A blue plastic pipe structure

Description automatically generated

What is this???

Warning - Pinch hazard!

Turn over to discover more…

This is The **Nucleation Game**!!!

Ready? Start the timer and begin connecting the pieces to mimic the structure. Try to connect the pieces as fast as you can!

*Nucleation is the initial step in the crystallization process. It involves the formation of a small cluster of atoms or molecules in a supersaturated vapor or solution,*

*or a supercooled liquid, which can serve as a seed for crystal growth.*

Finished? How long did it take? Can you describe the structure that you ended up with?

Did you make any choices about how to connect the pieces up? Perhaps you made some motifs before connecting them to the main nucleus? Or did you attach them piece by piece?

*By studying the structure of crystals and the process of their crystallisation,*

*we can learn how to make them better.*

Can you do it quicker next time? Can you beat a friend? Can you do it faster with a different set of pieces?

*Different pieces may be more or less easy to assemble,*

*which often leads to poorly crystalline structures*

*– to get crystals from these components, we need to choose our conditions carefully!*

Did you know?

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!

The pieces of this crystal are about 109 × (a thousand million times) larger than the atoms and molecules that make up crystals around us, such as table salt, sugar and quartz.

A qr code with a few black squares

Description automatically generated

Research at the University of Birmingham is investigating the nucleation of materials known as ‘metal-organic frameworks’, which are a bit like the toy you have made. Scan the QR code to find out more!

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