

CHRISTMAS PAPER SCIENCE

EXPERIMENTS

Cut, stick, play and learn!



What's in the pack?



1. Spinning sleigh

Scissors

Paperclips



2. Magic opening holly

Scissors

Container of water

3. Shadow Christmas tree

Scissors

Torch

4. How strong

Glue/tape

Books



5. Gravy and cranberry sauce races

3 different liquids: gravy, cranberry sauce etc

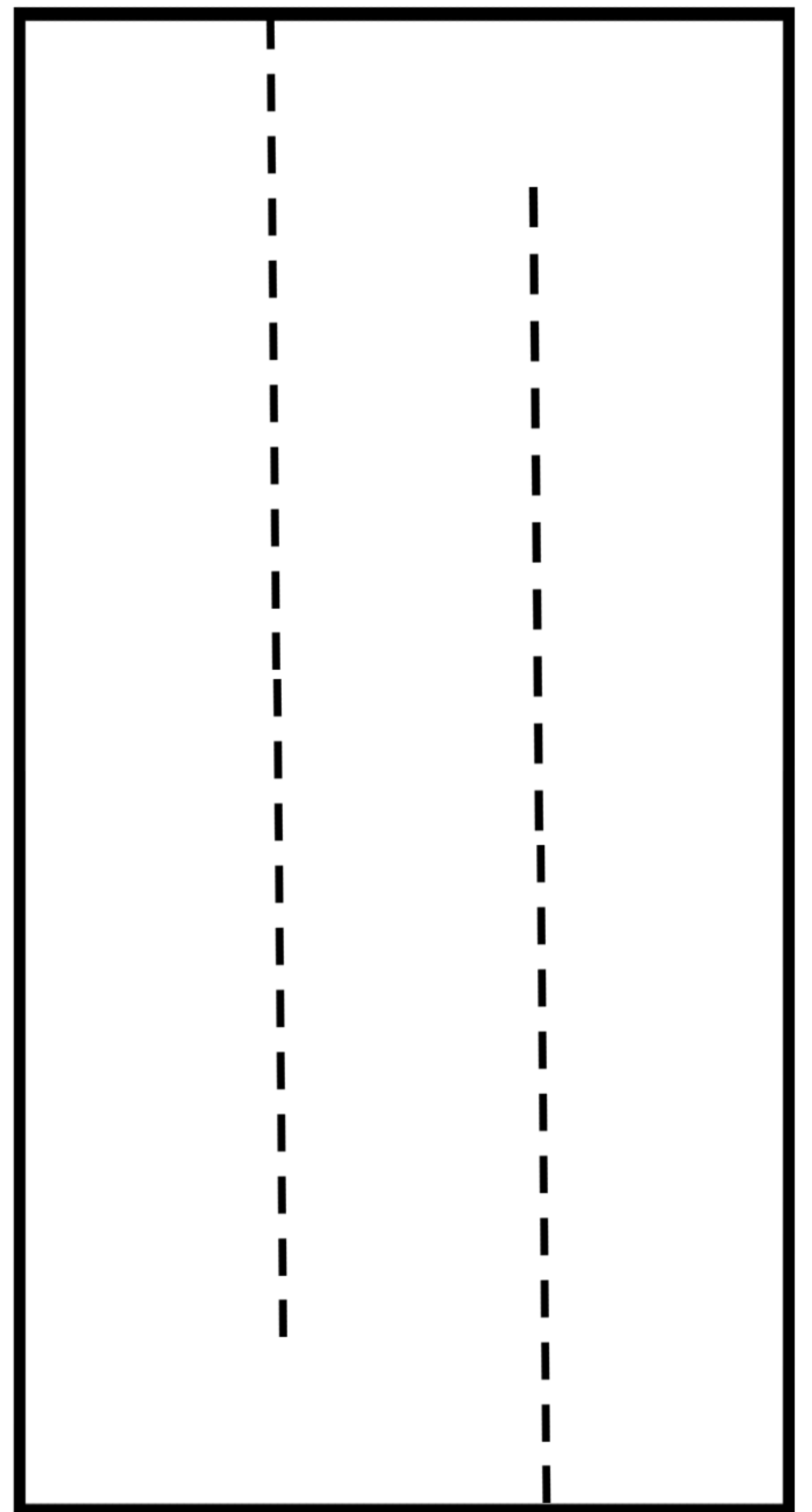
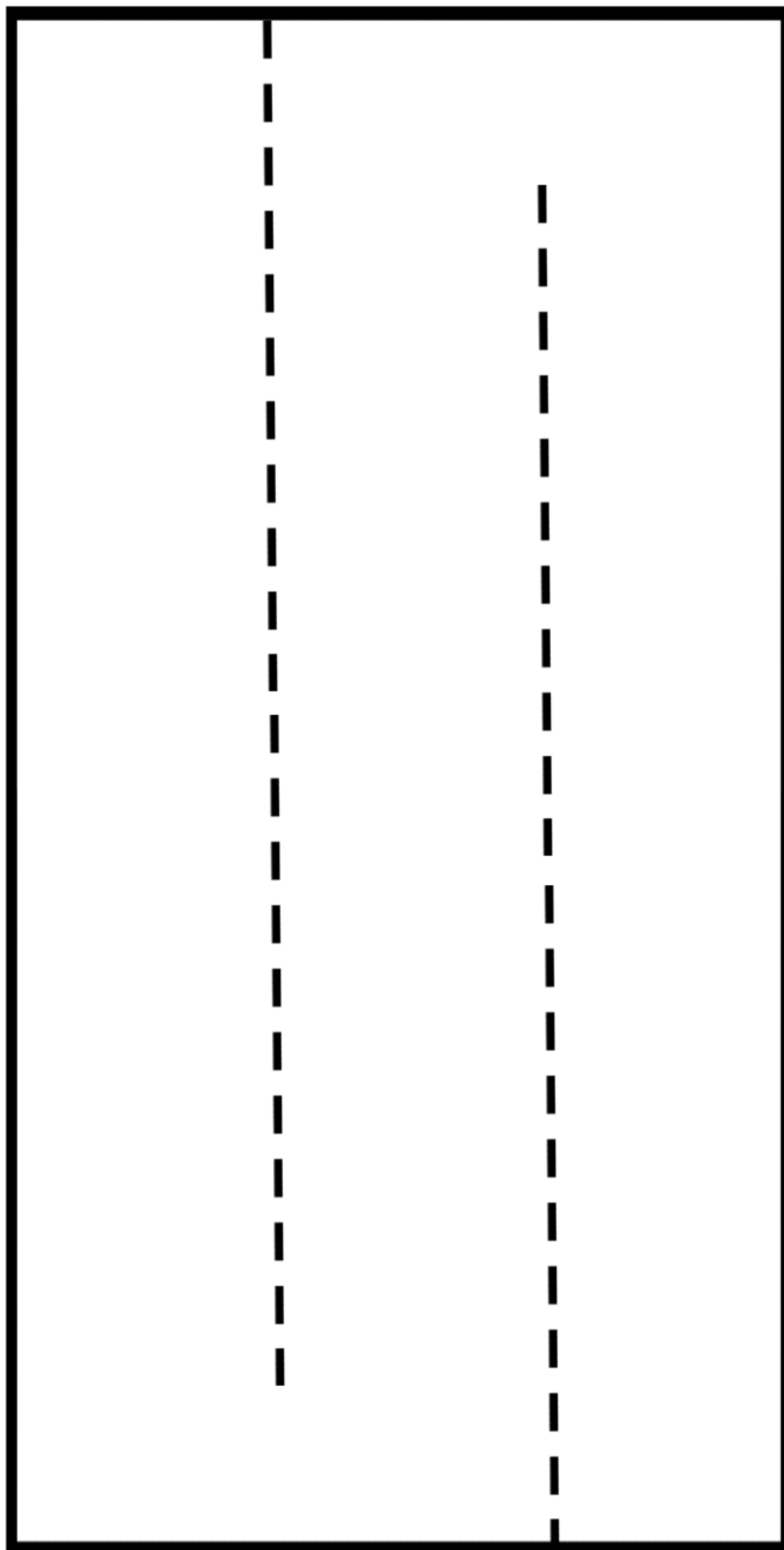
