



Click the gingerbread house to be brought back here





# Jingle Bell Maze

You will need:

- 1 x Jingle Bell
- 1 x Paper plate
- Assortment of paper/card
- Straws
- Scissors
- Glue/tape



Can you use the materials to create a maze?

You'll need to make sure:

- The jingle bell can fit through any paths
- You have a starting point and an end

Extension: Build a maze from different materials





# Code a Christmas Ornament

You will need:

- Pipe cleaners
- Beads (3 colours)
- Binary alphabet



Take a look at the binary alphabet.

Decide a colour for 1, another colour for 0 and a third colour for spaces.

Try writing the words SNOW, ELF and GIFT using the coloured beads.

Can you write your name?





# Snowball Catapult

Build a catapult to launch 'snowballs'.

Can you create a catapult like the one in the picture?

How can you make your catapult launch the snowballs the furthest? E.g. using fewer or more lollipop sticks...

You will need:

- 1 x Marshmallow 'Snowball'
- 1 x Plastic spoon
- 4 x Elastic bands
- 5-8 Lollipop sticks each





# Dissolve a Candy Cane

You will need:

- 3 x Candy canes
- 3 x Glass beakers
- Warm water
- Cold water
- Vinegar
- Lemon Juice
- Fizzy juice
- Experiment sheet

Choose 3 liquids to test.

Can you predict which liquid will dissolve the candy cane the quickest?

Why do you think this?

How long do you think it will take?





# Help the Grinch!

Oh no! The Grinch's heart is too small. Can you help him grow it by creating a chemical reaction?

1. Draw a heart on your balloon
2. Attach the balloon to the bottom of the funnel and pour 2-3 spoonfuls of baking soda into the balloon (you may need to shake it in)
3. Remove the funnel
4. Add some vinegar into the empty water bottle (you can try different amounts to see which works best)
5. Very carefully, as not to tip the baking powder in, attach the balloon to the open part of the water bottle
6. When you're ready lift the balloon so the baking powder falls in and watch his heart grow!

You will need:

- 1 x Balloon
- 1 x funnel
- Sharpie
- 1 x Plastic bottle
- Baking soda
- Vinegar
- Measuring jug for vinegar (optional)





# Decoding Elf Messages

Those pesky elves have been leaving coded messages around the workshop.

Can you use the Cipher (a decoding device) to help Santa find out what the elves are saying?

There are some letters already decoded to help you get started.

You will need:

- Elves Cipher
- Secret Messages
- Blank/squared paper





# The Tallest, Jolliest Snowman

Can you build the tallest, jolliest, free-standing snowman using marshmallows and cocktail sticks.

Plan out how you will build him first, and think carefully about how you can build him in a way which will stop him from falling over.

You will need:

- Marshmallows (different sizes)
- Cocktail sticks

**Can You Build the Tallest Snowman?**  
Winter STEM Challenge



The *Carly* and Adam Blog







# 8

## Paper Chain Decorations

You will need:

- 1 x A4 sheet of paper/card
- Scissors
- Glue/tape
- Measuring device

Can you work out a way to build the longest paper chain using only 1 sheet of paper?  
Remember to measure your paper chain afterwards!

Challenge: Can all of the paper chains go the whole way around your classroom or gym hall?



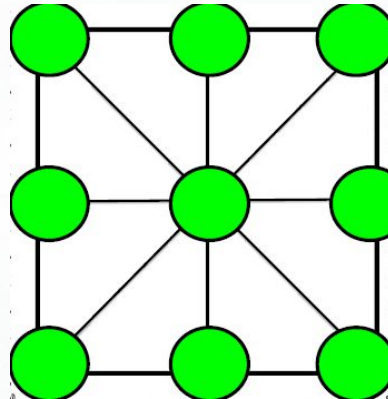


# Green Glow Three in a Row

You will need:

- 6 x coloured counters (3 of one colour, 3 of another)
- Game board

A problem solving & strategy game! Can you get three in a row before your partner?





# Santa's Parachute

You will need:

- 1 x Lego figure/block (Santa)
- 4 x pieces of string per parachute
- Ruler
- Assorted material (e.g. newspaper, tissue paper, plastic bag, coffee filters...)
- Paper/plastic cup for basket
- Hole punch

Santa needs a parachute with a basket which will allow him to land safely.

For this challenge you will work in teams of 4. You either must:

- Change the size of your parachutes but all use the same material OR
- Change the material of your parachutes but keep them the same size.





# A Hidden Message

You will need:

- Different colours of cellophane/overlays
- Black card (optional)
- Christmas Card template
- Coloured Pencils (red, yellow, pink, orange & blue)

Create a Christmas card with a hidden message.

Use a light blue pencil to write you message, then use the other colours to cover up the message. Which colour of cellophane reveals the message?





# Santa's Sleigh

You will need:

- Your imagination
- Plain paper
- Materials to build a prototype
- 6 (or more) Lego bricks

Santa needs a new sleigh.

He has some requirements:

- It must be able to hold presents (Lego bricks)
- It must be able to float on water
- It must have a steering device
- It must have an emergency power system to help the reindeer return to the North Pole at the end of the night

