

Explained in 60 Seconds: The End of the Sun

Key Words

Written communication
Case study

Our Sun is a star, a ball of gas just like the thousands of other twinkling pin-pricks of light in the night sky. Stars have finite lifespans, so eventually they “die”. Our Sun has enough fuel to be a regular star for ten billion years. It's about halfway through that at the moment, in what we call the main sequence. This is when nuclear fusion converts hydrogen into helium. Each second the Sun turns four million tonnes of material into energy. No wonder it's so hot and bright!

In five billion years the hydrogen will be used up and the Sun will become a red giant — bad news for the Earth, which is destined to be boiled and engulfed. Eventually the Sun's outer layers will be cast off, becoming a beautiful nebula. The core will be left as a white dwarf, slowly cooling over an eternity. A peaceful end for our nearest star.

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This is a composite image showing a small region of the Chandra Deep Field North. The diffuse blue object near the centre of the image is believed to be a cosmic “ghost” generated by a huge eruption from a supermassive black hole in a distant galaxy. The blue is a deep image from the Chandra X-ray Observatory, and in red is an image from the Multi-Element Radio Linked Interferometer Network (MERLIN), an array of radio telescopes based in the United Kingdom. An optical image from the Sloan Digital Sky Survey (SDSS) is shown in white, yellow and orange. Credit: X-ray (NASA/CXC/IoA/A.Fabian et al.); Optical (SDSS), Radio (STFC/JBO/MERLIN).

