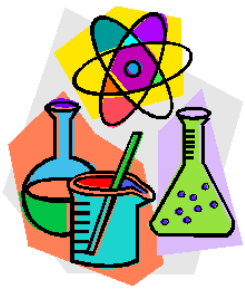
St Matthew's Academy

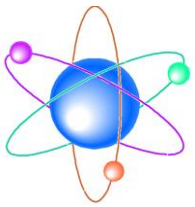
Science Department

S1 and S2 Science

Information for Parents



What is Science?

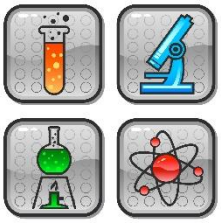


Put simply, Science is the study of the world around us.
S1 and S2 pupils follow a varied course introducing scientific knowledge and ideas. They are encouraged to listen and observe and investigate scientific ideas from cells to the stars and lots in between.

Pupils have settled in to science studying a range of topics about life and living things; substances and materials; energy and electricity. This will lead to them choosing one or two separate Science National Courses which they will follow in S3.

Even now some youngsters will have interests in particular areas of Science.

Our job, along with you at home, is to encourage that interest in all pupils.



S1 and S2 Science consists of a number of units of study. Following a two week **Introduction to Science**, pupils in S1 will study a series of aspects of Science split into two main sections: **Building Blocks** and **How it's Made**; in S2 it's **Sports Science** and **That's Life**.
Each of these sections is assessed with a test at the end. There will also be other, more informal, assessments to check learning.
We will send you regular reports on your children's progress.

Basic Skills

In our Science courses we want our young people to learn and develop some basic skills which will be of great use throughout school and in later life. You can help with this at home.

The first of these is understanding quantities and measurements.

We can find everyday examples of quantities and measurements to share with our children at home.

Perhaps in the kitchen, baking or cooking, we might mention volume of liquids like water or milk measured out in millilitres (ml) or litres (l); we may talk about distances walked or travelled measured in metres (m) or kilometres (km). Noticing a growth spurt, we might take the chance to measure family heights in centimetres (cm). Learning these measurements, and also time and temperature, in everyday situations, help young people apply them effectively in the classroom.

It must be said that, in Science, the skill of *listening* is one which all learners need, and some of us need to practise and develop more than others!

Again, we hope that you might reinforce the importance of listening and maintaining a period of attention to a given task. Listening isn't just about manners, it is critical to understanding instructions and the sharing of information.

Awareness of personal safety is also very important in Science classrooms.

With the pupils, we will agree safe practices for learning in Science. You can help by making sure children bring something to tie up long hair; you can help by encouraging children to take on some responsibilities at home and to be sensible – not fearful – when it comes to matches or hot surfaces, or the use of scissors.




In Science we have a role in developing children's literacy and numeracy skills. Throughout Science, pupils have to read to gather information; they have to read to reinforce understanding. The Internet and wider media provide good sources of information, but books still have a place in learning. We hope that you will encourage your children to read for information, for understanding, for pleasure.

Even in these days of Smart Phones and PlayStations, the skills of reading and writing still have a very important place in learning.

We hope that you'll encourage your children to write in sentences and complete homework exercises thoughtfully and neatly.

Numeracy Skills

Number plays an important part in Problem Solving activities met throughout Science.

When it comes to number work, a lot of young people seem to put up barriers.

Barriers are there to be overcome.
We will work on various number based skills which are used in Problem Solving activities in S1 and S2, and right the way through Science courses.

Below are some examples of number tasks we use in Science.

It would be helpful if, from time to time, you could go through these with your child and maybe even find some day to day examples to reinforce their importance.

The skills areas used in S1 and S2 courses are:

- Calculating averages from a number of readings
- Calculating percentages
- Pie charts
- Bar graphs
- Line graphs

Averages

Having taken a number of readings, add them up and divide by the number of numbers to find the average.

eg *Find the average temperature from the following readings:*
22°C, 24°C, 21°C, 23°C.

Average Temperature = all temperature readings **totalled**
number of readings

Average Temperature = $\frac{22+24+21+23}{4} = \frac{90}{4}$ = **22.5°C**

Percentages

The word percentage means 'per hundred.'

A percentage can be worked out from: $\frac{\text{Number}}{\text{Total}} \times 100$

eg 1 *A pupil scored 50 out of 80 in a science test. What was his percentage score?*

Percentage is found from: $\frac{\text{Number}}{\text{Total}} \times 100$

that is: $\frac{50}{80} \times 100 =$ **62.5%**

eg 2 *15% of the pupils in 1A are left handed.*
There are 20 people in 1A. ***How many*** *are left handed?*

15% means 15 out of 100 or $\frac{15}{100}$; the number is found from: $\frac{15}{100} \times 20 =$ **3**

So 3 pupils in 1A are left handed.

Pie Chart

Pie charts use different sized sectors of a circle to represent data.

