

EduTrend Contents

W4C · BIOLOGY & LIFE SCIENCES · PRIMARY

Seed Detectives

What does a seed need to start growing?

Ages 7–10 | **Level: Foundation** | **60 minutes + 1 week** | **Groups of 3 · up to 30** | **Activity 01**

Inside: activity at a glance · step-by-step session plan · facilitator notes · 3 pupil worksheets · assessment checklist

ACTIVITY 01 · AT A GLANCE

Seed Detectives

Pupils investigate what seeds need to germinate. Each group sets up cress or bean seeds in different conditions: with and without water, light and warmth. They predict, observe over a week and use their results to decide what seeds really need. The activity introduces fair testing, observation over time and the life cycle of plants.

Learning outcomes

By the end of the session pupils can:

- name the conditions seeds need to germinate;
- set up a fair test changing one condition;
- observe and record changes over several days;
- explain the difference between germination and growth.

KEY WORDS

seed · germinate · shoot · root · condition · fair test · life cycle

CURRICULUM LINKS

Science: plants, living things and their habitats, working scientifically. Maths: measuring length, tables. English: diary writing.

1	2	3	4	5	6
QUESTION	**PREDICT**	**PLAN**	**OBSERVE**	**RECORD**	**EXPLAIN**
What do we want to know?	What will happen?	Keep it fair	Look closely	Measure and note	What does it show?

Materials (per group)

- 4 small pots or cups with cotton wool
- Cress or mung bean seeds
- Water and a dropper
- A dark cupboard and a fridge (shared)
- Labels, ruler, hand lens
- Worksheets 1, 2 and 3

Before the session

- Soak some bean seeds overnight to show inside a seed.
- Clear space on a windowsill, in a cupboard and in a fridge.
- Prepare labels: water/no water, light/dark, warm/cold.
- Plan a daily two-minute check-in for the week.
- Try one pot yourself a week before.

SAFETY

Wash hands after handling seeds and soil. Some seeds are treated with chemicals: use food-grade cress or beans. Do not eat the seeds.

ACTIVITY 01 · SESSION PLAN

Step by step

Session 1 (60 minutes) sets up the investigation. Allow 5 minutes a day for observations, and 20 minutes one week later to draw conclusions.

Time	What happens	Say or ask
0–10 min **Hook**	Open a soaked bean seed and show pupils the tiny root and shoot inside. Ask what the seed needs to wake up.	*"Is a seed alive?"* *"What does it need to grow?"*
10–20 min **Predict**	Groups discuss water, light, warmth and soil and write predictions.	*"Which one do you think matters most?"*
20–40 min **Set up**	Each group sets up four pots: control (water, light, warm), no water, dark, cold (fridge). Same number of seeds in each.	*"What have we kept the same?"*
40–50 min **Record day 0**	Pupils draw and label each pot on Worksheet 1.	*"What will you look for tomorrow?"*
50–60 min **Discuss**	Introduce the words germinate, root and shoot.	*"How will we know when a seed has germinated?"*
Day 7 **Conclude**	Groups compare pots, measure shoots and answer the question on Worksheet 2.	*"Did your prediction match your results?"*

CHALLENGE CARD (print or copy onto the board)

Find out which conditions a seed needs to germinate. Change only one thing in each pot and keep everything else the same.

ACTIVITY 01 · FACILITATOR NOTES

The biology in brief

A seed contains a tiny plant (embryo) and a food store. To germinate, most seeds need water, which activates the embryo, a suitable temperature and oxygen. Many seeds germinate in the dark because they use their stored food. Light becomes essential after germination, when the young plant starts to make its own food.

Pupils are often surprised that seeds in the dark germinate and may even grow taller, pale and thin, stretching towards light. Seeds in the fridge usually germinate slowly or not at all. This helps pupils separate germination (starting to grow) from healthy growth.

Common ideas to listen for

- "Seeds need soil to grow." Cotton wool works because seeds carry their own food.
- "Seeds need light to germinate." Most need light only after germinating.
- "Plants get their food from the soil." Plants make food using light; soil provides water and minerals.

Adapting the activity

Support

Test only water and no water. Use large bean seeds that are easy to see.

Stretch

Measure shoot length every day and draw a line graph for each condition.

WORKSHEET 1

Set up and predict

Name: _____ Class: _____ Date: _____

Draw each pot and write your prediction.

My predictions

Pot	Condition	Will it germinate?	Why?
A			
B			
C			
D			

Was it a fair test?

Tick the things you kept the same:

- ☐ the same number of seeds
- ☐ the same kind of seed
- ☐ the same amount of cotton wool

WORKSHEET 2

Seed diary

Check your pots every day. Write G if seeds have germinated and measure the tallest shoot.

Diary

Day	Pot A	Pot B	Pot C	Pot D
1				
2				
3				
4				
5				
7				

Conclusion

Seeds need _____ to germinate. I know because

WORKSHEET 3

Scientist's log

Colour in the box that is true for you.

What I can do

I can...	Not yet	Nearly	Yes!
name what seeds need			
keep a test fair			
record observations over time			
explain my results			

Draw and label a germinating seed

Label the seed coat, root and shoot.

FOR THE TEACHER

Assessment checklist

Use during the session. One sheet covers up to eight pupils; copy as needed.

Pupil	Predicts with reasons	Keeps the test fair	Explains with evidence

Suggested codes: W = working towards · E = expected · G = greater depth

ABOUT THIS ACTIVITY

Seed Detectives is a sample activity from the EduTrend Contents W4C Biology & Life Sciences programme (primary, level: foundation). Every activity in the programme follows the same format: a practical challenge, a clear session plan, facilitator notes and ready-to-print worksheets, so that teachers, club leaders and parents can run it without extra preparation.

Full 15-, 20- and 32-week programmes are available from EduStore at edutrend.org.

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