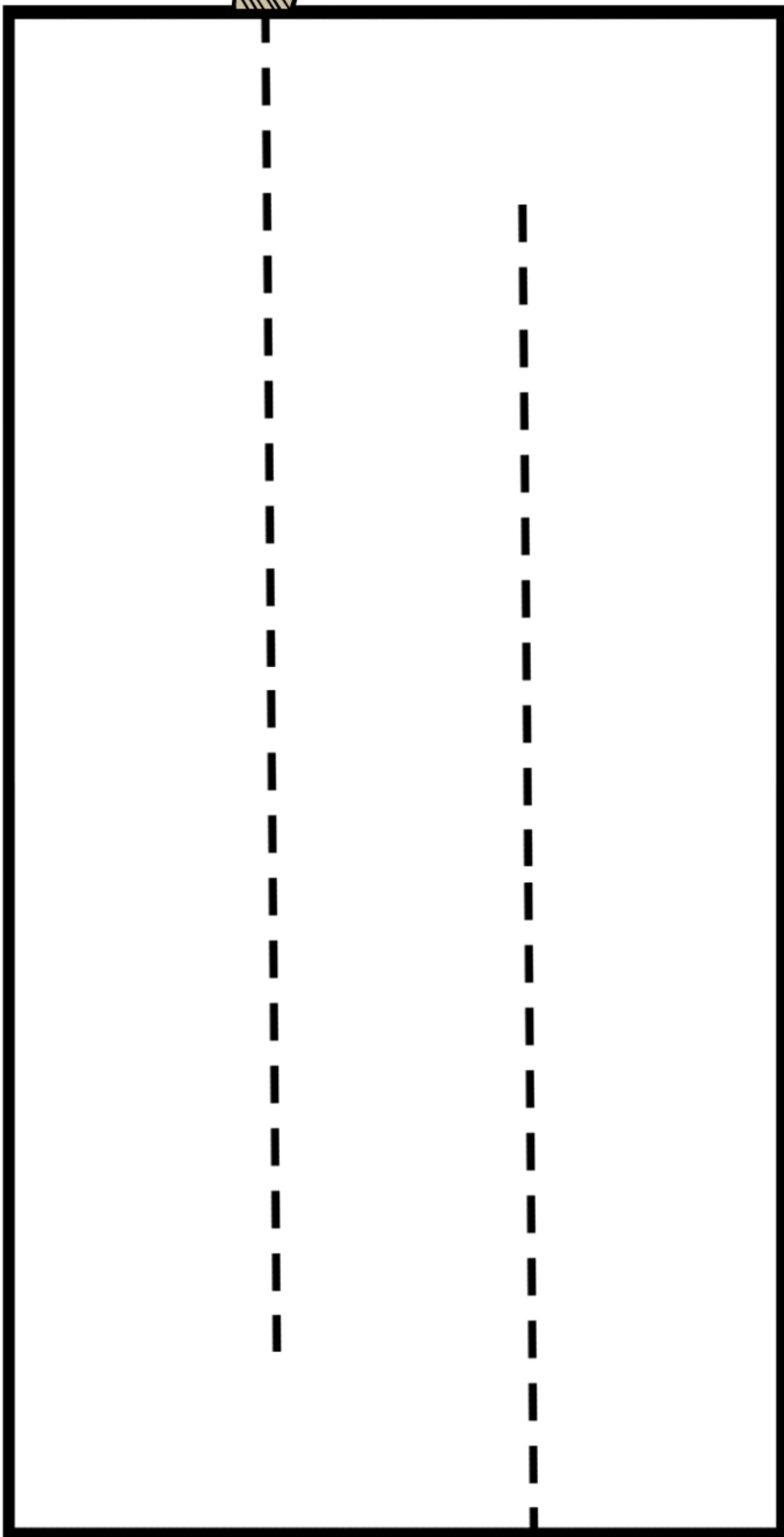
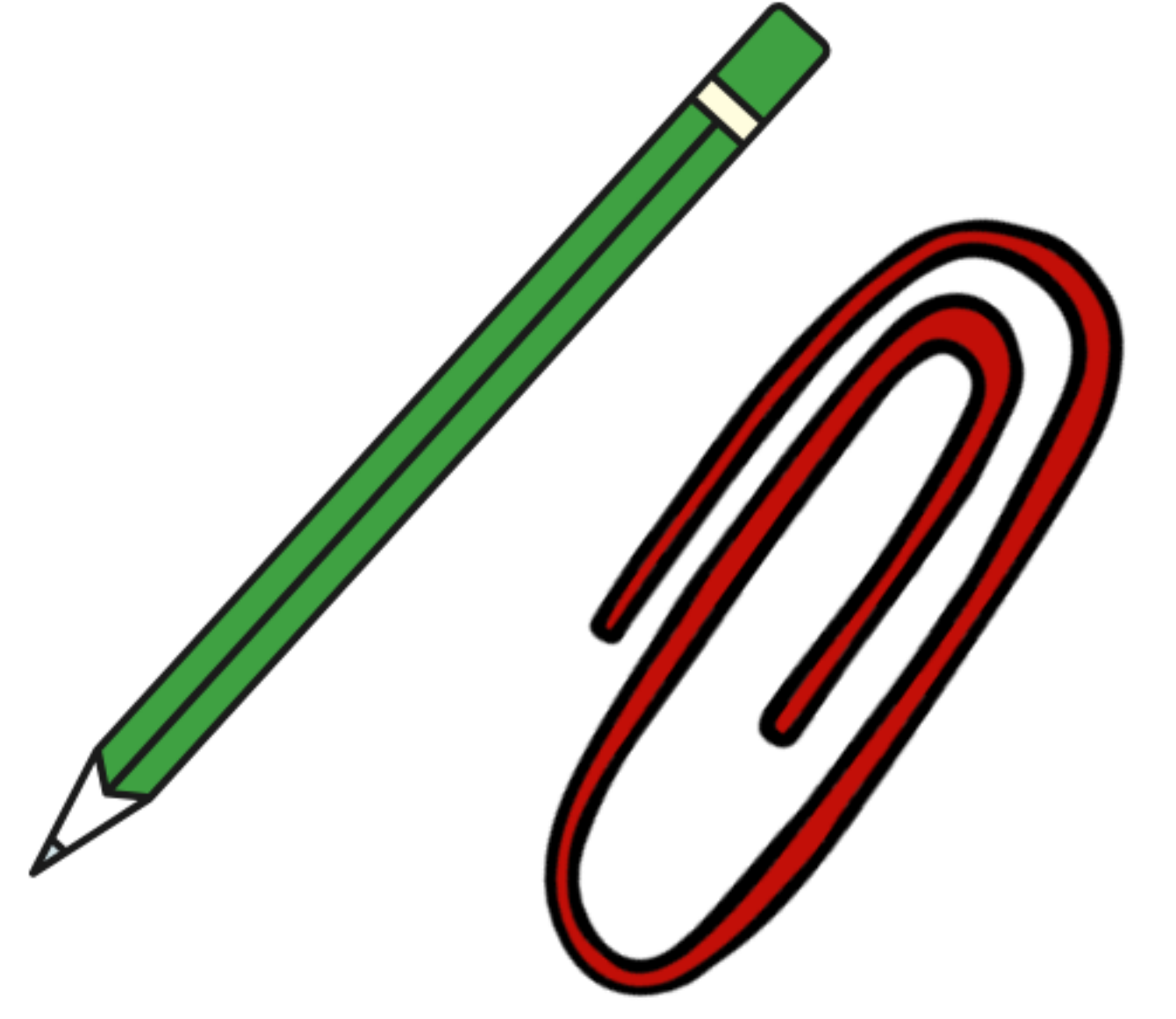
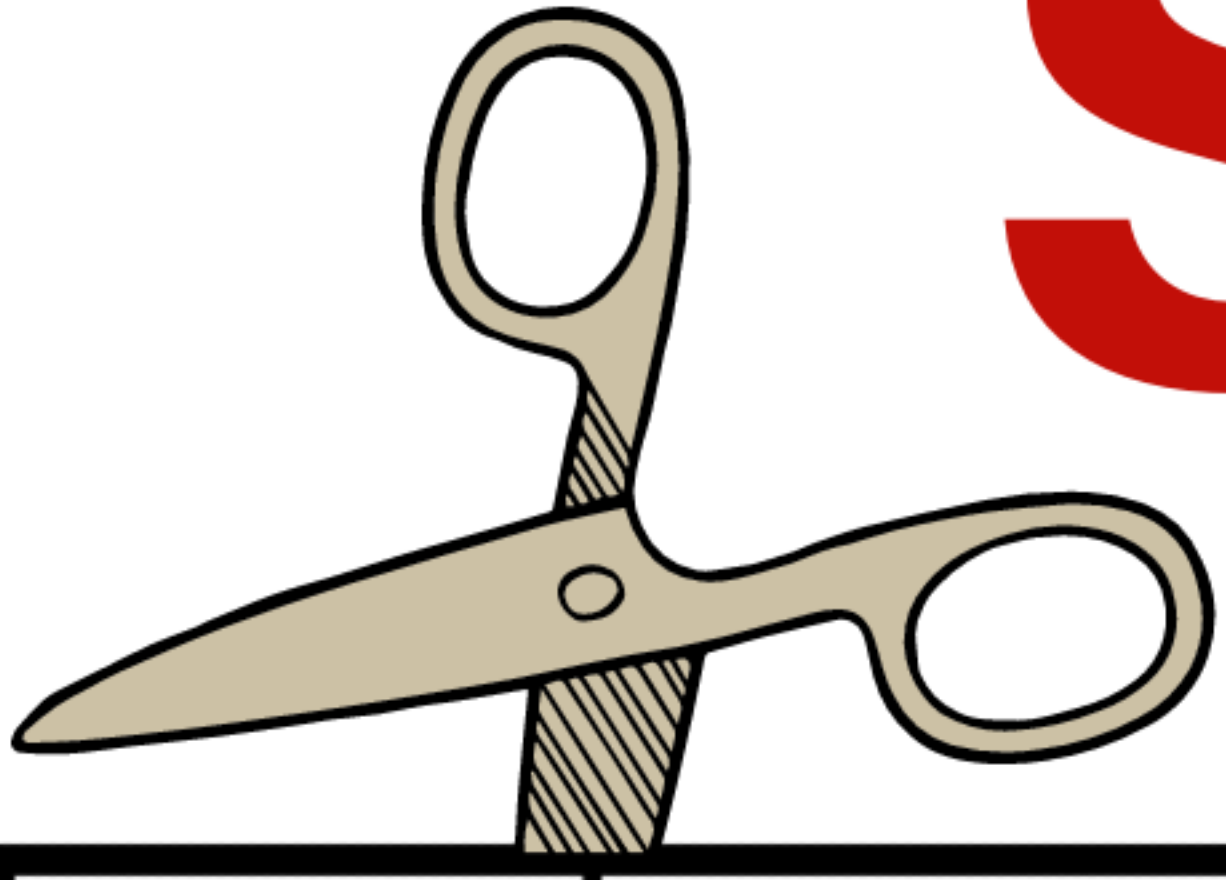
6. Water drop maze

