

AQA Physics GCSE

4.4.3 - Hazards and Uses of Radioactive Emissions and Background Radiation (Physics Only)

Flashcards

This work by [PMT Education](https://www.pmt.education) is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)



Give 4 sources of background radiation.



Give 4 sources of background radiation.

1. Rocks
2. Cosmic rays from space
3. Nuclear weapon testing
4. Nuclear accidents



How should background radiation be dealt with in calculations?



How should background radiation be dealt with in calculations?

The background count should be subtracted from any readings before calculations (half life etc.) are attempted.



What is the unit used to measure radiation dosage?



What is the unit used to measure radiation dosage?

Sieverts (Sv).



How many millisieverts equal 1 sievert?



How many millisieverts equal 1 sievert?

1000 millisieverts = 1 sievert



Why might the radiation dosage that different people experience differ?



Why might the radiation dosage that different people experience differ?

- Some occupations involve working with radiation
- Background radiation differs with location due to things such as the locality of nuclear power stations or radiation related testing



What factor determines how dangerous a particular radioactive isotope is?



What factor determines how dangerous a particular radioactive isotope is?

The half-life of the isotope.



Why are isotopes with long half-lives particularly harmful?



Why are isotopes with long half-lives particularly harmful?

- They remain radioactive for much longer periods of time
- They must be stored in specific ways to avoid humans and the environment from being exposed to radiation for too long



State **two** uses of nuclear radiation in the field of medicine.



State **two** uses of nuclear radiation in the field of medicine.

1. Examining of internal organs
2. Controlling and destroying unwanted tissue



How is radiation used in sterilisation?



How is radiation used in sterilisation?

Gamma emitters are used to kill bacteria/parasites on equipment.



Explain the process of radiotherapy.



Explain the process of radiotherapy.

- Gamma emitters direct gamma rays at the cancerous cells
 - The cancerous cells absorb the radiation and are killed



How are medical tracers chosen?



How are medical tracers chosen?

They should have a short half life and decay into a stable isotope which can be excreted.

They should only release gamma radiation since it is weakly ionising and can easily pass through body tissue without damaging it.

