

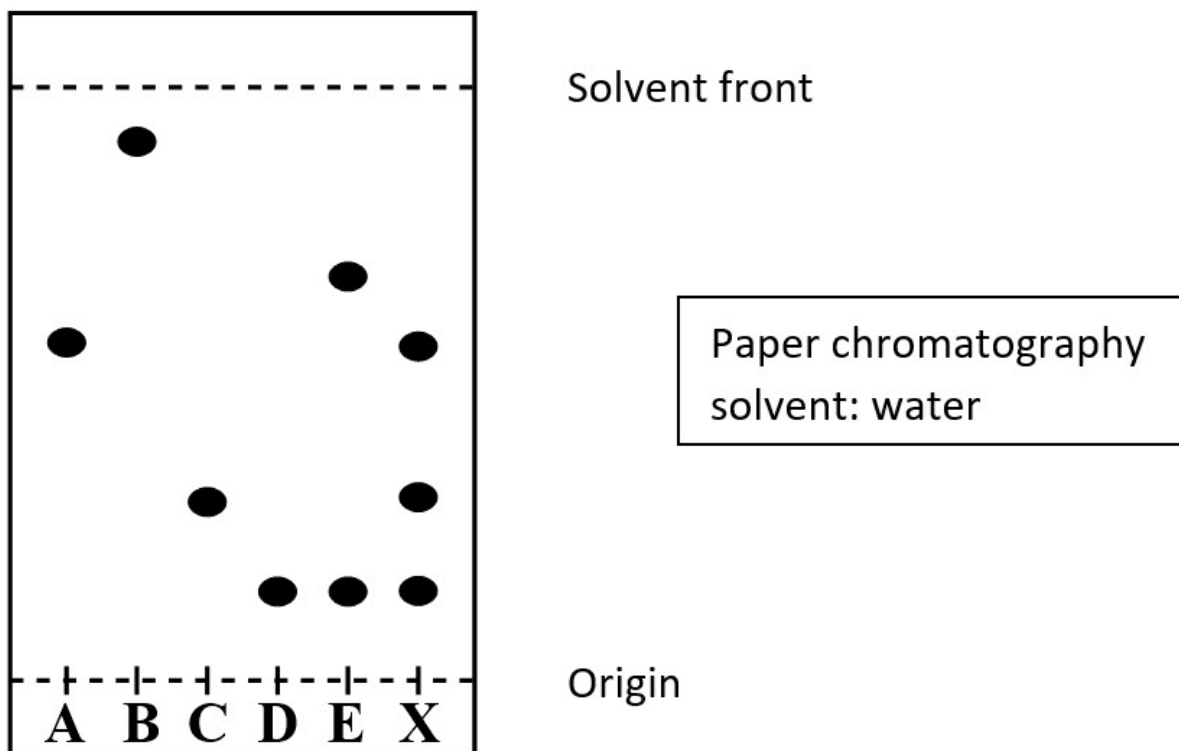
## Finding food fraud with chromatography, 14–16

Education in Chemistry

July 2018

[rsc.li/2JbAXsJ](https://rsc.li/2JbAXsJ)

### Worksheet answers



### Questions

1. How many colours are in the purple jelly sweet? Which of the other colours (A–E) does the purple colour contain?

**Three colours. A, C and D.**

2. Is the ingredient list on Jellyfish Sweet Co sweet packets accurate? Explain your answer.

**No, the ingredients list is not accurate. The purple jelly sweet contains colour A which is synthetic. So, the company cannot claim their jelly sweets contain only natural flavourings.**

3. One of the students says colour E is present in the purple jelly sweet. This is incorrect. Explain why the student may have come to this conclusion and explain how you can tell E is not in the purple jelly sweet.

***E has two spots in its chromatogram and one of these is also seen in sample X. This may have caused the confusion for the student. E is definitely not in the purple jelly sweet as the higher spot from E is not also seen in the sample X.***

4. What was the mobile phase and what was the stationary phase in the experiment?

***The mobile phase is water, the stationary phase is paper.***

5. Which of the colours was most soluble in the mobile phase? Explain your answer.

***Colour B, it has travelled furthest up the paper (so must be more strongly attracted to the water).***

6. What did the students use to draw their origin line? Explain their choice.

***Pencil. They had to use something that would not dissolve in water. If they had used a pen, the colours of the pen's ink would have run/separated in the water.***

7. Calculate the  $R_f$  for colour A, show your working.

***$R_f = 0.57$***

- ✓ ***Measures distance between origin and solvent front***
- ✓ ***Measures distance between origin and middle of the spot***
- ✓ ***Uses correct formula and calculates result***