



**A-level  
ENVIRONMENTAL SCIENCE**

**Paper 1**

**7447/1**

**Insert**

**[Turn over]**

FIGURE 1

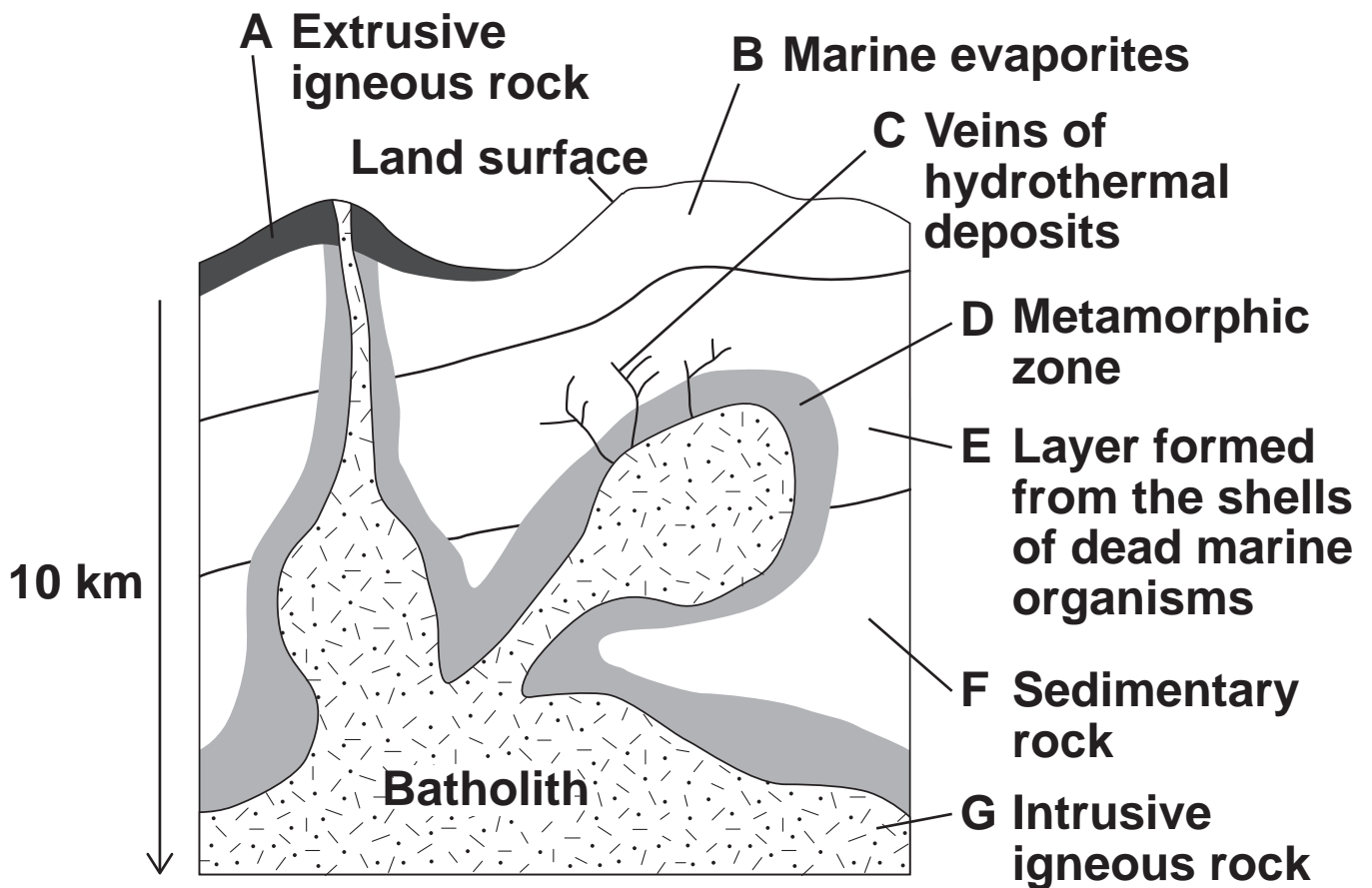
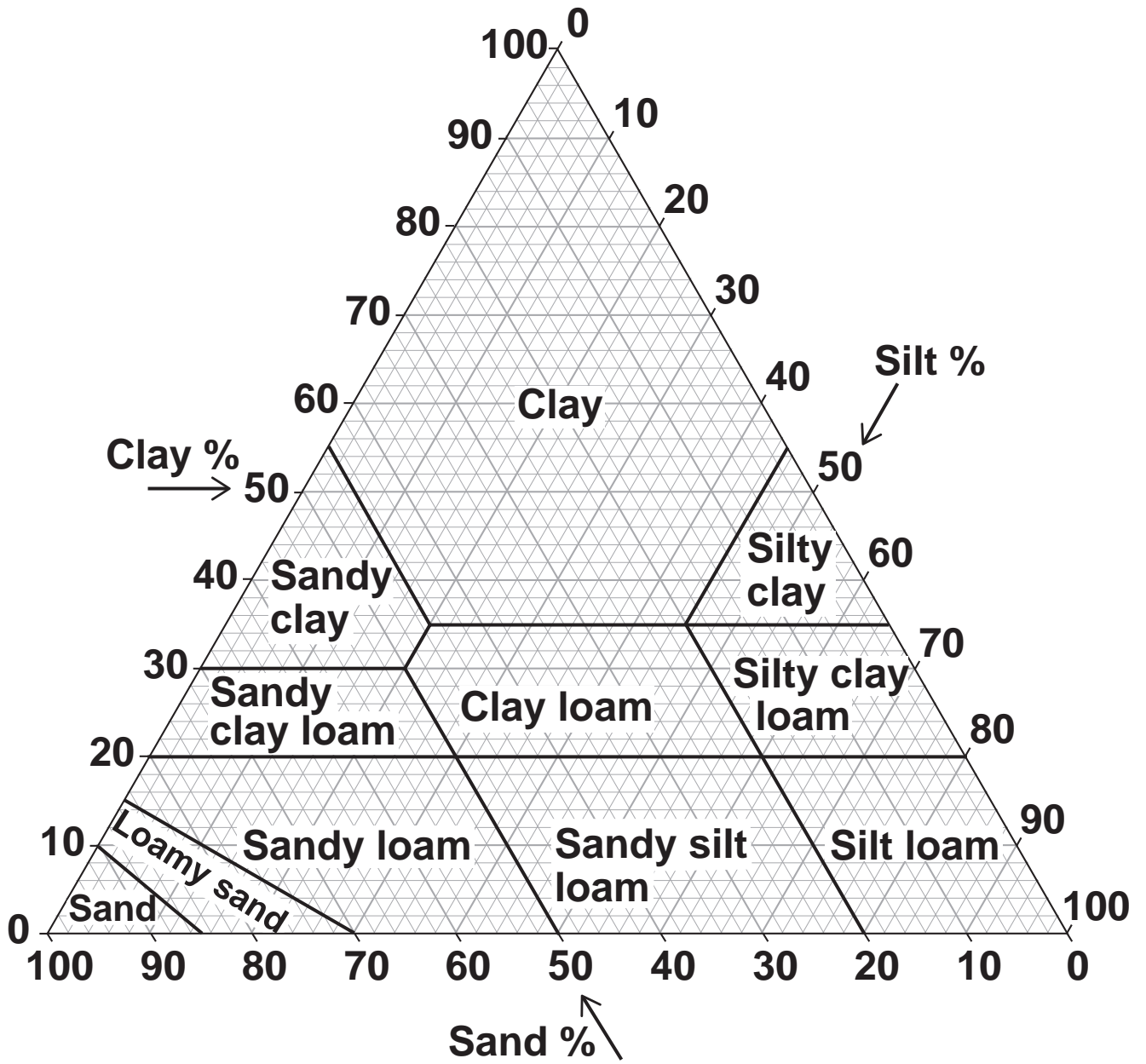


