

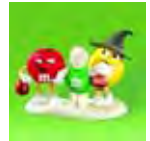
Name:

M & Ms Investigation

Date:

Do all packets of M & Ms contain the same number and colours of M & Ms?

Individual data - estimating/predicting



1. First, before opening the packet, look at it carefully and estimate the number of colours, and the total number of M & Ms.

Before you open your packet, estimate:

- a. How many M & Ms are there altogether? _____
- b. How many colours are there? _____
- c. Will the same colours be found in each packet? Y/N
- d. Will the same number of M & Ms be in each packet? Y/N

Sorting/Classifying

2. Sort the M & Ms out into colours.

- a. How many colours are there? _____
- b. Write down the colours in the table below.
- c. Does everyone else have the same colours? Y/N

Counting

3. Count the number of M & Ms in each colour

a. Write down the numbers in the table below.

Count the total number of M & Ms.

b. Add up all the colours, but check your total by adding up all the M & Ms without sorting into colours. _____

Recording

4. Complete the tally chart below.

Tally Chart / Table of Results

Colour	Tally	Number
Total number of sweets		

5. Now draw a Bar Chart to indicate your results.

Kindly contributed by Marion Crocker, Abingdon & Witney College, marion.crocker@abingdon-witney.ac.uk who adapted it (for Level 1-2 learners) from several of the Smartie resources available at <http://www.skillsworkshop.org/topical.htm#Smarties> HD1/L1.1 L2.1 Extract & interpret information. HD1/L1.2 L2.2 Collect, organise & represent data. HD1/L1.3 (L2.3) Find mean (mode, median). HD1/L1.4 L2.4 Find range. Also ideal for underpinning L1-2 Functional Mathematics (but the process & performance skills must also be considered).

Extracting information

- From your tally/bar chart, which colour has the highest number of sweets? _____
- Which colour has the lowest number of sweets? _____
- What is the difference between the highest number and the lowest number of sweets? This is the RANGE. _____

Using collective data

- In the table below, write in everyone's name (adapt the table to suit the number of students in the group), the colours (adapt to suit the number of colours you have found) and total number of colours they had and the total number of sweets. (You may use a calculator for this, but if you add up the total by hand, use a calculator to check.). Your tutor may decide to write this on the white board and have you enter your own results.

	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7
Colour 1							
Colour 2							
Colour 3							
Colour 4							
Colour 5							
Colour 6							
Colour 7							
Total number of colours							
Total sweets							

Divide into 2 groups.

Group 1 – on flipchart or sugar paper, draw a pictogram to show the collective data.

Group 2 – draw a bar chart on brown wrapping paper using an appropriate 'key'.

- Who had the most sweets in the class? _____
- Who had the least sweets? _____
- What is the range in the no. of sweets (per packet) for the whole class? _____
- What is the mean (average) number of sweets in a packet? _____
- What is the median number of sweets in a packet? _____
- Is there a mode and if so, what is it? _____

**Was the question at the beginning true?
Do all packets of M & Ms contain the same colours and the same number of sweets?
Why?
Is it fair?**

Thinking about averages

Suppose the packets with the most M & Ms contained an extra 100.

- What would happen to the mean? Would it get higher, lower or not change?

- What would happen to the median? Would it get higher, lower or not change?

Representing data

- Eat some of the M & Ms so that you have exactly 30 left.
- A circle has 360 degrees. How many degrees will represent one M & M?
- Work out how many degrees are needed for each colour and record in the table.

Colour	Number of degrees

- Check that the total number of degrees is 360.
- Use a protractor to draw a pie chart to show your information. Make sure that it is coloured correctly, with a key and a title, to show the proportions of colours of M & Ms in your packet.
- Add numbers to the pie chart, to show how many of each colour of M & Ms are in your set of 30 sweets.

Now eat the rest of the M & Ms 😊