Water



Adult supervision required. You are responsible for your own safety.
www.sciencesparks.com

SPINNING SLEIGHS



Supplies needed:

Scissors

Paperclip

Instructions

Carefully cut out the three rectangle shapes above.

Cut down the scissor lines and fasten the two ends together with a paperclip.



More fun

Experiment with bigger and smaller spinners and different types of paper.

MAGIC OPENING



HOLLY



Supplies needed:

Scissors

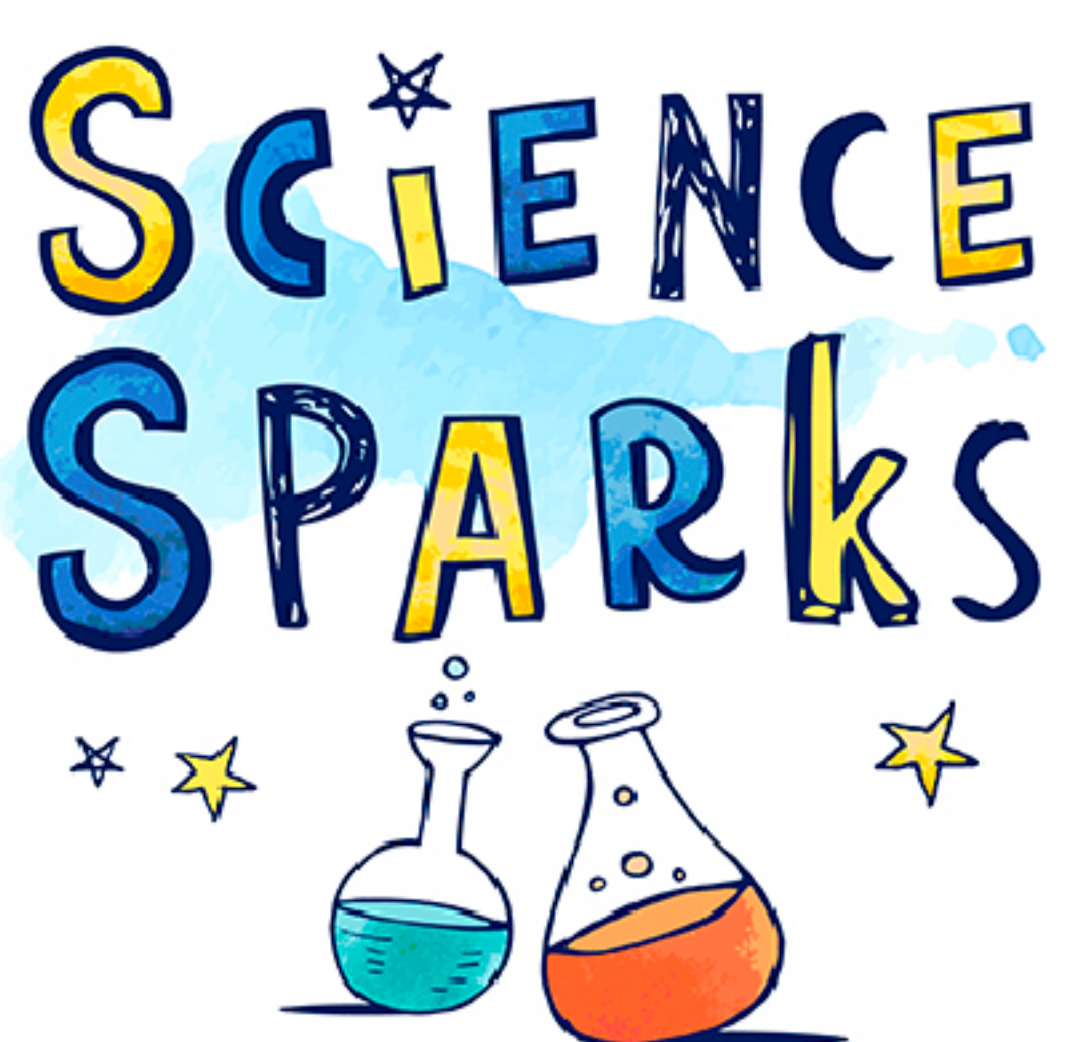
Container of water

Instructions

Carefully cut around the holly.

Fold up the holly leaves around the berries.

