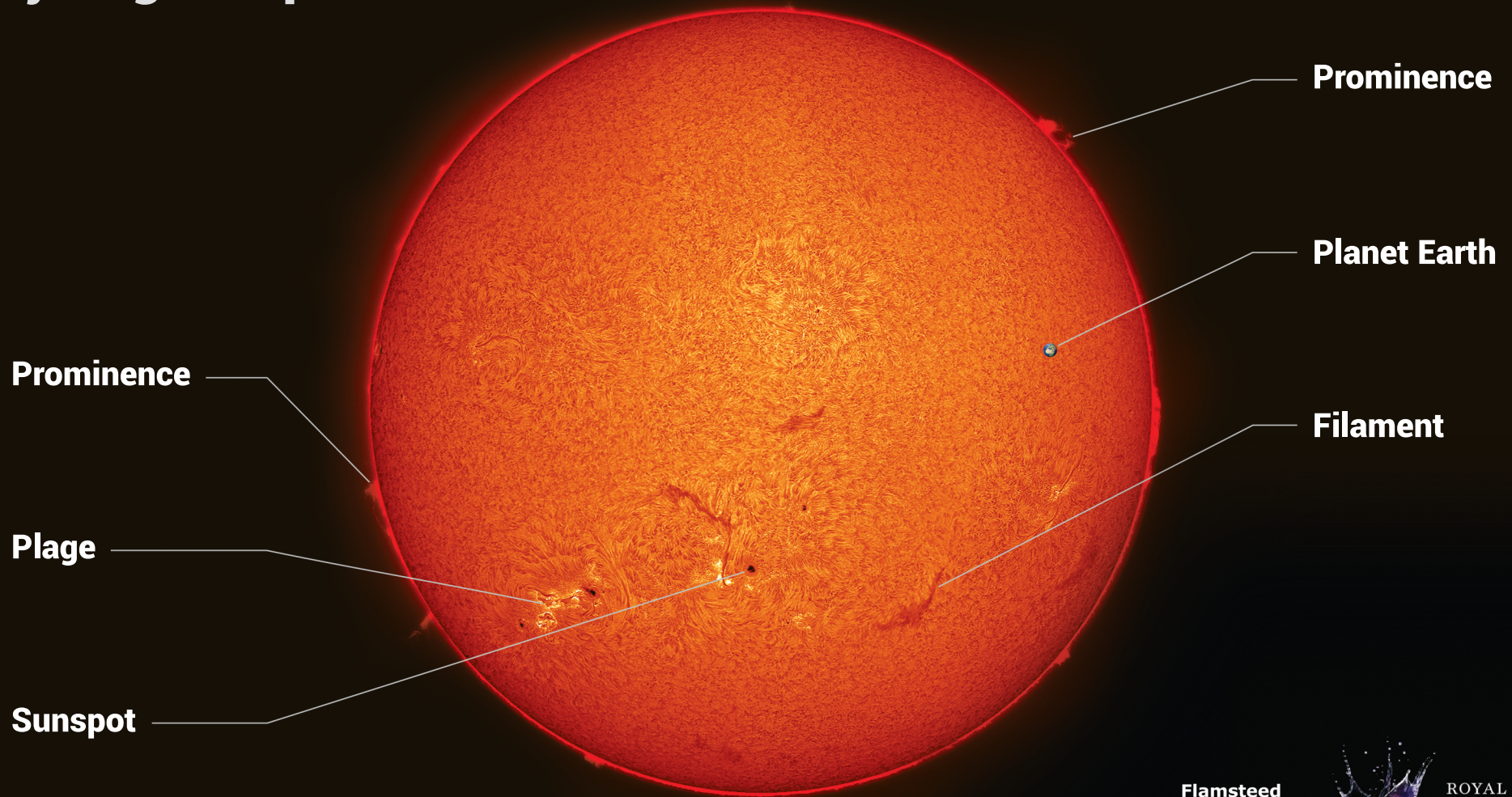


The Sun

in Hydrogen Alpha



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Astronomy
Society**

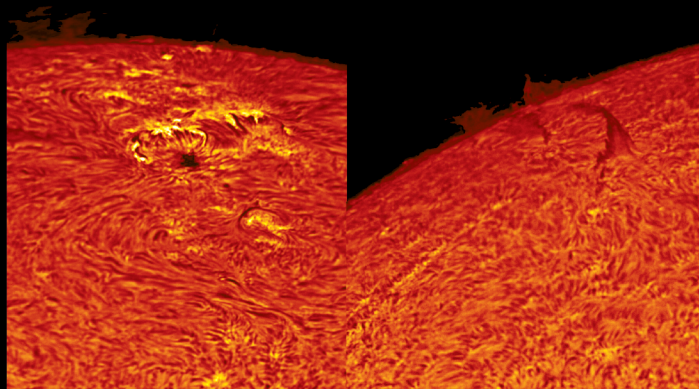


ROYAL
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Prominences are dense clouds of material suspended above the surface of the Sun by magnetic field loops.

Filaments appear as jagged lines or scratches. They are the same as prominences except that prominences are seen projecting out above the limb, or edge of the Sun. Both filaments and prominences can remain from hours to days or even weeks. However, as the magnetic loops that support them slowly change, filaments and prominences can erupt and rise off of the Sun over the course of a few minutes or hours.

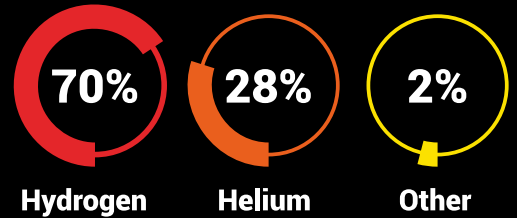
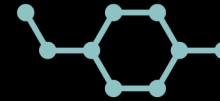


Sunspots appear as dark spots on the surface of the Sun. Temperatures in sunspots drop to about 4000°C (compared to 5500°C in the surrounding photosphere). They typically last for several days, although very large ones may live for several weeks. Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Sunspots often come in groups with two sets of spots. One set will have a positive magnetic field while the other set will have a negative one. The field is strongest in the darker parts of the sunspots - the umbra.

Composition, Mass and Age

The Sun is **4.5 billion** years old and nuclear fusion will continue for about another **5 billion** years.

The Sun makes up **99.86%** of the Solar System's mass.



The composition of the Sun by mass is approximately 70% Hydrogen, 28% Helium, and the remaining 2%, heavy elements.

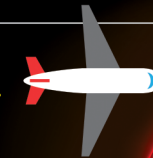
Distances and Speed

If you were to fly to the Sun in a regular airliner it would take about **20 years** to get there.

It only takes **8 minutes** for the light from the Sun to arrive here on Earth.



The Sun is, on average, 150 million km (93 million miles) from Earth.



The Sun is moving through space at **800,000km** per hour.

In **one second**, our sun produces enough energy to power humans for almost **500,000 years** of the current needs of our civilisation.

Temperature and Scale

15 million °C
CORE

5500 °C
SURFACE



The diameter of the Sun is **1.4 million km**



x10
the size of Jupiter

x109
the size of Earth

Images. Front main: The Sun in H-alpha © Pete Lawrence. Left: Prominences on the Sun in H-alpha © Pete Lawrence. Above left: Sunspot in H-alpha, above right: Filament in H-alpha © Rupert Smith. Right top: The Sun in H-alpha © Pete Lawrence. Right bottom: Jupiter © NASA, ESA, and A. Simon (Goddard Space Flight Center).