



DISCOVER HOW PLANT SEEDS GERMINATE

MATERIALS AND EQUIPMENT:

- Radish seeds (these are fast growing but bean or sunflower seeds will work as well).
- Glass fish tank
- Dark coloured cloth
- Clothes pegs
- Premium potting mix
- Scoop or hand shovel
- Watering can
- Chart for recording data
- Pencils and paper
- Camera

PROCEDURE

1. Place the fish tank on a flat surface near to sunlight (but not in direct light).
2. Cut the fabric so that it is exactly the same size as the inside wall of the tank.
3. Use the pegs to hold the fabric against the wall inside the tank.
4. Use the scoop to carefully shovel the potting mix into the tank, pressing it firmly against the fabric and making sure that it stays flat against the glass.
5. The radish seeds now need to be placed between the fabric and the glass. They should be in a row about 2cm apart and about 4cm from the top. The seed can be put at the top and then pushed down to the correct position with a ruler.
6. Water the potting mix so that it is damp all the way through but be careful not to put in so much that it forms a pool at the bottom. The best way is to apply some water, let it settle for a while then water it some more.
7. The seeds will take a few days to germinate and will continue to grow for several weeks. Take photos every day or record your observations with drawings.

CONCLUSION

Review the results and consider the following questions:

- How long did it take for the seeds to grow roots and a stem? Which developed first?
- At what stage did the leaves at the top form and how many grew?
- Why do you think the seed germinated in the order that it did?
- What will happen if the seeds are left in the fish tank to continue growing?



EXTENSION ACTIVITIES

Students could undertake this same experiment with different types of seeds such as large bean seeds and flat sunflowers to see if they are all the same. They could use a variety of seeds to observe the different speeds that they germinate.

Some seeds need particular treatment to germinate and this same set up could be used to watch how this affects their growth. For example, some Australian natives need to have their seed 'smoked' or their surface damaged (eg. rubbed with sandpaper) before they will germinate.

Students should draw actual size diagrams of the seeds germinating, being sure to measure the roots and the stems exactly to transfer onto their paper. They can also use photos to keep a record and then learn how to embed these into a spreadsheet or document on the computer as a way to keep a record of the results.

Further investigate of the effect of fertiliser on the germination and growth of seeds and seedlings could be interesting. See the Background Notes for more information.

Use a magnifying glass to look at the roots as they germinate to see that they have tiny hairs that grow from them. Discuss why plants would need these. See the Background Notes for more information.