

KidzLabs™

Showtime Science Magic

Over 29 breath-taking magic tricks allow young scientists to explore scientific principles in chemistry, force, pressure, maths, optical illusions and more. Master the art of magic performance and surprise your friends and family with your show. It's more than just spells!



FOR AGES OVER 8

⚠ WARNING:
CHOKING HAZARD – This toy contains small balls and small parts. Not for Children under 3 years.

Children under 8 years, can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once. Balloon is made of natural rubber latex.



Questions & Comments

We value you as a customer and your satisfaction with this product is important to us. If you have comments or questions, or you find any part of this kit missing or defective, please do not hesitate to contact our distributor in your country. You will find the address printed on the package. You are also welcome to contact our Marketing Support Team: Email: infodesk@4m-ind.com, Fax (852) 25911566, Tel: (852) 28936241, Web site: www.4m-ind.com

41-05530/1 151027

In this kit you'll find **29** terrific tricks, specially designed for kids just like you.

This kit includes some essential objects.

You'll also need some other items from around the home.

Always check with a grown up before using household items.



•Please read all instructions before you begin. •Adult assistance and supervision is recommended. •The kit is intended for children aged over 8. •This kit and its finished products contain small parts which may cause choking hazard. Keep away from children under 3 years of age. •Scissors are required for some tricks. Not included in this kit. Please ask an adult's assistance getting it from home. Adult supervision is required when using scissors. •Some domestic materials are needed to complete the tricks. Please ask an adult for help when getting these materials. •Do not connect any of the parts provided to any AC wall socket or any batteries. This may cause electric shock or a short circuit. •Children can choke on flat or broken balloons. Adult supervision is necessary when using balloons. Flat and broken balloons must be discarded immediately.

Trick 1

Illusion Spinners

Get yourself all in a spin with these super spinning tops.

From kit:

Plastic pin & disc



4 paper discs



Amaze your audience with this super Illusion Spinner which gives a morphing effect on your skin as if something is crawling underneath!

- 1 Assemble the spinning top with the yellow swirling paper disc.
- 2 Spin it and ask a volunteer to look at the center for 30 seconds.
- 3 Now ask them to look at the back of their hands. They will see their skin "morphing", as if something is crawling underneath.

How Does It Work?

This illusion demonstrates an optical phenomenon called 'motion after effect'. It is also known as 'the waterfall effect' as when you stare at a waterfall for a while, and then look at something still, it appears that the still scene is 'moving up'. Why does this occur? The eyes and brain have separate receptors for detecting motion in different directions. When you are looking at something still, these receptors balance with each other. However, when you are looking at the spinning disc, these motion receptors are strongly stimulated and after a while become fatigued. When your eyes move to a still scene, the motion stimulus is removed but the already fatigued receptors fail to balance the signals produced by the receptors detecting opposite motion directions, thus causing the 'morph' illusion to happen. This illusion will disappear when the fatigued receptors recover, which normally takes a few seconds.

There are also 3 other spinning paper discs provided. Follow the instructions printed at the back of the discs. They demonstrate interesting illusion effects with scientific facts behind.

Trick 2

Magic Nails

Amaze your friends with this gravity-defying trick. Show them how to balance ten nails on the top of one in the blink of an eye - it's magic!

From kit:

Base with hole



12 plastic nails

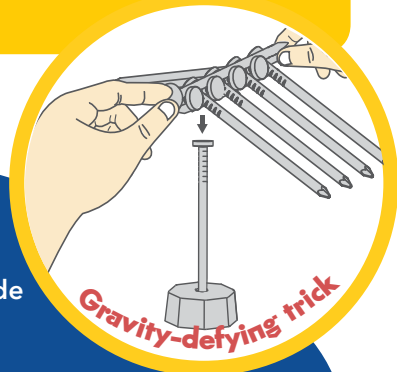


First things first: don't perform this trick in front of your audience until you've mastered it. Read the instructions and practise it a few times first so you can execute a seamless performance. As you perform the trick, keep talking to your audience - keep them captivated and explain what you're doing. They won't believe their eyes!

- 1 Place the base and nails on a table. Put one of the nails into the hole of the base. Now challenge your audience - are any of them deft enough to balance the nails on the head of the solitary nail in the base, all at the same time?
- 2 Now take one nail and place it upright on the table. Take another nail and lay it on top of the first nail, at right angles, with its head at the top, up against the shaft of the first nail.
- 3 Take another nail and lay it on top of the first two nails in the same way - this time facing in the opposite direction.
- 4 Add all the nails in a horizontal line, each one facing in the opposite direction to the previous one, until you only have one left: there should be nine nails on top of the first one.
- 5 Hold the last nail above the first nail, making sure it's the other way round. Carefully lower it so it lies between the heads of the other nails, trapping them in place.
- 6 This is your moment to shine! Hold the ends of the two upright nails between your fingers and thumbs; lift the nails together. Do it slowly or you'll drop them. Lower them so the middle of the bottom nail rests on the head of the nail in the base. Carefully let go. If you've done it correctly the nails will balance!

How Does It Work?

This trick is all about balance. Every object has a centre of gravity; this is where the weight of an object is concentrated. For a single nail, the centre of gravity is halfway along, right in the centre. The bottom nail balances on the upright nail because its centre of gravity is over the top of the upright nail. The nails that hang off either side balance each other out, so the centre of gravity stays in line with the upright nail.



Trick 3

Paper Ring Magic 1

Paper, twists and some simple mathematics combine in this trick. Leave friends flabbergasted by your magical flair.

From kit:

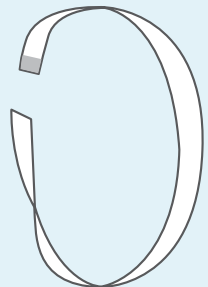
Long paper strip (you could also use newspaper to make more paper strips for future shows)

From home:

Scissors (adult supervision required), glue

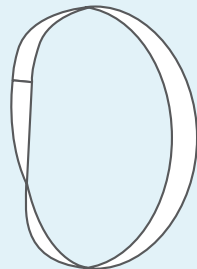
1

Twist the paper strip once.



2

Stick both ends together with glue. Show your audience the paper ring you have prepared, making sure you hold the ring where it twists so your audience won't spot it.



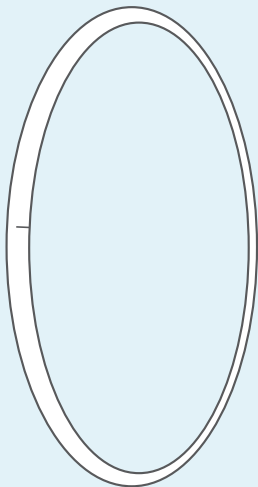
3

Ask your audience to guess what might happen if you cut the paper ring lengthwise. Most will probably say you'll end up with two individual rings. Declare that you have some special magic scissors that will create something completely different. Let the snipping commence!



4

To build the suspense you may want to accentuate your actions and put on a bit of a show. They won't believe their eyes as you present a continuous ring of paper, twice the size of the original.



Magical flair

How Does It Work?

By twisting the strip before connecting the ends you actually make the ring's two surfaces become one. This is known as a Mobius strip and was co-discovered independently by German mathematicians August Ferdinand Möbius and Johann Benedict Listing in 1858. The cut is like a continuous cut on one plane surface. Instead of using scissors, draw a line down the middle of the ring with a pen. You will end up drawing one complete circle over the two planes. Pretty cool, hey?

Trick 4

Paper Ring Magic 2

If you thought the last Paper Ring trick was cool! It will blow your socks off.