TABLE 2

Soil feature	Soil			
	A	B	C	D
pH	6.7	6.1	4.3	7.2
water in original sample / % mass	28	30	28	20
organic matter content in dry soil / % mass	24	18	19	25
sand content in dry soil / % mass of mineral matter	33	25	15	52
silt content in dry soil / % mass of mineral matter	36	65	65	26
clay content in dry soil / % mass of mineral matter	31	10	20	22

FIGURE 2

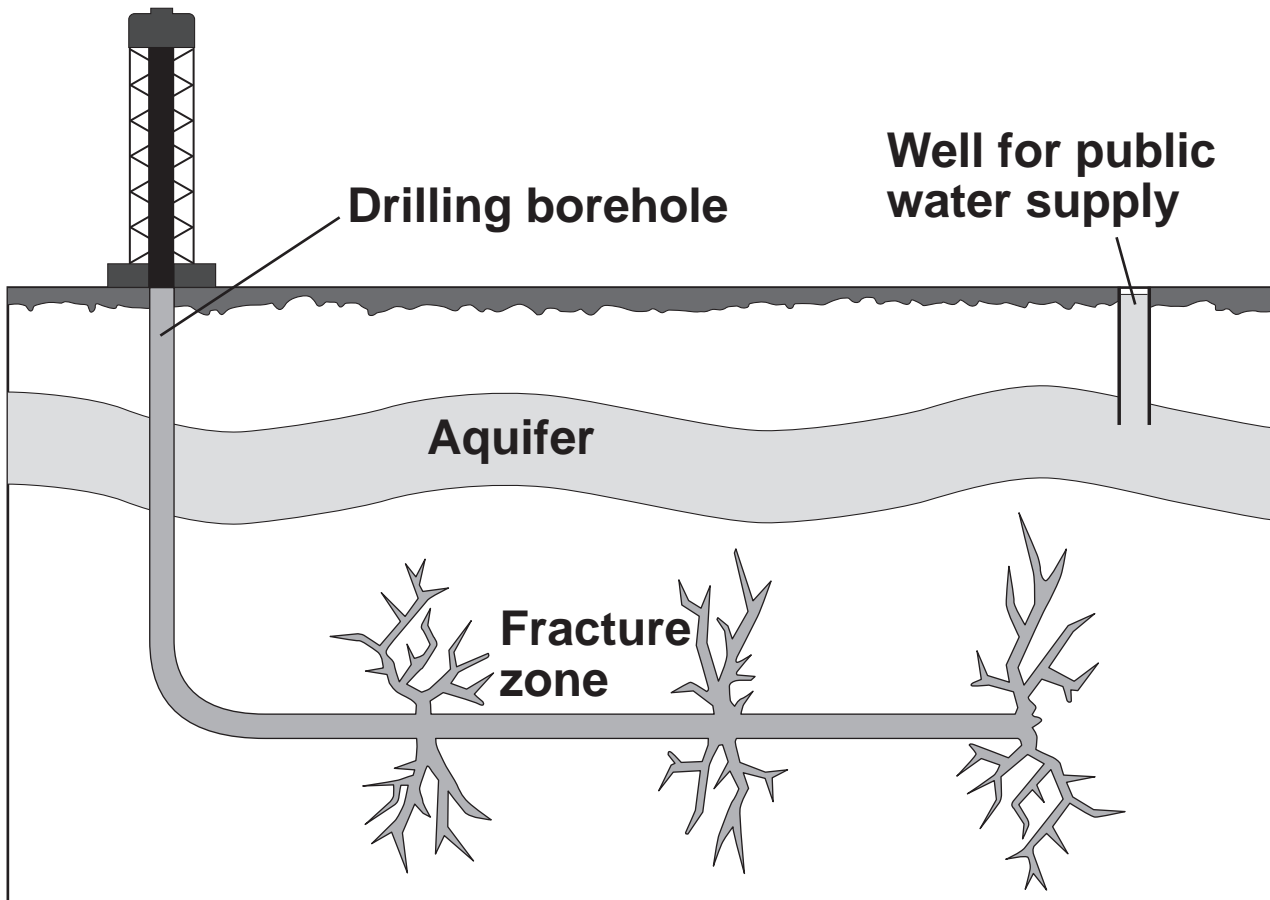


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TABLE 3

Crop details		Legume crop		
		Common bean	Pea	Soybean
Above-ground crop	N-content / % of biomass	2.3	2.8	3.0
	Biomass / kg	1790	1700	2530
Seeds	N-content / % of biomass	25	25	40
Roots	N-content / % of biomass	2.1	2.2	1.7
	Biomass / kg	480	190	330
Total crop N-content / % of biomass		2.6	3.0	3.4
Total crop biomass / kg		2270	1890	2860
Source of N / %	Bacterial fixation	44	70	52
	Other sources	56	30	48

