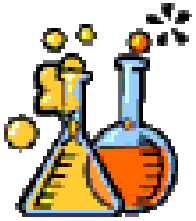
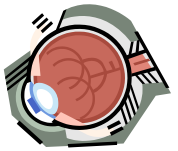
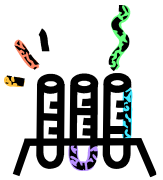
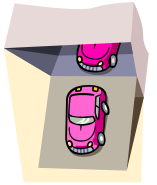
SCIENCE



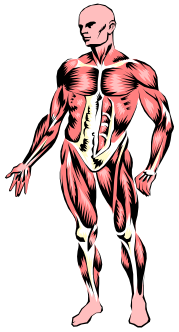





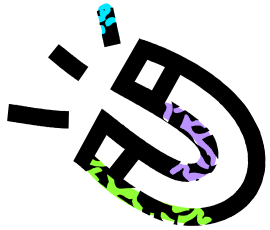



LET'S INVESTIGATE: The Scientific Method

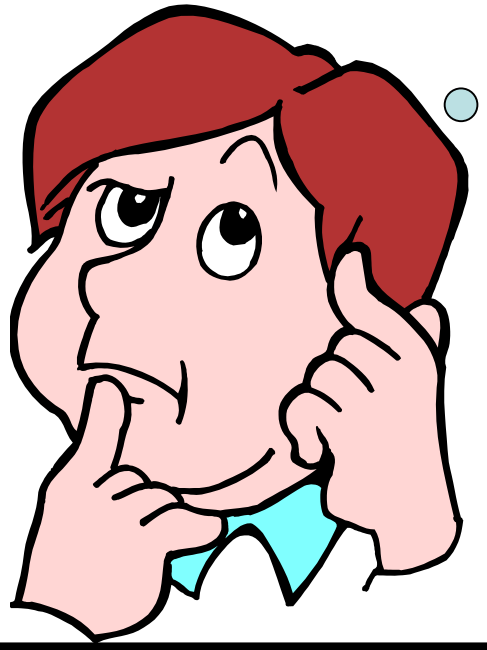








The Scientific Method? What's it all about?



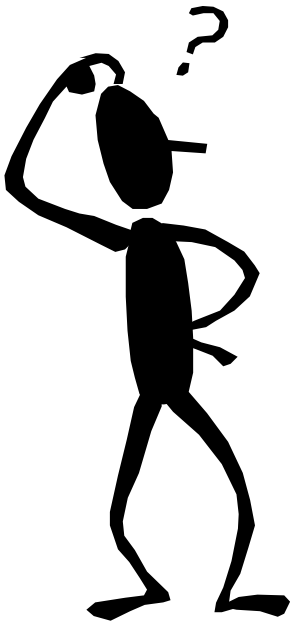
Click the button to play a song about the

scientific method.

What is the Scientific Method?

- steps someone takes to identify a question, develop a hypothesis, design and carry out steps or procedures to test the hypothesis, write down data, and draw a conclusion.
- In other words, it's a way to solve a problem.

Think like a scientist...



Scientists take time to think logically when they are investigating a question or problem.

They break things down into many steps that make sense.

Steps of the Scientific Method

1. Ask a QUESTION or identify a problem.
2. Gather information and form a HYPOTHESIS.
3. Create an EXPERIMENT to test your hypothesis.
4. Collect DATA and OBSERVATIONS by doing the experiment.
5. Draw a CONCLUSION.
6. SHARE your findings.

Asking questions

Does exercise make your heart beat faster?

Do plants need water to grow?

All investigations start with a question !

What question could these children be investigating?

What are they predicting will happen?

I predict that...

A HYPOTHESIS is an EDUCATED GUESS or what you think is going to happen in your experiment.

