

Christmaths

Hang up your Stockings

If 1 red and 1 green stocking are hung over the fireplace on Christmas Eve they could be hung in 2 different orders:

red	green
green	red

1. If a red, green and a blue stocking are hung over the fireplace how many different ways would there be to hang them?
2. What about a red, green, blue and yellow?
3. And a red, green, blue, yellow and orange?

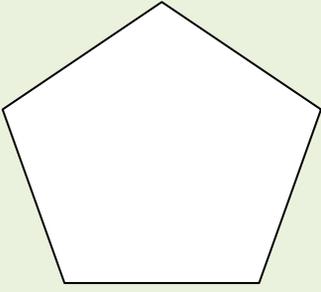
Can you see a pattern? Use the pattern to predict how many different ways there would be with 6 different coloured stockings

Show how you worked out the answers. You can use just the initial letter or the colour itself to make it quicker and easier.-

R	G	*	*
G	R	*	*

Polygon Stars

Draw a polygon if doesn't have to be a regular polygon



Use a pencil. Start at one corner and touch each of the other corners once and then return to the starting position without lifting your pencil

Look at the shape of the star that you have made

Does the star always look the same no matter what point you start at?

Try it.

The polygon above is a pentagon – 5 sides

Is it possible to make stars from polygons with a different amount of sides?

Six Pointed Co-ordinate Star

Draw an x and y axis on graph paper.

Put a dot at each co-ordinate point. Join from each point to the next with a ruler in the following order:

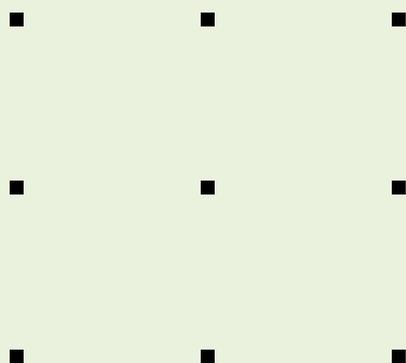
(9, 8) (12, 12) (9, 16) (14, 16) (17, 20) (20, 16) (25, 16) (22, 12)
(25, 8) (20, 8) (17, 3) (14, 8)

Now try these:

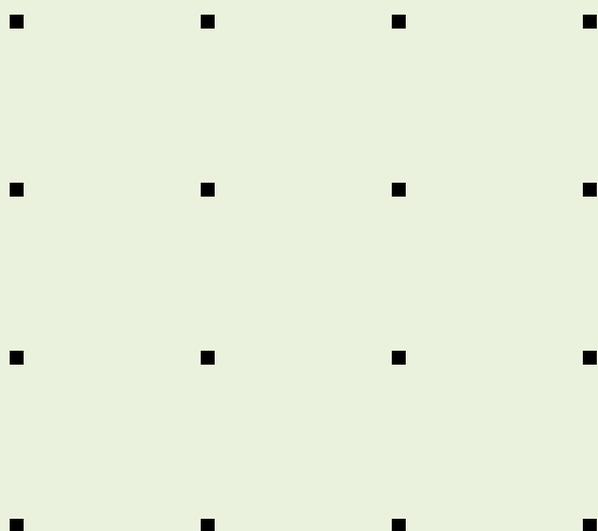
Join from each point to the next with a ruler in the following order and see what you have made:

(0, 12) (12, 14) (11, 18) (14, 16) (16, 24) (18, 16) (21, 18) (20, 14) (32, 12) (20, 10) (21, 6) (18, 8) (16, 0) (14, 8) (11, 6) (12, 10)

