COOKIE!

...and the MOST ANNOYING BOY in the WORLD

WRITTEN and ILLUSTRATED by

KONNIE HUQ

SCIENCE EXPERIMENTS (COOKIE STYLE!) FOR KS2 CHILDREN

INTRODUCTION

Suitable for: Ages 7–11

Includes: Free extracts from the book (pages 181–195) + experiment sheets

How to use this pack: Encourage kids to try some of Cookie's science experiments and record the results!

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ABOUT THE BOOK

Cookie's life is basically over.

Her best friend in the whole world is moving to Solihull because one of her dads has a new job there. Solihull?! Where even is that?! Cookie begs her parents for a pet to fill the void but they have given her an absolute NO. It would be way too expensive and way way too messy.

But Cookie has never been a fan of the word 'no' so she visits the pet shop anyway and sets her heart on the sweetest cutest kitteniest kitten ever: Bluey. But then . . . DISASTER! The most ANNOYING boy she's ever met in her entire nine years goes into the pet shop, buys Bluey and renames her Nigel! And then he joins her year at school! And if that wasn't bad enough, he moves in next door to her. AAAAGGGGHHHHH!

But it's not all bad . . . Cookie gets the chance to go on her favourite TV show, Brainbusters. It's only a chance though – she'll have to win the school science competition first. It shouldn't be too hard . . . all she has to do is keep her head down, and not get too over-excited. Unfortunately that's not Cookie's strong point . . .

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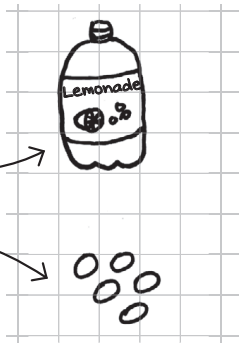
HOW TO MAKE A LEMONADE FOUNTAIN!

Materials

A bottle of lemonade (ideally cold, just like when you drink it)

4 or 5 Mentos (or as many as your dinner lady will give you)



Method

The thing about this experiment is that the moment the reaction starts you need to stand well back, unless you want to get soaking wet like me and Jake did. So a good way to drop all the Mentos in the bottle as quickly and smoothly as possible is to roll up a piece of paper into a tube, stick it down the mouth of the bottle and drop

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* Not the one that's in your body. That's a thin tube about 10 cm long in the bottom-right corner of your abdomen and is part of your digestive system. This is just a section at the end of a book.

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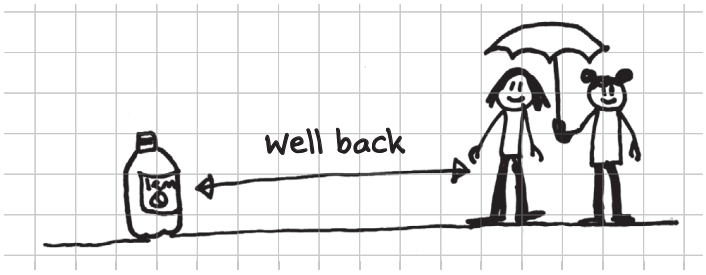
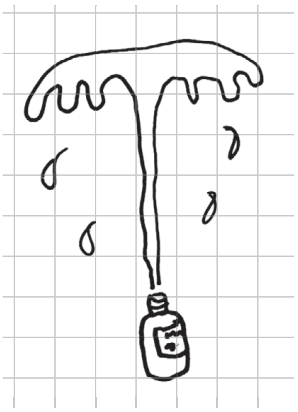
the Mentos in all at once. When you've done this, stand well back . . . maybe with an umbrella!



And don't blame me if you get drenched in lemonade! Always do this outside with permission from whoever is in charge.

Results



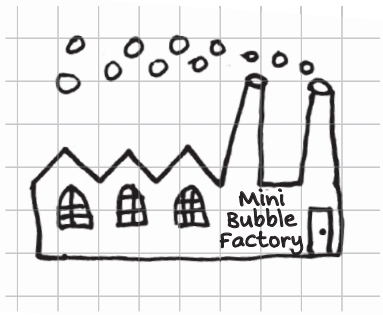
Depending on the type of lemonade you use, you could end up with a lemonade fountain thats a couple of metres high. But beware, some brands will only get you 50 cm . . . Look on the bright side, at least you won't need that umbrella! Good luck!

Conclusion

Lemonade is really fizzy because it's a carbonated drink which means it has carbon dioxide dissolved in it. When you put in the Mentos the carbon dioxide (or CO_2 as I like to call it) gets released.