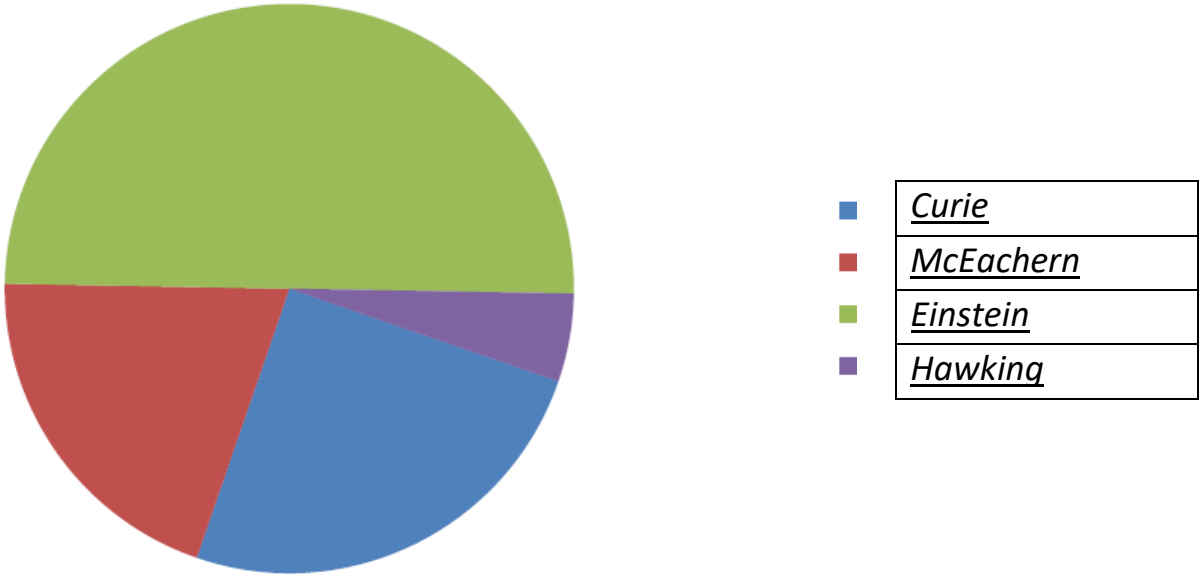
eg *320 S1 and S2 pupils were asked who was their favourite scientist. The results are shown in this table:*

Scientist	Pupil Votes
Albert Einstein	100
Marie Curie	50
Stephen Hawking	10
Mr McEachern	40

Calculate the percentage of the pupils who voted for each of the four options:

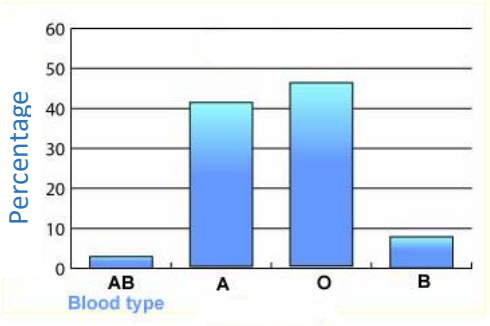
Einstein => (100/200) x 100% = 0.5 x 100% = **50%**
Curie => (50/200) x 100% = 0.25 x 100% = **25%**
Hawking => (10/200) x 100% = 0.05 x 100% = **5%**
McEachern => (40/200) x 100% = 0.20 x 100% = **20%**

Draw a pie chart of the survey results recorded:

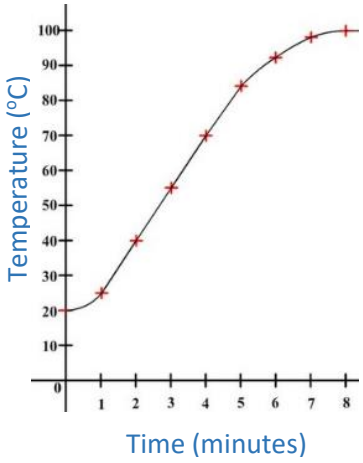


Pupils will be taught all about Bar Graphs and Line Graphs in school, but it is worth noting at this stage that each one is used to represent different situations.

In simple terms, Bar Graphs are used to present information in an 'either/or' situation:
eg *Blood Group can be either A or B or O or AB.*



Blood Group



Line Graphs are used to present information about continuous change:
eg *Heating a liquid with a Bunsen Burner, the longer it's heated, the higher the temperature.*

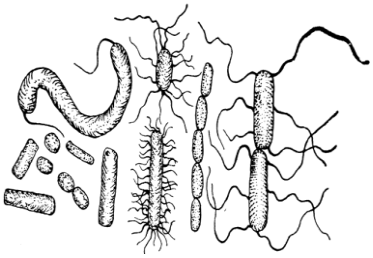
Note that, in all graphs, there are labels and regular intervals or scales on the axes.

In this department, and with your help, we hope to encourage our young people to be the scientists of tomorrow – if that is their chosen path.

Whatever happens, we want them to enjoy their Science experience.

We want them to understand their place in the world around them as they explore and experiment their way through S1 and S2.

Listen and you'll love Science



Respect and good manners are important

Pay attention and try not to shout out !