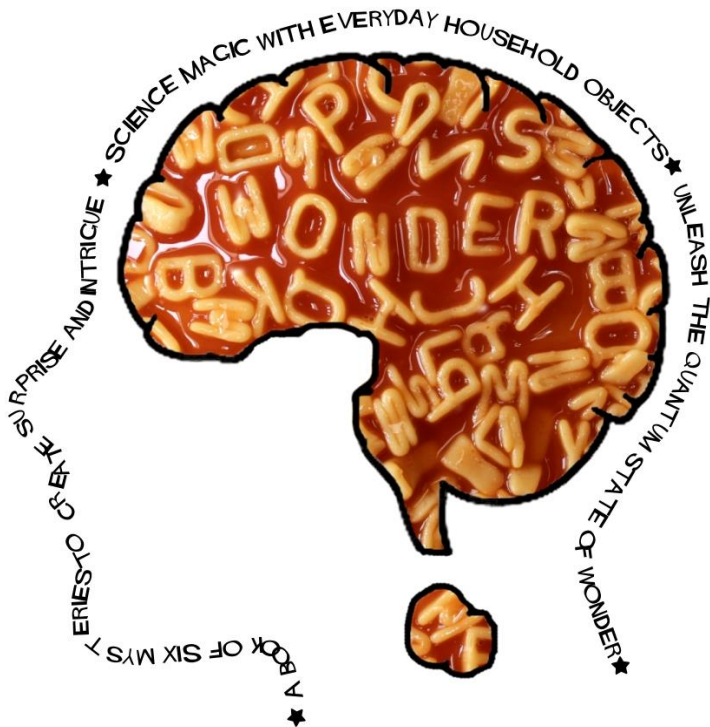


# Six mysteries before lunch

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Alice laughed. "There's no use trying," she said: "one *can't* believe impossible things." "I daresay you haven't had much practice," said the Queen. "When I was your age, I always did it for half-an-hour a day. Why, sometimes I've believed as many as six impossible things before breakfast."

Through the Looking Glass by Lewis Carroll

## Introduction

As a magician I dance with the impossible. I juggle with reality. I open up new worlds and possibilities. Why? I want to lift my audience's dreams and imagination to a new level. The reason magicians keep secrets is not to be selfish but because we know that an explanation can often rob the audience of that experience and bring them back to earth with a bump.

The impossible is stretching as often we have to throw out the preconceived rule book; which then leaves space for new ideas. I endorse the White Queen's breakfast and I'd like to add to the diet that we should also wrestle with six mysteries before lunch.

Mysteries shout:

*"There's more here than you think."*

Facing a mystery is not the end of a journey, it's looking out over undiscovered country; a space ripe for exploring.

I believe it's not good to rush from the 'Wow!' of a mystery to the 'How?' of an explanation. Learning to live in the unknown, the state between knowing and not knowing, isn't easy. In fact it can be pretty uncomfortable as we humans crave the certainty of knowing. Learning to inhabit the complex is also disconcerting as we've grown accustomed to quick

easy answers. Learning that there might not even be an answer just seems inconceivable. Regularly exposing ourselves to mysteries builds up resilience. It also opens up new possibilities and perspectives. A rushed, half baked, simplistic or just plain wrong explanation robs the power from the mystery and the opportunity for growth. Furthermore, explanations are often seen as end goals rather than the beginning of a new discovery.

