

Compete in the ultimate growth challenge

Subject(s): Science, Mathematics

Grade(s): 8

Key Stage(s): 3

Learning intention(s)

Students will apply their knowledge of gardening, plant biology, and sustainable agriculture to design and implement different growing techniques in a friendly competition. They will develop problem-solving, teamwork and critical thinking skills while testing real-world gardening strategies.

Mapping to curriculum: Scope and sequence, linked to the activity

Science

- Plant biology and growth factors
 - Students apply knowledge of plant needs and biology to choose and implement different growing methods, observing plant health and growth.
- Ecology and sustainable agriculture
 - Teams explore sustainable growing techniques and natural pest control, managing resources efficiently under varied conditions.
- Scientific inquiry and experimentation
 - Students plan, conduct, and document experiments testing different gardening methods, adapting to surprise challenges.

Mathematics

- Measurement and data collection
 - Students measure growth rates, crop yield, water usage, and other variables to compare effectiveness of growing methods.
- Data analysis and interpretation
 - Teams analyse collected data to evaluate the success of their gardening approach, drawing conclusions on productivity and sustainability.
- Problem solving and reasoning
 - Students respond to surprise challenges with innovative solutions, using critical thinking to optimize garden management.

Science and Mathematics

- Collaboration and communication
 - Students work in teams to plan, execute, and present their findings, demonstrating teamwork and effective scientific communication.

Lesson Instructions

The Challenge

In teams, students will compete to grow the healthiest and most productive crops within a set timeframe using different growing methods. Each team will be given an identical garden plot (or planter box) and access to a variety of tools and materials to enhance their crops' growth.

How It Works

1. Form teams

Groups of 3–5 students form a team, and each team must name their garden project (e.g. Green Giants, Soil Masters, Sprout Squad).

2. Select a growing method

Each team chooses or is assigned a different gardening technique, such as:

- vertical gardening
- companion planting
- no-dig gardening
- hydroponics (optional)
- raised bed gardening
- traditional row planting.

3. Design and plan

Teams research their chosen method and create a basic plan, including plant choices, watering schedule and soil treatment.

4. Plant and grow

Teams set up their garden and begin caring for their plants. They must document their process through a growth journal (photos, measurements, observations).

5. Surprise challenges

Every few lessons, introduce an unexpected challenge to encourage problem-solving. For example:

- Pest Attack: Teams must research and apply natural pest control methods.
- Drought Week: Limited water supply – who can conserve moisture best?
- Super Growth: Introduce a new nutrient or compost option for teams to test.

6. Final evaluation and judging

After a set period (e.g. 4–6 weeks), teams will present their results, including:

- plant health and growth rate
- crop yield (if applicable)
- sustainability and efficiency of the method used
- creativity and teamwork.

Winning Categories (Optional prizes)



Best Overall Crop Production – Highest yield and healthiest plants



Most Sustainable Method – Least water and resource use with strong results



Most Innovative Design – Most creative growing solution



Best Teamwork and Documentation – Clear journaling and great teamwork