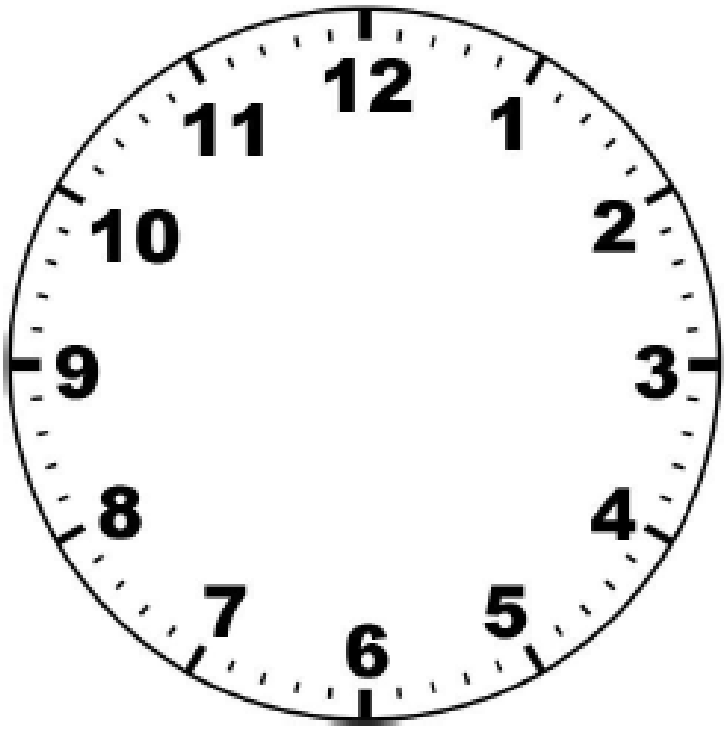
Mr G's Maths Challenges!

Mr Giles has put together some maths challenges for the year 6s. We thought some you might like to have a go at this one too!

Clock face *



Divide the face of the clock into three parts with two lines so that the sum of the numbers in the three parts are equal.

(sum means to add the numbers)

Medal Muddle ***

Thirteen nations competed in a sports tournament. Unfortunately, the order of the final medal table has been lost. However, we have the following pieces of information:

1. Turkey and Mexico both finished above Italy and New Zealand.

2. Portugal finished above Venezuela, Mexico, Spain and Romania.

3. Romania finished below Algeria, Greece, Spain and Serbia.

4. Serbia finished above Turkey and Portugal, both of whom finished below Algeria and Russia.

5. Russia finished above France and Algeria.

6. Algeria finished below France but above Serbia and Spain.

7. Italy finished below Greece and Venezuela, but above New Zealand.

8. Venezuela finished above New Zealand but below Greece.

9. Greece finished below Turkey, who came below France.

10. Portugal finished below Greece and France.

11. France finished above Serbia, who came above Mexico.

12. Venezuela finished below Mexico, and New Zealand came above Spain.

Can you recreate the medal table from this information?

What strategy will you use to compile the correct order?

Although there are twelve statements above, there are more than twelve pieces of information, because some sentences compare more than one pair of teams.

What is the minimum number of pieces of information needed to order the teams?

Which information, if any, is redundant?

Seven-up **

1. There are ——— vowels in this short sentence.
Which of the following options should replace "———" to make the sentence in the box true?
A twelve B thirteen C fourteen D fifteen E sixteen

2. Billy has three times as many llamas as lambs. Milly has twice as many lambs as llamas. They have 17 animals in total. From these five options how many of the animals are llamas?
A 5 B 6 C 7 D 8 E 9

3. Marcus Absent goes to school only if there is an 's' in the name of the day. During the 13 complete weeks of last term, how many days did he go to school?

4. Hugh Boyd is making a cuboid out of centimetre cubes. It will measure 4cm x 3cm x 5cm when completed. So far Hugh has used 43 cubes. How many more cubes does he need to finish the cuboid?

5. Isobel is taller than Sarah. Emily is shorter than Isobel, but taller than Sarah. Alice is shorter than Rachel, but taller than both Emily and Isobel. Whose height is the middle for the group?

6. A bouncy ball is dropped from a height of 160 cm. It bounces twice and each time reaches three-quarters of its previous height. How high does it rise on the second bounce?

7. Chris Packitt did a survey of favourite flavours of crisps and drew a pie chart of the results. The sector of the chart representing "Cheese and Onion" had an angle of precisely 45°. Which of these options could not have been the total number of people in the survey?

A 16 B 20 C 32 D 64 E 96

Total 100 **

Using both addition (+) and subtraction (-) signs where would you place them to make the following calculation correct?

1 2 3 4 5 6 7 8 9 = 100

The digits must remain in the given order. However they can be combined to make a larger number, e.g. 1 and 2 could become 12.

For the adventurous: negative (minus) numbers and decimals can be used in the solution,but the answer must always be the positive number 100.

How many solutions can you find?

Which uses the least number of addition and subtraction signs?

Total 99 *

How many addition (+) signs could be put among the digits of the number

987654321

and where should they be placed to get a total of 99?

9 8 7 6 5 4 3 2 1 = 99

The digits must remain in the given order. However they can be combined to make a larger number, e.g. 9 and 8 could become 98.

How many solutions can you find?