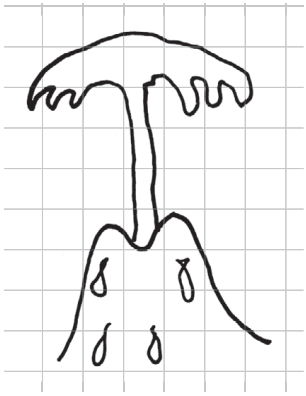
Because it's in a bottle it's held under pressure (much like I felt about the whole **Brainbusters** experience) and that's why it shoots out of the bottle foaming and bubbling, as all the pressure gets released (much like when we finally won **Brainbusters**!)

Because Mentos have a rough surface, unlike the smooth lemonade bottle, bubbles find it much easier to form so LOADS of them are made really quickly, just like a mini bubble factory!



There are SO MANY bubbles and they have nowhere else to go, so they just shoot right out the bottle like molten lava in a volcanic eruption (only it's lemonade foam in a lemonade bottle eruption!).

Crazy, huh?!



HOW TO MAKE YOUR OWN SOLAR SYSTEM!

Materials

10 balls or spheres to represent your planets and the sun. (I used fruit and a sponge ball, but you can use anything that fits the bill. Polystyrene or modelling clay balls are probably the best as, unlike fruit, they don't rot, which I should probably have thought about before making my project! Your balls should be of differing sizes to best represent the relative size order of the planets and the sun – this is why I ended up using balls from as small as a peppercorn to as big as my yellow sponge ball.)

Glue (multipurpose glue is the best because it's pretty strong stuff)

Paint/varnish (or whatever you want to use to decorate your balls to make them more planet-like)

Large piece of black cardboard (this will be space . . . whoa!)

Gold or yellow cardboard (for cutting out your star shapes)

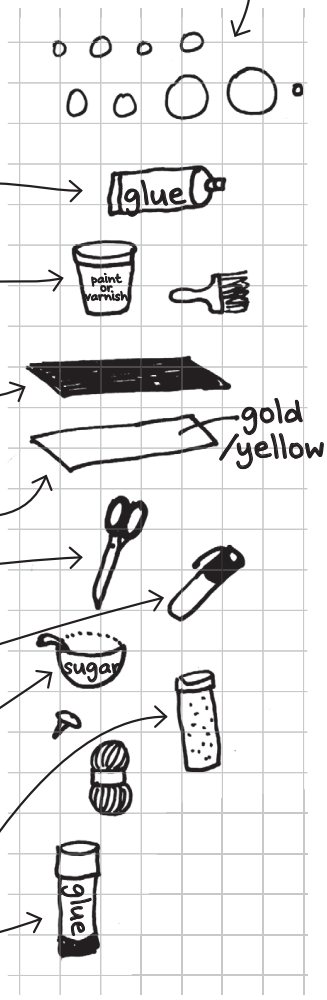
Scissors (also for cutting out your star shapes!)

Marker pen (for labelling your planets and writing any solar system or planet facts on your star shapes)

Sugar (to make your asteroid belt)

Glitter (for extra starry decoration)

Glue-stick (for sticking glitter and sugar, as multipurpose glue would be way too mucky for that)



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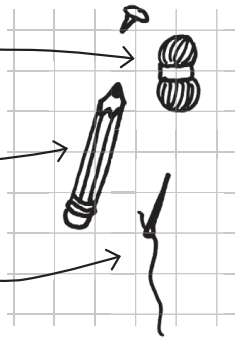
Drawing pin and string (this will make a compass to draw perfectly circular orbits . . . clever, huh?)

A pencil

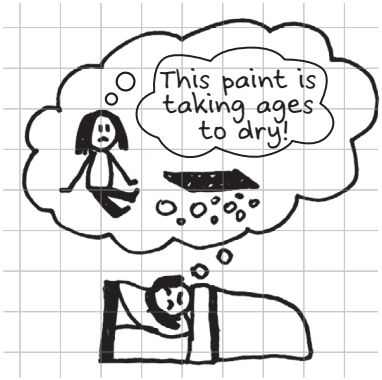
Needle and thread (optional – for if you want to fix a sponge ball in the centre as your sun, like I did)

