BEST Mathematics Competition

Deadline: 8th December

We are using six cubes.
Each cube has six faces of the same number.

The "wall" has to be only one cube thick.
The one on the left is built correctly by being a wall only one cube thick.
The one on the right is NOT allowed as it is two bricks thick in parts.
The cubes sit neatly - square face against square face.
The total on the left one is 70.

CHALLENGE 1

a/ What is the highest total you can make by using this staircase shape?

b/ What is the lowest total you can make by using this staircase shape?

c/ Explain in writing how you calculated the totals for a & b above, making sure you give reasons for your method/s.

d/ Now make a total of 75 using a staircase shape.

CHALLENGE 2

Using **any shape** of single cube thickness, what is the **highest total** you can make?
How can you be sure this is the highest total whatever the shape?
Can the highest total be found in more than one way? Justify your answer.

Y5 and 6 Competition.
Please hand in solutions to your teacher

BEST Mathematics Competition

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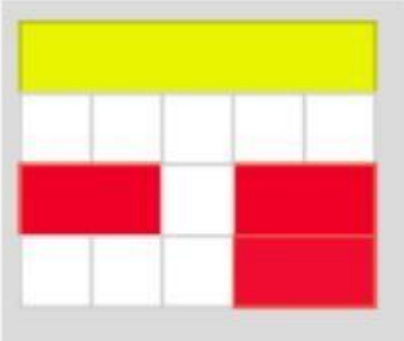
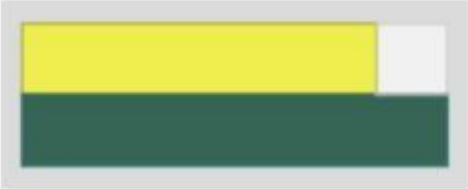
We can arrange white and red rods in many different ways to be the same length as a yellow rod. Here are some of them:



Can you find all the ways of using red and white rods that are equivalent to a yellow rod?

How will you know that you haven't missed any out?

The dark green rod is longer than the yellow rod.



Can you find all the ways of using red and white rods that are equivalent to a dark green rod?

How will you know that you have found them all?

Y3 and 4 Competition.
Please hand in solutions to your teacher

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Use these cards to make some number sentences:

For example:

In each number sentence you must only use a card once, but of course you can re-use them in your next number sentence if you want to.

Can you find a way to use all the cards in one number sentence?

Can you find all the possible ways to use the cards?

Y1 and 2 Competition.

Please hand in solutions to your teacher