From kit:

Long paper strip (you could also use newspaper to make more paper strips for future shows)

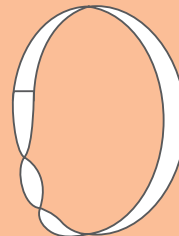
From home:

Scissors (adult supervision required), glue

1

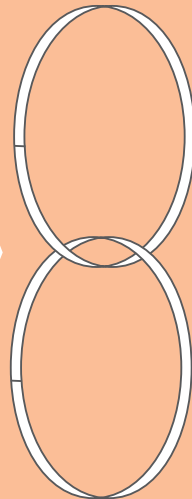
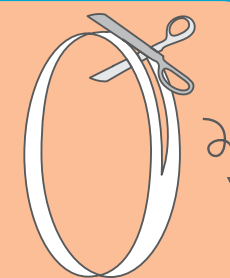
You should perform this trick straight after Paper Ring Magic 1, for best effect.

This time, make TWO twists in the middle of the paper strip. Stick both ends together with glue. Remember - don't let anyone see the twists in the paper.



2

Ask your adoring audience again what they think will happen if you start cutting like last time. They might think they know, but chances are they'll be well and truly flummoxed. Get into full-on magician mode and work the crowd whilst you start snipping the paper. Drumroll... you have expertly created two interlocking rings and are truly a cunning conjurer.



Wow, how cool is that?

How Does It Work?

This is another mind-boggling demonstration of the Mobius strip, just like in the Paper Ring Magic 1 trick. By adding an extra twist to the paper strip before connecting the ends, it produces different results after it is cut. Why not try three twists? This will produce a strip tied in a "trefoil knot", much to the bemusement of friends and family. It's amazing what you can achieve with a piece of paper and some twists and turns.

Trick 5 Magic Diver

Amaze your friends with your supernatural skills as you control a diving tube inside a bottle - without even touching it! Wowzers.

From kit:

Suction tube



Metal washers

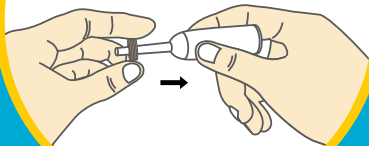


From home:

Plastic water bottle

1

Start by placing the three metal washers onto the suction tube.



2

Immerse the tube in a cup full of water. Gently squeeze the tube so it starts to fill up. As you squeeze it, water will be sucked in: it should be two thirds full. Now you're ready for the next stage of the experiment.



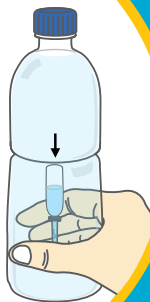
3

Fill the plastic bottle with water and place the tube inside the bottle. Make sure it stays afloat at the water level. If it starts to sink, remove the tube and squeeze out some of the water so it floats at the top of the bottle. Now tightly fasten the cap.



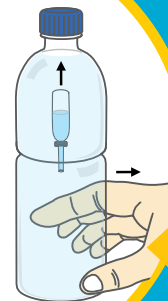
4

This is where your acting skills come in! Present your audience with the bottle with the tube inside. Make them believe that you have the magic powers needed to move the tube up and down the bottle without touching it. Now say, "Down", whilst gently squeezing the bottle - the tube will start to submerge.



5

Next say, "Up", whilst releasing your grip, and the tube will start to travel up the bottle like a magic diver. Repeat this process as many times as you can to the amazement of your cooing crowd.



NB: To stop your audience noticing your hand movements, we recommended you squeeze the bottle before starting the trick while they're not looking so the tube is already slightly submerged.

How cool is that?

How Does It Work?

The up and down movement of the tube is controlled by the air bubble trapped inside. When you squeeze the bottle, pressure inside increases, causing the air bubble to contract. This decreases its buoyancy and sends the tube to the bottom. When you release your grip, the air bubble expands and its buoyancy increases, making the tube move to the surface. If your tube won't submerge, there is probably too much air inside and the buoyancy is too high. Suck in more water to solve the problem.

Trick 6 Invisible Engine

Invisible Engine

Make this tiny boat move across the water using nothing but force and some tremendous trickery...

From kit:

Tiny plastic boat



From home:

Dish washing detergent, toothpick, large tray of water (must be clean and free of any oil or detergent)

1

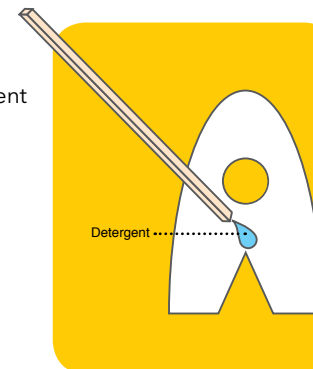
Whilst the audience isn't looking, dip the toothpick in detergent and fill the tray with water. Announce that you have the world's tiniest boat, which is powered by the world's smallest engine. Don't forget to mention that it's also invisible.

2

Ask a volunteer to help you with the trick. Get them to place the boat on the surface of the water and see if it moves by itself. Of course, it won't move, but they don't know that. Look exasperated and swiftly announce that the volunteer forgot to pump the fuel to power the boat.

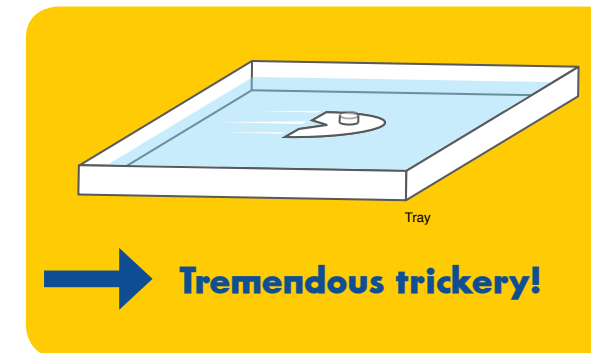
3

Now show the audience the fuel: the toothpick dipped in detergent! To them it will just look like a plain old toothpick. Explain that this is the most expensive petroleum on earth and wait for their stunned reactions. Use the toothpick to place the detergent on the back of the boat.



4

Slowly place the boat onto the surface of the water and, hey presto, watch it go! You are well and truly on your way to becoming a cunning conjurer.



➔ Tremendous trickery!

How Does It Work?

Water has something called surface tension. When you apply the detergent, the surface tension at the back of the boat is reduced. Since the surface tension at the front of the boat is greater than that at the back, it creates a forward force that makes the boat travel forwards. After the boat has sailed for a while, the detergent is carried and spread over the water surface. This means the boat will eventually stop working as the water tension difference no longer exists.

Trick 7

Space Water

This is no ordinary cup of water – it's space water and can defy the force of gravity. At least that's what it looks like...

From kit:

Plastic cup



square card



From home:

Water

1

Present your audience with a cup of water that's almost full. It is your mission to make them believe that the water has come from outer space and has the power to defy the force of gravity. Can you succeed in your mission? Now cover the mouth of the cup with the square card.



2



Holding the card over the cup with one hand, slowly turn it over with the other hand so it's upside down.

3

The water will stay in the glass without escaping and you will be crowned master magician – again! You are fast becoming an illustrious illusionist. Are you ready for your next challenge?



Defy the force of gravity

How Does It Work?

The water doesn't escape because the water pressure inside the cup is less than the air pressure outside the cup. The card is forced against the mouth of the cup by the air pressure outside and surface tension is created in between the water and the cup's edge. This stops the outside air from getting into the cup, meaning the water won't escape. Try more experiments by squeezing the cup – what happens? Or add less water to the cup – does the water hold for longer?