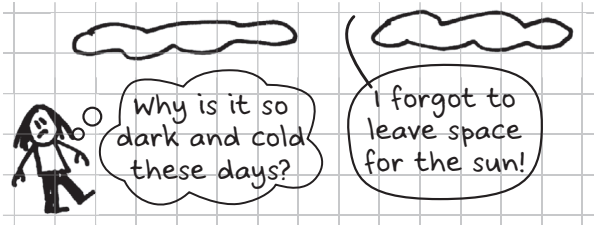


Method

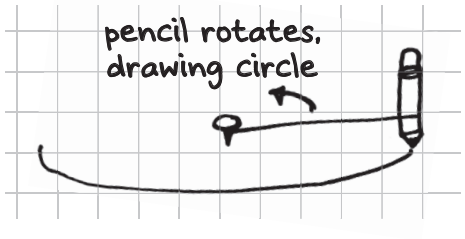
The first thing you'll need to do is paint and varnish your planets if you're not happy with the way they already look. You'll need to leave these to dry overnight. That way you can sleep instead of being bored by literally watching paint dry!

Using the string, drawing pin and pencil, draw circular orbits for all your planets on the black cardboard, making sure you leave enough space within Mercury's orbit to stick the sun (every solar system needs a sun! We'd be lost without it!).





This can be done by pinning one end of the string with the drawing pin to the centre of your black cardboard and tying the pencil to the other end of the string so that the length of string is the radius of your first orbit (Mercury). By rotating the pencil around the drawing pin and holding the string taut, you will be able to draw orbit number one pretty easily.



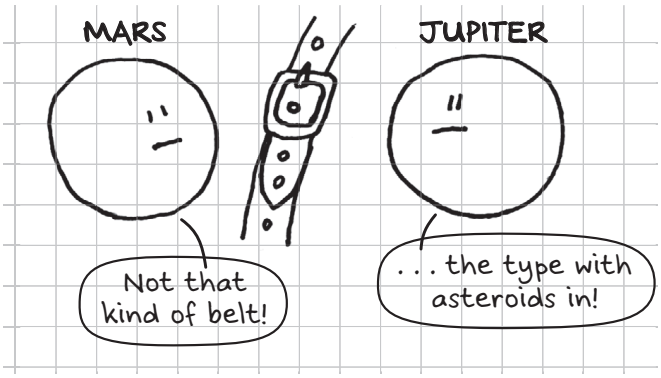
If you do it right you should have a perfect circle. Genius.

Increasing the length of the string each time by a small amount and repeating the process, you can draw orbits for all eight planets. You will need to make sure that your cardboard is big enough to fit all of these on before you start, otherwise you'll end up drawing on the table and being grounded. You might wind up on the green seats if you do it at school, so be careful!

Now you have your orbits, stick on your planets one by one, making sure you use the right size of ball for each planet. Multipurpose glue is best for this because it's multipurpose so it can be used for multiple purposes, including sticking planets onto card.

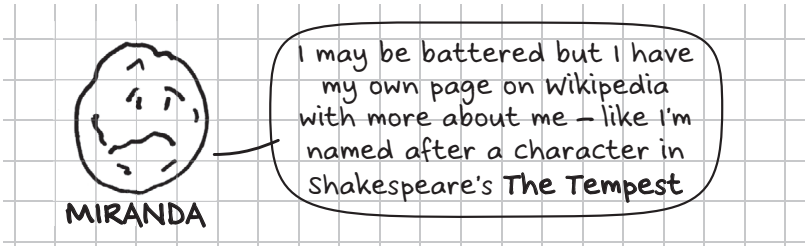
Now stick your sun in the centre of your solar system. If you are using a sponge ball, like I did, it doesn't stick very well with glue so maybe try sewing it on. You may need a friendly grown-up to help you with this.

If you want to add an asteroid belt, it goes in between Mars and Jupiter. Apply glue-stick between those two orbits and sprinkle on sugar. Sweet! You can sprinkle on glitter too for a bit of extra sparkle!



If you want to add 'star facts', cut out some star shapes from your yellow or gold cardboard

and write on facts about the solar system. You can find loads on the internet. My favourite fact was that Uranus has a battered moon called Miranda. I wonder who named it? Was their name Miranda? I hope they discover a moon and name it Cookie!



Label the planets with your marker pen and just in case you can't remember which is which . . . My Very Easy Method Just Speeds Up Naming Planets. Ha ha!

Results

You've now got your very own solar system! I bet it's not as good as mine. (It's probably better!!)

Conclusion

Your home-made solar system will help you remember the order of the planets. Cool, eh?

HOW TO MAKE A POTATO CLOCK (Cookie-Style!)

