

# Log Book

Student Name: Baxter Roberts



Year Level: Year 2


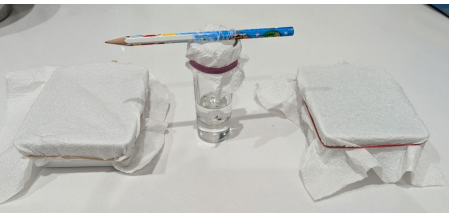

School: Rose Park Primary School

**Hypothesis – The shape of crystals can be affected and changed when they are grown within a wooden frame.**

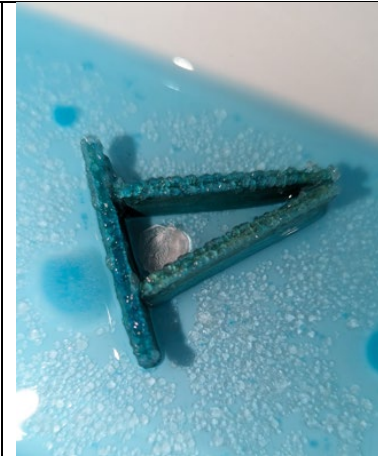
Date & Time	Equipment	Description of what student did	Problems encountered and solved	Observations / Crystal characteristics
11/05/2024 4:29pm	100ml warm tap water, 1 teaspoon potash alum Glass measuring jug 1 teaspoon Scale Large pickling jar Paper towel Elastic band	Baxter gradually placed warm water in the glass measuring jug until it reached 100 grams on the scale (with jug weight removed). Baxter then stirred in 1 teaspoon of potash alum and stirred using the teaspoon until the potash alum was dissolved. Baxter poured the solution through the paper towel into the large pickling jar. Baxter placed fresh paper towel over the top of the jar and kept it in place with an elastic band. Baxter then placed the jar in the corner cupboard of the kitchen with a sign 'do not move, science experiment'.  Assistance and note taking provided by Mum.	Baxter didn't have enough potash alum to make the amount of solution that the 'crystal guide for teachers' recommended, so he halved the amount of water and potash alum.	Clear liquid.
12/05/2024 10:00am	N/A	Baxter had a look in the jar to see if he had any seed crystal. Baxter: "no seed crystal, only liquid".	Crystals were not growing yet. Baxter: "they must need more time".	Clear liquid

<p>21/05/2024 4:45pm</p>	<p>50ml warm tap water 1 teaspoon potash alum Glass measuring jug 1 teaspoon Scale Shallow dish Paper towel Elastic band</p>	<p>Baxter observed his jar and he still had no seed crystal. Baxter decided to make a new solution.</p> <p>Baxter gradually placed warm water in the glass measuring jug until it reached 50 grams on the scale (with jug weight removed). Baxter then stirred in 1 teaspoon of potash alum and stirred using the teaspoon until the potash alum was dissolved. Baxter poured the solution into a shallow dish. Baxter placed paper towel over the top of the shallow dish and kept it in place with an elastic band. Baxter then placed the dish in the corner cupboard of the kitchen behind his sign.</p> <p>Assistance and note taking provided by Mum.</p>	<p>Baxter and Mum re-read the crystal making instructions. Baxter learned that he needed a super saturated solution. He needed less water and more solution.</p> <p>Baxter forgot to filter the solution through the paper towel.</p>	<p>Clear liquid</p>
<p>22/05/2024 3:30pm</p>	<p>N/A</p>	<p>Baxter took his shallow dish out of the kitchen cupboard and observed seed crystal. Baxter: “we have crystal!”</p>	<p>Baxter learned the super saturation solution in a shallow dish worked to grow seed crystal. Baxter: “the water must have evaporated</p>	<p>Three large seed crystals, round in shape.</p>