Christmas Message

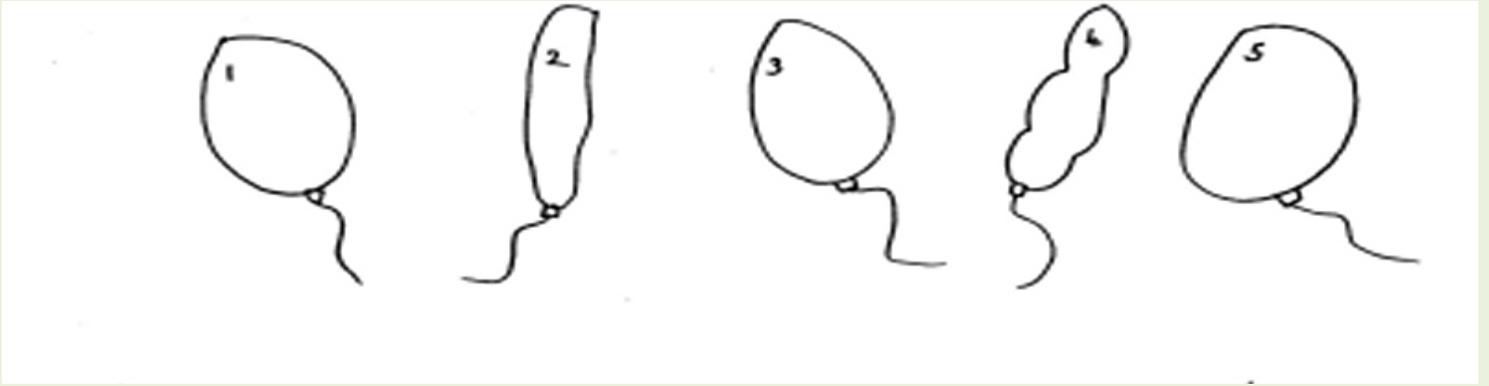


On a 3x3 geoboard make
the letters of the
alphabet needed for a
Christmas Message



On a 4x4 geoboard make
as many different stars
as you can

Christmas Balloons



How many different numbers can you make by rearranging the balloons?
(There are about 120!)

How many different ways can you rearrange the balloons so that 5 is on the end?

You could try this for a different number. Predict- will the amount of numbers you can make be the same as before?

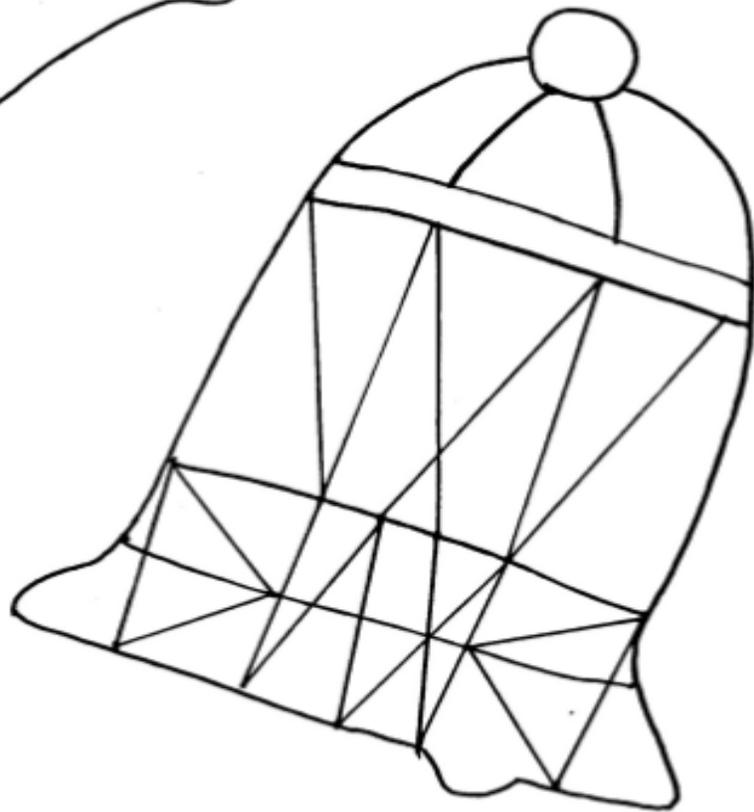
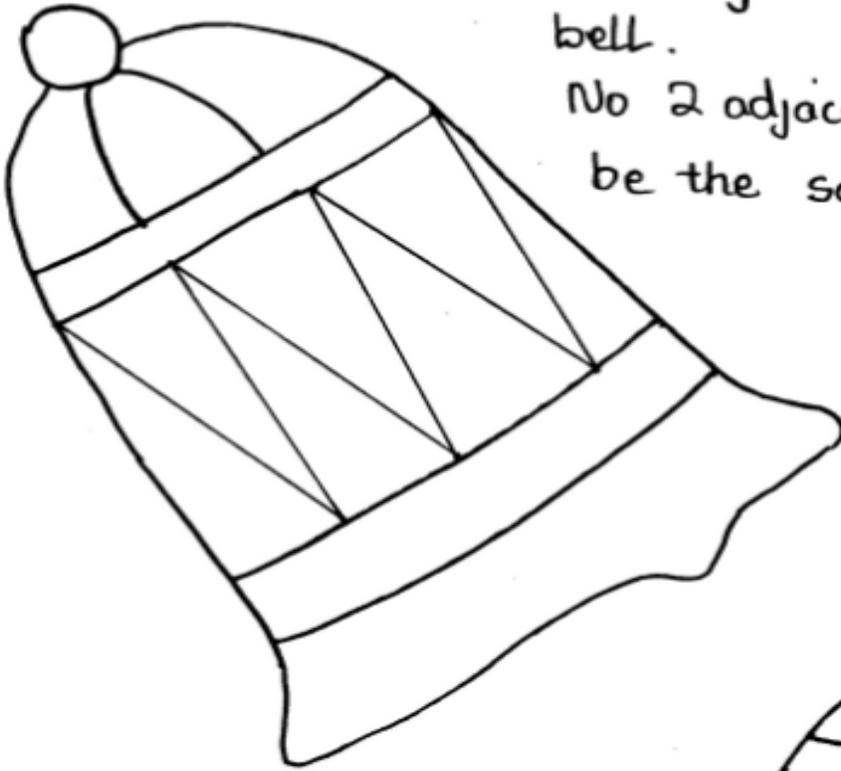
How many ways can you find to rearrange the number so that 5 is next to 2?

How many ways can you colour the balloons using only 2 colours?

*Note to teachers- there are numerous investigations you can make using this idea

Christmas Bells

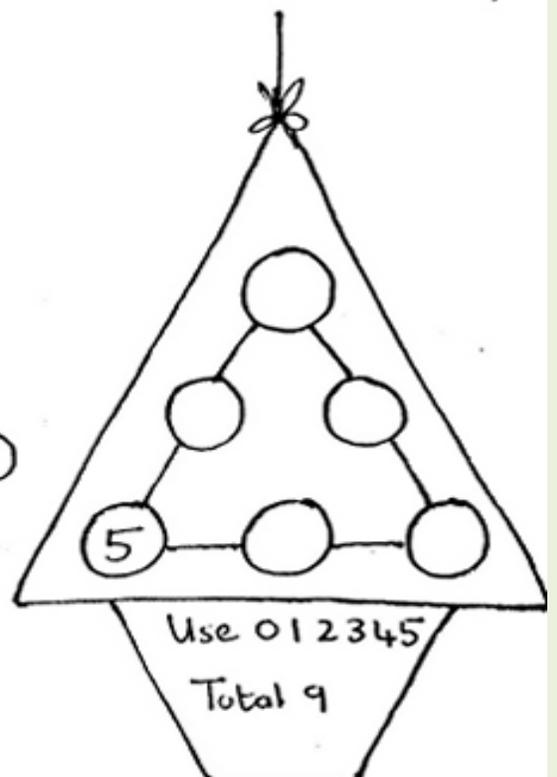
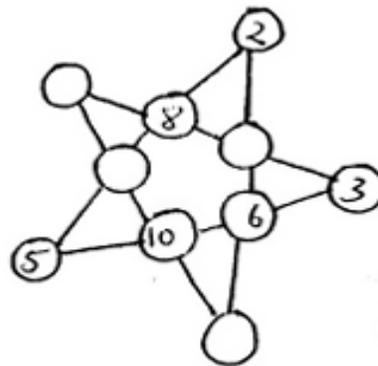
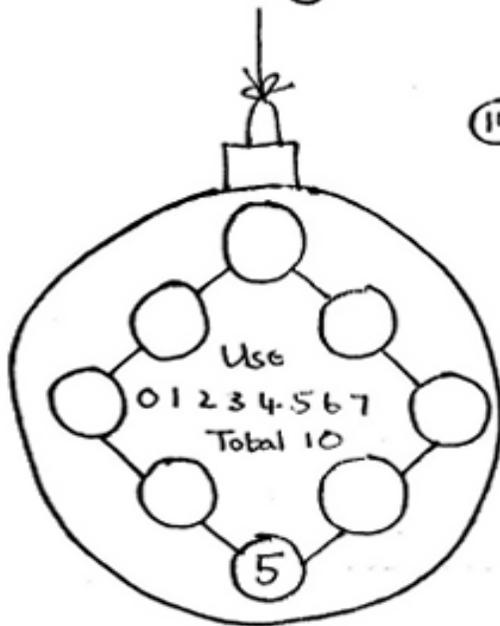
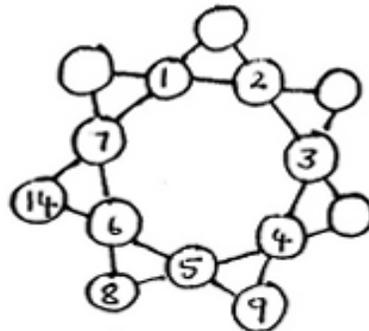
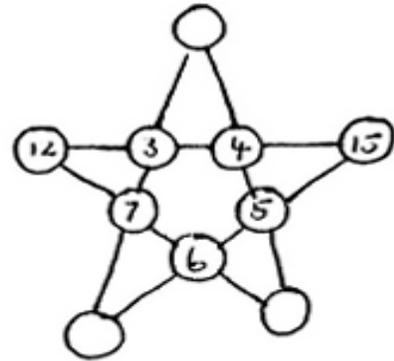
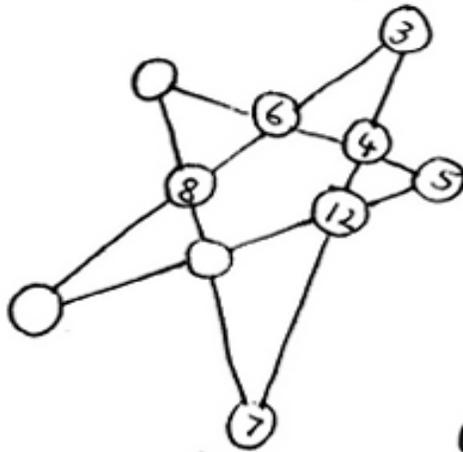
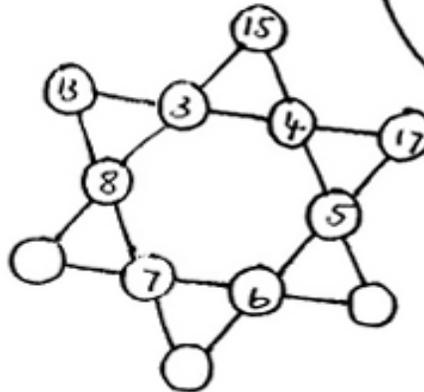
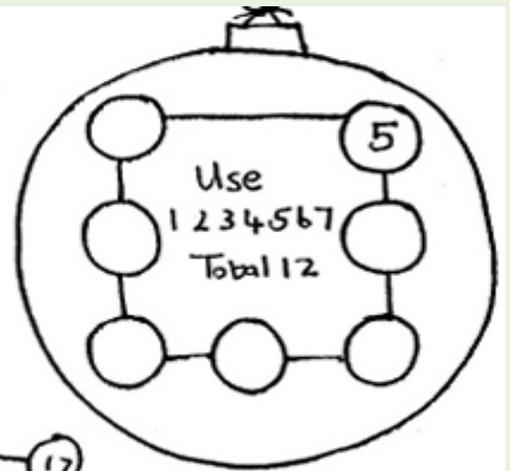
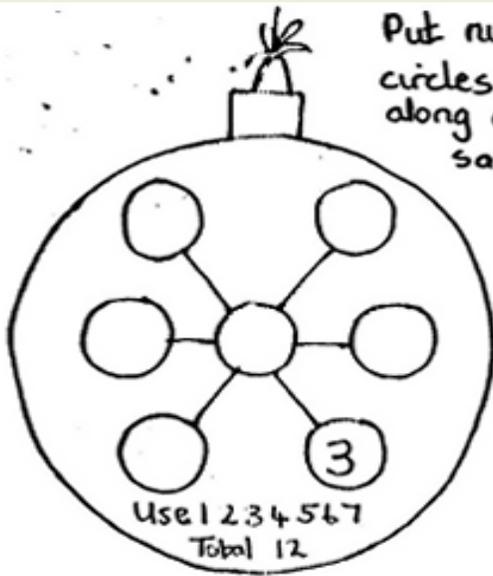
Use only 3 colours for each bell.
No 2 adjacent shapes may be the same colour.



Can you design
some bells of
your own?

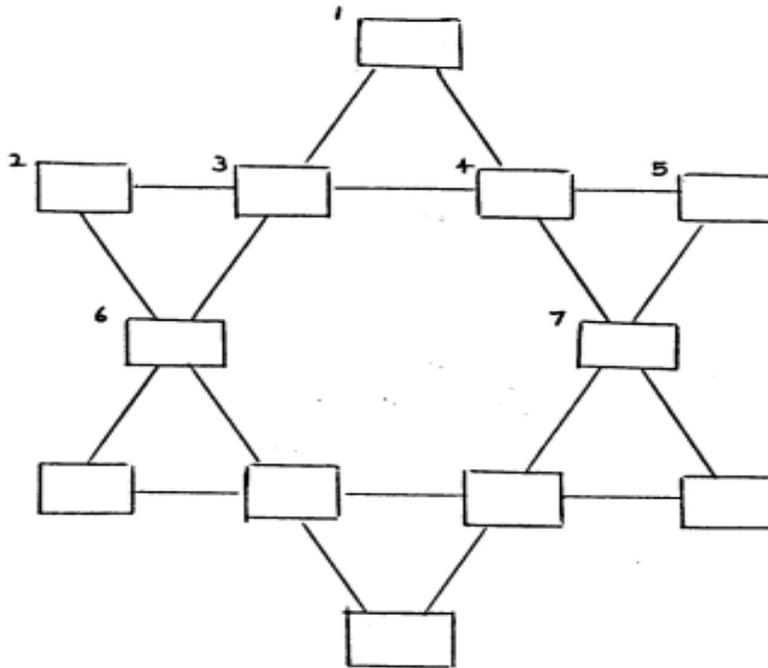
Christmas Baubles

Put numbers in the empty circles so that the numbers along each line have the same total



ARITHMASTARS.

Christmaths Star



This is a magic Star of David. It has six lines and a number is to be written in the boxes at the intersections of the lines in such a way that the total of numbers on any line is the same.

First fill in the numbered boxes using these clues:

- 1) How many french hens on the third day of Christmas?
- 2) Half the number of turtle doves on the second day of Christmas.
- 3) How many swans a swimming on the seventh day of Christmas?
- 4) The number of french hens multiplied by the number of calling birds.
- 5) Three times the number of turtle doves.
- 6) How many pipers piping?
- 7) The number of drummers drumming divided by the number of geese a laying.

Now try to fill in the other boxes. You should know the magic number because you have one complete line.

Try to make up a magic star of your own and give some Christmas clues.