreating these extreme temperatures here on Earth using liquid nitrogen.



Making rockets is great fun for all the family. They might not make it all the way into space but they fly pretty well across our Astrocapsule!

EVENTS

March	5	Astrocampus Opening
	16	Astrocampus Birthday Party
	17	Hubble 25 th Birthday Astrocampus Opening
	18	Astrocampus Opening
	19	Astrocampus Opening
	20	Partial Solar Eclipse Astrocampus Opening

For details on our open nights and to make a booking, please go to www.astrocampus.org.uk

CONTACT US

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WEBSITE www.astrocampus.org.uk

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With lots more exciting events planned, we're delighted to unveil our new website. We'll be keeping this updated with everything you need to know about upcoming openings, exhibitions, and our regular visits. So check it out at www.astrocampus.org.uk

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