

# Crystal Investigation

by Gabriela Yanni (and Christopher)

## Our Hypothesis:

Under the right conditions, we can grow a favourable crystal in under ten weeks.

A favourable crystal will have:

- Sharp edges
- Smooth faces
- Good clarity
- Be larger than 9mm
- Show symmetrical growth

## Methods and Equipment

### Equipment

1. Potash (Potash) alum (high grade quality)
2. Two large beakers and six small beakers, two petrie dishes
3. Kitchen scales
4. Hot water and kitchen stove (and a parent for supervision) (heat stove to  $100^{\circ}$ )
5. Safety goggles and gloves
6. Tweezers
7. A spoon
8. Fishing line, water resistant glue and scissors
9. Sticky tape and a pen
10. Cooking thermometer

# Methods

Making the seeds

May 23, 2024

1. Measure 70 grams of potash alum (use the safety goggles and gloves) <sup>Photo</sup>
2. Add potash alum to a large beaker <sup>Photo 3 & 4</sup>
3. Add 300mls of hot water to the large beaker with potash <sup>Photo 2 & 3</sup>
4. Stir the mixture until the alum has dissolved (parent supervision) <sup>Photo 5 & 6</sup>
5. Pour the mixture into a petrie dish (leave spare solution in large beakers) <sup>Photo 7</sup>
6. Set aside in a cool, safe area (we used dining table) and wait for the crystals to grow for three days
7. Select the best six seeds

May 26; First obstacle:

No seeds grew, we restarted, this time using 140g of Potash alum, and 500ml of hot water, which was more than previously. On May 30 ~~we had~~ we had six bigger crystal seeds than the spectra on May 26.

May 30

Growing the crystals

1. We selected our six best seeds and superglued them to thin fishing wire

Second obstacle

We had to try two different glues (chose water-resistant ones), and a thicker fishing wire, to stick to each crystal without complications. ~~tip~~

2. We poured the solution from the two large beakers into six smaller ones.
3. We attached the other end of the fishing wires, attached to the six crystals, to a square piece of cardboard and suspended it into the six small beakers.
4. We labeled each beaker from A-F and placed them in the basement on June 7. <sup>See photo 9</sup>

Watching the crystals grow

1. We checked upon the crystals every 5-7 days, being careful not to handle them too hard and accidentally breaking them.

2. On June 18, we analyzed all the crystals using the judging rubric <sup>See photo 10-15</sup>

Third Obstacle

D shriveled up and did not grow and E became long, skinny and did not grow either. We think D did not grow because it wasn't suspended in the water very deep and we think E did not grow because it was stuck to the beaker's sides. After this, we permanently moved them upstairs so we could observe them daily <sup>See photos 16-19</sup>

On June 25 the best growing crystals were A, C & F. On July 7 the best growing

Crystals were C&F. On July 22 the best growing crystal was F <sup>See photos 20-21</sup>

## Crystal Investigations Photo Gallery Glossary

Photo 1: Weighing and measuring  
23/5/24



Photo 2: Prepare the solution  
23/5/24



Photo3: Adding the alum  
23/5/24



Photo 4: Preparing the crystal solution  
23/5/24



Photo 5: Preparing the crystal solution  
23/5/24



Photo 6: Preparing the crystal solution  
23/5/24



Photo 7: Making the crystal seeds  
23/5/24



Photo 8: Making the crystal seeds  
23/5/24



Photo 9: Growing 6 crystal seeds in  
beakers labelled A-F  
31/5/2024



Photo 10: Measuring the crystals –  
crystal A  
18/6/24



Photo 11: Measuring the crystals –  
crystal B  
18/6/24



Photo 12: Measuring the crystals –  
crystal C  
18/6/24



Photo 13: Measuring the crystals –  
crystal D  
18/6/24



Photo 14: Measuring the crystals –  
crystal E  
18/6/24



Photo 15: Measuring the crystals –  
crystal F  
18/6/24





Photo 16: Measuring the crystals –  
crystal A  
7/7/24



Photo 17: Measuring the crystals –  
crystal B  
7/7/24



Photo 18: Measuring the crystals –  
crystal C  
7/7/24

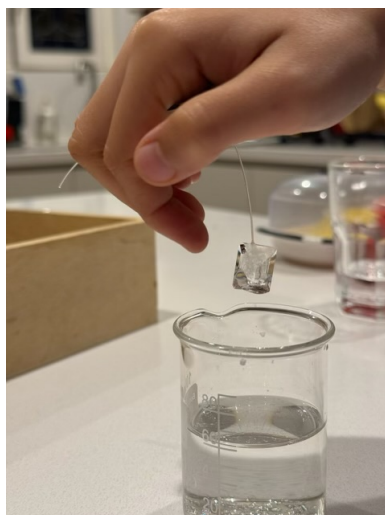


Photo 19: Measuring the crystals –  
crystal F  
7/7/24



Photo 20: Measuring the crystals –  
crystal A  
22/7/24



Photo 21: Measuring the crystals –  
crystal B  
22/7/24



Photo 22: Measuring the crystals –  
crystal C  
22/7/24



Photo 23: Measuring the crystals –  
crystal f  
22/7/24