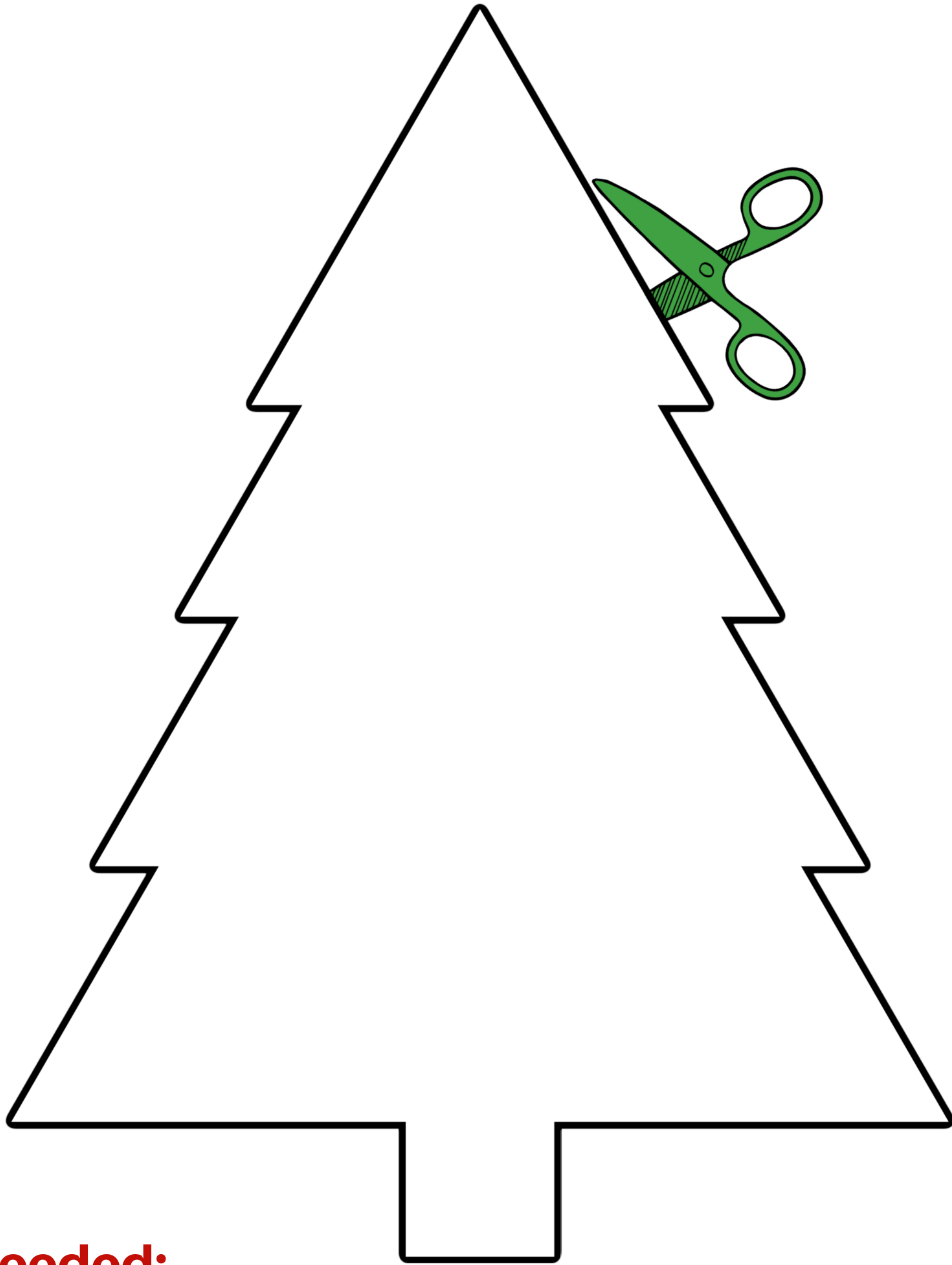
Place on the surface of the water and watch as the holly opens up.



What's happening?

Paper is made of lots of fibres, as they absorb the water they swell and the paper expands, making the holly open up.

Shadow Puppet



Supplies needed:

