

# Logical Hats



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## INTRODUCTION

I have used this idea with great hilarity with Y10 and older students. In terms of bringing logical thinking to the fore I believe this is a cracker of an idea – just wish I had thought of it.

## MATHEMATICAL CONTENT

- Logic

## APPLICABILITY

KS3 – KS5

We need three people and five hats (3 of one colour and 2 of another)

A hat is placed upon each head and nobody can see the colour of their own hat

The three people sit in a back to front line. This means the person at the back can see the colours of the hats of the two people in front.

The person in the middle can only see the colour of the hat of the person at the front.

The person at the front cannot see any hats at all.

Each person, starting from the back, is asked: “Do you know the colour of your hat?”

In turn, starting from the back, they have to answer either: “Yes, I know the colour of my hat” or “No, I do not know the colour of my hat”.

Providing the person at the back and the middle have provided the correct answers it is always possible for the person at the front to be able to work out the colour of the hat she or he is wearing.

Find all different combinations of red and blue hats that can be placed on the three heads. Then try to show that no matter what combination is used the person at the front can always work out the colour of their hat providing ‘correct’, yes/no answers are forthcoming from the two people sitting at the back and the middle.