Materials

Two potatoes (my favourite potatoes are Maris Pipers, but that's for making roast potatoes, not a potato clock)

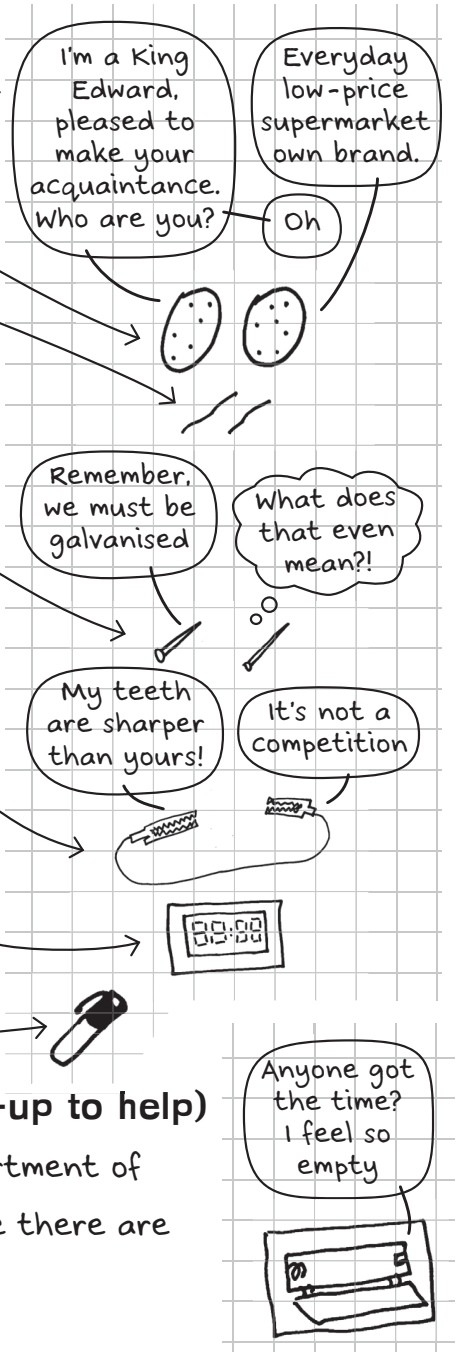
Two short pieces of heavy copper wire (you can probably get this in a hardware store or maybe your parents have some knocking about in their toolkit)

Two nails (must be galvanised – this means coated in zinc and therefore able to act as a negative electrode – that's just like the minus side of a battery)

Three alligator clip leads (they are called this cos they have teeth just like alligators)

Small portable clock that uses only one AA battery

A marker pen



Method (Get a grown-up to help)

Open the battery compartment of your clock and make sure there are no batteries inside.

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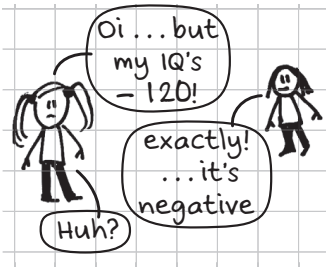
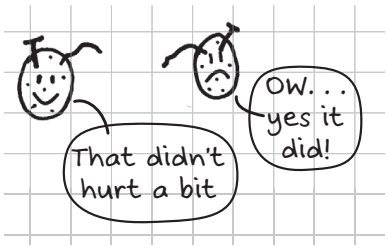
Check that you know which are the positive and negative ends of the battery compartment. Just in case you have the same IQ as Suzie Ashby, the positive end is shown by the plus (+) sign and the negative end is shown by the minus (-) sign.



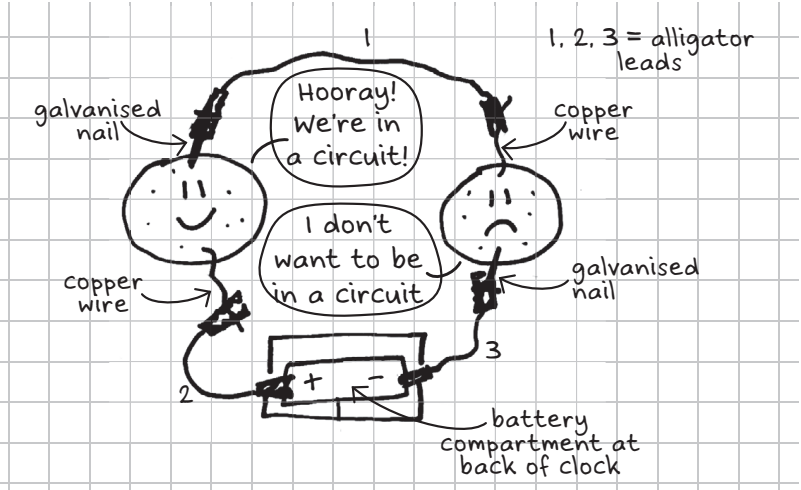
Draw a different face on each of your potatoes – one could be sad (your negative potato) and one could be smiley (your positive potato). Put a nail in each potato (now they're both sad! Joke! Potatoes don't have feelings!). Then put a copper wire into each potato as far away from the nails as possible.