Trick 8

Missing Coin

Make a coin disappear right in front of your audience's eyes – this is a truly eye-popping trick!

From kit:

Plastic cup



square card

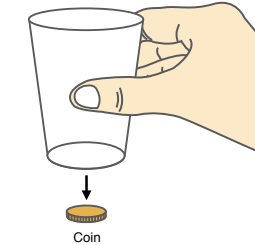


From home:

Bottle of water, book big enough to hide the glass, small coin

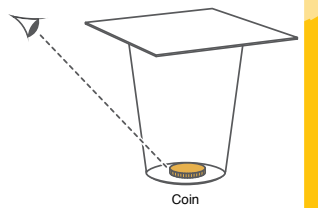
1

Place the coin on the table and put the cup on top of it



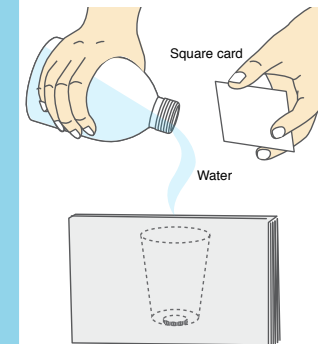
2

Cover the cup with the square piece of card. Now it's time to get into character – make your audience believe you have magic water that can make the coin disappear.



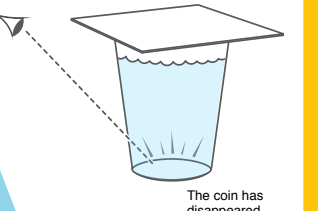
3

Now place a book in front of the cup so your audience can't see what's going on behind it. Not only will this help with the illusion, it will also distract them! Cunning, hey? Show them your hands so they know you're not touching anything. Now take away the piece of card with one hand and pour water into the cup with the other.



4

When the cup is full, put the card back on top of it. Remove the book and ask someone from the audience to look through the cup to check if the coin is still there. They won't believe it when they see the coin is gone. You truly are a crafty conjurer.



Eye-popping trick

How Does It Work?

The coin is still underneath the cup, but when water is added, the light ray is reflected and causes the coin to disappear from sight. However, the coin still can be seen from the top, which is why you need to make sure you cover the cup with the card. Isn't magic marvellous?

Trick 9

Floating Metal

Can metal defy the law of density and float on water? Try this terrific trick and find out.

From kit:

Plastic cup



Paper clips

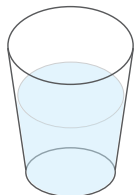


From home:

Water,
2 toothpicks

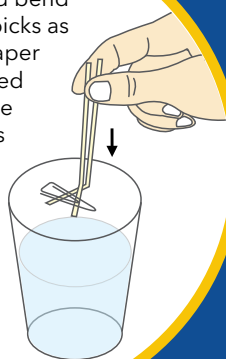
1

You are now well on your way to becoming an illustrious illusionist! Explain to your audience that metal normally sinks in water due to its higher density. Demonstrate this by dropping a paper clip into a cup of water - it will sink immediately. Now tell them you have some special paper clips made of space metal and they can float on water. They won't believe it. Now fill the plastic cup with water.



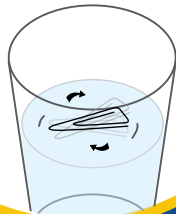
2

Break and bend two toothpicks as shown. Place a paper clip onto the bended arms. Hold the toothpicks as shown and slowly submerge them in the water.



3

When the paper clip reaches the surface of the water, slowly and carefully remove the toothpicks. If done correctly, the paper clip should float on the surface of the water.



How Does It Work?

Metal has a higher density than water, which means it should sink. However, there is water tension on the surface of the water. This tension can hold heavier substances if they are small enough and if they are placed very gently onto the surface without breaking the tension. Hint: if you have difficulty floating the clip on the water, try applying some wax on the clips before the show, but don't let anyone see you.

Terrific trick!

Trick 10

Tricky Paper Clip

Watch in amazement as the paper clip moves on the surface of the water by itself, as if by magic.

From kit:

Plastic cup



Paper clips



Magnet

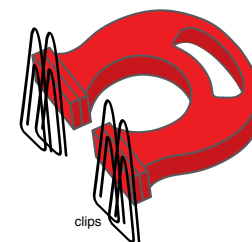


From home:

Water,
2 toothpicks,
compass

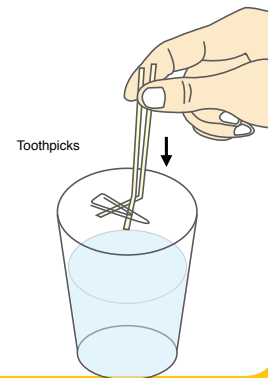
1

Before you start your super show, magnetise the paper clips by placing them on the U-shaped magnet.



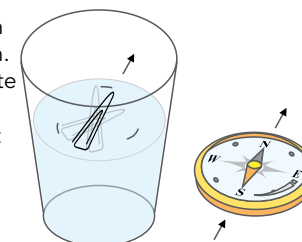
2

Tell your audience that the metal the clips are made from is from a far-flung planet and has a very special energy - it always points to the planet where it came from! Now break the toothpick, place the clip on the surface and make it float as you did in the previous trick.



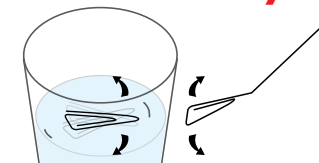
3

Rotate the clip with the toothpick then leave it to float: it will return to its original position. Repeat to demonstrate its special powers. Tell the audience that when two metal clips come close, there is an energy exchange causing the floating clip to move.



4

Bend another paper clip so it looks like a mini magic wand. Place it close to the floating clip and start moving slowly. Hey presto - the clip will follow. Your friends will be amazed by your wonderful wizardry.



Wonderful wizardry

How Does It Work?

Because the clips have been magnetised by the U-shaped magnet before the show, they have, in fact, become a temporary magnet. When they are left to float freely on the water, their movements are affected by the earth's natural magnetic field and will always achieve equilibrium in the north-south direction, acting like a compass. If you have a compass at home, take a look and you'll see that it points in the same direction. When another clip is placed nearby, the magnetised clip is attracted to the wand-shaped clip, causing it to follow its movements.

Trick 11

Singing Coin

Ever wondered how to make your pocket money sing? We show you how with this quick and simple trick.

From kit:

Sound chip

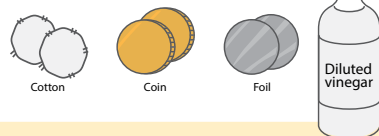


From home:

Vinegar, clothes peg, aluminium foil, 2 cotton pads, 2 brown coins

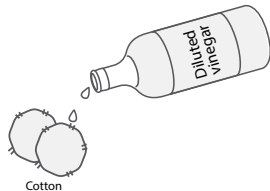
1

Cut the foil and cotton pads so they are the same size as the coins: for this experiment you will need to cut out two of each.



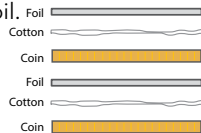
2

Soak the cotton pads in vinegar and set them aside. The pads should be saturated, but not dripping wet, as this may cause the sound chip to short circuit.



