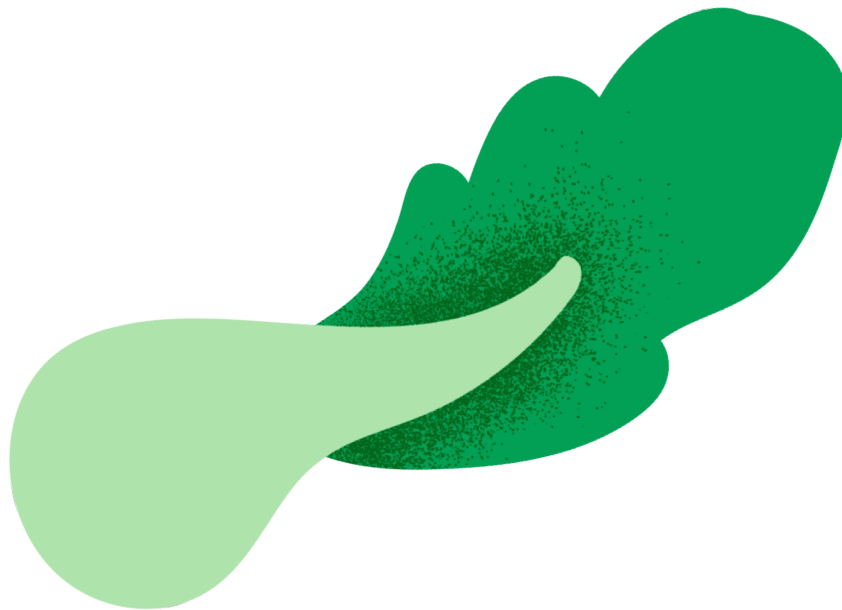


Grow Your Own

Year 5 – Science

Year 6 – Science



(Science; Yr 5, ACSSU043)

Living things have structural features and adaptations that help them to survive in their environment

(Science; Yr 5, ACSHE081)

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions

(Science; Yr 5, ACSHE083)

Scientific knowledge is used to solve problems and inform personal and community decisions

(Science; Yr 6, ACSSU094)

The growth and survival of living things are affected by physical conditions of their environment

(Science; Yr 6, ACSHE098)

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions

(Science; Yr 6, ACSHE100)

Scientific knowledge is used to solve problems and inform personal and community decisions

**Cross-curriculum
priority**

Sustainability

Grow Your Own

Seeds, sprouts, germination and science

It's time for some super scientific sprouting. Let's set off some experiments to settle some seeds and test germination.

Equipment:

Seed varieties such as alfalfa, broccoli, fenugreek, cabbage, daikon, radish, and mustard (2 tablespoons of each)

Digital kitchen scales

Fine-meshed kitchen sieve

Bowl

Large jars (one per seed type)

Cotton muslin cloths to cover the jars (you'll need a fresh one for every day's worth of sprouting)

Elastic bands to fit around the jar openings

Thermometers

Magnifying glasses

Duration:

30-45 minutes to explain and set up the experiment, plus several short sessions to check and collect data

Location:

The classroom

Notes:

Seed Review

👁 Watch **The One with the Old Boot**



and/or

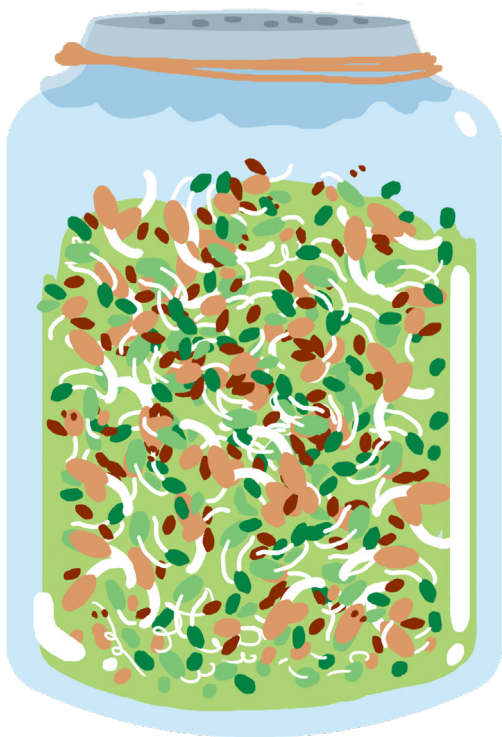
👁 Watch **The One with the Space Potato**



