

Alchemy
KS4
Wednesday - Maths

Maths Investigation - Magic Trick

The Trick:

Select any 15 cards from a pack and lay them out on the table - face up - in three equal columns.

Ask someone to choose one card from the 15 and tell you which column it is in.

- Collect up the three columns into piles keeping the cards in order.
- Put the three piles together with the chosen column in the middle.

Now lay out the cards again - face up - in three columns placing one card in each column in turn. Ask the person which column contains the card this time.

Collect up the cards in the same way and lay them out for a third time.

Ask once more which column the card is in - collecting the cards for the third and last time in the same way - with the chosen column in the middle.

Now count down to the middle (8th) card and show it to the person. "Is that your card?"

The problem:

Can you explain why the trick always works?

Can you adapt the trick for different numbers of cards?

You may need to do this several times to work this out.