Characteristics of Nuclear Radiation

1 What is nuclear radiation?

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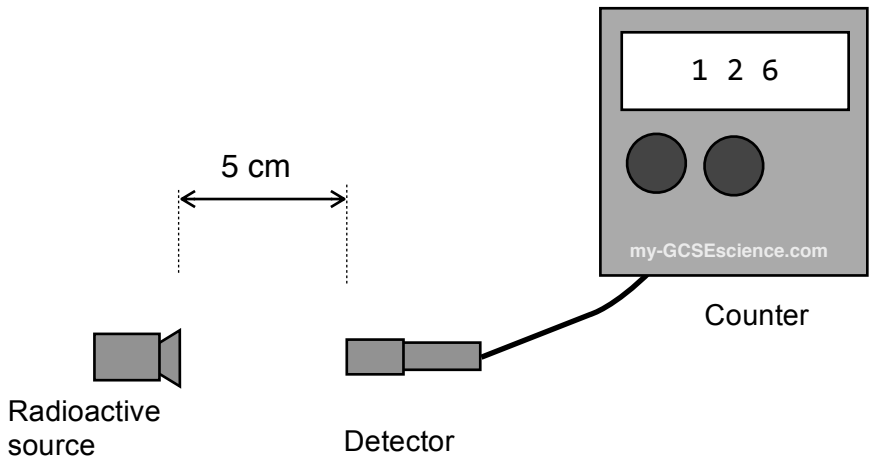
(2 marks)

1 (a) The diagram shows some apparatus which is being used to investigate radioactivity.



1 (a) (i) The counter is currently recording 126 counts of radiation per minute from the radioactive source.

When there was no radioactive source in place, the detector still recorded a count rate of 6 counts per minute.

Suggest why the detector may still have recorded a small count rate with no radioactive source.

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(1 mark)

1 (b) The investigation included placing different materials between the source and the detector. The table below gives the data recorded.

Material	Radioactivity Counts per minute
Tin foil	8
Sheet of paper	119
1 cm thick sheet of iron	11
None	126

1 (b) (i) Name the type of radiation that is being emitted by the source.

Use the data in the table to help you.

Type of radiation

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Explanation

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(2 marks)

1 (c) The table gives some key information about the three types of nuclear radiation.

Type of radiation	What it is	Deflection in magnetic field (Y/N)	Deflection in electric field (Y/N)
Alpha	2 protons and 2 neutrons	Y	Y
Beta			Y
Gamma	Electromagnetic radiation	N	

1 (c) (i) Complete the table by filling in the three missing bits of information.

(3 marks)

Total (8 marks)