

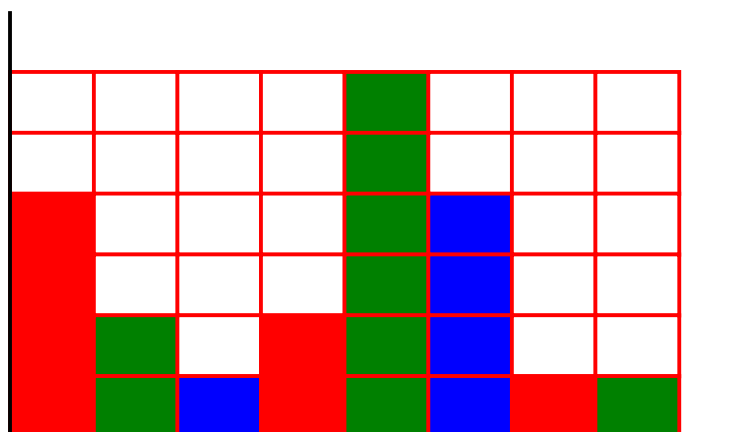


# INVESTIGATION



## Recording Data

Frequency



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# MathSphere

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## Recording Data

In this investigation, you are going to set up an experiment of your own and record the data you obtain.

When carrying out an investigation of this type, it is very important that you know before you start exactly what it is that you are trying to find out. It is too easy to say you want to do a survey about sweets or television programmes.

What you need to discuss is exactly what it is you want to find out.

This means you normally need to begin with a question.

Here are some examples of good questions:

Do humans grow the same amount each year?  
Is there a difference between boys and girls?

Does the number of snails in a garden change from month to month throughout the year?

At which time of year do plants grow the quickest?

Do the chocolate bars that are advertised most on television really sell more than those that are not?

You could ask questions to help you with a project:

For example, if you are doing a project on shops in your area you could ask questions such as:

Which type of things do people like to buy locally and which do they buy from larger towns?

Which type of shops in your area have most customers?

To show you how to do this properly, we shall take the question about how plants grow throughout the year.

Follow these steps:

1. Write down clearly the question you want answered.  
At which time of year do plants grow the quickest?
2. Estimate how long you think you will need for this experiment.  
This experiment will need a whole year because the question asks us to find out at which time of the year plants grow the quickest.
3. Decide what you are going to do to obtain your results.  
We are going to plant some sunflower seeds and measure the height of six plants every week for a year.
4. Decide how you are going to record your results and how you are going to display them.  
We will make up a table with seven columns. The first column will be the date of the measurement and the other columns will be the height of the plants in centimetres.  
We will display our results in a bar chart. There will be 52 columns, one for each week of the year.
5. Write down any special precautions you need.  
We are measuring several plants in case one or two die before their time is up. We also need to support the plants with canes so that they do not blow over in high winds.
6. Say how you will decide in which times of the year the plants will grow the fastest.  
The plants will be growing fastest when the difference between a column on the bar chart and the previous column is greatest. We will therefore look at the differences between the columns to see in which weeks the plants are growing the fastest.  
We will then be able to write up our findings like real scientists!

**Now you should be able to carry out your own survey!**

## **Answer Guide**

The emphasis here is obviously on planning the investigation. Schools seem to be full of children going into classrooms and saying 'Please Miss, can we do a survey?' When asked what the purpose of the survey is, the children often look totally surprised and really have no idea.

If the children cannot answer simple questions such as 'Why are you doing this survey?' and 'What are you going to do with your results?', they really need to go back to the drawing board!

They also need to be aware of potential problems. For example, given a list of chocolate bars and asked which is my favourite, the current author normally replies 'All of them', which is the absolute truth! Children rarely know how to cope with this reply.

Similarly, they should also be aware that the answers they are expecting are not always the ones people will give. For example, when asked which team I support, my answer is McLaren!