3

Build a six-layer 'sandwich' using the items in the following order, form the bottom:

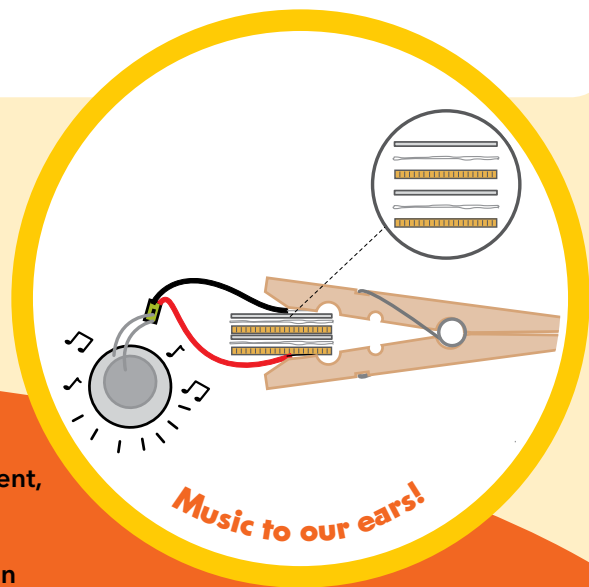


4

Place the red wire from the sound chip on to the coin side of the sandwich. Do the same with the black wire on the foil side of the sandwich.

5

Clip the clothes peg onto the wires at the top and bottom to hold them in place (see diagram). Make sure the peg clamps the wires firmly otherwise the experiment won't work. Your coin is now ready to sing - now that's music to our ears!



How Does It Work?

Most brown-coloured coins are made out of copper or a copper alloy. The coin acts as a copper plate in this experiment, so when a connection is made with a more reactive metal - the aluminium foil - and mixed with an acidic solution, such as vinegar, a mind-blowing reaction takes place. This reaction creates enough current to generate sound, resulting in a singing coin. We think it's incredible what you can achieve with a few everyday objects from around the home, don't you?

Trick 12

The Great Coin Escape

Delight your friends as you demonstrate how to push a coin through a hole that is smaller than the coin itself.

From kit:

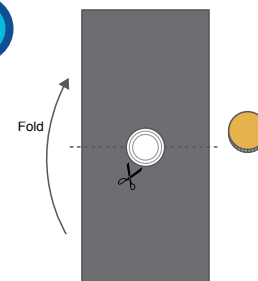
Strip of paper with circles printed on it



From home:

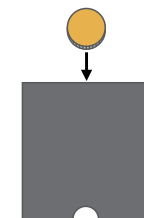
Coin, scissors

1



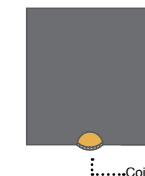
For this trick you'll need a small coin. On the strip of paper, choose a printed circle on the paper that is about 20% smaller than your coin. Fold the paper in half. Cut a circular hole around the chosen line. Test it first (away from prying eyes!) to make sure the coin can't fit through the hole.

2



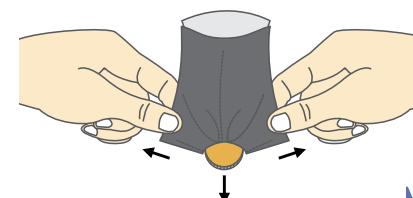
In true magician style, show your audience the coin and paper and point out that the hole is much smaller than the coin. Ask a volunteer to push the coin through the hole without tearing the paper - this is physically impossible, right? Cue drumroll... now is your time to shine.

3



Carefully fold the paper in half and drop the coin inside so it sits snugly in the half circle hole.

4



Now, holding each side of the folded piece of paper, bend and jiggle it for a while for maximum effect. The coin will slowly emerge through the hole to the amazement of your audience. You're getting good at this magic malarkey!

Now that's magic!

How Does It Work?

If you try to push the coin through the hole whilst holding the paper flat, the maximum width of the hole is its diameter, which is much smaller than that of the coin. There's no way you can get the coin through without tearing the paper. However, by folding and bending the paper, you are making use of the circumference of the hole, making the width larger. Circumference = Diameter x 3.14, so even when it's folded and reduced in half, it is still close to 1.5 times bigger than the hole's diameter. Now that's magic.

Trick 13 Coin On The Edge

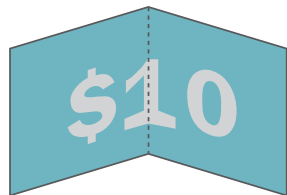
Challenge your friends to balance a coin on the edge of a bank note. Friction, force and gravity are all at play in this easy-to-master trick.

From home:

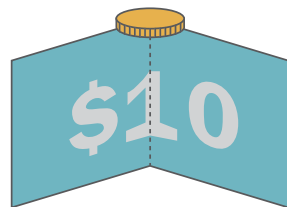
Small coin, relatively new bank note or piece of paper the same size as a note

You don't need much preparation for this trick, meaning you can perform it anywhere. First, challenge your friends to balance a coin on a straightened bank note. But we know that's impossible... Now for the good bit.

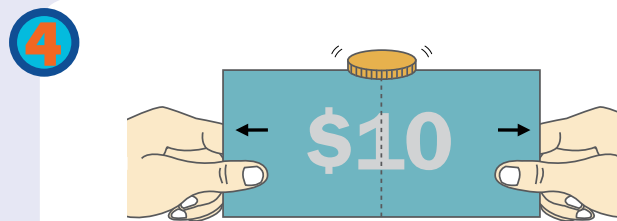
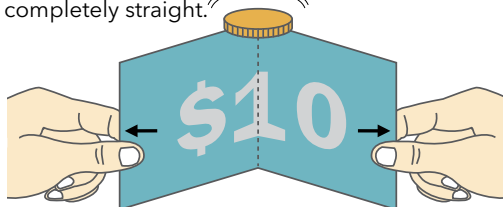
- 1** Fold the note in half and make it stand on a table at a right angle.



- 2** Place the coin on top of the fold line so it stands steadily on the note.



- 3** Hold the note on both sides. Very slowly pull it open until it's completely straight.



Easy-to-master trick

How Does It Work?

When you pull the note open, the coin on top of it moves as well. Since there is a frictional force going on between the note and the coin, the centre of gravity of the coin is moved and maintained at a balanced status. When the note is pulled straight, the coin's centre of gravity aligns with the straight line and it stands firm.

This is one of our favourite illusions.

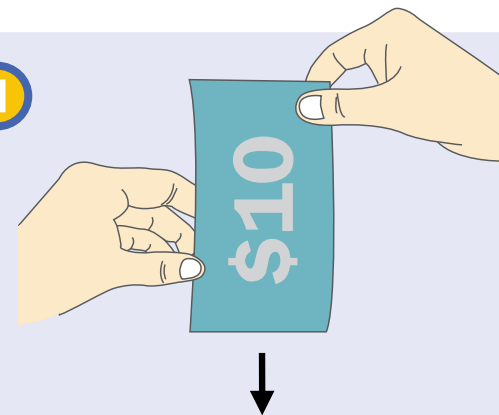
Trick 14 Flying Bank Note

If you think it's easy to catch a falling bank note, think again. This is much harder than it looks.

From home:

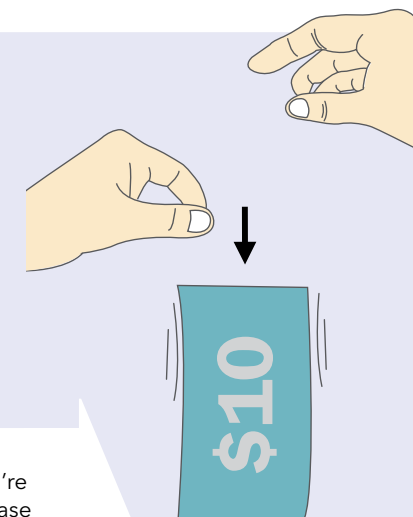
Bank note

1



There is absolutely no preparation needed for this trick. Start by holding a note in the top right hand corner so it's in a vertical position. Ask a friend for some help: get them to place their thumb and index finger at around the middle of the note without touching it.

