

Name \_\_\_\_\_

# Smarties Challenge

You should each have a tube of Smarties and a piece of kitchen roll.

Each group should have some large sheets of paper, some felt pens or coloured pencils, a ruler, some A4 paper and some squared paper.



*Now for the challenge.*

1. Nominate a scribe.

## Estimation and recording data

2. Without opening your Smarties, estimate the number of sweets in your tube. The scribe should write each person's name and estimate on a large sheet of paper in a table like this:

Name	Estimate	Actual number
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3. Open your tube and count the actual number of Smarties in your tube. The scribe should record each person's result in the third column.

## Mean, mode, median and range

4. In your group work out the range for the estimates and for the actual number of Smarties. Write this on your sheet.
5. Now work out the mean, median and mode for the estimates and the actual numbers.



## Measurement

6. Measure the diameter of a single Smartie as accurately as you can and retain this information for later.

Name \_\_\_\_\_

### Fractions and percentages

7. Each person now needs a sheet of A4. On this sheet, record the total number of Smarties in your tube and how many of each colour you have. Represent this data as fractions expressed in their simplest forms.

8. Convert these fractions into percentages.



9. As a group, record the total number of Smarties in each colour for all of you. Represent this data as fractions then convert to percentages. The scribe should record this on a large sheet of paper.

### Problem solving

10. On your own, look for the total number of calories in a tube. Work out how many calories there are in a Smartie in your tube. Discuss with the group why this is not accurate.

### Representing data

11. You need to record the data for your tube of Smarties (how many of each colour) as a graph. In your group, discuss which sort of graph is most suitable for your own individual results and also for the group results. Create your own graph.



### Extension work

12. Using the measurement of the diameter which you took earlier (task 6) work out the radius.

13. Using the formula  $\pi \times \text{diameter}$  (where  $\pi$  is 3.14) work out the circumference of a Smartie.

14. Using  $\pi \times \text{radius squared}$  work out the approximate surface area of a Smartie – remember it has 2 sides.

15. If Smarties were packed flat in trays in a box which measured 3cm x 3cm x 3cm how many Smarties would you get in a box?

### 16. Now you can eat your Smarties.