Take one of the alligator leads and connect the copper wire in your happy potato to the positive (+) end of your clock's battery compartment. Then take another alligator lead and connect the nail in the sad potato to the negative (-) end of your battery compartment. Make sure that the alligator clip doesn't touch anything else metal apart from the positive (+) or negative (-) end

of the battery compartment it's supposed to be connected to. Bit complicated, huh? But then again, we are creating an electrical circuit.

So far, we've only used two of our three alligator leads. Take the final alligator lead and clip one end to the nail in the happy potato and the other end to the copper wire in the sad potato.



Results

This clock will tell the time as long as all the wires are connected properly. Hope you have a good time – ha ha ha!

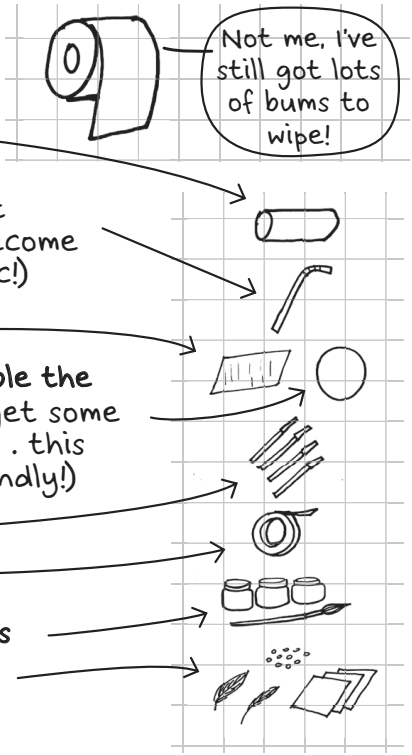
Conclusion

The copper wire, the nails and the potatoes create an electric circuit that currents can run through, powering the clock. Isn't science awesome?

HOW TO MAKE A KALEIDOSCOPE! (Cookie-Style!)

This is an alternative (and in my opinion, much cooler) version to the one Leo Mason made with a Pringles tube.

Materials



A toilet roll (get one from your toilet, but only when it's run out!)

A bendy drinking straw (a good way to ensure that a drinking straw doesn't become a single-use piece of plastic!)

Mirror card

A circular piece of card double the diameter of the toilet roll (get some out of your recycling bin . . . this kaleidoscope is SO eco-friendly!)

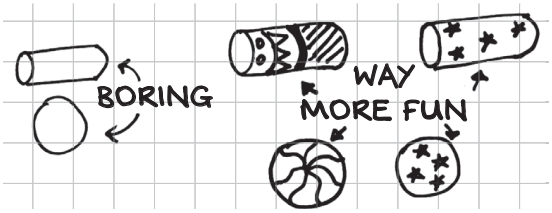
Felt-tip pens

Sticky tape

Paint, coloured paper, sequins (or whatever you want to decorate your toilet roll and circular card with!)

Method

First, decorate the outside of your toilet roll. You can decorate your circular piece of card too. The more colourful, the better! The less colourful, the more boring!



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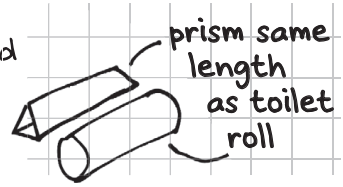
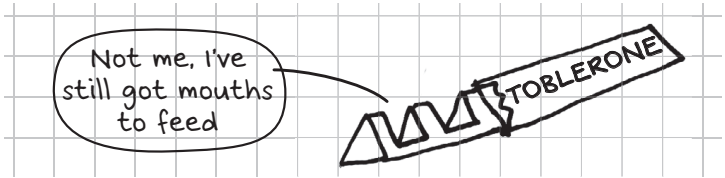
Get your mirror card and fold it into a prism the same length as your toilet roll, making sure the mirror side of the cardboard faces inwards.



