SASTA OLIPHANT SCIENCE AWARDS

SOUTH AUSTRALIAN SCIENCE TEACHERS ASSOCIATION

Prize Winner

Crystal Investigation

Year 7-8

ARI LLEWELYN

Unley High School

OLIPHANT SCIENCE AWARDS

CATEGORY: CRYSTAL GROWING

Supported by the SA Branch of the Royal Australian Chemical Institute
and
The RACI Chemical Education Group (S.A.)

raci
Royal Australian Chemical Institute

LOG BOOK

STUDENT NAME(S): Ari Llewelyn
……
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YEAR LEVEL: 8 **SCHOOL:** Unley high

Please note: the use of this version of a log book is not mandatory.
There will be no penalty for not using it.
However the student(s) who are preparing a crystal will need to provide evidence of their ongoing efforts by comments related to the criteria suggested in this log book model.

The competition instructions suggest that the crystal growers formulate an hypothesis that they can test while growing the crystal(s)

Examples of questions that could be expressed as a prediction or hypothesis are:

- Can my crystal grow to the required 9 mm in 3 weeks?
- Does leaving my crystal in a dark place help it to grow better?
- Does more or less attention help my crystal to be more clear and well-formed?
- Does an incubator help grow bigger crystals in a given time period?

MY HYPOTHESIS The incubator will give larger and more clear results

The log book in this form is only advisory but students should try to document the following:

- Date and time for each handling of the crystal procedure
- Describe exactly what they did on each occasion (should include measurements of volume and temperature made at any time)
- What has happened to the selected crystal on each viewing (changes)
- Description of the crystal characteristics – clarity, regularity (smooth faces, sharp edges), and size (can be assisted by sketches or digital photos)
- What problems were encountered and how they were solved – may include summaries of discussions with teachers/mentors
- Acknowledgment of manual assistance by others e.g. for competitors from the R-2, 3-5 age groups, what teachers or parents did.
- Acknowledgement of any crystal growing advice from books or websites

Date/Time	Descriptions of what the student(s) did, problems encountered and solved	Crystal characteristics The crystals may not change anything but size eventually	signed
12/4/23	Created a saturated solution to grow crystals in.	Small and clear	
3/5/23	In my second solution I had to re-tie my Crystal with string because it broke. In my first solution, crystals formed on the bottom. Concentrated and filter both solutions.	Small and a bit cloudy	
10/5/23	We had to re-start both of our solutions so we started 3 knew solutions with knew seed crystals.	Cloudy and useless at the bottom of the beaker	
17/5/23	I selected some high quality (good shape and clarity) seed crystals that had formed in the bottom of my beakers.	Small, clear, perfectly shaped	
24/5/23	I filtered my solutions and put the crystals back	Same as the week before	

Date/Time	Descriptions of what the student(s) did, problems encountered and solved	Crystal characteristics	signed
7/6/23	My crystals have started growing at a steady rate, I needed to create more solution, but we ran out of alum	Great shape, clear, small but slightly bigger than last time	
14/6/23	I filtered my solution and noticed that my best crystal was not perfect crystal shaped, but it still had sharp edges		
21/6/23	I filtered my solution and crushed the extra crystals forming on the string		
28/6/23	Extra solution was added, I crushed some of the small crystals on the string and filtered	Slightly larger than on the 14/6/23	
2/7/23	I re-filtered my solution and cleaned the strings	Same	
26/7/23	I have filtered my solutions and noticed that we are running low, I will make a new batch next week	Compared to my peers crystals mine is much smaller which is strange as we are using the same water bath, solution and filtering method	

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