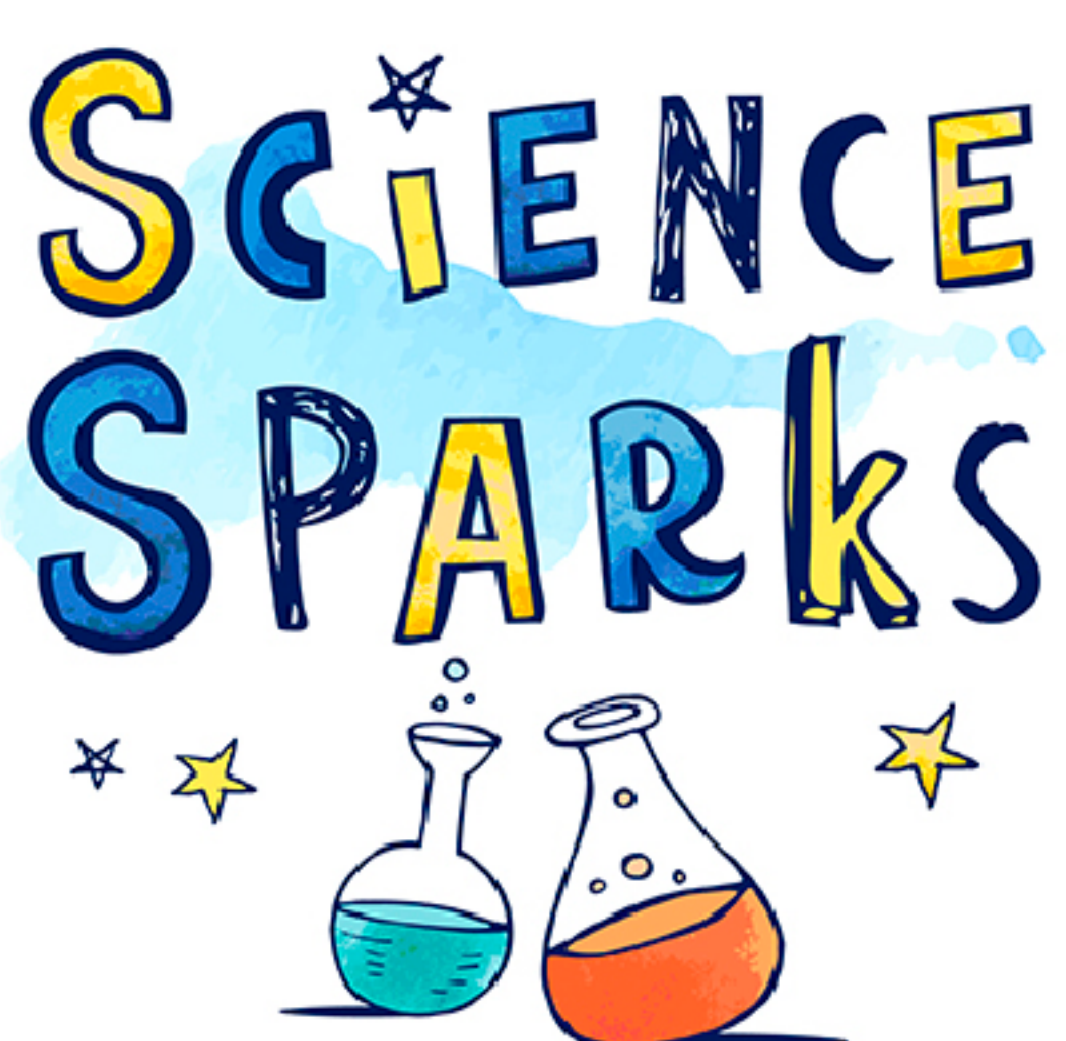
Scissors

Torch

Instructions

Carefully cut around the tree.

In a dark room hold the torch behind the shadow puppet.



What's happening?

Shadows are made when an object blocks light. The object blocking the light must be opaque or translucent for a shadow to form.



How Strong?

Build a square, triangle and circular column. Stand them upright and add Christmas books one by one to the top of each until they collapse.

Square Column

Cut along here

Fold here

Fold here

Fold here

G L U E / T A P E H E R E

Cut along here

How Strong?



Triangle Column

Cut along here

Fold here

Fold here

G L U E / T A P E H E R E

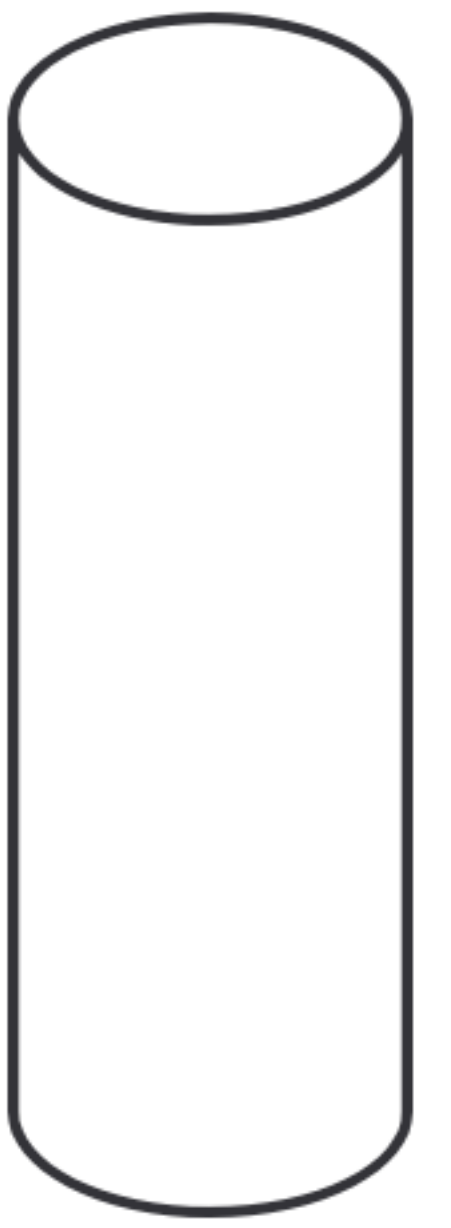
Cut along here

Fold, glue or tape and
stack books on top



How Strong?

Circular Column



Cut along here

G L U E / T A P E H E R E

Cut along here



What's happening?

You should find the circular column can hold the most weight. This is because it doesn't have any edges so the weight of the books is shared evenly by the circle.

The square and triangle support the books on their edges and corners meaning they collapse sooner.



Gravy Races

Instructions

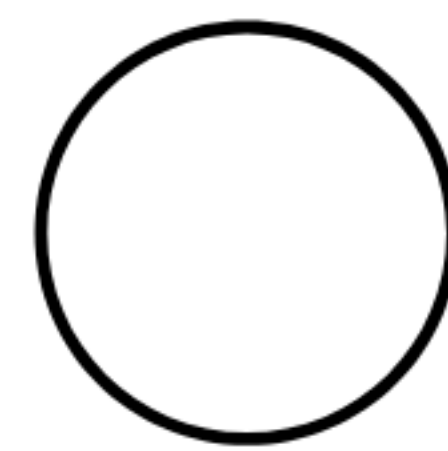
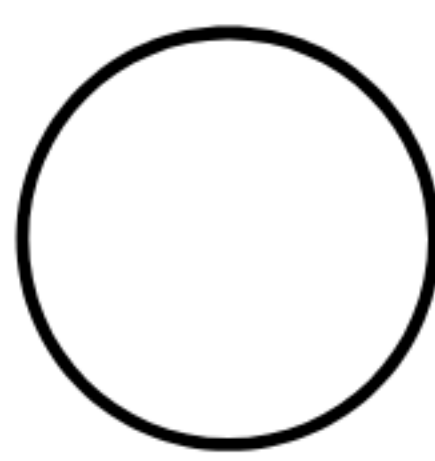
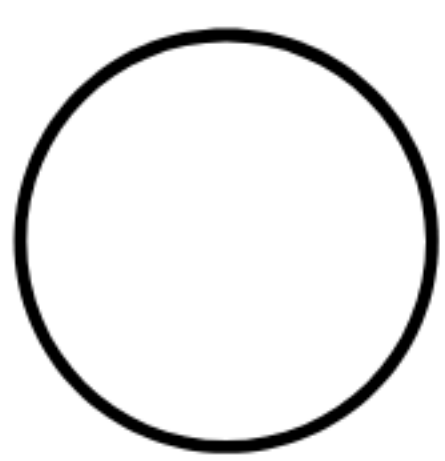
Fold the paper along the line to make a ramp.

