

Plant Germination & Growth

Investigating how light affects seeds and seedling



INTRODUCTION

Glass containers have often been used for growing plants in schools as they are so readily available. Glass jars enable children to see the changes, growth and development of a plant from germination onwards. This activity encourages pupils to think about the properties of a glass jar compared to a plastic pot. It also makes them consider glass as a transparent, translucent or opaque material and the impact this has on light travelling through to a seed or seedling.

Further investigation into plant growth using glass of different types will be explored after germination.

LEARNING INTENTIONS



- ☑ To discover the effect of glass colour on germination
- ☑ To observe how seeds grow into plants
- ☑ To observe, measure and draw conclusions

RESOURCES (PER GROUP)



- Glass jar and plastic pot
- Seeds e.g. cress (fast growing)
- Compost/soil
- Trowel/fork
- Watering jug
- Range of coloured markers for glass
- Coloured tissue paper & glue
- Range of paints
- Paint brushes

WHAT TO DO:

Today we are going to be botanists

1. Discuss with the children the various ways we plant seeds, perhaps in pots or directly into the soil outside. Explain that in this investigation, glass jars will be used.
2. Compare a glass jar and plastic pot and consider the properties and potential benefits/issues with using each material.
3. Ask the children to predict what will happen if a seed is planted in the glass jar and whether they think the colour or covering of the jar itself will affect germination.
4. Provide a range of materials that may be used to colour or cover the jar, including paint, marker pens and tissue paper.
5. Set up a 'control' jar, with no cover. Add the compost and then plant a few seeds in the middle.
6. Cover the jars with a variety of materials, then plant seeds inside, being careful to add in a similar amount of compost and seeds to each. Aim to have some jars fully opaque, and others translucent or transparent.
7. Add the same amount of water and then leave the seeds to germinate.
8. Observe over time, taking notes, photographs and measurements of progress, as appropriate.

KEY QUESTIONS

1. What are the properties of plastic and glass? Can you identify some uses of each?
2. Why do you think it might be better to grow seeds in either a glass container or plastic pot?
3. How do you think we make the glass opaque or translucent? Do you think this will affect germination?
4. What do seeds need in order to germinate?
5. What conditions do the germinated plants need to grow?

KEY VOCABULARY



Plastic	Grow/growth
Glass	Seed
Transparent	Bulb
Opaque	Compost
Light	Soil
Water	

EXTENSION / FOLLOW UP ACTIVITIES

Children should investigate how different light conditions affect plant growth after germination – for example, they could cover seedlings that emerge in another glass jar and compare growth with and without a cover, or change the colour of the jar (again using markers or paints) to investigate whether this affects the rate of growth of the seedlings.

Children could explore different types of seeds (as some need light to germinate whilst others do not) to investigate rates of germination.

Children might like to suggest other ways to change the glass and investigate whether these affect the rate of germination (for example wrapping in fabric or newspaper). They could explore whether insulating the container affects the rate of germination.



ADDITIONAL RESOURCES (IF REQUIRED):

- Additional glass jars
- Other seed types
- Insulating materials

ANTICIPATED ACTIVITY TIME: 45 – 55 MINS, Observe over several days