1

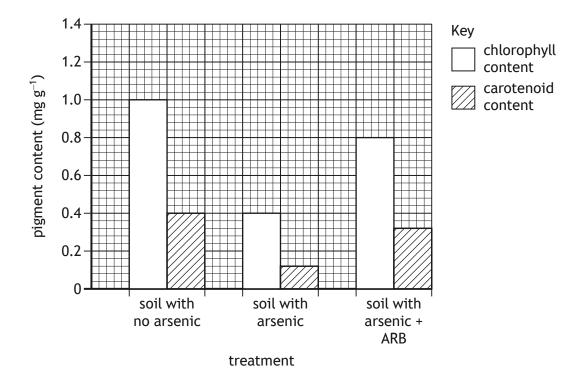
1

Some areas of agricultural land are contaminated with arsenic. This can reduce the pigment content in crop plants.

A strain of bacteria, called ARB, breaks down arsenic in contaminated soils.

An investigation was carried out to determine the effect of adding ARB to soil on the chlorophyll and carotenoid content of plants.

The results are shown in the graph.



(a) (i) Express, as a simple whole number ratio, the carotenoid content of the plants grown in soil with no arsenic, soil with arsenic, and soil with arsenic + ARB.

Space for calculation

	:		:	
soil with no arsenic		soil with arsenic	_ • .	soil with arsenic
				+ ARB

(ii) Describe evidence from the graph that suggests that not all arsenic has been broken down by ARB.

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9.	(a)	a) (continued)								
		(iii)	Explain why the presence of carotenoids increases the rate of photosynthesis.	2						
				_						
	(b)	Describe how the absorbed light leads to the production of ATP, which required for carbon fixation.								
				_						

