



Invisible Light and Radiation Around Us Every Day

KS4 PHYSICS

Ages 11-14 ⌚ 3 min read

What is the Electromagnetic Spectrum?

Our eyes can only see a tiny slice of light called **visible light**. But there's a whole range of other types of light and radiation that we can't see. Scientists call this full range the **electromagnetic spectrum**. Think of it like a giant rainbow that stretches far beyond the colours our eyes can detect.

Think of it like a radio that has many different stations. You can only listen to one station at a time, but hundreds of stations are broadcasting at the same moment. Similarly, visible light is just one "station" on the electromagnetic spectrum—there are many others we can't perceive.

Types of Invisible Radiation

Infrared radiation is heat energy. Everything warm gives off infrared light, which is why thermal cameras used by firefighters can see people through smoke. **Ultraviolet (UV) radiation** comes from the Sun and can damage our skin, which is why we need sunscreen. **X-rays** are very powerful and pass through soft body tissue but not bones, making them perfect for seeing inside our bodies at hospitals.

Microwaves are used in microwave ovens to heat food by making water molecules spin really fast. **Radio waves** are the longest waves on the spectrum and carry television and radio broadcasts into our homes. Finally, **gamma rays** are the most dangerous type—they're produced by radioactive materials and can harm living cells.

Think of it like different types of waves in the ocean. Some are tiny ripples, some are huge waves, and some are in between. Similarly, electromagnetic radiation comes in different sizes—radio waves are huge, while gamma rays are tiny.

Why Should We Care?

Understanding invisible radiation is important because it affects our daily lives. UV rays from the Sun protect us in small amounts but can cause skin cancer with too

much exposure. X-rays help doctors diagnose broken bones. Microwave ovens cook our food quickly. Mobile phones use **radio waves** and **microwaves** to send signals.

Scientists have learned to harness these invisible types of light and radiation for medicine, communication, and technology. By understanding what we can't see, we've created tools that make our lives safer and more connected.