Ionising radiations

Ionising radiations are given out by radioactive substances.

They may:

- Kill living cells
- Change the nature of living cells (e.g. make them cancerous)

Since these radiations can kill cells, they may be used to:

- Sterilise instruments (by killing bacteria on them)
- Destroy cancerous tumours

These radiations:

- produce Ionisation (electrically charged particles)
- fog photographic film
- make some compounds give out light (scintillations)

these three effects mean these radiations are easy to detect. Radioactive materials are therefore used as 'tracers'. They may be swallowed or injected into the human body. Their movements through the body can be traced using special cameras.

Safety Precautions

When using radioactive sources the following safety precautions should be taken:

- Always lift with forceps
- Ensure radiation window points away from the body
- Never bring a source close to your eyes
- Use protective clothing – lead apron
- Wash hands after any experiment with radioactive material.

Background Radiation

Nuclear radiation is always present in our environment. This is known as **background radiation**. This can come from natural sources e.g. radon gas, cosmic rays or from man-made sources e.g. nuclear fallout from weapons testing, accidents at nuclear power stations.