2



Tell them you're going to release the note and if they can catch it, they can keep it. It sounds easy, but it's not.

Catch me if you can!

How Does It Work?

Your brain is a mighty muscle and controls your hand's catching action. It takes around 0.2-0.3 seconds for your brain to send the signal from your eye to your hand and catch the falling note. An average bank note is approximately 15cm long, so when the volunteer's finger is placed half way down it, the falling distance is shortened to 7.5cm.

It takes less than 0.2 seconds for the bank note to fall that distance, meaning the brain won't be able to react in time as the note falls faster. There is always a delay in brain to hand reactions, unless, of course, your friend has supersonic, super-fast reactions.

Trick 15

The Heaviest Sumo

This clever trick is all about air pressure. Huff, puff and blow your hardest - you still won't be able to move this super-light sumo.

From kit:

Paper strip with a sumo wrestler on it



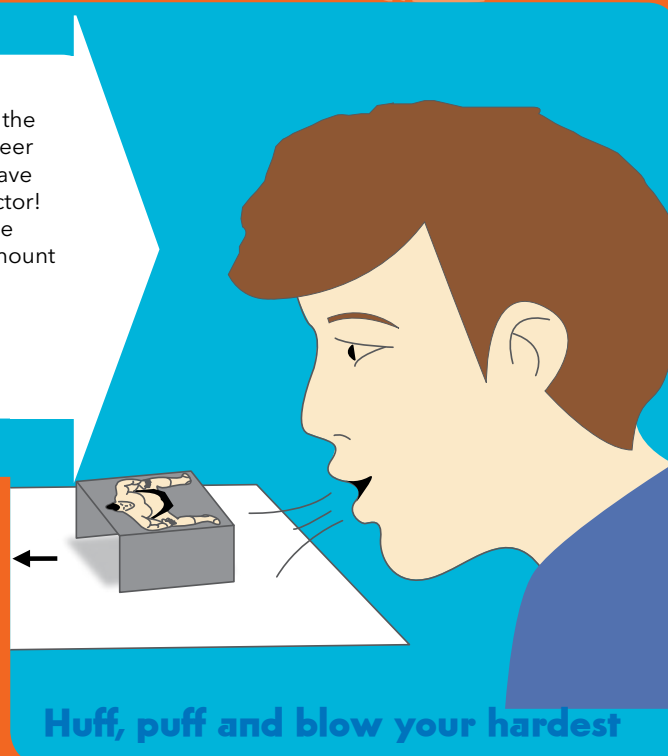
Start with some facts: tell your captive audience that sumo wrestling is the national sport of Japan and sumo wrestlers are extremely heavy. Now tell them you have invited a wrestler to take part in your next trick. They'll all be expecting a giant to appear - instead, produce the super-light paper strip. Insist that he's really heavy and that no matter how hard they try, they won't succeed in blowing him over.

This is where your acting skills come in - pretend to talk to the sumo. Convince your audience that he's asked for a volunteer to step up and try to blow him over. The only rule is they have to blow from the front. Whoever succeeds is the mighty victor! Now fold the paper like a bench and place the sumo on the table; get the volunteer to blow as hard as they can. No amount of huff or puff will make the paper move - cue a stunned silence from your audience. This guy is truly a super sumo. Congratulations, you're getting good at this.

How Does It Work?

When air is blown towards the front of the paper, the current is divided by the folded paper, making it stream above and beneath it. The lower stream flows faster because of the way it has been folded. Faster air has a lower air pressure. The upper stream flows slower and has a higher pressure, which presses on the paper.

It might seem hard to believe, but no matter how hard you blow, the sumo can't be blown over as there is always a higher pressure pressing down on it. You may even see that the paper clings more firmly the harder you blow. Daniel Bernoulli, a Swiss scientist in the 1800s, first demonstrated this principle. The same principle applies to aerodynamics and explains how aeroplanes lift. In the case of a plane, lower pressure is created on top of the wing, creating an upward lifting force.



Trick 16

Maths Magic

Yes, it's true, this trick teaches you super mind reading skills! Can you fool your audience into believing you?

From kit:

Number and pattern board set

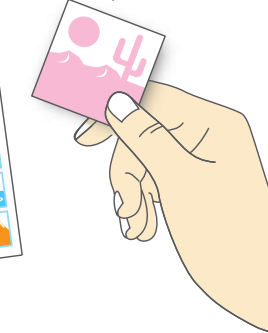
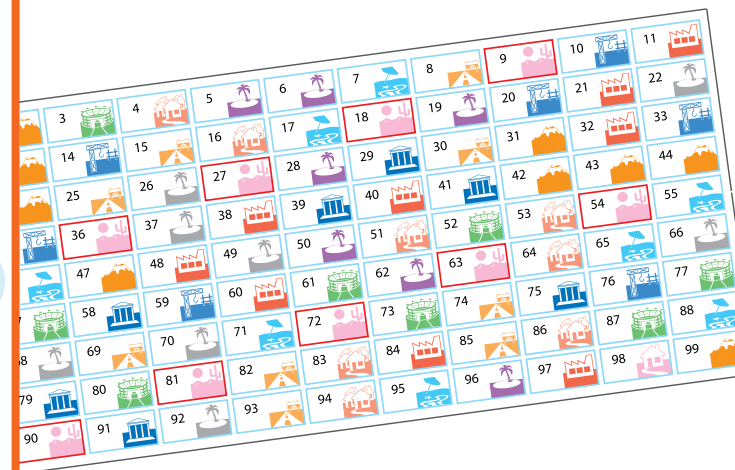


Ask a friend to think of a double-digit number (e.g. 45). Next, ask them to add up both numbers (e.g. $4 + 5 = 9$). Then tell them to subtract this number from the original double-digit number (i.e. $45 - 9 = 36$). Get them to memorise the answer (in this case it would be 36). Now show your audience the number and pattern board. Ask your friend to find their number (36) on the card and memorise the pattern next to it.

In the meantime, look at the pattern next to number 9 (or its multiples) and remember it.

Drumroll... announce that you already know the answer! From the pile of small pattern cards, select the pattern that is printed next to number 9 or its multiples.

Abacadabra - reveal it to your amazed audience.



You are a super mind reader!

How Does It Work?

This is a mesmerising maths trick. No matter what double-digit number the volunteer chooses, the total they arrive at after the series of calculations is always a multiple of 9 (i.e. 9, 18, 36, 45). The patterns printed next to the numbers on the board are arranged in such a way that all multiples of 9 share the same pattern - but there's no way the audience will spot this.

By finding the pattern next to number 9 or one of its multiples, you can tell the audience the correct number without really knowing the exact double-digit number they chose in the first place. Note: If you're going to repeat the same trick in the same show, use the reverse side of the number and pattern card, which has different patterns for 9 and its multiples. This will keep your secret safe!

Trick 17

UFGlow

This is the perfect trick to perform at night. The magic pendulum will dazzle friends, glowing in the dark and swinging in mid-air.

From kit:

Mini U-shaped magnet



Glowing marble

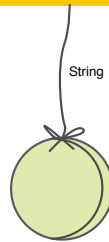


From home:

Length of thread, clear plastic water bottle

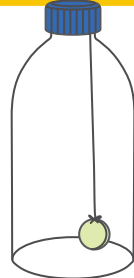
1

Tie the length of the thread to the gap at the centre of the magic marble.



