0 | 1

Chromatography can be used to separate components of a mixture.

A student used paper chromatography to analyse a black food colouring.

The student placed spots of known food colours, A, B, C, D and the black food colouring on a sheet of chromatography paper.

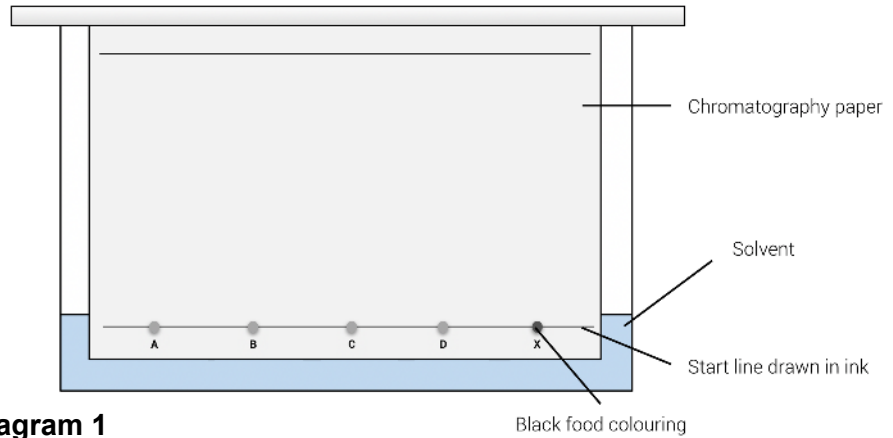The student set up the apparatus as shown in Diagram 1.

Diagram 1

0 | 1 . 1

The student made two errors in setting up the apparatus.
Identify the two errors and describe the problem each error would cause.

[4 marks]

....

....

....

....

....

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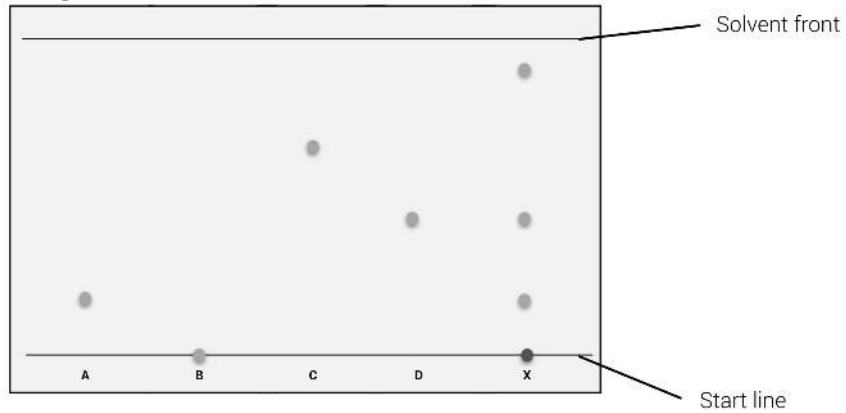
Questions continue on the next page

A different student set up the apparatus without making any errors.

The chromatogram in Diagram 2 shows the student's results.

Diagram 2

Solvent front			
Start line			

| 0 | 1 | . | 2 |

What do the results in **Diagram 2** tell you about the composition of the black food colouring? **[2 marks]**

....

....

....

| 0 | 1 | . | 3 |

Use **Diagram 2** above to complete **Table 1** below. **[2 marks]**

Table 1

	Distance in mm
Distance from start line to solvent front	....
Distance moved by food colour **D**	....

| 0 | 1 | . | 4 |

Use your answers in part 1.3 to calculate the R_f value for food colour D.

....

....

R_f value = ... **[1 mark]**

(Total 9 marks)

End