

Q1.(2022)

Alpha particles, beta particles and gamma rays are types of nuclear radiation.

What does an alpha particle consist of?

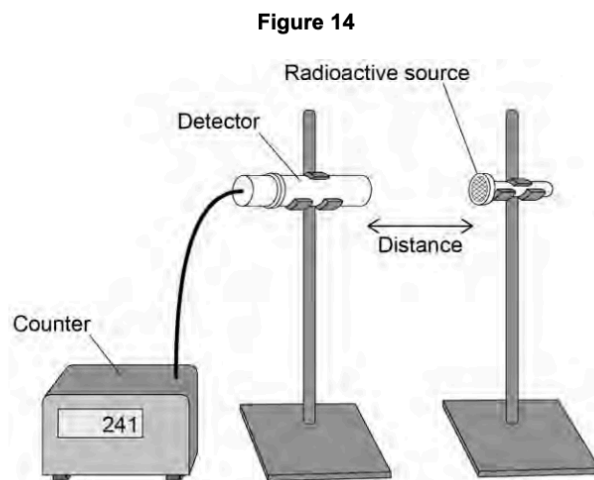
[1 mark]

Q2.(2024)

a)

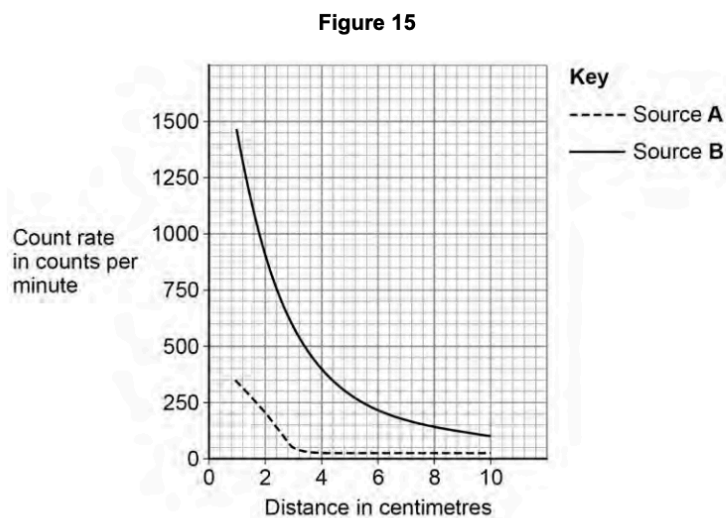
A teacher investigated the radiation emitted by two different radioactive sources, **A** and **B**.

Figure 14 shows a radiation detector positioned near one of the radioactive sources.



The teacher measured the count rate at different distances for each radioactive source.

Figure 15 shows the results.



Explain how **Figure 15** shows that Source **A** only emits alpha radiation.

[3 marks]

b)

Figure 15 can **not** be used to determine if Source **B** emits beta radiation or gamma radiation.

Explain how an absorbing material could be used to show which type of radiation is emitted by Source **B**.

[2 marks]

c)

The teacher took safety precautions during the experiment.

Suggest **one** safety precaution the teacher would have taken to reduce the radiation dose the teacher received.

[1 mark]

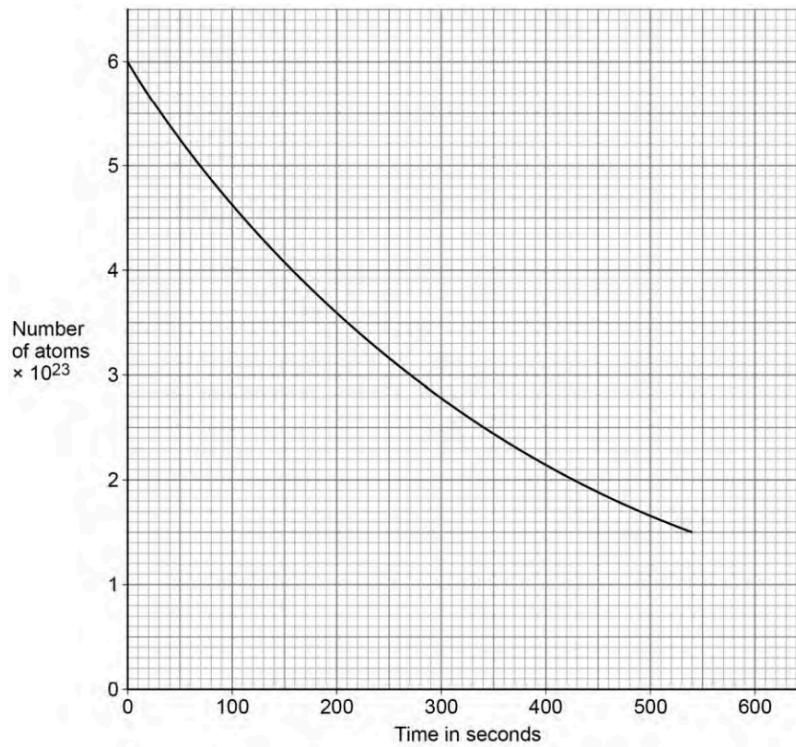
d)

Suggest **one** safety precaution that the teacher would have taken to avoid becoming contaminated.

[1 mark]

e)

Figure 16 shows how the number of atoms of a radioactive element in a sample varied with time.

Figure 16

Activity is the rate at which a source of unstable nuclei decays.

Determine the activity of the radioactive sample at 300 seconds.

Give the unit.

[4 marks]

Activity = _____ Unit _____