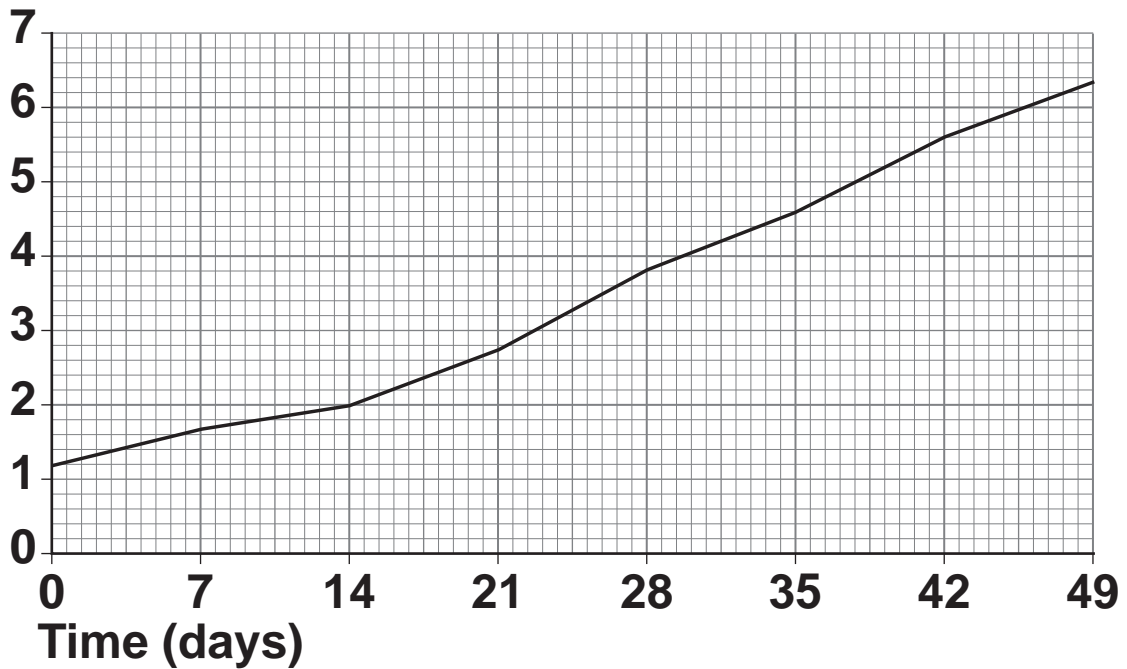
**FIGURE 3**



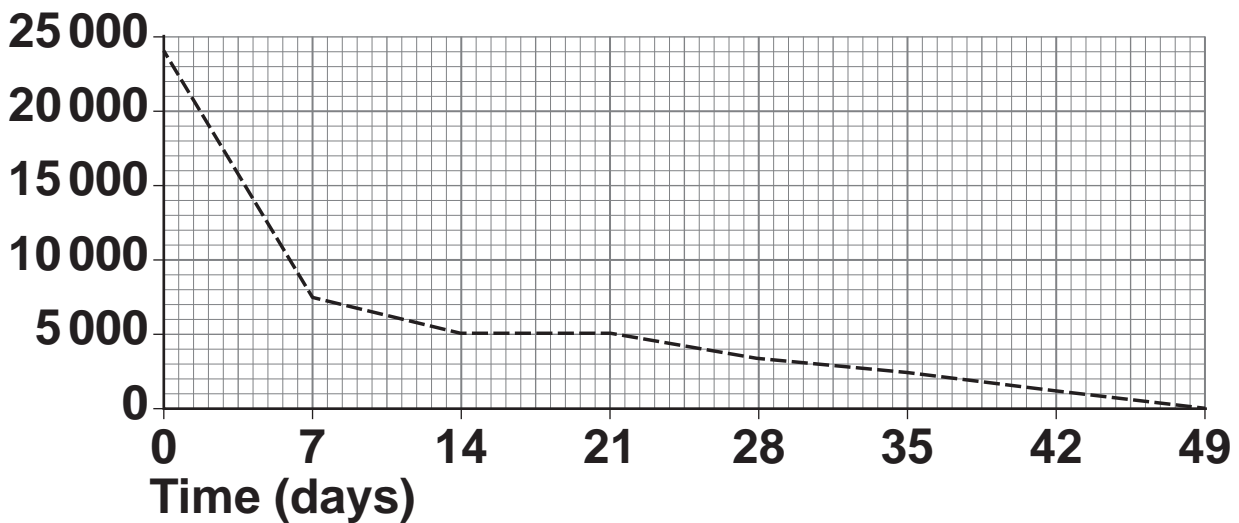
**[Turn over]**

FIGURE 4

Bacterial  
population  
/  $\times 10^4$  cells  
per  $\text{cm}^3$



Hydrocarbon  
concentration  
/  $\text{mg l}^{-1}$

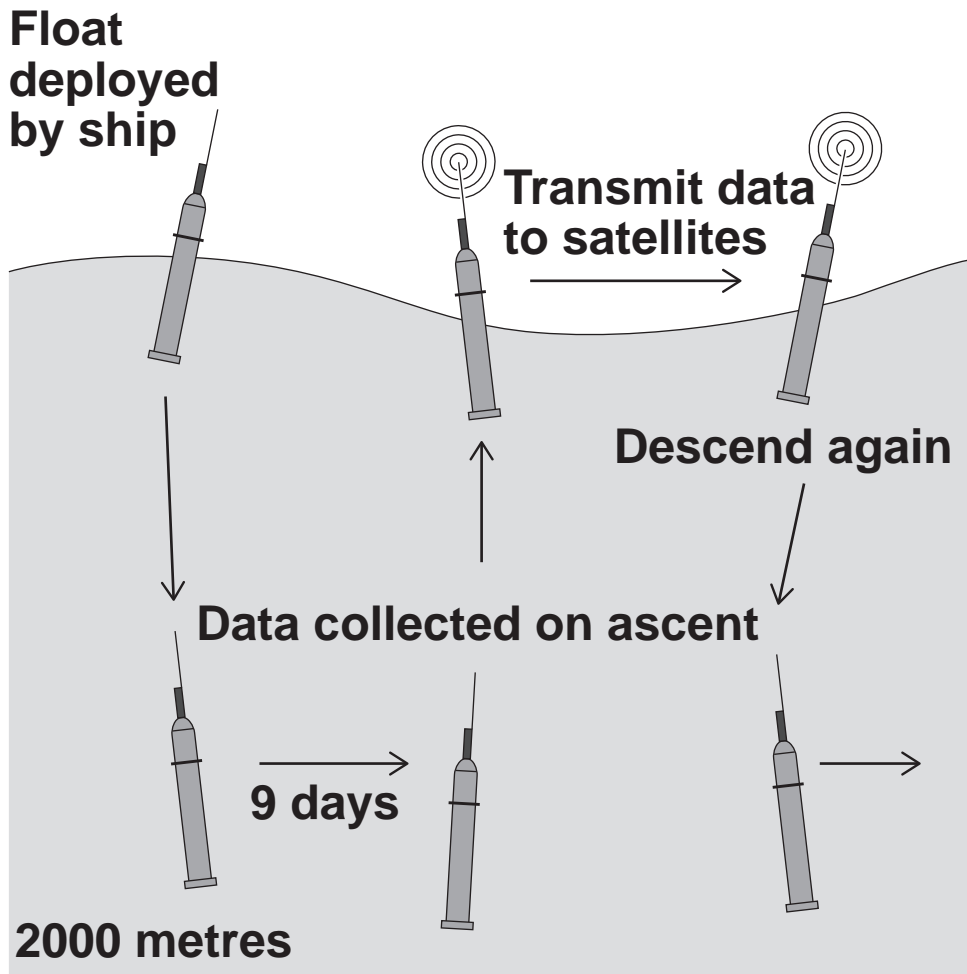


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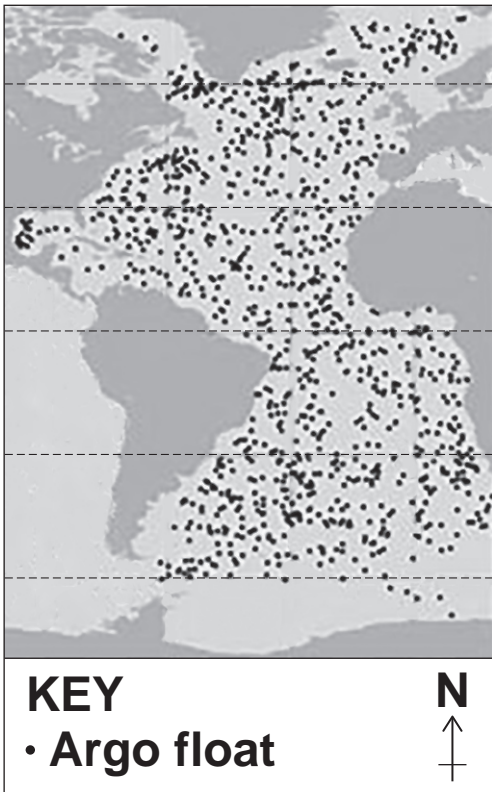
