



### Gamma

Very dangerous as they carry a lot of energy and penetrate matter. Formed in radioactive atoms and in the sun. They can penetrate lead and are used to destroy cancer cells.

### X-rays

Very short high energy waves. Pass through skin and muscle but not bones. Used to see broken bones in medicine.

### Ultraviolet

Emitted by the sun and cause skin to darken. High energy waves that can cause mutations in skin cells leading to skin cancer. Can be used to detect counterfeit notes.

### Visible

Our eyes can detect visible light. The sun emits light and many objects when heated do the same. White light can be split into the colours of the rainbow.

### Infra-red

Infra-red rays are shorter than microwaves. They are generated by objects with high temperatures. The hotter the object the more infra-red is transmitted. Your skin has sensory cells that detect infra-red waves. We call this sensation heat. Infra-red is trapped by the atmosphere and leads to the greenhouse effect. Infra-red is used in heating.

### Microwaves

These have shorter wavelength than radio waves. They are generated by extremely high frequency electric current. They pass through air but are absorbed by water. They are used in microwave ovens for heating. Mobile phones can detect microwaves.

### Radio waves

These are long waves that can penetrate the earth's atmosphere. They are generated by high frequency electric current. They are transmitted through the air but are absorbed by buildings and hills. They are used in TV and radio broadcasting.