My Magic Maths Book

Cunning Tricks for Cunning Kids!

TOP SECRET

Contents must not be disclosed to unauthorised personnel.

CONTENTS

1. Nutty Loops

A loop of paper is cut in half down the middle of the strip. When the scissors reach their starting point there are not two loops but one big one!

It gets worse! When this big loop is cut around the middle it makes two loops but they are linked together!!

The Secret

Before joining up the ends of the paper to make the loop, one end is turned over (this is called a half twist) before being glued. The resulting loop is called a Möbius Strip, and it only has one side! (Try colouring each side a different colour and you'll see what I mean!)

The Ham Sandwich

Get three equal lengths of paper, one on top of the other, with the middle one pink. Give one end a half twist and join the three pairs of ends that meet. This is the ham sandwich. Slide the ham out - now try to put it back!

2. Squaring The Circle

Make two ordinary loops of paper the same size and glue them back to back at right angles to one another like this:
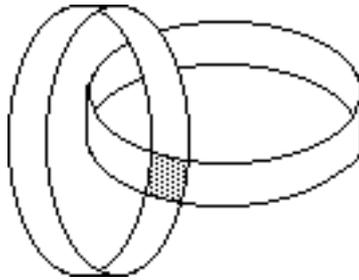
Now ask the audience what will happen if both loops are cut around their middles (while still stuck together). They will guess incorrectly!

The Secret

When these loops are cut they actually produce a square!! This is because each edge is half one of the original strips of paper (so they are all the same length) and the "crossroads" of the cuts (at the shaded part in the diagram above) produces the four right angles.

3. The Pack Finds Your Card

Shuffle the pack and deal out nine cards for your volunteer. While they are looking at those cards you can shuffle the rest. Ask them to choose their favourite and put the rest face down on the table. Now ask them to put their card on top of the face down pile. You put the rest of the pack on top.

Explain that you will count out four piles, each time counting backwards from ten. As you count, you deal out one card for each number. If at any time the card dealt is the same as the counting number, then you stop and move on to the next pile - otherwise you "close" the pile by putting a card face down on top.

After you have dealt out all four piles, you add up the numbers showing. Say you had 6 + 4 + 2 = 12. Then you deal out (12) more cards, and the last card dealt out is their card!

The Secret

You must use a full pack of 52 cards for this trick or else it won't work!

4. Spell It!

You show all the cards of one suit to the audience, pointing out that they are in "no particular order". You then turn them face down and begin spelling out the names of the cards. Each time you say a letter you put one card to the bottom of the pile.

"A, C, E, ACE!" Three cards have gone to the bottom and the next card is in fact an Ace. This is put face up on the table before you continue: "T, W, O, TWO!" and put down the Two. You continue in this way until you have just two cards left in your hand: "Q, U, E, E, N, QUEEN" (Show it) "And the last one is a KING!" (Show it)

The Secret

"No particular order" is a pack of lies! Before you show the cards you secretly arrange them in this order (face down from the top):

3, 8, 7, A, Q, 6, 4, 2, J, K, 10, 9, 5

The trick then works automatically.

5. The Prediction Was Correct

You show a folded piece of paper which you say contains a prediction. Ask your volunteer to choose a 3-digit number, with all digits different, eg. 147

Reverse it: 741

Subtract the smaller of these two numbers from the larger: 741 - 147 = 594

Reverse this answer: 495

Add these last two numbers together:
    495 + 594 = 1089

Open up your prediction: **1089** !!!

The Secret

Obviously this routine always gives the same answer, but you don't tell your audience that! Unfortunately this means you can only show this trick once to the same audience.

6. Four Digit Foresight

Ask your volunteer to write down any four digit number. When they have done that, tell them that they have actually chosen a very magic number. You explain why:

Write down the number: (6245)

Write down the first digit: 6

Write down the first 2 digits: 62

Write down the first 3 digits: 624

Add these three numbers: = 692

Multiply this by 9:   9 x 692 = 6228

Add up the original 4 digits: 6+2+4+5=17

Add these last two results: **6245**

The Secret

The original number always pops out at the end. Shh! Don't tell *them* that!

7. Telephone Number Mix-Up

Find a gullible volunteer and ask them to write down their telephone number or any number of about 7 or 8 digits. Now get them to mix up the digits to make a new number.

Telephone number: 4210763
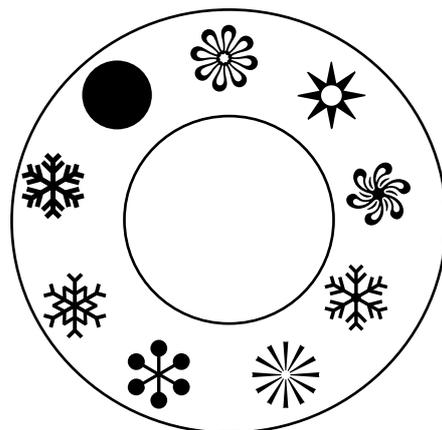Mixed up version: 2067314

Subtract the smaller from the larger:
4210763 - 2067314 = 2143449

Add up the digits in the answer:
2 + 1 + 4 + 3 + 4 + 4 + 9 = 27

Ask them to count clockwise round this circle starting with 1 = ❀ below:

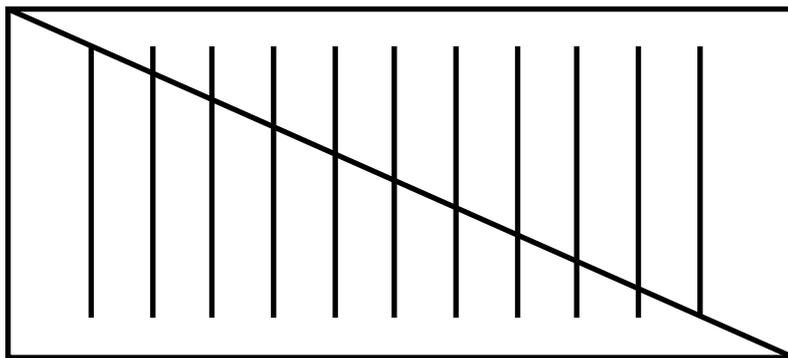
They will always end up on the black circle, which you predicted, of course!

