

Cover Page

Student Name	Klara Burmaz	Year Level	Year 1
School	Goodwood Primary School		
Project Name	Crystal Beauty Magic		
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Logbook

Student Name	Klara Burmaz	Year Level	Year 1
School	Goodwood Primary School		
Project Name	Crystal Beauty Magic		

Hypothesis

- Constant temperature helps make larger crystals
- Food colouring helps make beautiful crystals

'Klara's Lab'



Findings

Student Name Klara Burmaz	Year Level Year 1
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Hypothesis 1: Constant temperature helps make larger crystals

Crystal / Criterion <small>(ticks: 1 - ok, 2 - good, 3 - excellent)</small>	Score	Size Large?			Regularity Diamond shaped?			Faces Smooth?			Clarity Clear?		
Constant temperature	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Room temperature	7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Hypothesis 1 confirmed? Yes

Comment: Constant temperature helps make larger and better crystals

Hypothesis 2: Food colouring helps make beautiful crystals

Crystal / Criterion <small>(ticks: 1 - ok, 2 - good, 3 - excellent)</small>	Score	How Beautiful is the Crystal?		
Constant Temp.	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pink Constant Temp.	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Hypothesis 2 confirmed? Yes

Comment: The pink crystal has bumpy sides, but it is beautiful

Experiment End Pictures (20/7/24)

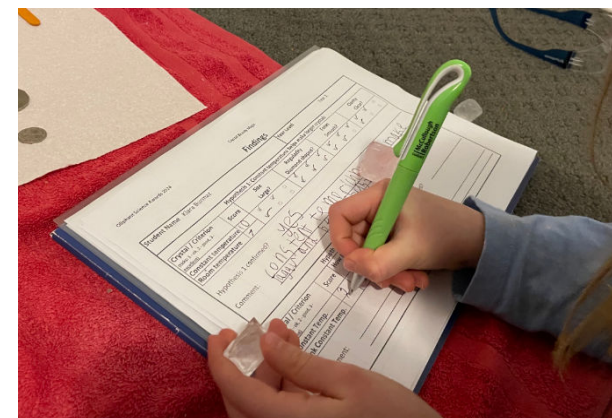
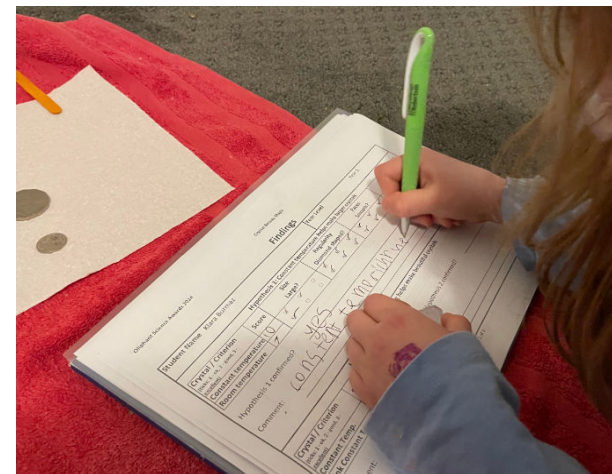
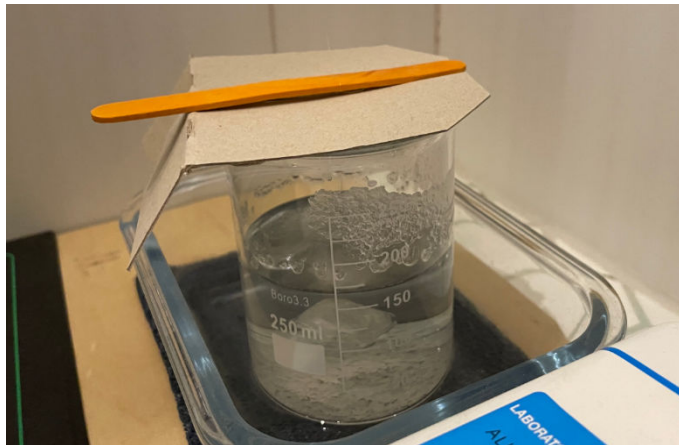
Crystals:

