



# SOLAR CHIMNEY EXPERIMENT

Completion Plan

## ORIGINATOR:

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## Group work member contribution table:

<b>Section</b>	<b>Person(s) responsible and percentage</b>
(add, remove and rename sections as needed)	(e.g. Person A 70% Person B 20% Person C 10% OR All members contributed equally)
Summary	All members contributed equally
Completed Tasks	All members contributed equally
Remaining Tasks	All members contributed equally
Obstacles	All members contributed equally
Strategies	All members contributed equally
Timeline and Gantt Chart	All members contributed equally
Formatting and editing	All members contributed equally

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## Summary:

In the last semester, we completed a large number of literature research studies, and then completed the setup of experiment and experimental methods, and then debugged the equipment of the experiment and the devices for measuring data. Unfortunately, due to timing and weather reasons, we only completed one test. In this case, the performance was below average with the ambient temperature being 11 degrees Celsius and cloudy weather conditions during the last semester.

## Completed Tasks:

Completed Tasks	Start Date	Completed Date	Duration
Literature review	5/3/19	1/5/19	8 Weeks
Proposal writing	20/3/19	27/3/19	2 Weeks
Risk assessment	27/3/19	27/3/19	1 Week
Design of experiment	3/4/19	8/5/19	5 Weeks
Preparation of experiment	3/4/19	1/5/19	4 Weeks
Experimental testing	17/4/19	1/5/19	2 Weeks
Data recording	22/5/19	22/5/19	1 Week
Data analysis	22/5/19	29/5/19	2 Weeks
Comparison of results	15/5/19	15/5/19	1 Week
Report writing	15/5/19	22/5/19	2 Weeks
Presentation	1/5/19	29/5/19	5 Weeks
Finalise the report	29/5/19	31/5/19	1.5 Weeks

## Remaining Tasks:

Tasks name	Start Date	Completed Date	Duration
Completion Plan	22/7/19	5/8/19	3 Weeks
Risk assessment	12/8/19	12/8/19	1 Week
Experimental testing	12/8/19	23/9/19	7 Weeks
Data recording	12/8/19	23/9/19	7 Weeks
Data analysis	12/8/19	7/10/19	4 Weeks
Comparison of results	16/9/19	7/10/19	4 Weeks

Final Report Writing	23/9/19	14/10/19	4 Weeks
Presentation	23/10/19	23/10/19	1 Week

## Obstacles:

**Weather Factors** - The solar chimney is heavily reliant on thermal radiation provided by sunlight. Due to this we can expect that with no sunlight there will be no performance of the chimney since it has no other input to create heat. It will be hard to coordinate with the teams work and study schedules to find time to test. This, mixed with the unpredictable and cold weather of winter, there will be limited days where testing can occur. Similarly, wind has negative effects on the chimney as it rapidly cools the glass and ambient temperature of the chimney shaft. It's very important that testing days are planned in a timely fashion. The weather needs to be forecasted for minimal clouds and low winds to achieve positive test results.

**Accuracy of testing** - the instruments provided for testing are of a particular shape and placing them in consistent locations is challenging from test to test. The data recorded also needs to be taken every 5 seconds or so to maximise accuracy. this will be difficult to maintain from test to test. the thermocouples for example is very hard to install as the solar chimney is sealed and it's not possible to access the very middle of the chimney. This makes placing a thermocouple challenging - especially from week to week.

**Schedule/other commitments for group members** - while as a group we make our best efforts to free our calendars, commitments such as work and classes conflict with testing opportunities, factoring in the weather, it is often the case that when as a group out time is free it would be raining or windy and cold.

## Strategies:

Testing is the greatest concern, as there needs to be sufficient data for the results. Constant work is required to consistently forecast the weather, keep schedules free and follow a precise test procedure will ensure the project is not impacted by any obstacles

## Timeline and Gantt Chart:

