1 A student carried out an investigation into the decay of grass. He placed 200g of grass into each of three thermos flasks. All flasks had air holes in the lids.

The thermos flasks are good insulators of heat.

The diagram shows the conditions in each of the thermos flasks.

A temperature sensor, connected to a display, was placed into each flask.

![Diagram showing thermos flasks with temperature sensors and a display]

1 (a) (i) **Graph 1** shows the results given by the processor and display after monitoring the temperature through the temperature sensors over 5 days.

Give one advantage and one disadvantage of using temperature sensors connected to a processor and a display to record and display the results. **[2 marks]**

**Advantage** .................................................................................................................................

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**Disadvantage** .............................................................................................................................

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**Graph 1**

<table>
<thead>
<tr>
<th>Day</th>
<th>Day 0</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature °C</td>
<td>22.0</td>
<td>24.0</td>
<td>26.0</td>
<td>28.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Grass + disinfectant  
2. Dry grass  
3. Wet grass
1 (a) (ii) Compare the changes in temperature between flask 2 and flask 3 over the five days [4 marks]

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1 (a) (iii) Explain the changes in the temperature for flask 3 from day 1 to day 5. [3 marks]

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1 (a) (iv) The temperature for flask 1 changed very little.

Suggest why. [1 mark]

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1 (b) (i) The following advice was given on a garden compost bin.

1. Fill with organic waste (waste food, peelings, plant material).

2. Keep air holes clear.

3. Turn the waste material regularly.

What is the reason for carrying out instruction number 3? [2 marks]

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(Total 12 marks)

End

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