**Do seeds need light to germinate and do plants need light to grow?**

**Teacher notes**

This is a good activity to make a start on helping students to adopt a suitable approach to investigations. Setting up the equipment needed and how to make this a **fair test**. Making a **prediction** and **recording results.**

This activity provides an opportunity for recording observations, in writing and through drawings.

**Comparison 1**

1. Seeds can germinate without light.



1. When seedling start to grow, they rapidly use up food stored in the seed. In the film jars/pots, they may grow so fast that they are coiled up under the lid. (Long spindly yellow seedlings are etiolated)
2. They are likely to be yellow in colour because the green colour (chlorophyll) does not develop in the dark. In the wild, this rapid growth in the dark helps seeds buried in the soil to reach the light quickly and then the green colour develops.
3. Without the green colour(chlorophyll), the plants are not able to make their own food (carry out photosynthesis) so die when the store of food in the seed has been used up.
4. Young plants with plenty of light grow more slowly and are stronger. In the light they develop the green colour, which means they can go on growing because they can make their own food by photosynthesis

**Comparison 2**

1. Young plants in the black jars/pots with a hole in the side are not as tall and spindly as those growing in the dark.
2. Students should see that in the pot with a hole, young plants grow towards the hole, which helps them to get more light. Even when there is only a small amount of light, the young plants are able to develop the green colour (chlorophyll) and so can make their own food.

**Do seeds need light to germinate and do plants need light to grow?**

**For this investigation you need:**

* Radish or mustard seeds
* Clear jars/pots with and cling film
* Piece of damp paper towel
* Black plastic rubbish bag
* Sticky label and pencil

Note- It is important to keep the paper towel damp throughout the investigation

This is an investigation is to find out about the effect of light on germination and young seedlings.

**The investigation**

1. Students set up 3 jars/pots as shown in the table.
2. Clear jar/pot, damp paper towel, add radish seeds (5-10). Cover with cling film
3. Clear jar/pot covered in black plastic to keep light out, damp paper towel, add radish seeds (5-10). Cover with black plastic.
4. Clear jar/pot covered in black plastic to keep light out but leave a gap on one side to allow some light, damp paper towel, add radish seeds (5-10). Cover with black plastic
5. Students record what they think will happen in the middle column
6. Leave the three jars/pots in a warm area where there is light.
7. After 3 to 5 days, student check the seeds and draw what they see when they look in the jars in the third column.
8. Compare what they see with their prediction.

Do plants need light to grow?

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| --- | --- | --- |
| **How I set up the pots** | **What I think will happen****to the seeds** | **What happened?** |
| Clear jar with cling filmDamp paper towel |  |  |
| Jar covered in black plasticA black and white rectangular object with a white background  Description automatically generatedDamp paper towel |  |  |

|  |  |  |
| --- | --- | --- |
| Jar covered in black plastic leaving a hole on the sideA rectangular object with three dots  Description automatically generatedDamp paper towel |  |  |