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## FIGURE 5 Argo floats

Nearly 4000 free-floating Argo floats have been deployed globally since 2000. The map shows the position of the Argo floats in the Atlantic Ocean on one day in 2018.







Arctic Circle

Tropic of Cancer

Equator

Tropic of Capricorn

Antarctic Circle

**KEY**

• Argo float

**N**



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## FIGURE 6 Ship-based surveys

Sea water is sampled from various depths using bottles attached by line to the ship.

The sea water is analysed on board the ship.

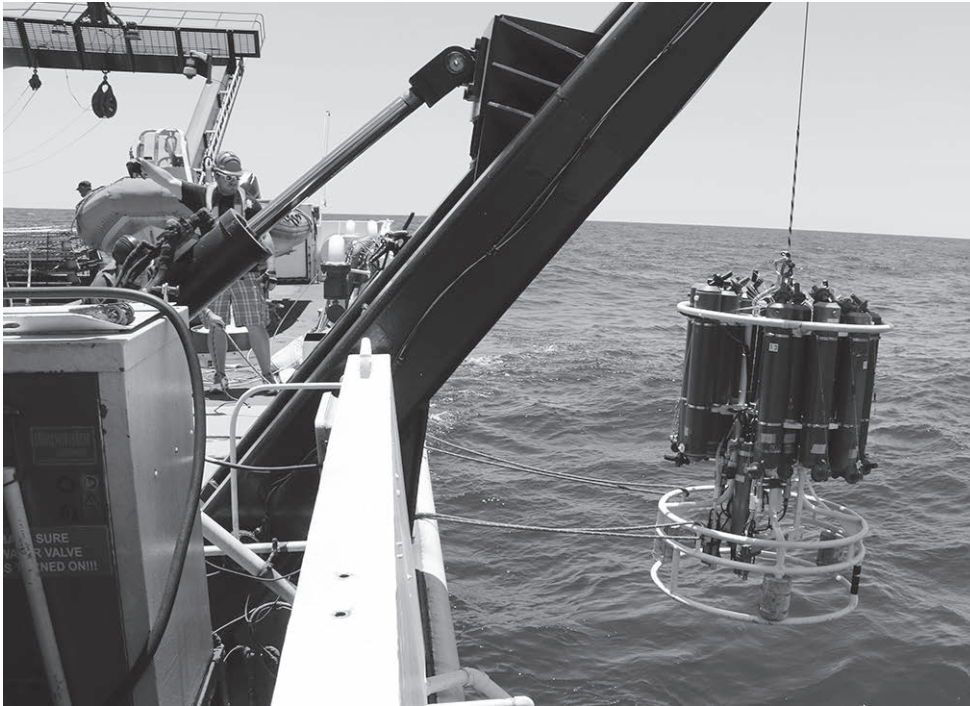
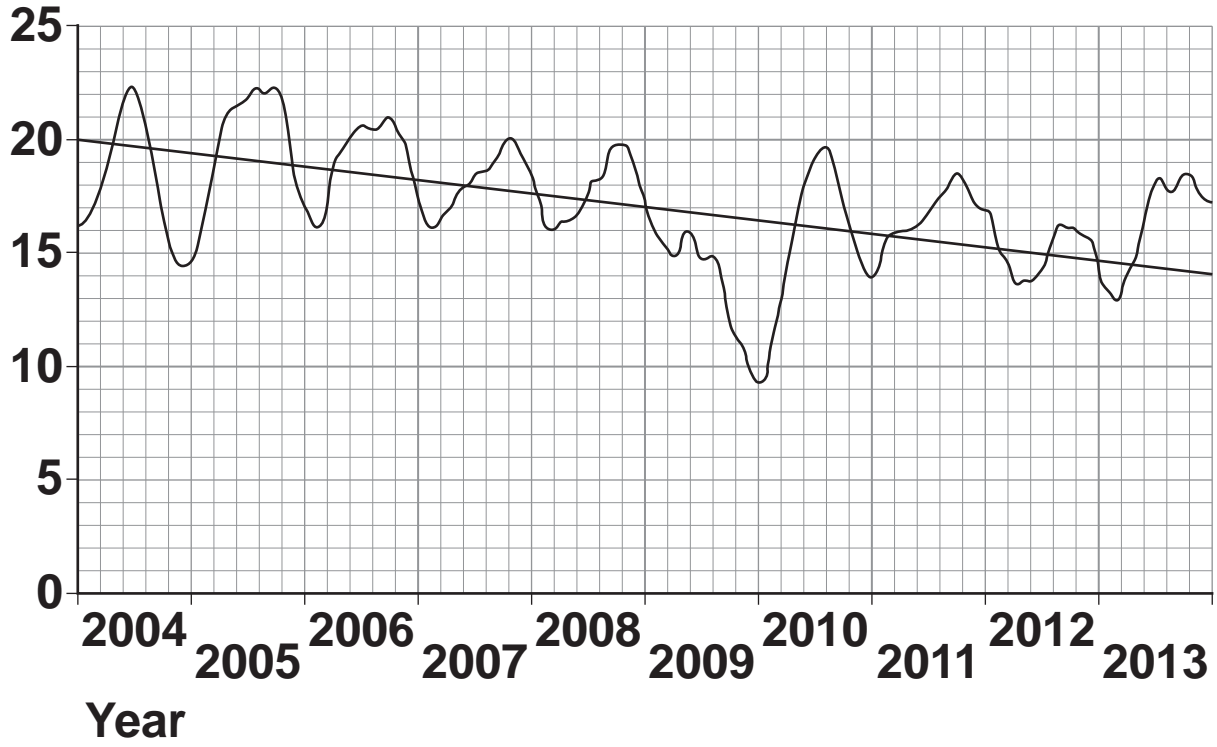


