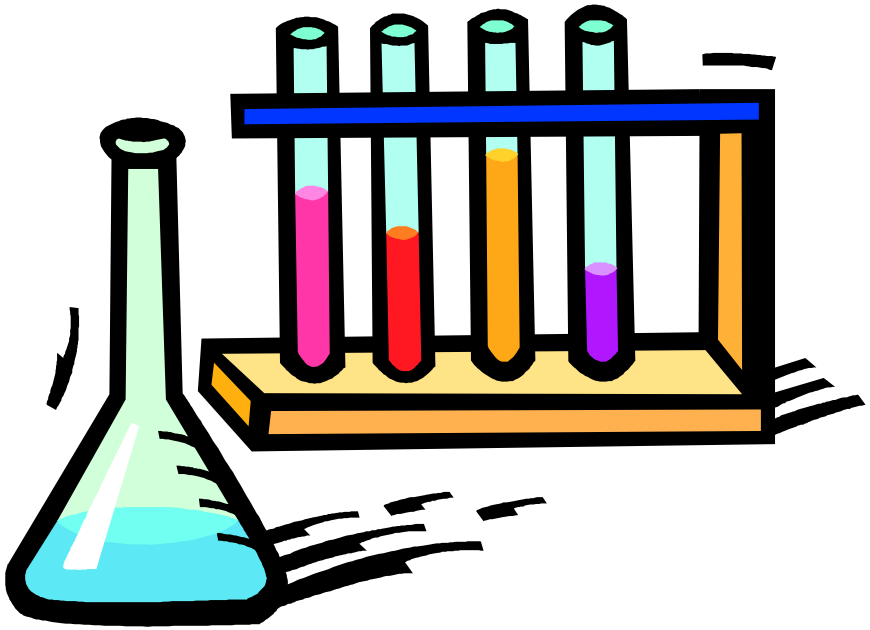
Fair Testing



What is fair testing?

Fair testing is a way to find the answer to a question and know that the answer is correct.

It helps us to be sure of the cause of something.

Fair testing

- Change one thing
- Measure one thing
- Keep all other things the same

Doing this means we can tell what causes the change.

Fair testing

- The thing we are changing is called an **independent variable** (changed by the scientist conducting the test)
- The thing we are measuring is called the **dependent variable**
  - This is because the result depends on the thing we are changing

Step 1: the question

We know that sherbet fizzes when put in our mouth – but...

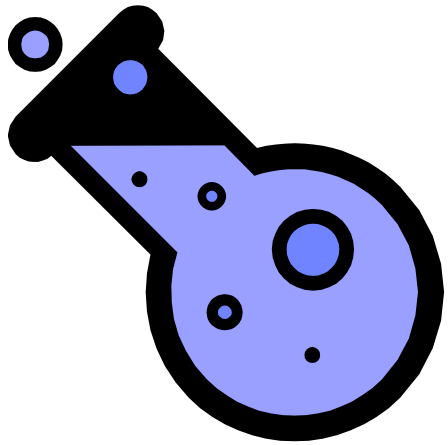
- What question do we want to answer?

- Q: What sherbet ingredients react to cause the fizzing?

Step 2: the hypothesis

- An educated guess about how things work
- An easy way to remember:
  If ……[I do this]….., **then** …..[this will happen].

  If I mix different sherbet ingredients with water, then I can find out which ones cause sherbet to fizz.
- Needs to be worded so that it can be tested by your experiment



Step 3: test the hypothesis

- How will you answer the question?

- Conduct an experiment
  - Mix ingredients together
  - Add water
  - Watch for fizz

Step 4: how do I know I am right?

- Fair testing!
  - Use **controls** - test ingredients on their own
    - We know there shouldn't be any fizzing
    - Normally done at the same time as the experiment so the conditions are the same
  - Test combinations of two ingredients
  - Change one ingredient at a time (independent variable)
  - Make sure all equipment is clean
    - Contamination!

Sherbet testing

- First measure out all the ingredients into the test
  - T… y
  - W… –
  - M… nts on

Icing sugar & citric acid	Icing sugar & bicarb soda	Icing sugar & jelly crystals	**Icing sugar**
Jelly crystals & citric acid	Jelly crystals & bicarb soda	**Jelly crystals**	
Bicarb soda & citric acid	**Bicarb soda**		
Citric acid			

- Then add the water and watch for fizzing

Sherbet testing

- Remember
  - Step 1: What's the question?
  - Step 2: State your hypothesis – a guess about how things will work
  - Step 3: How do I find the answer?
  - Step 4: How do I know I am right?
    - Change one thing
    - Measure one thing
    - Keep all other things the same