Science is Magic

**Tricks**

1. **Disappearing water** 🡪 three paper cups with one in the middle with some nappy fillings (clean!). Pour water in an empty cup and shuffle. Ask audience to point the cup with water. Pour water in other empty cup and repeat. At the end pour water in the cup with nappy stuffing and shuffle, then topple the cup on top of a member of audience and no water falls (it’s all been absorbed)

3 x paper cups

Nappy

Water

1. **Falling mug** 🡪 tie a string to a mug and a key to the opposite end of the string. Hold the key in one hand and a pencil on the other with the rope over the pencil, so that the mug hangs ready to fall. When the key is released the acceleration of the mug forces the key to move in circular motion around the pencil, due to the tension of the string, and the string winds itself around the pencil and stops the fall of the mug.

String

Pencil

Mug

Key

1. **Magic mug** 🡪 Pour hot water in thermochromic mug and the image will be revealed to the amazement of everyone.

Thermochromic mug

Hot water

1. **Happy birthday Egg!** 🡪 boiled egg with birthday cake candles (x2) on top. Light the candles and turn a conical flask upside down move the candles inside the flask and let the air inside heat up. Cover the neck of the flask with the egg. The egg is pushed in by the difference in pressure. To get the egg out turn the flask upside down and blow hard inside. The egg will pop out forcefully.

Boiled egg (2 in case and as small as possible)

Birthday candles (x2)

Matches

Conical flask (try different sizes)

1. **Compressing marshmallows** 🡪 put a few marshmallows inside a coffee vacuum container and pump the air out (this needs to be set up just before the trick). Then, a member of the audience to come up and think very hard about a great weight pressing over their heads and then about two walls squeezing them really really hard. As they imagine and mimic the pressure on their bodies release the valve in the container and the marshmallows will be compressed by the atmospheric pressure of the air rushing in.

Coffee vacuum container

Marshmallows (if they have a funny shape, e.g. teddy bear, it’s even better)

1. **The invisible knife** 🡪 Preparation: slice a banana from the inside by pushing a long needle through some dark bits and slice that bit without messing the skin up. Repeat in different places. The trick: put the banana on the table and ask a member of audience to come and inspect it. Then take a rectangular box and open it slowly and carefully. Pretend to take a knife out and ask the audience if they can see what you are holding. Pretend to hold the knife with two hands near the helper and if they try to touch it, stop them and tell them it is very sharp. For safety reasons this trick can only be done by a teacher ;-) so pretend to slice the banana in different places and give it to the helper to peal. To their amazement the banana will be sliced in pieces.

Banana prepared

Long needle

Clip box (ideally one of those to hold cutlery inside)

1. **Use the Force** 🡪 This is the Eddie currents apparatus. The “Magician” tries to slow the steel cylinder inside the copper tube, but fails. Ask the audience if there is anyone called Luke to come up. Hand the tube and the magnetic cylinder and ask the audience to shout “Use the force Luke!” When Luke drops the cylinder it magically slows down.

Eddie Currents Apparatus

1. **The Vader legacy** 🡪 bottom of a Coke can. Ask a member of audience to come up and try to lift the Al disc with a magnet (this proves that Al is not magnetic). Then, tell the children there is a very special guest who has come to perform this Magic, which can only be done by a master of the dark side of the Force. Go off stage and come back with a Darth Vader mask accompanied by his soundtrack. Part of the outfit will be the black gloves and in the right glove there will be (sawn in) a neodymium magnet. Hover your hand over the disk in a circular motion and faster and faster. The disc will start to rotate and follow the movement of your hand.

Bottom of coke can (with cut edges filed)

Neodymium magnets (x2 one inside the glove)

1. **Disappearing beads** 🡪 bowl ¾ filled with water on the table. A member of the audience comes up. Hand a few water beads to them and ask them to drop them in the bowl (while they do that pretend to search for something else and look away). As the bead fall in the water they “disappear”, so ask the helper where they put the beads. Make a fuss and then give them a second chance and repeat the same act! As they have been hopeless, give them a different task. This time the bowl filled with water bead (the one you took the beads from to give the helper before) on top of a writing (IoP logo) and ask them to read the writing they won’t be able to. Hand a jug of water to the helper and ask to pour the water into the bowl until all beads are covered. The beads will disappear and the image will be revealed.

Jug of water

Water beads

Bowl of water

Empty bowl for beads

1. **The invisible water** 🡪 Four candles (those short and fat ones in Al case, but with the wax already 1/3 gone at the top, i.e. I need a bit of the Al cylinder empty, so CO2 can collect around the candle and extinguish it). Light a candle up and show how you can relit it without touching the wick. Then, light all candles and pour some white vinegar in a jug and add some Bicarbonate of Soda. Wait until it settles and pour the CO2 that formed and deposited at the bottom of the jug over the candles. The candles blow without any liquid even coming out of the jug.

Jug

White vinegar

Bicarbonate of Soda

Candles (see description above)

Matches

Spoon

1. **The Magic fluid (grand finale)** 🡪 Preparation: put a small test tube inside a bowl filled with glycerine (make sure all air bubbles have gone). The trick: ask a member of the audience to smash another test tube with a hammer (the tube is obviously wrapped around a cloth). Has the helper smashes the tube, look at the audience really disappointed. Then, turn to the helper and tell them you really didn’t mean for them to smash the tube and that now the trick is ruined. Then, you suddenly remember an ancient remedy that has been passed down the generations of your family of Magicians. Drop the broken bits of tube in the Magic Fluid and they’ll disappear. Then, ask the audience to sing with you the magic spell. Get them really going and then stop them with a sharp gesture of your hand and with tongs take the new test tube inside the bowl!

Bowl

Glycerine (brand new and pure)

New test tubes (x2)

Hammer

Cloth

Tongs