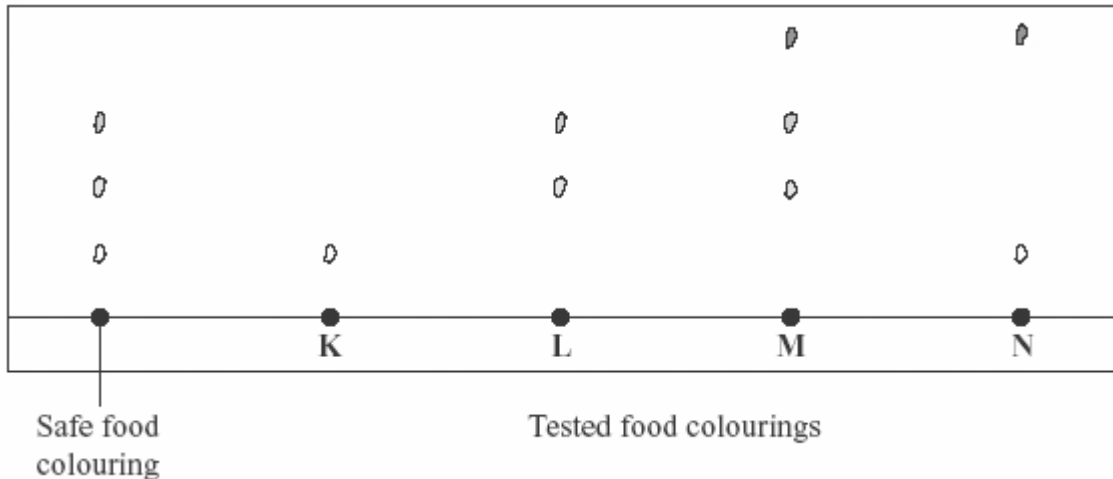


Analysing substances

1. A crisp manufacturer had to remove crisps from sale because they contained Worcester sauce flavour. The Worcester sauce flavour was found to contain the artificial colouring called Sudan 1, which is known to cause cancer. The diagram shows how the dyes in the colourings were detected and identified.

The diagram shows how the dyes in the colourings were detected and identified.



- (i) What is the name of the process that is used to detect and identify the dyes in colourings?

.....

(1)

- (ii) Which food colouring, **K**, **L**, **M** or **N**, is made up of a single dye?

.....

(1)

- (iii) Which of the food colourings **K**, **L**, **M** and **N** are safe to use?

.....

(1)

- (iv) Explain how you can tell that each of the five food colourings is different.

.....

.....

.....

.....

(2)

(Total 5 marks)

2. The picture shows an old Spanish coin. It is called a piece of eight.



(a) A genuine piece of eight has a mass of 27 g.

The masses of four pieces of eight were measured. The results are shown in the table.

Coin	Mass in grams
A	27.0
B	26.9
C	25.9
D	26.8

(i) What is the range?

.....

(1)

(ii) Which coin, **A**, **B**, **C** or **D**, is most likely to be a forgery?

(1)

(b) A genuine piece of eight is 90% silver.

Coins can be analysed to prove they are genuine.

(i) Chemical analysis using acids and alkalis is **not** used on such rare and valuable coins.

This is because chemical analysis

.....

(1)

(ii) Rare and valuable coins are analysed by instrumental methods.

Suggest why.

.....

.....

(1)

(Total 4 marks)