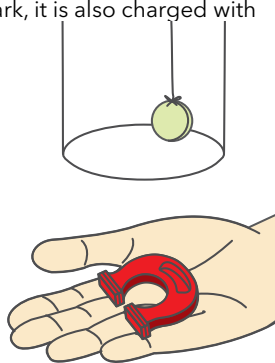
2

Cut the thread so it's about 10cm longer than the bottle. Drop the marble into the bottle and adjust the length of the thread so the marble dangles just above the bottom of the bottle. Screw the lid on tightly to fix the thread and marble in position.



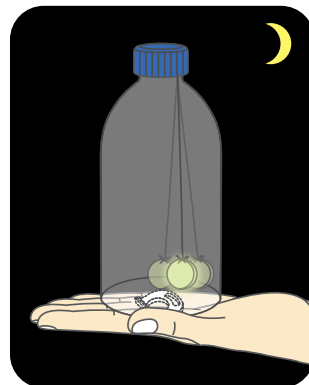
3

Tell the audience you have a magic marble from space. Not only does it glow in the dark, it is also charged with space energy and can move by itself. Now reveal the bottle. Turn off the lights - the audience will be attracted to the glowing marble. Without showing anyone, hold the magnet in the palm of your hand.



4

Now put the bottle on top of the magnet. Move the bottle gently and the marble will start swinging all by itself, propelled only by the supersonic space energy.



How Does It Work?

A magnet has two poles, south and north. The same poles repel each other, whereas different poles attract. Both the magnet and marble are magnets. When the marble is left dangling, the poles inside the marble change their position from time to time. When its poles come close to the U-shaped magnet poles, the repelling and attracting forces spring into action, causing the marble to move in an irregular manner. But why does it glow? Fluorescent pigments added to the plastic when the marble was made do this. These absorb light and make it glow in the dark. Before performing the trick, charge the marble with a light source. Turn off the lights and watch it glow - how cool is that?

Trick 18

See Through Magic

Any self-respecting magician needs the power of mental magic, right? Watch your friends' amazement as you correctly identify a coin held in their hand.

From kit:

Plastic cup



From home:

3 coins of different shapes and sizes

1

Practice makes perfect with this trick, so preparation and showmanship is key. To make the trick more interactive, pass around a cup and ask three willing friends to donate a coin - reassure them you'll give it back to them at the end! Each coin should be different.

2

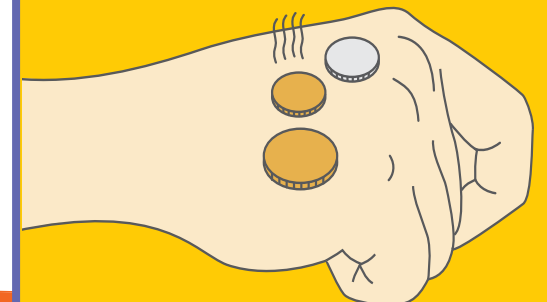
Pass the cup with the coins in to one person and ask them to pick one out and show it to the rest of the audience without letting you see it. Tell them to grip the coin as tightly as possible, so you can't see what they've chosen.

3

Ask them to raise the hand that's holding the coin. At this point you should reveal that you have X-ray vision and the power to see through human hands! Pretend you're examining their fist with your super powers and ask them to concentrate as hard as they can.

4

After about a minute, get them to place the coin back in the cup without showing you. Quickly place all the coins on the back of your hand, one at a time. Check the temperature of all the coins - the one that feels the warmest is the one your friend chose. Get them to verify this with the rest of the audience. Abracadabra! It's as easy as 1, 2, 3.



X-ray vision

How Does It Work?

Coins are made out of metal, which is a heat conductor.

When someone holds a coin tightly, the body transfers some of its heat to it, making it warmer than those that weren't chosen. But remember, it's vital to check the temperature quickly before the coin starts to cool down. So why do you place it on the back of your hand? The layer of skin on the back of your hand is thinner and more sensitive to outside stimulus, such as changes in temperature. This means you'll be able to spot the different temperature much more easily.

Trick
19

Weird Number

Want to trick your friends into thinking you're the next Albert Einstein? Then try this mega mathematics trick.

From home:

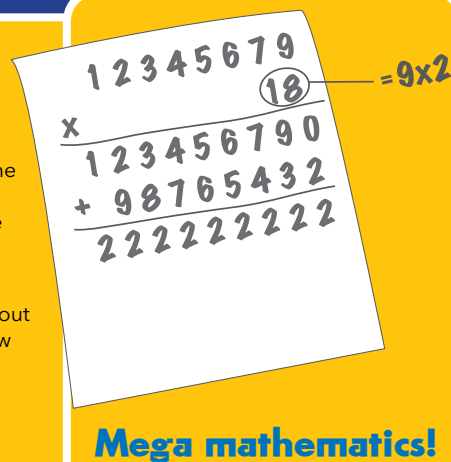
Pencil, piece of A4 paper, calculator

Write the number 12345679 at the top of of an A4 piece of paper. (Yes, the number is 12345679 - number 8 is missing!)

Show your audience the piece of paper with the numbers written on it. Ask a volunteer to choose one of the numbers (e.g. 2), but tell them not to tell you what they've chosen. Ask the person to multiply the number by 9 and memorise the result (i.e. 18).

Tell the audience that while the person is doing the calculation, brain waves are being emitted throughout the room, enabling you to detect their number. Now hand the piece of paper to the volunteer. Ask them to write the result of their multiplication (i.e. 18) underneath the number sequence. Now ask them to write a multiplication symbol to the left of their number - it's now time to demonstrate some mesmerising maths!

Ask everyone to do the calculation together (i.e. 12345679×18). You can use your calculator for this. The end result is 22222222 and 2 is the number chosen by the volunteer. It's simply spectacular.



How Does It Work?

When multiplied by 9, the number 12345679 will equal 111111111. When you further multiply it by any chosen single digit number, the result will be a nine-digit number composed entirely of the number chosen. E.g. if the chosen single-digit number was 2, the final calculation will become $12345679 \times 9 \times 2 = 222222222$. By asking the volunteer to do the $2 \times 9 = 18$ sum first, you distract them from trying to work out how you did it.

Trick
21

Hair Raising Balloon

Forget mind-blowing magic, this trick will not only raise the roof but friends and families hair too.

From kit:

Balloon



How Does It Works?

When you rub a balloon on your hair it creates static electricity. It stays on the surface of objects rather than flowing through them. You can easily produce static electricity by rubbing different materials together, such as the rubber balloon and your hair. When you do this, tiny particles called electrons jump from one material to the other. Electrons carry a negative electric charge, meaning that the material that gains the electrons gets a negative charge and the material that lost them is left with a positive charge. Two opposite charges - positive and negative - attract each other. When you hold the balloon over your hair, the negative charge on the balloon attracts the positive charge on your hair and makes your hair stick up. If two charges are the same they will repel each other. Who knew that electrons were so cool?

1

Inflate the balloon and tie a knot in its neck (you may need an adult to help you with this). Vigorously rub your hair a few times with the balloon.



2



Hold the balloon above your head - make sure it's not touching it. Watch in amazement as your hair stands on end. It's electric!

Truly hair raising!

Trick
20

Tricky Balloons

Watch in amazement as an invisible electric charge draws these balloons towards your hand.

