

Magic Crystal Tree

# Look closely, but please don’t move or touch me!

I’m very fragile

Turn over to discover more…

Magic Crystal Tree

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I’m very fragile

## Look closely using a magnifying glass and see if you can spot any crystals.

Crystals tend to have smooth facets and sharp edges.

That’s what makes them sparkle!

## The Magic Crystal Tree is made of crystals of ammonium hydrogen phosphate.

The ammonium (NH4+) and hydrogen phosphate (HPO4−) ions start off dissolved in the water. As the water soaks up through the cardboard ‘branches’, the dissolved ions come with it. Where the water evaporates at the edges of the cardboard, the ammonium and hydrogen phosphate ions join up to form the crystals. As more water evaporates, more ions attach and the crystals grow!

## Why is it coloured?

The colour comes from added colouring; the actual crystals are colourless.

## Is it really growing?

Yes! It’s just very, very slow…

The Magic Crystal Tree takes a few hours to grow fully, depending on the temperature and humidity (factors that affect how quickly the water evaporates).

## Come back later and see how the crystals have grown!

# Did you know?

You may be familiar with some everyday crystals, such as table salt, sugar and diamonds, but there are crystals all around us, from metals and rocks to plastics and plants. Even your teeth and bones and parts of insects are made from crystals!

A qr code with a few black squares

Description automatically generatedResearch at the University of Birmingham is investigating the crystal growth of materials known as ‘metal-organic frameworks’, which contain metal ions linked by organic molecules. Metal-organic frameworks are crystals that contain lots of empty space, in which gases or other small molecules can be trapped, stored and released. Scan the QR code to find out more!

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