8. The Vanishing Line

Find a volunteer who thinks they can count. Get them to count the number of lines on your piece of card. Now slide the top section slightly to one side and get them to count again. It's a different number of lines!

The Secret

Make up the following on a piece of card:

Notice that the two end lines stop exactly on the diagonal. Now cut along the diagonal line.

When you slide the top to the left (inwards) you will see not 11 but 10 lines. The 11th line hasn't gone anywhere - it has just been shared amongst the other 10!

9. The Missing Squares Puzzle

Get some squared paper and a thick pen, and copy the following diagrams:
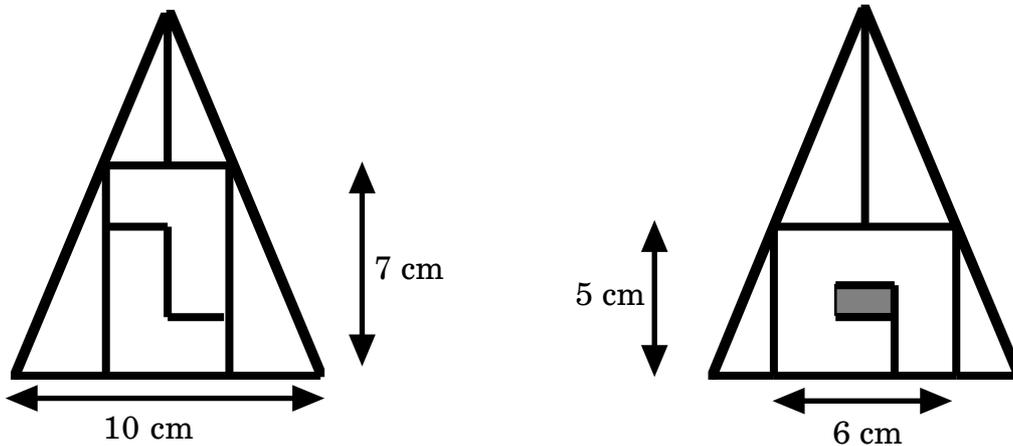
First check that the the two triangles are the same size. Now cut out the six pieces on the left and re-assemble them as in the diagram on the right. There's a hole! Where did the two squares go?

The Secret

Of course, the squares don't go anywhere. It's another massive con. In the first triangle the sides actually bend in slightly, and in the second they bulge out. The difference between these two arrangements works out to be exactly two squares. This is all hidden by using a thick pen to draw the diagrams!

10. The Dice Stacking Mystery

Give your volunteer five large dice and ask him to stack them up in a tower. Even though you don't watch him stack them, you can immediately tell him the correct total of all the hidden faces. What is more, when you repeat the trick the answer is different, but you are still correct!

The Secret

Opposite sides of a dice add up to 7. In a stack of five dice there are five pairs of horizontal faces (top and bottom of each one). All these are hidden in the stack except the one on the top.

The total of these five pairs of opposite faces must be 5 x 7 = 35. All you have to do is subtract from 35 the number showing on the top! This gives you the total of the remaining nine (hidden) faces.

To vary it a little, do the trick occasionally with 4 dice (total 28) or 6 dice (total 42).

You'll also find you can sneak a peek at the top number without them noticing!

11. Magic Number Cards

You show your volunteer 5 cards with numbers on them. Ask him to think of a number between 1 and 31 and to give you all the cards with his number on. As soon as he places the last card in your hand you tell him his number!

The Secret

The cards are numbered as follows:

1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31

2, 3, 6, 7, 10, 11, 14, 15, 18, 19, 22, 23, 26, 27, 30, 31

4, 5, 6, 7, 12, 13, 14, 15, 20, 21, 22, 23, 28, 29, 30, 31

8, 9, 10, 11, 12, 13, 14, 15, 24, 25, 26, 27, 28, 29, 30, 31

16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31

All you have to do is add together the lowest numbers on all the cards given to you.

12. A Tricky Bet!

Here's one that could earn you lots of tuck if you play it right! Once you get the basic idea, adapt it according to the particular circumstances you find yourself in. All you need is the nerve to do it!

Example

"I bet you a sherbet lemon I could make that Mars bar of yours move without touching it!"

Wave your hands mysteriously over the Mars bar, being careful not to touch it. Pretend to be surprised that it doesn't move. Concentrate really hard (making sure you don't laugh!) "Didn't it move a little bit just then?" you ask. Of course they will say no. Wave your hands a bit more.

Eventually you move the Mars bar with your hand and pick it up. They will protest and say you lost the bet. Hand over the sherbet lemon. "OK then, you win!"

THEN RUN FOR YOUR LIFE!!!!