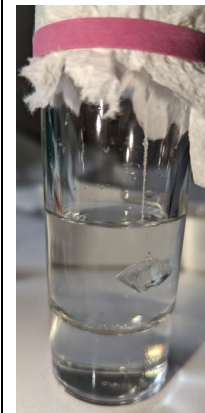
			better in the shallow dish”.	
24/05/2024 4:15pm	50ml warm tap water 1 teaspoon potash alum Glass measuring jug Scale Paper towel Tweezers Fishing wire Scissors White Cotton thread Shot glass Pencil 2 Shallow dishes	Baxter made more super-saturated solution using 50ml warm tap water, 1 teaspoon of potash alum and glass measuring jug. Baxter used the same method as previous. He set the solution aside to cool to room temperature. Baxter took three of the largest seed crystals out of the solution using tweezers. Baxter wiped the small seed crystals off the larger crystals with paper towel. Baxter attempted to wrap fishing wire around the largest crystal without touching it with his hands. This was super tricky and Mum had to help. The fishing wire would not remain tied, so white cotton thread had to be used instead. Mum helped Baxter make a triangle out of paddle pop sticks (Baxter could only find blue paddle pop sticks at home) and placed one of the crystals inside in a shallow dish.	Baxter forgot to filter the solution with paper towel.  Baxter and Mum could not get the fishing wire to remain tied around the crystal, so used cotton thread instead.	Three seed crystals. Different shapes and sizes.   Seed crystal in shot glass   Seed crystal in paddle pop stick triangle

		<p>Baxter put the third crystal in the last shallow dish. When the super saturated solution had cooled, Baxter filled the shot glass to halfway and then wrapped the cotton around a pencil and suspended the crystal in the solution. Baxter then poured the remaining cooled solution over the crystals in each of the two shallow dishes. Baxter placed paper towel over the top and Mum helped secure them with elastic bands. The three crystals were placed into the corner kitchen cupboard.</p> <p>Assistance and note taking provided by Mum.</p>		 <p>Seed crystal in shallow dish</p>  <p>Crystal dishes covered in paper towel and ready to go into the cupboard.</p>
<p>08/06/2024 4:00pm</p>	<p>50ml warm tap water 1 teaspoon potash alum Glass measuring jug Scale</p>	<p>Baxter took the crystals out of the cupboard. The two shallow dish crystals have no solution.</p> <p>Baxter made more super saturated solution with the help of Mum, waited for it to cool and covered the crystals in the shallow dishes.</p>	<p>Baxter didn't add enough solution to the shallow dish. The shot glass has plenty of solution. Baxter learned that crystals grown in shallow dishes need more solution as the solution evaporates faster.</p>	 <p>The crystal without the paddle pop stick has lines around it. Baxter: "it looks like a snow flake"</p>



Assistance and note taking provided by Mum.





The crystal in the triangle hasn't changed shape, but there are small crystals growing on the wood.



The suspended crystal has lots of liquid and is growing. It has seven sides.  
Baxter: "it looks like a diamond".

<p>16/06/2024 2:30pm</p>	<p>N/A</p>	<p>Baxter took the crystals out of the cupboard. All crystals still have solution.</p> <p>Assistance and note taking provided by Mum.</p>	<p>Baxter learned to check his crystals more regularly to ensure the solution does not evaporate too quickly.</p>	 <p>The triangle crystal has changed shape a little bit. It is a bit pointy on one end.</p>  <p>The clear crystal in the dish looks very big, like a jelly fish. It is flat.</p>
------------------------------	------------	---	---	---

				 <p>The suspended crystal is clear, uniform and looks like a diamond. Baxter: "can I keep it?".</p>
<p>15/07/2024 7:20pm</p>	<p>Vernier calipers</p>	<p>Baxter took the crystals out of the cupboard. The crystals in the dish have no more solution.</p> <p>Mum provided assistance to Baxter in finding the widest point of the suspended crystal for measuring.</p> <p>Assistance and note taking provided by Mum.</p>	<p>Baxter learned that he should check the crystals more frequently to top up the solution before the solution evaporates.</p> <p>Baxter learned that the crystal growing in the shot glass (suspended) has a more uniform shape.</p>	 <p>The triangle crystal without solution. The smaller crystals grew all over the wood which made the larger crystal stick to the wood. This may be a reason why the larger crystal did not change shape as it</p>




joined to the smaller crystals surrounding it on the wood.



Final shape of the triangle crystal. It doesn't look like a triangle. It is very round and bumpy on the surface.



The crystals in the shallow dish without the triangle dried out. They grew very flat.

				 <p>The suspended crystal grew to 11.11mm at the widest point. It is uniform in shape. It is mostly clear, with some cotton thread visible.</p>
--	--	--	--	--

### Summary of Findings:

The hypothesis is not supported. Crystals do not grow into the same shape as the wooden frame they are placed within. If anything, the crystal is more likely to grow into a round, less uniform shape as the surrounding smaller crystals join with the large seed crystal.

If Baxter were to try this experiment again, he would like to try growing a crystal in a plastic frame to see if this affected and changed the shape of the crystal. Baxter believes this would work better as he believes the smaller crystals would not grow on the plastic frame. Baxter believes hanging the crystal in a frame, within solution would work best.