From kit:

Balloons



Magic wand and white sticker

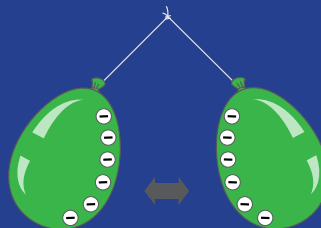


From home:

String, sticky tape, kitchen paper or a wool cloth

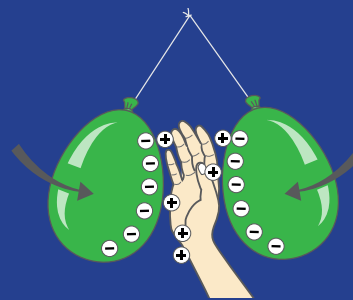
1

Before you start, apply the white stickers to both ends of the wand. Inflate two balloons, making sure they're about the same size, tie them up (an adult may need to help you with this). Attach both balloons to each end of the string. Stick the centre of the string to the centre of the top of a doorway so the balloons hang next to each other. Rub the balloons with kitchen paper or a wool cloth to charge them up. Let go and watch what happens. The balloons should push each other away.



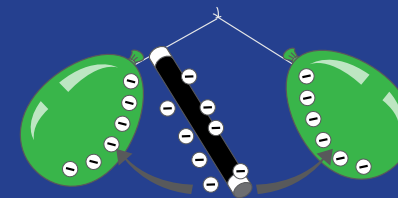
2

Move your hand around the balloons: place it between them and the balloons should move together.



3

Rub the wand with the kitchen paper or wool cloth. Move it all around the balloons and in between them. What happens?



amazing electric charge!

How Does It Work?

Rubbing the balloons gives them a negative electric charge. When they hang next to each other the two charges repel each other. When you move your hand around them, they are instantly attracted to it. The wand also has a negative charge, so it pushes the balloons away.

Trick 22

Dancing Salt And Pepper

Watch in amazement as the salt and pepper jumps up and down in this cool trick that anyone can perform.

From kit:

Magic wand 

From home:

Sheet of paper, table salt and finely ground pepper, kitchen paper or wool cloth

1

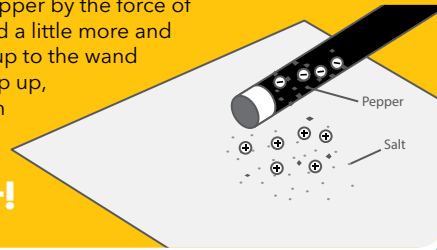
Sprinkle a little salt and pepper onto a sheet of paper. Quickly rub the wand a few times with some kitchen paper or a wool cloth.



2

Slowly lower the wand towards the paper. The pepper should jump up towards the wand before the salt does - you have unwittingly separated the salt and pepper by the force of electricity. Lower the wand a little more and the salt will start to jump up to the wand too. The particles will jump up, and then jump back down again. What wonderful wizardry.

Shake it!



How Does It Work?

The negative charge in the wand pushes away the electrons in the particles of salt and pepper, leaving a positive charge on the side closest to the wand. Now the negative charge on the wand attracts the positive charge on the objects, causing the objects to fly upwards. The pepper jumps first because pepper particles are lighter than grains of salt. They pick up electrons and get a negative charge too. The wand repels them again and they drop back down. Once there, they lose their negative charge and jump up again. Isn't science super?

Trick 23

Magic Rolling Can

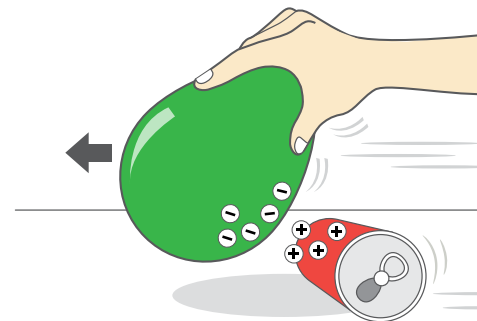
Discover the power of electrons with this cool trick.

From kit:

Balloon 

From home:

Empty aluminium can



Trick 24

Magnetic Wand

Make your wand stick to your hand like a magnet in this simple but impressive trick.

From kit:

Magic wand 

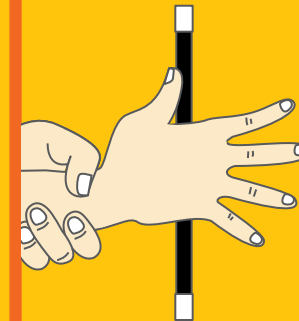
1

Tell your audience you're going to use your magic powers to make the wand stick to the palm of your hand. Wrapping your fingers around it, hold the wand really tightly in your right hand so it sticks. Ask your audience for silence - you need to concentrate or the trick won't work. The wand will look like it's moving by itself.



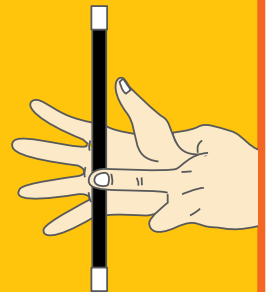
2

Pretend the wand is now in your command and start to move your hand in a theatrical way. Use your left hand to grip your right wrist to help stabilise the force!



3

Without letting the audience see, secretly extend the index finger of your left hand to hold the wand in place. Now open all the fingers on your right hand one by one, with your left hand still holding your right wrist. With all the fingers opened, the audience will think the wand is magically sticking to your hand, just like a magnet. Quickly toss the wand into the air and catch it in front of your amazed audience.



How Does It Work?

When you place the charged balloon close to the can, the negative charge on the balloon repels the electrons (which are negatively charged) in the can, leaving a positive charge on the surface. The negative charge on the balloon and positive charge on the can attract each other, following the balloon, causing it to roll. Hey presto - you have created a magic rolling can.

This is one of our favourite tricks and is really simple to perform. Place the can on a flat, smooth surface. Rub your hair with the balloon for as long as you can. Take the balloon and move it towards the can. If you've created enough electrons, it should start to roll towards the balloon. Now try to make it roll the other way. Can you keep the can rolling without it touching the balloon? This is wonderful wizardry at work - friends won't believe their eyes.

The power of electrons

Trick
25

Coin Soda Bath

Transform a dirty old coin into magnificent money that will shine like new by the end of this trick.

From kit:

Plastic cup

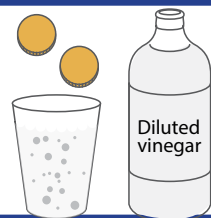


From home:

Dirty coin, fizzy soda drink or vinegar, piece of cloth

1

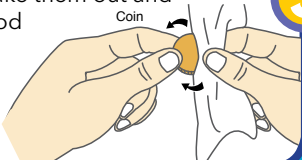
Prepare a cup of fizzy drink or vinegar solution. Ask your audience to donate some dull coloured coins. Explain that their coins are very dirty and need a good old clean - only you have the super powers to restore their shiny appearance! Place them into the cup.



Diluted vinegar

2

Leave them in the cup for a few minutes, then take them out and give them a good rub with a piece of cloth.



3

Hey presto - they are super shiny once more.



How Does It Work?

Coins are made out of metal; when they are first made they are very shiny. After being exposed to air they start to tarnish due to oxidisation. The oxidised surface is what makes the metal look dull. The fizzy soda in this trick is acidic. When metal is submerged in an acidic liquid, the oxidised surface starts to react with the acid and dissolve. This results in a good-as-new, sparkly coin. Kerching!

Trick
26

Paper Dance

Ever seen a piece of paper dance? Now's your chance

From kit:

Magic wand

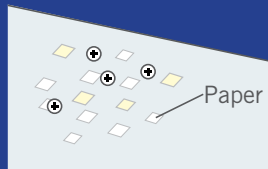


From home:

Paper, kitchen paper or a wool cloth

1

Spread some small pieces of paper (less than half a centimetre across) out on a table. Rub the wand a few times with some kitchen paper or wool cloth.