Pink Constant Temperature

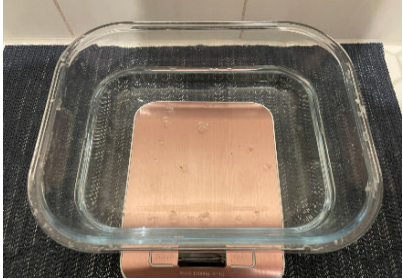




Constant Temperature













Room Temperature




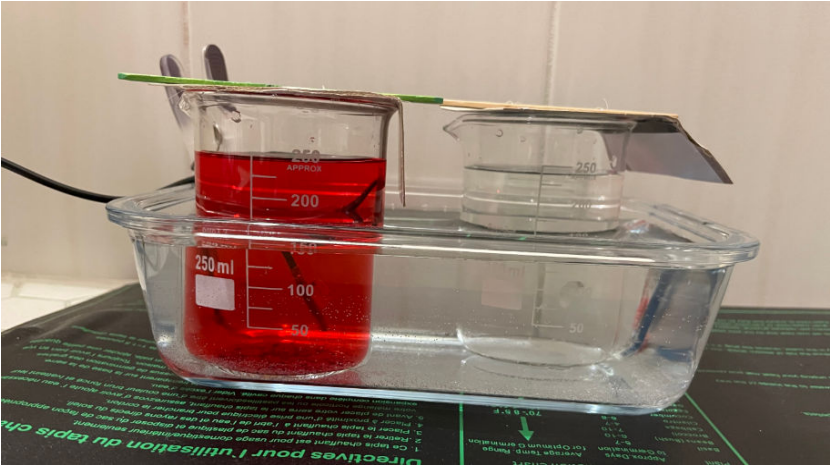
Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
1/5/2024 8:10-8:25pm	61.6 44.3	Water 750ml Alum 113g	<p>Make seed crystals How much water/alum for 3 beakers? Mark level, heat up water.</p> <div data-bbox="481 352 875 560" data-label="Equation-Block"> $\frac{30g}{200mL} = \frac{X}{750mL}$ $X = \frac{750 \times 30}{200} = 112.5g$ <p style="text-align: right;"><small>3 x 250 = 750</small></p> </div> <div data-bbox="481 571 875 962" data-label="Image"> </div> <div data-bbox="931 352 1323 778" data-label="Image"> </div> <div data-bbox="1330 352 1724 628" data-label="Image"> </div> <div data-bbox="1330 633 1724 991" data-label="Image"> </div> <div data-bbox="1767 352 2170 807" data-label="Image"> </div> <div data-bbox="481 1043 875 1358" data-label="Image"> </div> <div data-bbox="920 1019 1317 1445" data-label="Image"> </div> <div data-bbox="1330 1019 1724 1264" data-label="Image"> </div> <div data-bbox="1767 1019 2170 1294" data-label="Image"> </div>	<div data-bbox="1330 352 1724 628" data-label="Image"> </div> <div data-bbox="1330 633 1724 991" data-label="Image"> </div> <div data-bbox="1767 352 2170 807" data-label="Image"> </div> <div data-bbox="1330 1019 1724 1264" data-label="Image"> </div> <div data-bbox="1767 1019 2170 1294" data-label="Image"> </div>

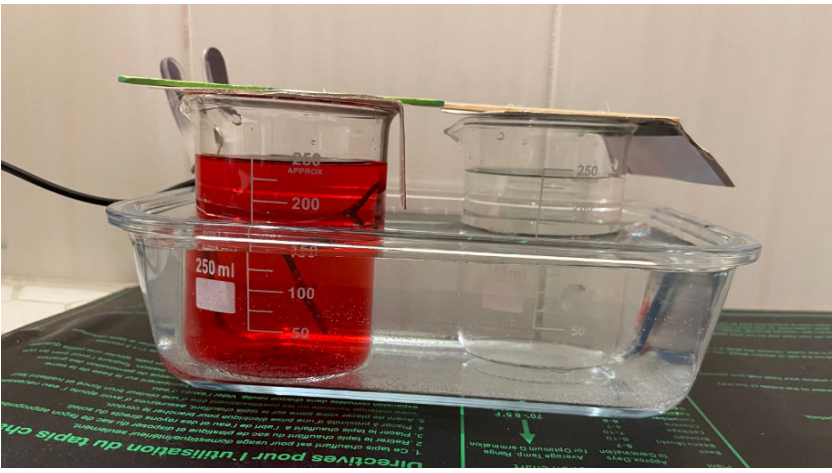
Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
2/5/2024 7:20pm	-	-	Seed crystals forming 	
3/5/2024 8am	-	-	Seed crystals ready, wash and store them, save solution  	Some crystals are like a diamond, smooth and transparent  



Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
4/5/2024 8pm			<p>Cut paper for covers, tie crystals, keep spare crystals</p>  	 
5/5/24 5:30-8:30pm	59.4	730	<p>Return remaining crystals into solution Add 7g of alum (weight of removed crystals) and heat up</p>  	 

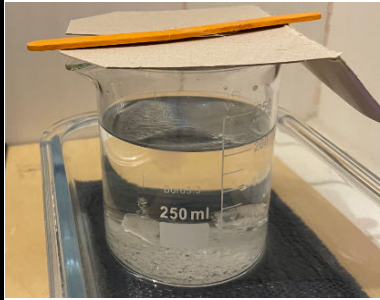
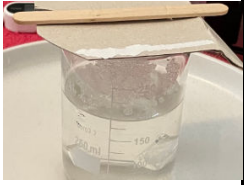





Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
5/5/24 5:30-8:30pm	59.4	730	 <p>Let it cool, filter and add to beakers, add colour and crystals.</p>	
21.8			 	 

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
5/5/24 8:30pm	21.8	240		
8/5/24 8am	18.9	235	There are many crystals at the bottom	
8/5/24 8pm	19	235		

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
5/5/24 8:30pm	21.8	240		
8/5/24 8am	21.4	235	It has got some crystals growing on the (beaker) sides	
8/5/24 8pm	21.5	235		

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
5/5/24 8:30pm	21.8	250		
8/5/24 8am	21.4	245		
8/5/24 8pm	21.5	235		The crystals are beautiful

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
	17.9	225	<p style="text-align: center;">Room Temperature Crystal</p> <p>Crystal has grown</p> 	Clear
22/5/24 08:20am		220	<p style="text-align: center;">Constant Temperature Crystal</p> <p>Crystal has grown Crystal is almost touching the beaker side</p>	Clear
	21.3	225	<p style="text-align: center;">Constant Temperature <u>Pink</u> Crystal</p> <p>Crystal has grown</p> 	Clear

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
	18.9	210	<p style="text-align: center;">Room Temperature Crystal</p> <p>No growth. Many crystals (on the beaker). Add more alum * : Weigh the crystals, add the same weight of alum. Warm up and let it cool. (Weight of main + spare crystals): 4g (Alum added): 4g</p> 	Clear
10/06/24 10:30am		190	<p style="text-align: center;">Constant Temperature Crystal</p> <p>Lots of small crystals on the glass. Add more alum* (weight: 5g, alum added: 5g).</p> 	Crystal is of the same size.   
	21.4	200	<p style="text-align: center;">Constant Temperature <u>Pink</u> Crystal</p> <p>No growth. Add more alum (weight: 5g, alum added: 5g). Clear on the outside. The crystal is not clear on the inside.</p> 	

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
23/06/24 5pm	17.3	200	Room Temperature Crystal	
			Check crystals	Smooth Lines
	21.4	180	Constant Temperature Crystal	
				Clear
	21.4	180	Constant Temperature <u>Pink</u> Crystal	
			Crystals on the beaker	

Acknowledgement of any crystal growing advice from books or websitesAdvice

Use distilled water, make spare crystals, move crystals as little as possible
How much alum to add when growing crystals

Resource

University at Buffalo - How to Grow a Large, Single Crystal - videos
2016 IUCr Crystal growing competition for schoolchildren - video