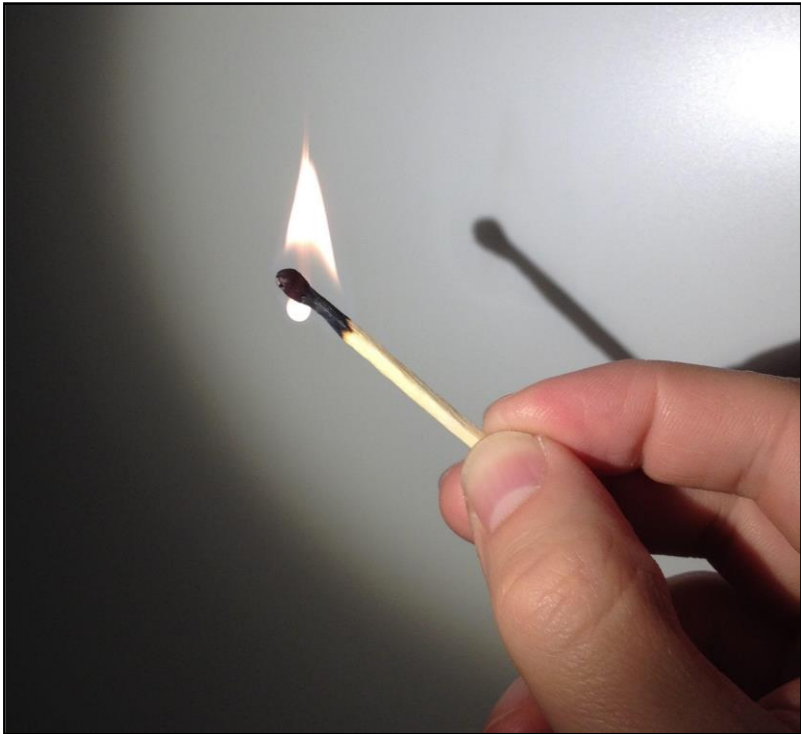
Wonders whisper:

*“What if...?”*

In this short book (the precursor to a much more detailed treatise) I want to share six simple mysteries using everyday household items for you to experience. I encourage you to play and to ponder. To adapt and to extend. To share with others.

## 1. Two curiosities with fire

Go into a dark room, light a match or candle and place it next to a wall. Now shine a lamp or torch onto the flame. Weirdly the matchstick casts a shadow but the flame doesn't. Why?



Now light a candle with a match. Keep the match alight off to one side. Gentle blow out the candle flame. As the smoke rises, move the lit match into the smoke a few centimetres above the candle wick. The flame should jump down from the match and relight the candle.

## 2. A weighty mystery

Most illusions are visual; this one is a tactile (or more specifically a proprioception illusion). It even works if you know the secret.

To set up you need to stack three identical cardboard boxes in a mini tower. Large matchboxes are ideal for this. Fill the top box with a heavy weight.



First, with your hands at either side, lift the three boxes up. Get a feel for the weight. Now repeat but only lift the top box. Weirdly the top box feels much heavier than the three boxes together. Now go baffle some friends but don't let them see the inside of the boxes.

### 3. Counter (intuitive) balance

This isn't a trick. It's a visual oddity. A drinks can is balanced at a precarious angle. A full can of drink will not balance. Neither will an empty one. However, with the right amount of liquid in the can it will balance on the angled edge at the bottom of the can. How much liquid is needed though?



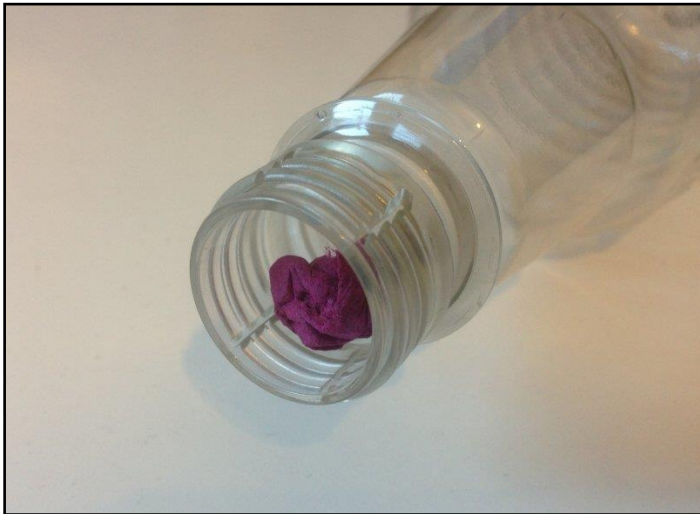
You need to position the can gently so the liquid doesn't slosh about unbalancing it. Once you've mastered it on a flat horizontal surface, try some more adventurous balances like bottle lids and glasses.



## 4. Funnel and ping pong ball

Place a ping pong ball inside the mouth of a funnel. Now blow through it. You'd expect the ball to fly out and yet it stays in place. Now turn the funnel upside down, hold the ball in the mouth of the funnel and blow through it. Again the ball stays in place. It really is confusing.

Another simple trick you can try is get a dry empty bottle (500ml size is perfect), put it on its side and place a small pom pom (or rolled up piece of paper) just inside the bottle neck. The challenge is to blow the ball into the bottle without touching it. Give it a go and see what happens.



