



## I. From small to big: Seeds and germination

### Seeds, Tubers and Germination

**Germination** is the process of a plant developing leaves and roots from a seed. It is a process of slow change and transformation which we can observe as a series of stages. First we need to understand what a seed is.

**Activity 1a:** in preparation to the lesson, children can bring a selection of seeds **from home**. They can discuss **where and how they found the seeds**. **In class**, the teacher can prepare a set of boxes/bags containing different types of seeds. The task is to observe, measure, weigh up and draw the different seeds according to their relative sizes – from small to big, wide to narrow, light to heavy



*Previous step: Soil and Composting*

By the end of this month, pupils will have:

1. Learned about different types of seeds;
2. Understood the relationship between seeds and environment;
3. Observed the process of germination;
4. Planned for growth cycles;
5. Practiced with germinating seeds and potatoes;
6. Understood germination of plants outdoor.

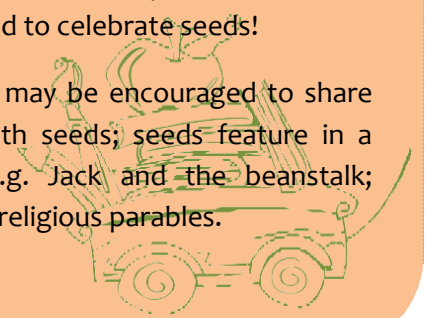


Depending on **shape, weight and size**, a seed can go faraway or go deep into the soil; some seeds can be carried and eaten by animals; others can float on water or fly in the wind. **Outside**, children can practice with making seeds fly: how far do they go?



**Activity 2a:** making seeds with paper mache is a fun way to learn about structure, and size and to celebrate seeds!

**Activity 2b:** Children may be encouraged to share their experiences with seeds; seeds feature in a range of stories (e.g. Jack and the beanstalk; Mabel's garden) and religious parables.



**3. What does a seed need to grow?** A seed can travel a long way before it settles. Children can compare it to a traveler equipped with all that it needs for the journey or a long stay i.e. a stockpile of water and food reserves to begin with. As the seed start growing, gradually water and sugars will be used up; hence we need to make sure seeds are watered and put into a good soil to grow.

**Activity 3: Germination yoga.** This activity dramatises the seed germination from when the seed is curled up tight, deep into the ground; reaching out for the backpack, cracking its skin, gradually swelling up and shooting the first root, growing a longer stem and the first leaf, to finally develop the full set of leaves opening to the light as a grown plant. Using a storyline, the teacher and germination yoga helps to understand how the seed is exposed to the weather and temperature; how it gradually develops tissues that stretch and change in shape and size. *And everybody's muscles get a stretch too!*



**4. Seeds can start germination in a small pot.** Why do we not plant small seeds directly outside?

**Activity 4a.** Children can discuss the different destinies of a seed; hence the need for plants to produce many in order to survive while the farmer must ensure that seeds do not get lost. Children can choose a seed to plant into a small compostable pot with soil and water for germination in class and to bring home.

**Activity 4b:** a seed can germinate into a glass jar to show the different stages of growth. Potatoes will be 'chitting' (growing small shoots) before they are put into the ground.

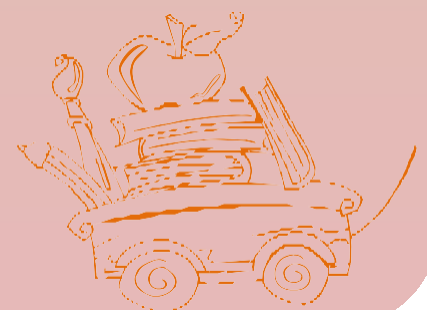


**5. Growing seeds** can be observed and taken care of on a regular basis. Children can develop a simple chart to record the process;

Date	Colour	Shape	Length	Notes

**6. Children can design their own plant timelines** and try to keep it updated. That could take place on a big poster on the classroom wall. There, they can keep a record of notes and pictures from the different stages of their plants. They can update it after every observation in the garden.

**Activity 6a.** Children can compare and discuss the results. Why are some plants taller than others? And what is the advantage of growing tall? The disadvantage? What colours are the leaves at the different stages?



## From small to big: Seeds and germination across the Curriculum for Excellence

### Health and Wellbeing

- encourages and capitalises on the potential to experience learning and new challenges in the **outdoor environment**
- encourages children and young people to act as **positive role models** for others within the educational community
- leads to a lasting commitment in children and young people to follow a **healthy lifestyle** by participation in experiences which are **varied, relevant, realistic, and enjoyable**
- helps to foster **health in families and communities** through work with a range of professions, parents and carers, and children and young people, and enables them to understand the responsibilities of citizenship
- harnesses the experience and expertise of **different professions** to make specialist contributions, including developing **enterprise and employability skills**.

### Sciences

- develop **curiosity** and understanding of the environment and **my place in the living, material and physical world**
- demonstrate a secure knowledge and understanding of the **big ideas** and concepts of the sciences
- develop the skills of **scientific inquiry** and investigation using **practical techniques**
- recognise the role of **creativity and inventiveness** in the development of the sciences
- develop an understanding of the **Earth's resources** and the need for responsible use of them

### Literacy and English

- communicate, collaborate and build relationships
- reflect on and explain my literacy and thinking skills, using feedback and sensitively provide useful feedback for others
- engage with and create a wide range of texts
- explore the richness and diversity of language and how it can affect me, and the wide range of ways in which I and others can be creative
- extend and enrich my vocabulary through listening, talking, watching and reading.