Choose three different Christmas (gravy, apple sauce, cranberry sauce etc).
Place a drop of each in a separate circle and watch to see which reaches the
finish line first!!



Thicker (more viscous) liquids move more slowly!

Fold here



FINISH



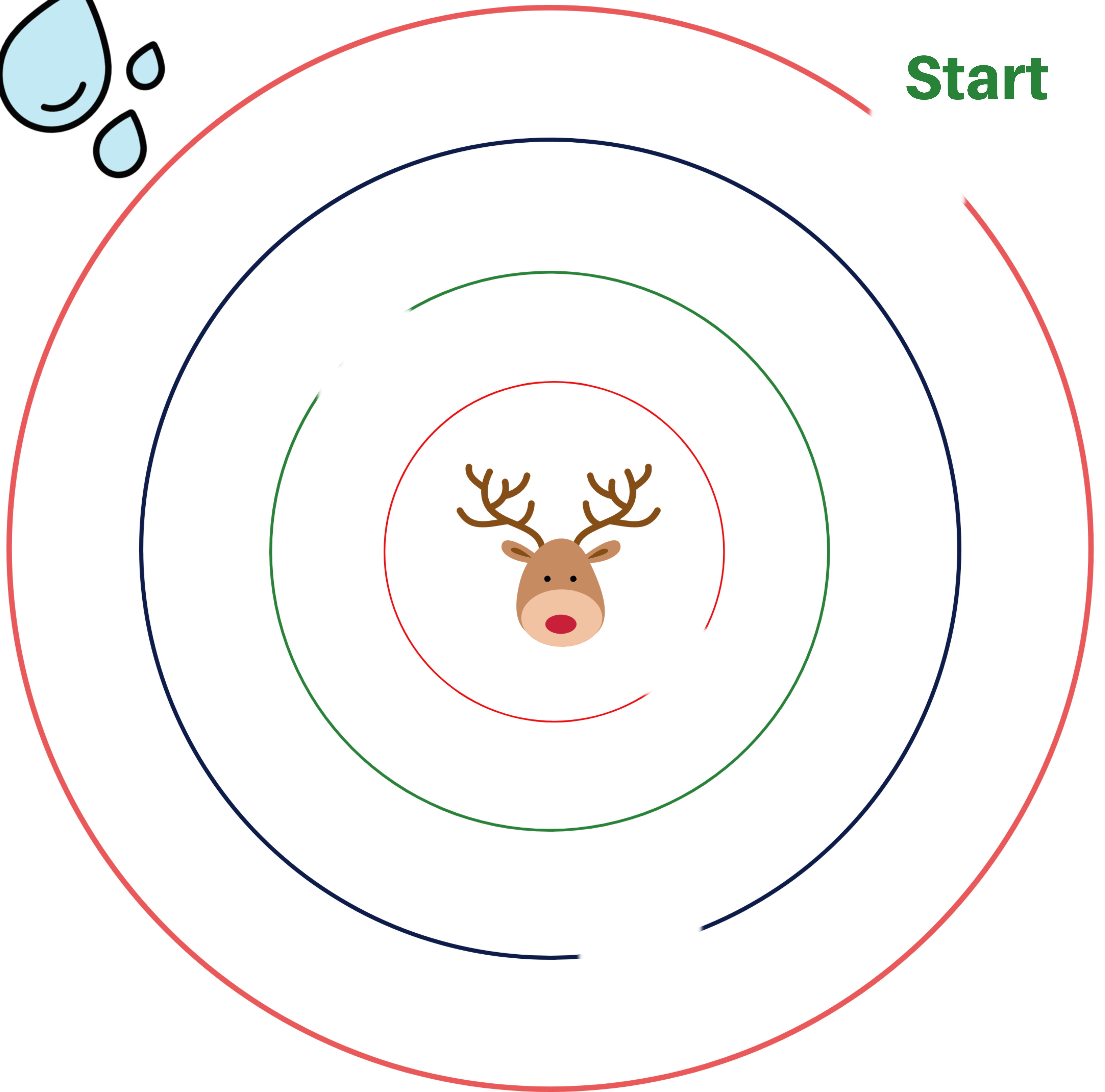
THE WINNER IS.....



Water Drop Maze



Start



Instructions

Place a drop of water at the start point and rotate the paper to move the water through the maze towards the reindeer.



More ideas

Try with a thicker liquid, is it easier?