FIGURE 7

Flow/  
 $10^6 \text{ m}^3 \text{ s}^{-1}$



[Turn over]

FIGURE 8

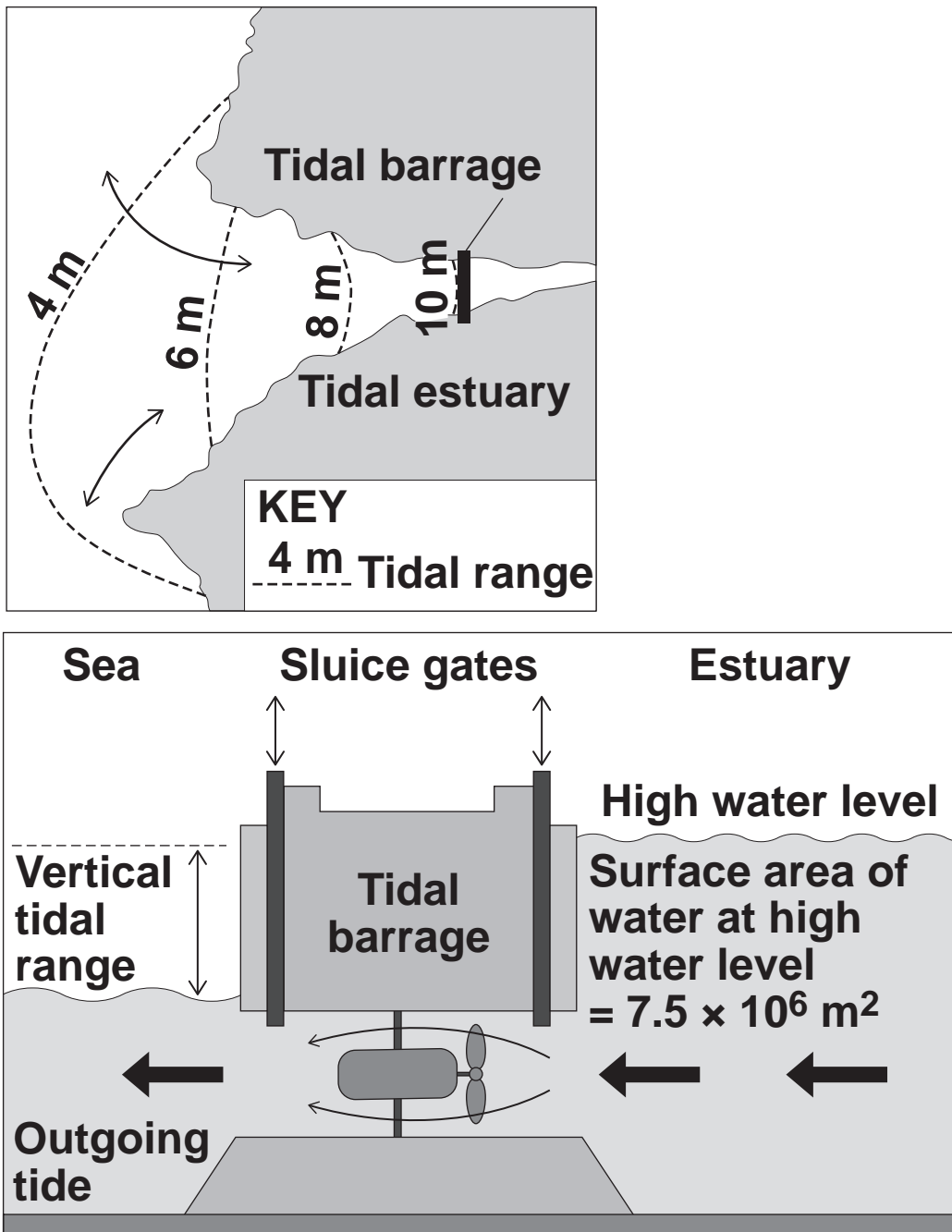
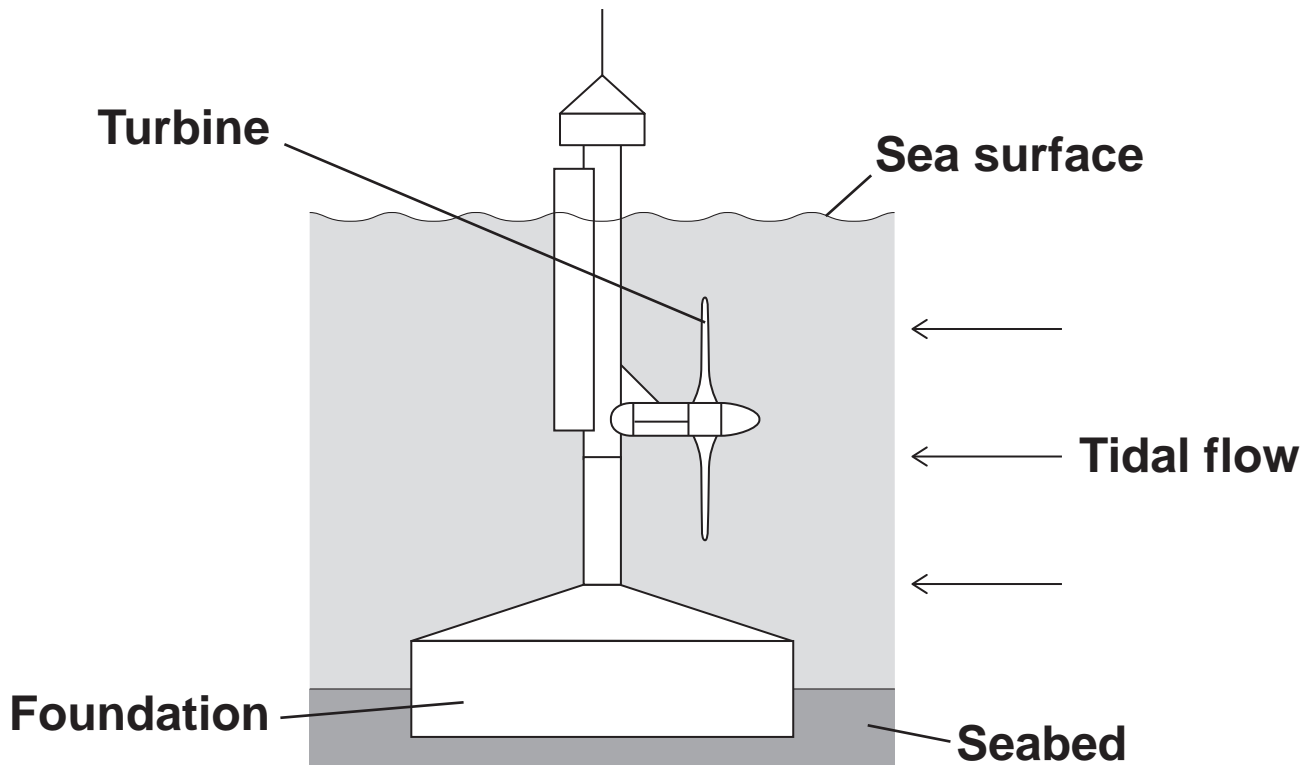