## 5. Slinky spring

Hold a slinky spring up in the air. What will happen when you let go of the end?



If you have a phone camera that records in slow motion this is an ideal way to see what happens.

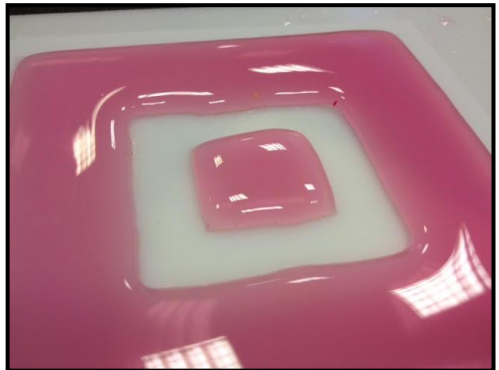
Now take a polystyrene cup, and wedge it into one of the ends of a metal slinky spring. Hold the slinky up in the air with the cup end at the bottom. Now gently shake the spring up and down. Listen.

## 6. Surface tension coins



Fill a wine glass with water so it's level with the glass rim. Now gently drop a coin into the water. Even though the glass is full, the water doesn't spill out. How many coins can you put in the glass before there's a leak?

Some lovely results can be had by using a Hydrophobic coating on the surface of a tray. In the example photo I used a product called *NeverWet* to spray the surface. Masking tape was used to leave parts of the surface of the tray untreated.



## Maths Bonus...

### The Autobiographical number

# 6210001000

How many zero digits does this number contain?

How many ones?

How many twos?

...

How many nines?

What do you notice? Is this the only number with this feature? Why does it work? One way to see this number emerge is to start with 0000000000 and keep correcting the number as the digits change. I've started you off:

0000000000

9000000000

9000000001

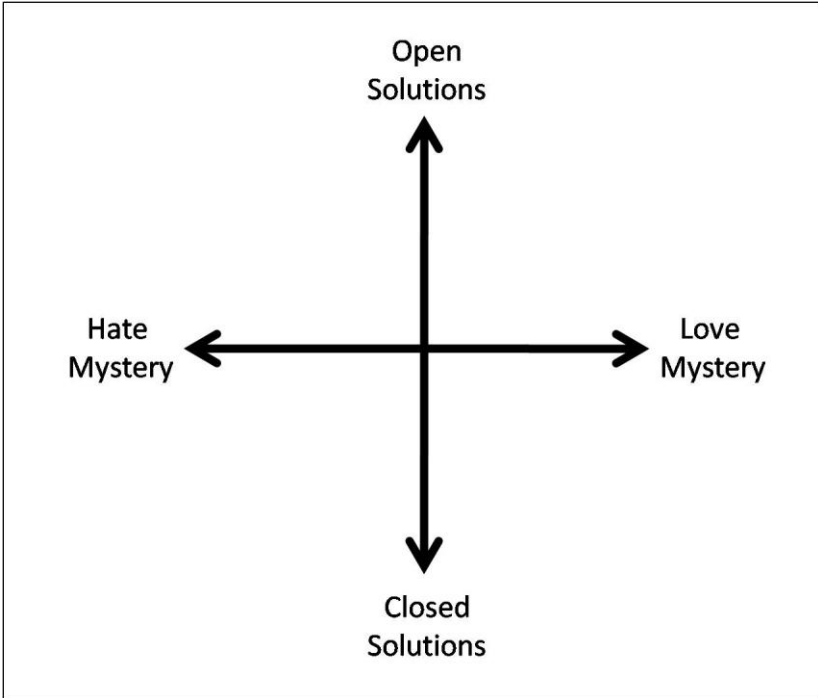
8000000001

8100000000

Etc.

## Conclusion

How do you respond to mystery? Do you like open or closed solutions? Where do you live on the grid below?



The curious spirits inhabit the top right quadrant. They play, tinker, question and explore. They enjoy the journey just as much as the destination. And this should be encouraged and protected. We need more dreamers because those who dream at night, work wonders during the day.

“Mystery is not the absence of meaning,  
but the presence of more meaning  
than we can comprehend.”

Dennis Covington

## **How to get in touch**

I'd love to hear your thoughts and feedback, as I expand this into a full book of experiments and ideas.

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