

Key Stage 5

Table-top supernova

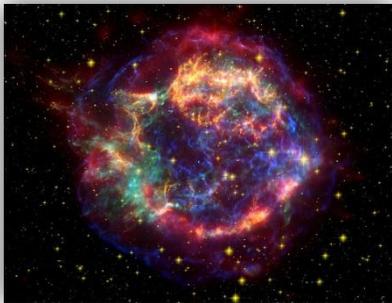
Pupil worksheet

Scientists at The University of Oxford have recreated supernova explosions in the laboratory small enough to fit into the palm of your hand. In this activity you will be finding out more about the research and communicating its findings to the public.

What is a supernova?

A supernova is an explosion of a star. There are two possible routes to this spectacular final end to a star's life. One, a massive star may run out of fuel and collapse inwards until it explodes to form a neutron star or black hole. Two, a smaller star will form a white dwarf and collect material from a nearby star until it reaches critical mass before exploding.

What about supernova remnants?



A supernova remnant (SNR) is simply what is left over from a supernova. An example of an SNR in our galaxy is Cassiopeia A.

This image is formed using data from three telescopes, each detecting different wavelengths from the EM spectrum.

The blue ring around the outside is the outer edge of the blast wave travelling out into space at a speed of about 6000 km s^{-1} . It shows emission from gas located in the interstellar medium (space) that has been heated

up to several million K when the blast wave slammed into it. The colours on the inside (green, yellow, orange) show emission from material that was once contained in the star. This is called the ejecta, since it was ejected from the star when it exploded. The red colour represents emission from interstellar dust that has encountered the blast wave and has been heated up.

Why study SNRs?

The universe is nearly 14 billion years old, and at this point, every point in a galaxy has most likely been overrun by several supernova blast waves and has been mixed with ejecta from multiple stars. By studying present SNRs, we can understand how space got to be like it is.

Your task

You are acting as a science journalist. Your editor has set you the task of writing an article for your online science news website on the research carried out at The University of Oxford.

Brief:

- Outline the findings and explain the relevance of the research
- It needs to be accessible to people who are interested in science but are not experts
- Make the article engaging - we want people to read it!
- Length of around 800 words

Sources of information:

- Shedding Light on the Situation video
- PowerPoint presentation on the research
- Press release from The University of Oxford
- Excerpt from a journal article published on the research



Key Stage 5

Table-top supernova

The art of science communication

Get your facts straight

Do your own research so you understand the science. Use more than one source of information - don't just rely on Wikipedia.

Engagement is the key

An article is not an essay regurgitating facts. Make an effort to get the details that readers want to know. Stay focused on what is most interesting. You can include emotional experiences and funny quotes as well as formative sections.

Do not patronise the reader

Assume that your readers have no knowledge beyond GCSE science, but always respect their intelligence. Be careful not to simplify the science so much that it is no longer accurate.

Have a plan

Make a list of all the points you want to cover in the article then put them into an order that allows you to move with the most ease from one point to the next. Stick to one idea for each paragraph.

<http://www.oxfordsparks.ox.ac.uk/sheddinglight>



Key Stage 5

Table-top supernova

The art of science communication

Get your facts straight

Do your own research so you understand the science. Use more than one source of information - don't just rely on Wikipedia.

Engagement is the key

An article is not an essay regurgitating facts. Make an effort to get the details that readers want to know. Stay focused on what is most interesting. You can include emotional experiences and funny quotes as well as formative sections.

Do not patronise the reader

Assume that your readers have no knowledge beyond GCSE science, but always respect their intelligence. Be careful not to simplify the science so much that it is no longer accurate.

Have a plan

Make a list of all the points you want to cover in the article then put them into an order that allows you to move with the most ease from one point to the next. Stick to one idea for each paragraph.