- Review what seeds need in order to germinate:
 - ◇ Water to penetrate the seed coat.
 - ◇ Warmth – the right temperature is necessary for germination to start.
 - ◇ Air – water logged seeds will die.
- ❓ Ask: are these needs different from those of an older/more mature plant? How?
- ◇ After the first few days plants need light and air as well as water and soil. Adult plants also need nutrients in the soil.
- ❓ Discuss: what does this tell us about seeds?
 - ◇ Seeds contain enough food to start the plant growing, so they don't need light or rich soil, just moisture and the right temperature.

Starting Sprouts

- Show students the seeds you are going to germinate.
- Discuss how students have seen sprouts in recipes or in supermarkets. (A student could check online to find out how much a pack of sprouts costs.)
- Explain the best way to help seeds sprout:
 1. Wash the seeds.
 2. Soak the seeds to penetrate the seed coat.
 3. Drain the seeds and keep them in a moist environment, such as a jar with a holey lid.
 4. Gently rinse the seeds each day.
 5. After 3–5 days, they should be ready to eat. (When, exactly is up to you!)
- ❓ Discuss: what sort of environment are we creating? (A warm, moist environment.) What else grows a little too well in this environment? (Bacteria!)
- ◇ This is why we need to wash and dry our jars, seeds (and hands!) very carefully at the start. We'll also need to change the cloth covering each day.
- Provide students with the data collection sheet on the next page.
- Weigh the seeds, record the weights, then place the seeds in the separate jars.
- Cover each seed with about 3cm of water.
- Use the elastic bands to hold the muslin over the mouths of the jars.
- Rinse and drain the sprouts the following day. Set the jar with its wet sprouts on its side.
- Rinse and drain two more times during the day at regular intervals. Students fill in their observation sheets once during the day.
- Repeat each day for 3–5 days.



Sprout Science

- Have students observe seed anatomy through magnifying glasses. For further research they can ask: what is inside a seed? Then they can draw a diagram of seed anatomy, along with a drawing of their own sprouting seeds. Have them label the parts of the emerging plant (e.g. root, stem, seed leaf).
- Check the temperature of the air inside the seed jar each day and record this data. Students devise a second sprouting experiment in which they alter the temperature of the environment (such as by placing one sprout jar in a fridge), and record how long the sprouts are after 3, 4 and 5 days, and any other observations (such as estimating the percentage of seeds that failed to germinate at all.) Tables can be found that show how seeds germinate at different temperatures – see Resources.

Note

We understand that it can be hard to keep a school environment clean. You can do this activity even if you're not comfortable with students eating the sprouts. Just treat the sprouted seeds like a science experiment, dissect or observe them, then compost or plant some of them when the 3–5 days are up.

Resources

- ◇ Biology of Plants – Starting to Grow: <http://www.mbgnet.net/bioplants/grow.html>
- ◇ Green Harvest – Sprouting Guide: <http://greenharvest.com.au/SproutingAndMicrogreens/SproutsGrowingInformation.html>
- ◇ Vegetable Garden Seed Storage and Germination (there is a handy chart showing germination temperatures on page 3): <https://www.slideshare.net/S7w4X/zwv274>

Steps:	1. Wash first, then cover them with water:	2: Rinse gently and drain:	3: Rinse one last time and they're ready in:
Alfalfa	Soak 3–6 hours	3 times a day	3–5 days
Broccoli	Soak 4–8 hours		3–6 days
Cabbage – red or white	Soak 4–8 hours		3–6 days
Daikon	Soak 6–12 hours		3–6 days
Fenugreek	Soak 8–10 hours		2–5 days
Mustard	Soak 8 hours		3–6 days
Quinoa	Soak 20–30 minutes		1–2 days
Radish	Soak 6–12 hours		3–6 days

SOS!

(Sprout Observation Sheet)

We are sprouting these seeds: _____

Day we started: _____

	Before we started (dry seeds) on DAY 1	After we drained them on DAY 2	After we drained them on DAY 3
Temperature in the jar:			
How much volume do they take up?	<i>Start with 2 level tablespoons of seeds.</i>		
How much do they weigh?			
What colour are they?			
How big are they?			

Other Observations: