WHOLE SCHOOL CHRISTMAS HOLIDAY PROJECT!

Science • Technology • Engineering • Arts • Mathematics

Complete any or all of these fun challenges with your families this holiday! Please send your photos to kcain@birches.staffs.sch.uk

S

Question, experiment, test and observe

Rudolf races!

Blow up a balloon, clamp the end with a food clip so no air escapes. Decorate your reindeer - cut out antlers and tape them onto the balloon along with googly eyes and a bright red nose (of course Rudolf must have his red nose)! Once you have decorated your reindeer simply tape a straw to the top and run a string through the straw.
Anchor the ends of the string to chairs or something similar. When you are ready remove the clip and you are off to the races!

T

Process and connect information

Design your own wrapping paper!

Use an online app, software or program to design a pattern which could be used as Christmas wrapping paper. You could use a search engine to find existing images, or draw your own from scratch. Either email your design or print it to wrap some pressies with - don't forget to take a photo of your super design! Can you change the background colour? Can you rotate the images? Is it a repeating pattern?

E

Invent, evaluate and improve

Ice Lanterns!

You'll need: a small and large plastic cup, decorations, food colouring, tape, water, freezer, battery operated candle. This is an engineering challenge so tinker until you get it right! Firstly, decide on your decorations. Pipe cleaners twist nicely up the outside of the large cup and act as a place to put other bits so they stay in place, like pompoms, sequins and beads. Once happy, slide the small cup inside the large cup then tape it into place. Carefully add water and food colouring between the two cups, only into the larger cup (add some weight to the smaller cup) up to 2cms from the top. Place in the freezer (or outdoors) for 5 hours or until completely frozen. Add your candle!

A

Explore and express

Salt Dough Ornaments!

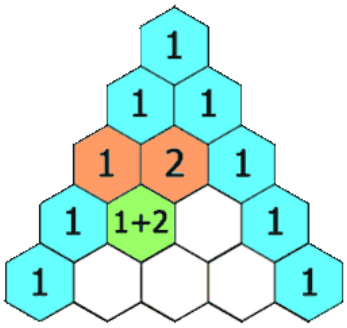
Get creative with some salt dough to make some ornaments. Will they be 3D or 2D? Will they hang from the free or stand on a surface? Will you paint them or add details into the wet dough? We can't wait to see your creations! You may already have a tried and tested recipe for salt dough (a simple mixture of flour, salt and water) but if not, a quick search online will give suggestions.

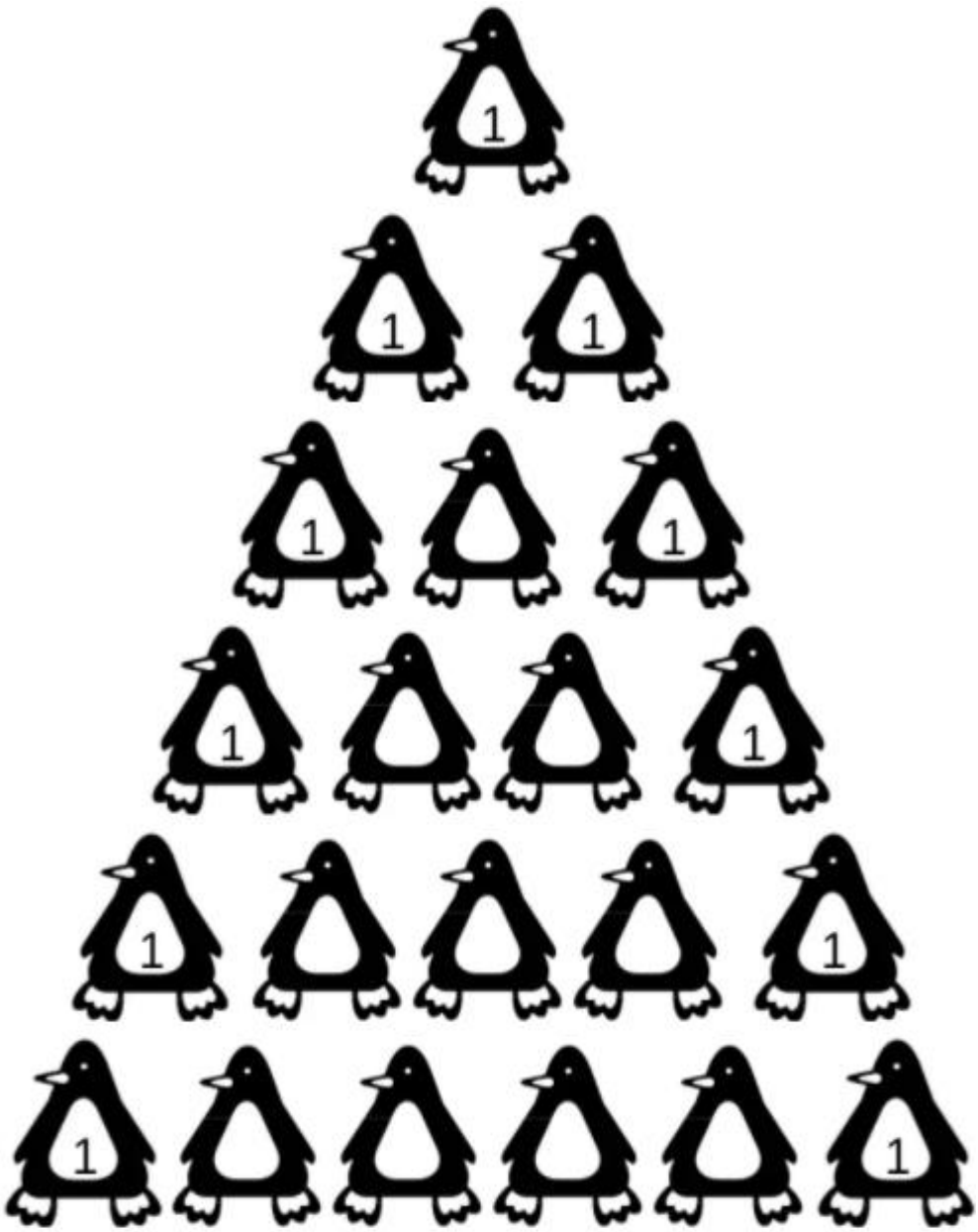
M

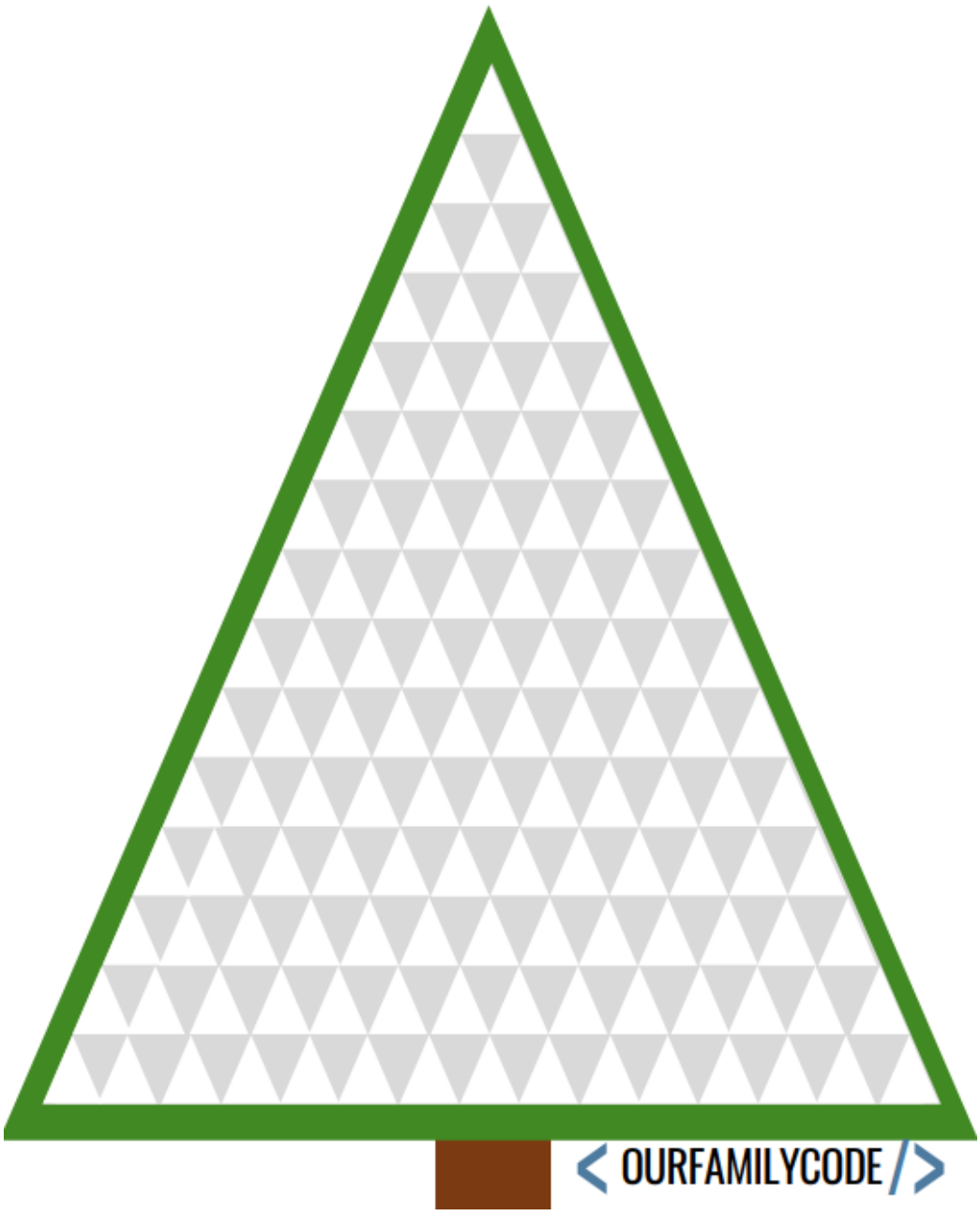
Use tools and structures

Pascal's Triangle!

One of the most interesting Number Patterns is Pascal's Triangle (named after *Blaise Pascal*, a famous French Mathematician and Philosopher).
To build the triangle, start with "1" at the top, then continue placing numbers below it in a triangular pattern. On the back of this sheet, you'll find a smaller penguin version and a trickier tree to really test your addition skills… How far can you go?!
Each number is created by adding together the two numbers directly above it. CHALLENGE: There are several patterns found within a completed triangle. Can you research patterns found along the diagonals, any symmetry, horizontal sums, or spot where the odd and evens are?




1
1 1
1 1
1 1
1 1
1 1
1 1


< OURFAMILYCODE />