

# Explanation Writing

## How to Structure Explanation Writing

### Purpose

To explain how something works or to give reasons for why something happens. Explanations answer 'how' or 'why' questions.

### How Do Auroras Work?

Auroras are a beautiful display of colours in the sky at Earth's magnetic poles. In the northern hemisphere, the phenomenon is called the aurora borealis and in the southern hemisphere it is called the aurora australis.

The light show we see on Earth begins on the Sun, almost 150 000 000km away. Solar flares and storms send gusts of electrically charged particles across space. When these particles collide with Earth's magnetic field, they heat up and begin to glow. This is called excitation.

Auroras often look like curtains of light across the sky, but they can be different shapes too. Arcs and spirals are common shapes that can be seen in the sky. The reason for these shapes changing is due to Earth's magnetic field. When the particles from the sun hit the waves of Earth's magnetic field, they will glow in the shape of the waves. Sometimes the magnetic field can change shapes. This is because of electric currents from Earth's core.

The electric currents at Earth's core that affect the magnetic field are created by the movement of molten metal. This is called a convection current. Convection currents happen when fluid flows and moves because of a difference of temperature or density (thickness) within the liquid.

Now that we know how the shape of the auroras is made, how do they become such beautiful colours? The colours are created by different gases in Earth's atmosphere. The two main gases in our atmosphere are oxygen and nitrogen. Oxygen glows green when it is excited, and nitrogen glows red or blue when excited.

It's easy to see why auroras have featured in mythology throughout the years – they are an awesome natural phenomenon that we now understand through scientific discoveries.