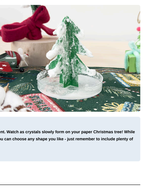
Snowy Christmas Tree

Stem Activities

Ages: 8-9


Over 24 hours


Growing crystals



Here's a fascinating and simple crystal growth experiment. Watch as crystals slowly form on your paper Christmas tree! While a Christmas tree shape creates a festive atmosphere, you can choose any shape you like - just remember to include plenty of points in your design. Read on to find out why.

Materials Needed

Salt
Water
Pain dish
Scissors
Pencil
Tablespoon
Lolly stick
Absorbent paper
Ruler

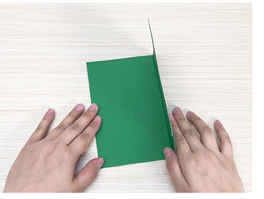
Step-by-step tutorial

Step 1

Using a pencil, draw your favourite Christmas tree design on paper.

Step 2

Fold the paper in half.



Step 3

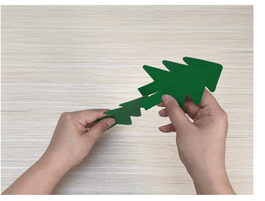
Using scissors, cut along your pencil lines to create the Christmas tree shape. You'll end up with two identical trees.

Step 4

Measure the tree's length and mark the centre point with a pencil. On one tree, draw a line from the centre to the bottom, and on the other, from the centre to the top, as shown in the diagram.

Step 5

Slot the two trees together at their openings to create a 3D Christmas tree.



Step 6

Next, dissolve 3 tablespoons of salt in 60ml of water, stirring until no more salt will dissolve. This creates a supersaturated salt solution.

Step 7

Place your 3D tree in the petri dish.

Step 8

Pour the supersaturated salt solution into the petri dish. Wait patiently for 72 hours as the paper tree absorbs the salt water.

Step 9

Once the paper has absorbed the solution and dried, salt crystals will form on the paper. Your snowy Christmas tree is complete!

The Science Behind It:

Your crystals grow due to several scientific phenomena! Firstly, through capillary action, your paper tree absorbs the supersaturated salt solution. This works similarly to how trees transport water from their roots to their branches.

Once the paper tree is saturated with solution, it begins to evaporate from the branches. As evaporation occurs, tiny salt particles are left behind, eventually forming the crystals you see!

Have you noticed that crystals form more readily at the tree's points? Why do you think this happens?

This occurs because capillary action is stronger at the paper's points, and these areas have a larger surface area. Surface tension causes the liquid to flow quickly to the points and evaporate faster, resulting in more crystal formation.