FIGURE 9



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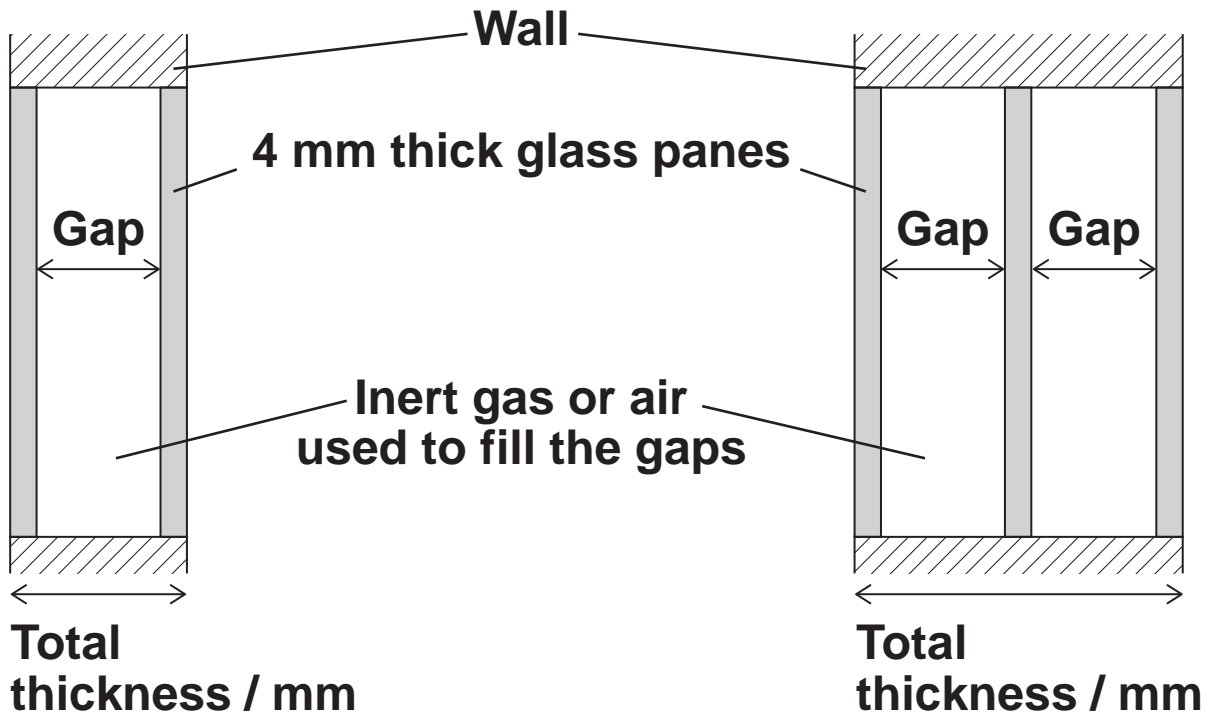
**FIGURE 10**

