

Study the rate of germination

Subject(s): Science, Mathematics

Year(s): 8-9

Learning intention(s)

Students pose a question about seed germination and collect and interpret data to answer this question.

Mapping to curriculum

Strands

- Science – Earth and Beyond, Life and Living,
- Mathematics – Probability and Statistics

Sub strands

Science

- 8.4 Atmosphere, Climate, Weather
- 8.5 Plant processes and marine ecosystems

Mathematics

- 8.1 Percentages
- 8.2 Length and Perimeter
- 8.6 Statistics
- 9.2 Measurement

Learning outcome(s)

Science

- 8.5.1 Know that plants are the primary producers for life on Earth
- 8.5.2 Know that plants carry out the process of photosynthesis and respiration
- 8.5.6 Understand that different ecosystems support different types of ecosystems

Mathematics

- 8.1.10.1 Calculate percentages of various practical applications of percentages then compare the changes in percentages and numbers.
- 8.2.2.1 Estimate the lengths of different objects by comparing them to known lengths
- 8.6.2 Know how to tabulate collected data into frequency tables
- 9.2.10 recognise that different formulas can be used to calculate areas of different shapes

Lesson Instructions

Adapted from SAKG Literacy and Numeracy in the Kitchen and Garden – Ideas for learning in Primary, page 67:

Materials/resources

- Vegetable Seed packets (4 -5 varieties)
- Trays or containers for planting
- Soil to fill the planting trays or containers
- Measuring tape or ruler

Students choose a type of herb or vegetable (preferably quick-growing plants such as cucumber, radish, lettuce, tomato), then plant seeds in a few trays. Place trays in different locations in and around the garden area i.e. under shade or no shade

Student worksheet 1

(Worksheet handout at end of document)

1. At the start of the project, ask students to estimate a rate at which they expect seeds to germinate (e.g. 50% or 70 %)
2. Allow a period of 1 or 2 weeks for the seeds to germinate. At the end of 2 weeks, students measure the rate of growth or movement of germination of the seeds. Make sure to record the information e.g. Date and length or height of the plant.
3. Continue to collect the same data for every 2 weeks over a period (e.g. 6 -8 weeks) to record changes in the rate of germination and growth of the seeds for each vegetable or herb type.

Student worksheet 2

(Worksheet handout at end of document)

1. At the end of 8 weeks, ask students to collate and chart the data and explain how different factors of the environment caused slow or fast, interesting or disappointing changes to the germination rate.
2. Students organise all the data collected over the 8 weeks, present their findings, based on collected data to their peers and draw some conclusions.
3. Students use their findings to make decisions about how, when and where to plant that type of seed in the future.

Teacher Supporting Resource

Student Worksheet 1

Name: _____ Date: _____ Estimate of seed germination: _____

Collect weekly or fortnightly observation data of the seed's germination process

Week	Observations Write down the height of your plants and any other noticeable changes. You can also include illustrations to show what your plants look like.
1-2	
3-4	
5-6	
7-8	

Overall observations and conclusions:

Student Worksheet 2

Name: _____

Collate the data and create a graph or chart:

[insert a graph/chart]

Explain your findings/observations:

[think about the factors in the environment that affected the germination and growth]