Acknowledgment of manual assistance by others

- Safe handling of very hot and heavy items
- Lab set-up
- Electronic log book
- Calculating material proportions
- Tie/suspend crystals
- Picture taking

Resources

- Potash alum, demineralised water, food colouring
- Kettle, seedling heat mat, scale, digital food thermometer
- Glass and plastic containers, 250ml beakers
- Plastic tweezers, fishing line, marker pen, stirrers, filter paper, tissues
- Safety glasses

Student Name	Klara. Burmaz	Year Level	year 1
School	Good wood primri school		
Project Name	crystl beauty magic		
Hypothesis	<p>1. Constant temperature helps make larger crystals.</p> <p>2. Food colour helps make beautiful crystals.</p>		

Findings

Student Name Klara Burmaz	Year Level Year 1
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Hypothesis 1: Constant temperature helps make larger crystals

Crystal / Criterion <small>(ticks: 1 - ok, 2 - good, 3 - excellent)</small>	Score	Size Large?	Regularity Diamond shaped?	Faces Smooth?	Clarity Clear?
Constant temperature	10	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
Room temperature	7	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Hypothesis 1 confirmed? yes

Comment: constant temperature helps make jagged and beta crystals

Hypothesis 2: Food colouring helps make beautiful crystals

Crystal / Criterion <small>(ticks: 1 - ok, 2 - good, 3 - excellent)</small>	Score	How Beautiful is the Crystal?
Constant Temp.	3	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Pink Constant Temp.	2	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

Hypothesis 2 confirmed? yes

Comment: The pink crystal has bumpy sides, but it is pretty!

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?	Signed
1/5/24 8:10- 8:25m	66.6	Water 1139	make seed crystals How much water alum for 3 beclersp mark the water water		
	44.3		measure alum in water stirrer temperature		
2/5/24 7:20pm	-	-	Seed crystals forming		
8/5/24 8am	-	-	Seed crystals forming red crystals was sand stone the m saw sand shen	Some crystals are like a diamond smooth and transparent	

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?	Signed
4/5/20 24 8 PM			cut paper for covers, tie crystals, keep sper crystals		Kiana
4/5/24 5:30-6:30 PM	24	70	Return remaining crystals into solution. add 7g of KEMC weight of removed crystals and set up Let it cool, filter and add to be cons. add color and crystals.		Kiana

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?	Signed
5/5/24 8:30pm	21.8	240			Klara B
8/5/24 8am &	20	235	transparent many crystals at the bottom		Klara B
5pm	20.0	235			Klara B

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?	Signed
5/15/24 8:30 PM	21.8	240			Klara B
6/16/24 8 PM	21.4 230		it has got same crystals growing on the sides.		Klara B
5 PM	21.5	235			Klara B

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?	Signed
8/5/24 8:30 PM	21.8	2650			Klara
8/5/24 8 PM	21.4	5			Klara
5 PM	21.5	235		The crystals are BUTYR	

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
Room Temperature Crystal				
22/5/2009 22/5/2009 8:20 AM	22.9	225	crystal has grown.	crisp
Constant Temperature Crystal				
	26.3	220	crystal has grown. crystal is almost there the red side	crisp
Constant Temperature Pink Crystal				
		225	crystal has grown.	crisp

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
10/6/24 10:30 AM	18.9 2	210	no growth in main test tube admiral diamo very crystals at that time diamo very much better	Room Temperature Crystal
24/11/24	19.8	210	lots of small crystals on the glass admiral diamo	Constant Temperature Crystal
	20.0	200	no growth admiral align crystal at side of crystal, not crystal the inside	Constant Temperature Pink Crystal

Date Time	Temp. (°C)	Volume (ml)	Description of activity Crystal changes Problems and solutions	Regularity - Symmetrical like a diamond? Faces - Reflecting light? Smooth, lines? Clarity - Transparent, can see through?
Room Temperature Crystal				
23/6/24 5 PM	24 17.3	200	check crystals	Smooth lense
Constant Temperature Crystal				
		180K	CVR	
Constant Temperature Pink Crystal				
	24	180K 180K	crystals on the beaker.	