

0 2

A gardener wants to add compost to the soil to increase his yield of strawberries.
The gardener wants to make his own compost.

0 2 . **1**

An airtight compost heap causes anaerobic decay.

Explain why the gardener might be against producing compost using this method.

[2 marks]

The gardener finds this research on the internet:

'A carbon to nitrogen ratio of 25:1 will produce fertile compost.'

Look at **Table 2**.

Table 2

Type of material to compost	Mass of carbon in sample in g	Mass of nitrogen in sample in g	Carbon:nitrogen ratio
Chicken manure	8.75	1.25	7:1
Horse manure	10.00	0.50	20:1
Peat moss	9.80	0.20	X

0 2 . **2** Determine the ratio **X** in **Table 2**.

[1 mark]

Ratio _____

0 2 . **3** Which type of material in **Table 2** would be **best** for the gardener to use to make his compost?

Justify your answer.

[1 mark]

Question 2 continues on the next page

0 2 . 5 Figure 2 shows two strawberries.

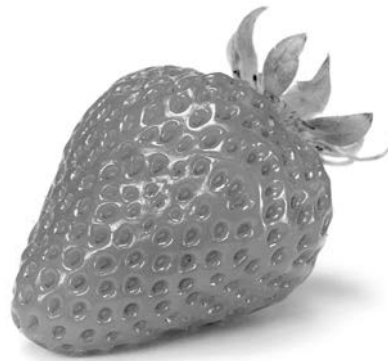
- Both strawberries were picked from the same strawberry plant.
- Both strawberries were picked 3 days ago.
- The strawberries were stored in different conditions.

Figure 2

Strawberry A



Strawberry B



Give **three** possible reasons that may have caused strawberry **A** to decay.

[3 marks]

1 _____

2 _____

3 _____

Turn over for the next question

Question 2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1	methane is produced which is a greenhouse gas / causes global warming	ignore bad smell	1 1	AO1/1 4.7.2.3 AO1/1 4.7.3.5
02.2	(9.80/0.20 = 49 therefore) 49:1		1	AO2/2 4.4.1.3
02.3	horse (manure) closest to 25:1 (ratio)	allow ecf from 02.2	1	AO3/2a 4.7.2.3

Question 2 continues on the next page

Question 2 continued

Question	Answers	Mark	AO / Spec. Ref.	
02.4	Level 3: A detailed and coherent explanation is given, which logically links how carbon is released from dead leaves and how carbon is taken up by a plant then used in growth.	5–6	AO1/1 4.4.1.1 4.4.1.3 4.4.2.1 4.7.2.2	
	Level 2: A description of how carbon is released from dead leaves and how carbon is taken up by a plant, with attempts at relevant explanation, but linking is not clear.	3–4		
	Level 1: Simple statements are made, but no attempt to link to explanations.	1–2		
	No relevant content	0		
	Indicative content statements: <ul style="list-style-type: none"> • (carbon compounds in) dead leaves are broken down by microorganisms / decomposers / bacteria / fungi • photosynthesis uses carbon dioxide explanations: <ul style="list-style-type: none"> • (microorganisms) respire • (and) release the carbon from the leaves as carbon dioxide • plants take in the carbon dioxide released to use in photosynthesis to produce glucose use of carbon in growth: <ul style="list-style-type: none"> • glucose produced in photosynthesis is used to make amino acids / proteins / cellulose • (which are) required for the growth of new leaves 			
02.5	any three from: (storage conditions) <ul style="list-style-type: none"> • (at) higher temperature / hotter • (had) more oxygen • (had) more water / moisture • (contained) more microorganisms (that cause decay) 	allow reference to bacteria / fungi / mould	3	AO2/1 4.7.2.3
Total				13