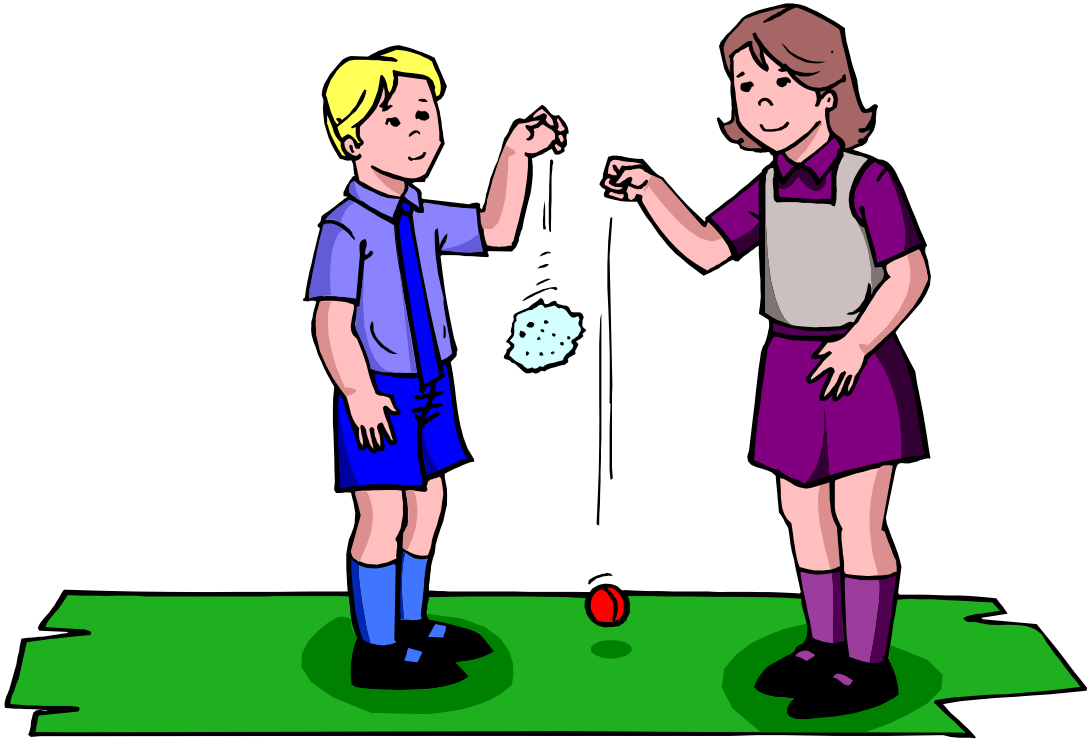
Example: I think that the metal items will be the best conductors of electricity.

Because…

You need to give a reason why your hypothesis is correct.

Example:
…..because metal is used in wires in my home.

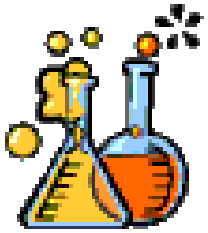
What are these two finely dressed children investigating?

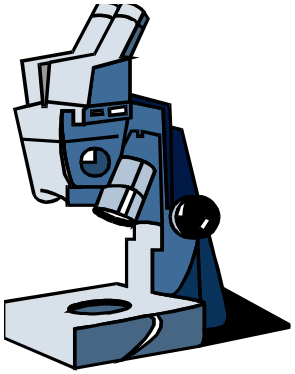


What is their HYPOTHESIS?

Designing an experiment...

The next step scientists take is to create and conduct an experiment to test their hypothesis.





I will change...

In every experiment, we change 1 thing, this is called a variable.

