

Powerful Plant in a Jar Experiment

Agar as a growth medium

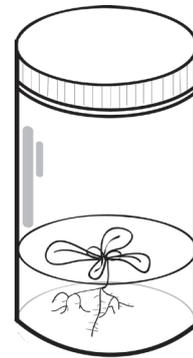
The survival and germination of a plant relies on three essential ingredients: **sunlight, water and nutrients.**

The nutrients contained in soil are essential for most plants, however the soil itself is not always required to allow a plant to grow, as we can add these essential nutrients to other substances.

In a laboratory, scientists sometimes use a “jelly like” substance called **agar** instead of soil to grow plants. Agar is transparent and allows a scientist to observe the root system of the plant, which is essential for many experiments.

Other advantages of growing a plant in nutrient rich agar are:

- The plant grows in a sterile environment.
- Ability to control environmental impacts on the plant.
- The container/petri dish acts as a mini biosphere.
- It makes experiments easy to control



The Experiment

There are many simple experiments you can perform with your *Arabidopsis thaliana* seed jars. You have been allocated two jars, which allows you to alter the conditions of one whilst using the other as a “scientific control” to compare and contrast growth rates.

Due to a plant’s ability to make its own food using light (photosynthesis) and recycle the gases contained in the jar (transpiration), **there is no need to water your plants or open the jar.**

Now it’s time to choose your experiment! You will be presented with a few options by your Powerful Plants presenter, however if you think of something else that may get interesting results, let us know!

Once you have set up your experiment using the materials provided it is time to consider what you think the outcome might be. Use any previous knowledge/background research you may have done to help you form this “scientific hypothesis”.

Your Experiment Hypothesis
