

# Balloon trick

Follow these simple instructions to do the ultimate party trick – pierce a balloon without bursting it.

## What is happening?

Balloons are made of rubber and when they are blown up the rubber is stretched out trapping all of the air in the balloon. Rubber is made up of tiny microscopic strands and chains of molecules called polymers. When the balloon is blown up these polymers are stretched out and are put under a lot of strain and pressure to hold all of the air in the balloon. When a pin or sharp skewer pierces the stretched polymers it bursts and causes a pop. However at the very tip of the balloon the least amount of strain or stretching is happening to the polymers so a skewer can carefully be pushed through the balloon without it popping.

## Instructions

1. Inflate your balloon until it is about 3/4 way full of air.
2. Make sure it's not too full by checking there is a dark tip at the end of your balloon.
3. Tie a knot in your balloon so the air does not escape.
4. Look at both ends of the balloon. At the very tip and at the knot the balloon is darker in colour and less stretched.
5. Put some petroleum jelly on the skewer and push it the whole way through the balloon (in through the darker tip) and out through the other end right beside the knot.
6. Did your Balloon pop?
7. Try this again, except try pierce a fully inflated balloon through the side. What happens?

## You will need:

Balloons  
Wooden skewer  
Petroleum Jelly



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# Rainbow Milk!

What do cows drink? No, they don't drink milk, they drink water! However one of our top 5 favourite science experiments uses milk. Follow the instructions for some chemistry fun in the kitchen!

## What is happening?

Milk is jam packed with proteins, vitamins, minerals and fats. Fats are held together in the milk by a strong force called a 'chemical bond'. When the food colouring is dropped onto the milk it sits on top of the milk's surface. When the cotton bud soaked in washing-up liquid is dipped into the milk it weakens or breaks the chemical bonds that hold the fats together. This caused the fat molecules to turn and twist and move in the milk –the food colouring shows this movement in action.

## Instructions

1. Pour milk into a shallow dish making sure to completely cover the bottom of the dish.
2. Wait for a minute for the milk to settle and make sure it is not moving.
3. Using the dropper carefully place a single drop of food colouring on the surface of the milk in the centre of the dish.
4. Place another drop of food colouring (a different colour) on top of the first drop of food colouring
5. Continue stacking up the drops of food colouring in different colours one on top of the other (three or four different drops will do)
6. Use a clean cotton bud and dip (DO NOT mix or stir) it into the centre of the milk.
7. Next dip a cotton bud into washing-up liquid (make sure the entire tip is saturated)
8. Quickly prod the centre of the dish where the food colour drops are stacked on the milk's surface. What happens?

## You will need:

Milk (Full fat)  
A shallow dish  
Food colouring (3 different colours)  
Washing-up liquid  
Cotton Buds

## Watch a video!

[http://youtu.be/w\\_aDZ3dBwy0](http://youtu.be/w_aDZ3dBwy0)



# Do eggs bounce?

Have you ever seen an egg bounce? Follow these simple instructions to see chemistry in action and create your very own bouncy egg. (This experiment is definitely worth the wait).

## What is happening?

An egg's shell is made up of 'calcium carbonate' and kitchen vinegar is made up of 'acetic acid'. The acetic acid reacts with the calcium carbonate egg shell and breaks it down. Did you notice any bubbles on the surface of the egg? The vinegar reacts with the 'calcium' part of the egg shell to dissolve it into the solution (the liquid or vinegar) and it reacts with the 'carbonate' part of the egg shell by forming bubbles of carbon dioxide on the surface).

Leave your egg exposed to the air. What happens after a few days when the egg's surface reacts with the carbon dioxide in the air?

## Instructions

1. Take your egg and place it in a small container that can be closed, such as a lunchbox.
2. Pour vinegar into the container ensuring that the vinegar covers the egg entirely.
3. Wait for 24 hours. (Do you see any bubbles forming on the shell?)
4. Pour out the vinegar and replace it with new vinegar.
5. Wait 7 days. (Check each day and record what is happening to the egg).
6. Pour out the vinegar and remove the egg from the container.
7. Does your egg bounce?

## You will need:

Eggs  
Lunchbox /  
Container that  
closes  
Vinegar (approx  
1litre)