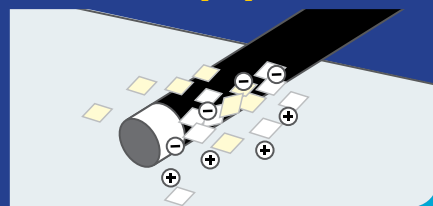


Paper

2

Slowly lower the wand towards the pieces of paper. They will jump up towards the wand and fall back down again. Some pieces will dance up and down again and again. Now that's what we call magnificent magic.

Watch the paper dance



How Does It Work?

Just like in trick 22, the negative charge in the wand pushes away the electrons in the pieces of paper, leaving a positive charge on the side closest to the wand. Now the negative charge on the wand attracts the positive charge on the paper and the objects fly upwards. The wand repels them again and they drop back down. Once there, they lose their negative charge and jump up again. It's simple science at work and we love it!

Trick
27

Magic Fountain

Create a fountain inside a plastic water bottle. The fountain is powered by an invisible force.

From kit:

Screw cap



Straws



Adhesive tab

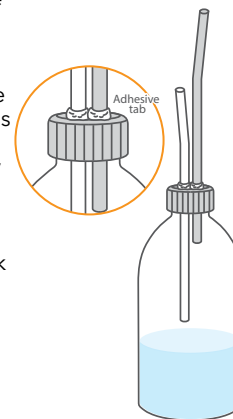


From home:

Plastic water bottle (make sure its mouth fits the screw cap provided)
2 water containers, e.g. water tray, bottles etc.

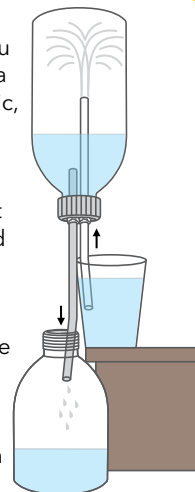
1

Set up the screw cap and straws as shown. Fill the bottle to 1/3 full of water. Insert the straws into the plastic water bottle, and tighten the screw cap. Use adhesive tab to make the whole system as air tight as possible. Prepare another two bottles/containers, one empty and one filled with water. To make the fountain more spectacular, add some food colouring (or condensed drink syrup) to the water inside the supply container.



2

Start by asking your audience how a fountain works. Now tell them you could make a mini fountain inside a bottle, which is powered by a magic, invisible force. Insert the "fountain straw" to the container with water and the "drainage straw" to the empty container. Now slowly invert the bottle. Make sure the other end of the "fountain straw" is dipped inside the water. What happens? While the water flows out to the empty container from the "drainage straw," you will see water blowing out from the "fountain straw," creating an interesting fountain. You may also try lifting the fountain bottle a bit so that the "fountain straw" is above the water level of the water container. Instead of flowing out, the water will "shoot" out.



How Does It Work?

When water flows out from the "drainage straw", air pressure decreases inside the bottle. The air pressure outside is stronger and forces the water in the supply container to go up and flow out from the "fountain straw", thereby creating a fountain scene. When the fountain bottle is lifted, there is water half way inside the straw. With the straw above the water surface, air, instead of water, flows inside the straw. The pressure of flowing air causes the water to shoot up.

Trick
28

Self-Inflating Bag

Make a plastic bag inflate inside a bottle without touching it.

From kit:

Screw cap



Straws



Plastic bag



Adhesive tab

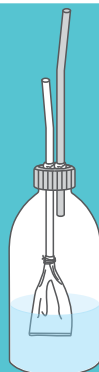


From home:

2 plastic water bottles, rubber bands, a water container e.g. water tray

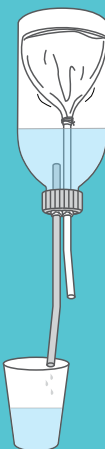
1

Set the props up as shown in the diagrams. Use a rubber band to tie the plastic bag to one straw. Insert the straws and plastic bag into the plastic water bottle. Tighten the screw cap. Apply adhesive tab to all connecting gaps to make the whole system air tight.



2

Tell your audience that you have a magic plastic bag which will inflate by itself. Show them the system you prepared. Now invert the bottle to let the water flow out to the water container. Bravo, the bag starts to inflate magically by itself.



How Does It Work?

It is the same science principle as in Magic Fountain. The outside air is forced to go through the straw due to the pressure difference when the bottle is inverted and the water begins to drain. The difference in air pressure causes the bag to inflate.



Trick
29

Stubborn Bag

Challenge your audience to blow up a plastic bag which is installed inside a plastic water bottle. Seems easy, but it's not!

From kit:

Screw cap



Straws



Plastic bag



Adhesive tab

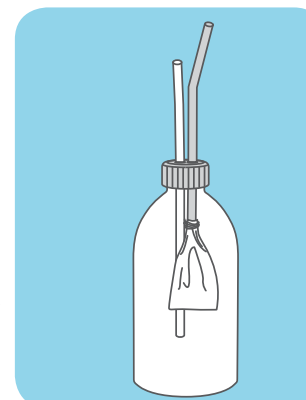


From home:

Plastic water bottle, rubber band

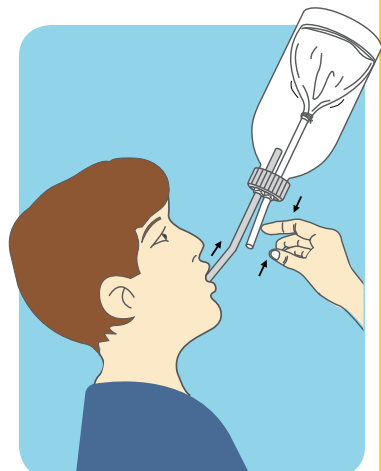
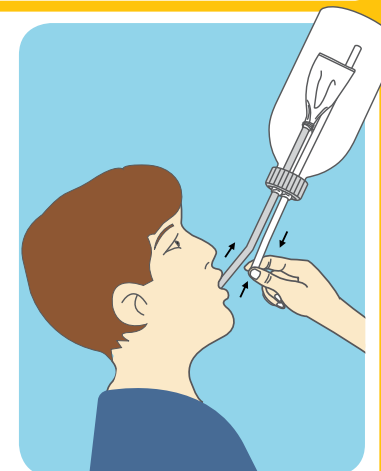
1

Set up the props as shown in the diagrams, use a rubber band to tie the plastic bag to one straw. Insert the straws and plastic bag into the plastic water bottle. Tighten the screw cap. Apply adhesive tab to all connecting gaps to make the whole system as air tight as possible.



2

This trick could be a continuation of the Self-Inflating Bag done previously. You have shown your magic bag inflated by itself. Now tell your audience that only you can inflate the bag! They won't believe you, so ask a volunteer to try. In the meantime, pretend that you are helping your volunteer to hold the bottle. Without being seen by the audience, block the opening of the other straw with your finger. No matter how hard your volunteer tries, the bag will not inflate. Now it's your turn. Clean the straw. Release the finger that has been blocking the other straw's opening. Blow gently and the bag inflates. Bravo!



How Does It Works?

When you blow into the straw, air tries to go inside the bottle. However, since the only air passage is blocked by your finger, the air inside the bottle can not escape. This airtight pressure stops the air you blow from going in and the plastic bag cannot be inflated. When you release your finger, the inside air pressure no longer exists, and the plastic bag can then be inflated.