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**FIGURE 11**

**Cross-section of a double-glazed window**

**Cross-section of a triple-glazed window**



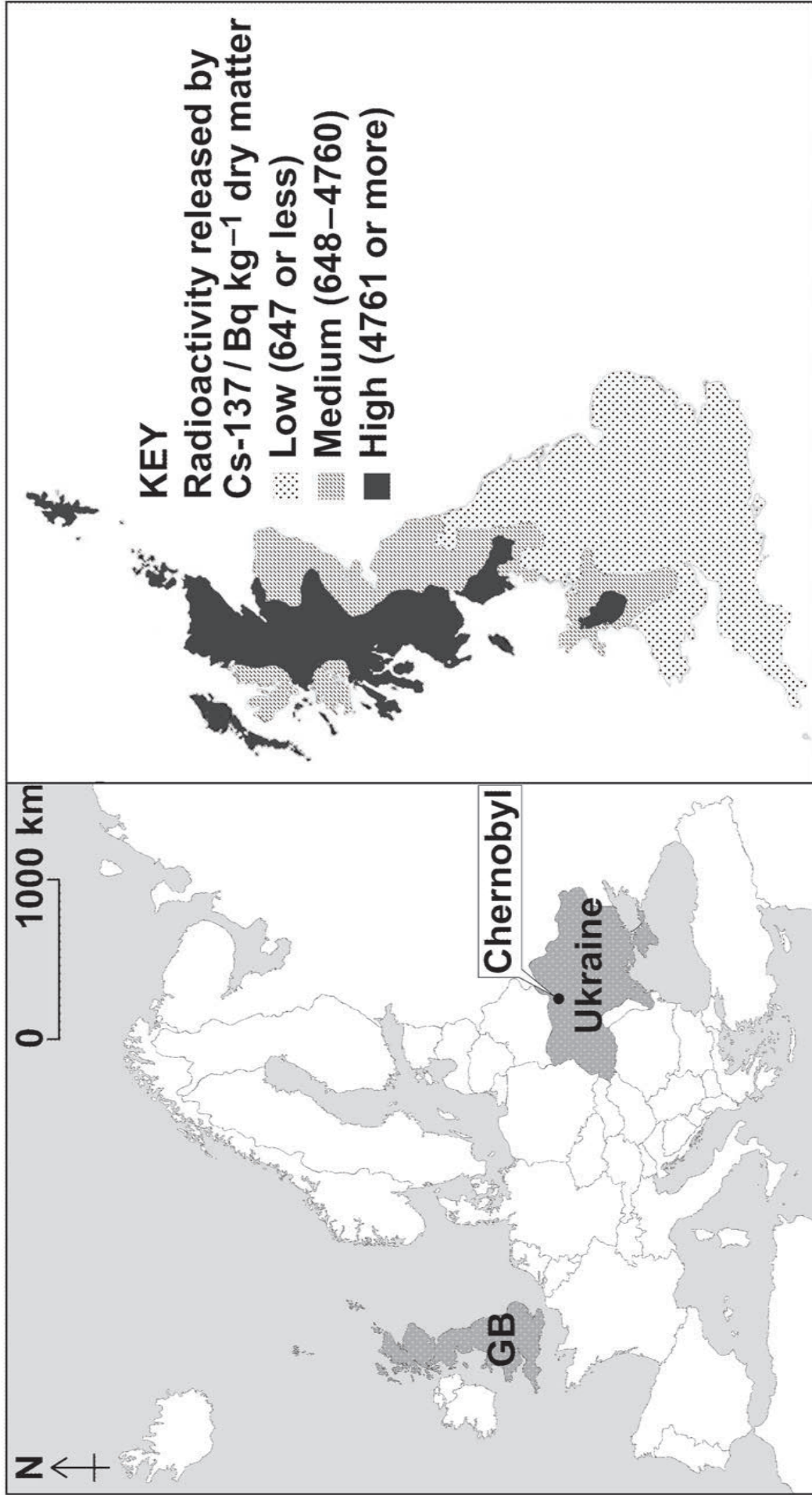
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## FIGURE 12

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FIGURE 13



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