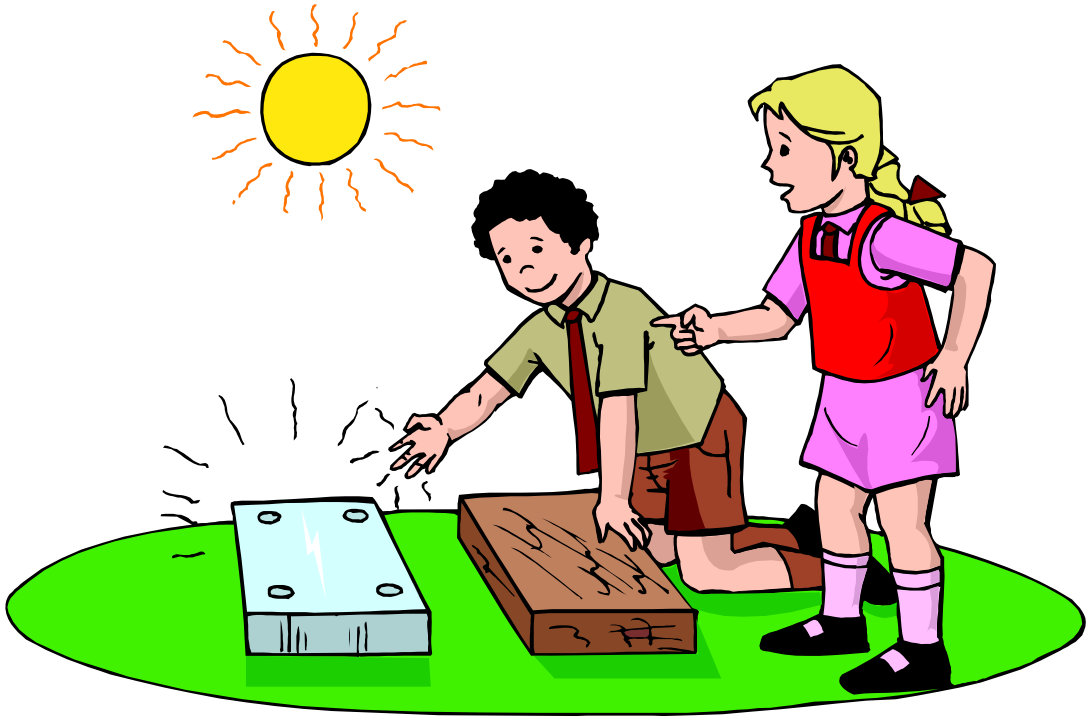
Example: I will only change the kind of metal used in my experiment to test which is a better conductor of electricity.

How do I make it a fair test?

A fair test is when we keep everything the same except the variable. (one thing we change)

Example:
I will only change the kind of metal used in my experiment to test which is a better conductor of electricity.

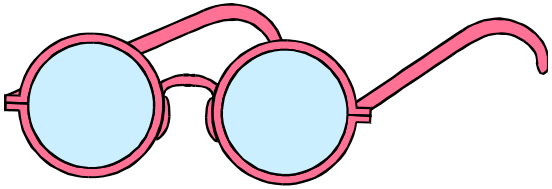
What are these children investigating?

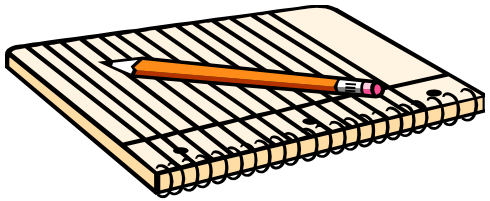


What do you think is their variable? How did they make it a fair test?

After doing the experiment...

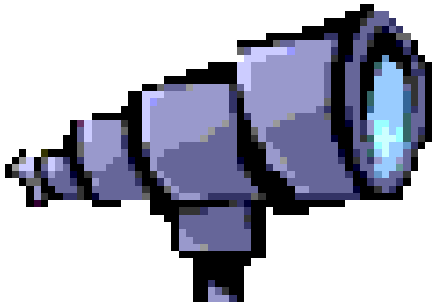
A key to experiments is observing what happens and writing it down.





Gathering information or data is very important. Write it down so it is **readable** and **makes sense** to other people who read it.

What are the results of my experiment?



After the experiment, you need to write in detail what happened in your experiment.

Example:
What happened? The materials that were made out of metal made the bulb light up brightly. However, the materials that were not made out of metal did not make the bulb light at all.

How do I draw a conclusion?

Your hypothesis does not have to be correct!!

You need to look back at your HYPOTHESIS and see if you were correct!

Example:
Are your results what you predicted?
Yes, I thought that metals would be the best conductors of electricity and the results of my experiment proved that this was true.

Explain why your hypothesis was correct or not.

You need to explain (give reasons why) your hypothesis was right or wrong.

Example:
All of the materials that were metal made the bulbs light. All of the materials that weren't metal did not, except for the pencil lead.

Repeat, repeat, repeat...

Once a scientist completes an experiment, they often repeat it to see if they get the same findings and results.

This is really what we call verification, or checking things out to make sure everything is valid and will happen again and again.

Make sure to share!

Scientists share their experiments and findings with others.

Scientists can learn from each other and often use someone else's experiences to help them with what they are studying or doing.