4	Sodium-24 is a radioactive isotope.		
	(a) What are isotopes?	(2)	
	(b) Sodium-24 decays by emitting beta particles.		
	(i) Describe the nature of a beta particle.	(1)	
		(1)	
	(ii) Name a piece of equipment that can be used to detect beta particles.		
		(1)	
	(iii) Describe how a detector can be used with sheets of lead, aluminium and		
	paper to show that a sample of sodium-24 emits beta particles.	(2)	

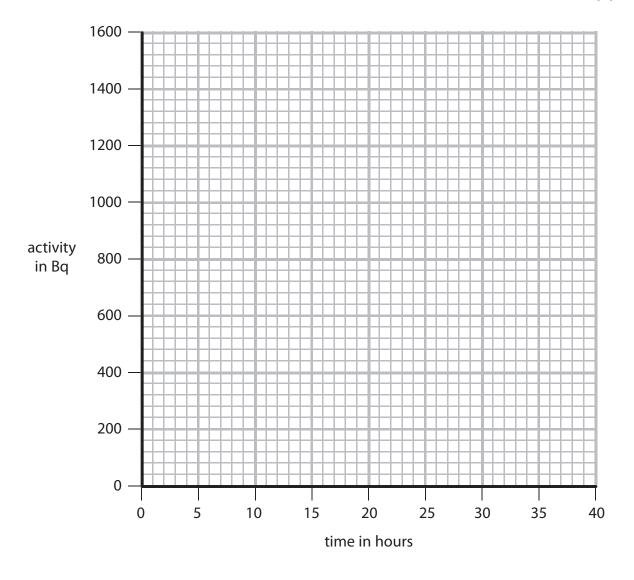


(c) A sample of sodium-24 has an activity of 1400 Bq.

On the axes, sketch a graph to show how the activity of this sample changes over the next 40 hours.

(the half-life of sodium-24 is 15 hours)

(3)



	ontains a radioactive isotope of uranium that decays very slowly.
(i)	Explain how scientists can use this radioactivity to find the age of a piece of grani
	,
/::\	
(11)	Suggest why the age of a piece of granite could not be found using a uranium isotope with a half-life of 15 hours.
	(Total for Question 4 = 15 marks
	(Total for Question 4 = 13 mark.