Your prism should be the same shape as a Toblerone . . . the packaging not the actual chocolate, as that has indentations in it.

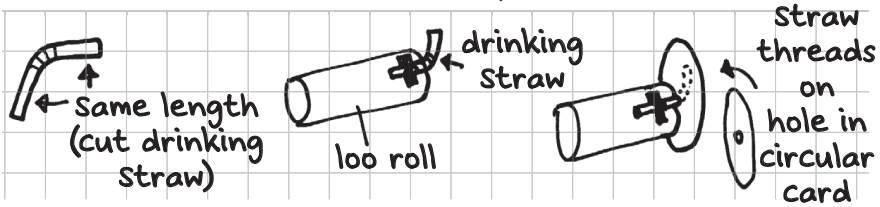


Now insert your prism inside your toilet roll.

Next, take your bendy drinking straw and cut the long section so the bendy part is in the middle and both sections are the same length either side.

Use the sticky tape to stick the straw to your toilet roll so the bend is on the end of the roll.

Make a hole in the centre of your circle of cardboard and thread it onto the drinking straw so that the bendy section holds the circle of cardboard in place. In other words, your straw should be bent into an L-shape.



Results

When you rotate your circle of cardboard (using the straw) and look through the end of your toilet roll it will make pretty, moving patterns. Yay!

Conclusion

When you look through the prism you'll only see a triangular section of your circular cardboard. However, the reflection on the three sides of mirror card will mean this view repeats so you have a symmetrical, ever-changing pattern as you rotate the cardboard circle with your hand. Pretty neat, right?

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HOW TO MAKE PANCAKES!
(I learnt this in food technology!)

Materials

One mug (at home I have my own mug and I'm the only one allowed to use it. It says 'I love Cookies' on the side because it came in a gift pack with a tin of cookies. Sometimes I wish I could scrub out the 's'.)

One egg (did you know eggs can come in different colours depending on the hen that has laid them? You can even get green, blue and red eggs. Who knew?! Me! I knew! I wish that had come up on Brainbusters instead of blood plasma, which is definitely yellow!)

One greased frying pan (obviously greased with cooking oil as opposed to petroleum jelly or any other inedible grease!)

A fork (pretty self-explanatory)

A pinch of salt (also pretty self-explanatory)

A knob of melted butter (once again, pretty self-explanatory)

Milk (or you can use soya milk or almond milk)

Flour (you can use most types of flours but not Daisy Flowers because she's a floor assistant, not a cooking ingredient! For the best results, stick to plain flour.)

Spatula (this is one of my favourite words)

Wire cooling rack (optional)

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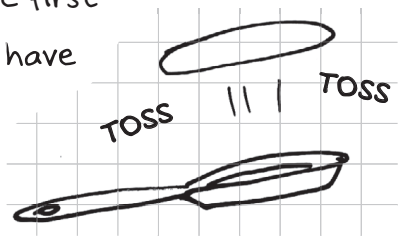
Method

Pour the flour into the mug until it is one-third full. You'd better not be using my Cookie mug! Only I'm allowed to use that – I don't want your germs! Add milk till the mug is two-thirds full. Then add the egg, the salt and the knob of melted butter. Mix these in the mug with a fork. There you go – that's your pancake mixture ready. How easy was that?

You know how to do the rest – it's not rocket science! Slowly pour some of the pancake mixture into the greased frying pan and put it on a low heat. Don't do this without a grown-up. Make a nice batter circle. Once the first side is cooked and bubbles have started to form, you can flip the pancake over with a spatula and cook the other side. You can also try tossing it if you're confident it won't stick to the ceiling!



Use the spatula to lift your pancake out of the pan and leave it to cool down on a wire grill. Then repeat!

Results

Yummy!

Conclusion

Best served with whipped cream, strawberries, bananas, blueberries, chocolate sauce, maple syrup or just plain butter. Whatever you fancy, really! I quite like my pancakes with lemon and sugar.

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EXPERIMENT RECORD SHEET
(COOKIE STYLE!)

EQUIPMENT (What I needed):	METHOD (What I did):
What I found out:	A drawing of my experiment:

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EXPERIMENT RECORD SHEET
(COOKIE STYLE!)

What did you enjoy the most about the experiment?	What did you enjoy the least about the experiment?
How pleased are you with the result? Why?	What would you change about your experiment to make it more reliable, if you were to do it again?
What have you learned from completing the experiment?	What has it inspired you to learn more about?

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