



## The Seed Race

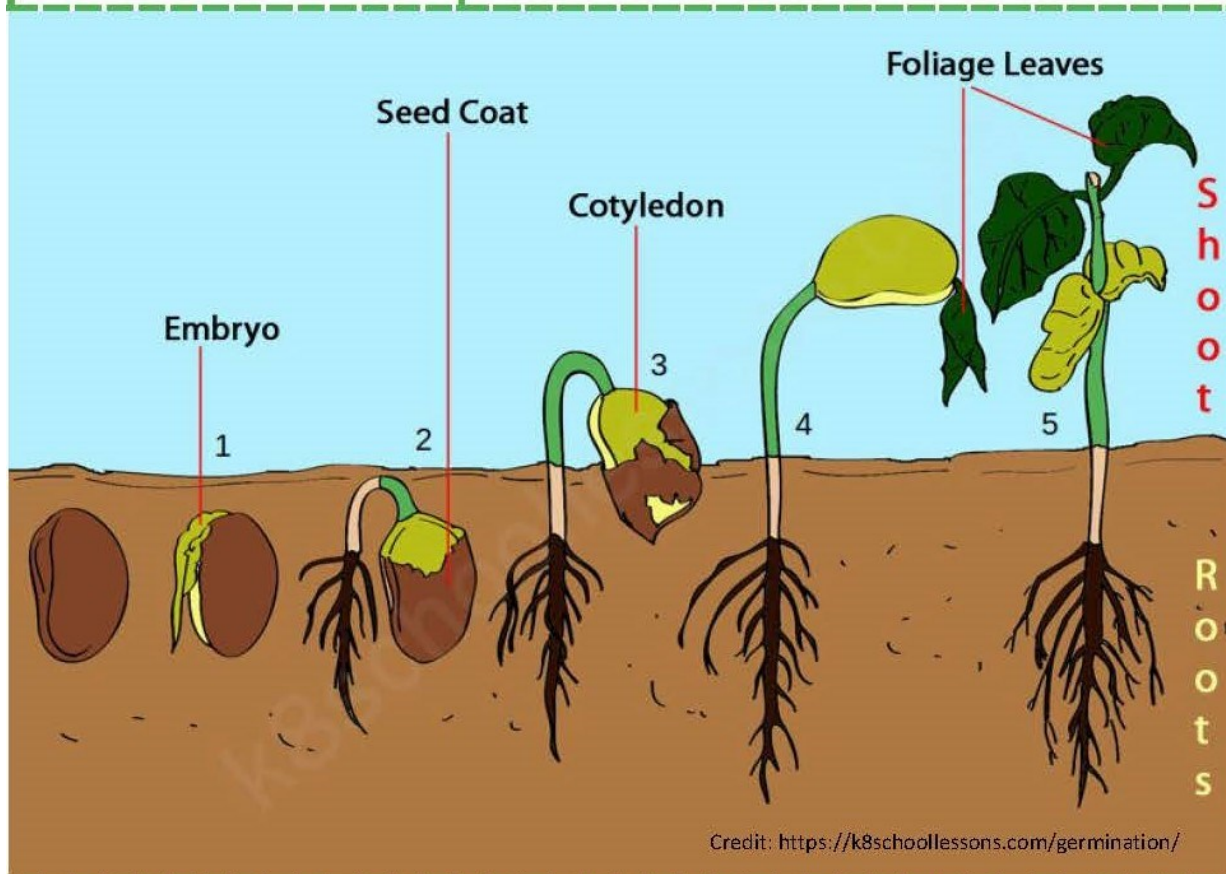
The activity	Kit you will need
How does the length of the germination stage differ for different seed types? In this activity you will investigate germination, the first stage of the lifecycle of plants, between different seed types. Plant multiple seeds at the same time then compare their speeds.	Jar and paper towels, Labels or pens that write on glass Seeds e.g. kidney beans, sunflower seeds, black eyed peas, corn, lentils

### Germination Stages: From seed to plant

Plants reproduce using their seeds. Seeds contain a food store, a protective coating, and a living part (the embryo) that will grow into a seedling and then a plant. The process of a seed growing into a plant is called **germination**. This requires water, oxygen, food and warmth. By stage 5, the seedling can now make its own food through photosynthesis. **Photosynthesis** is the process by which plants turn sunlight into food. The roots and leaves continue to grow, transforming the seedling into a plant.

**Stage 1** The seed takes in water and swells in size. The coat splits. A small root pops out of the side of the seed.

**Stage 3** As the stem grows, the seed coat splits and falls off, revealing two small leaves called the *cotyledon*. As the root grows, it splits into more branches (also called 'root hairs') that anchor the seed.



**Stage 2** The embryo uses the food store and oxygen to grow further. The root grows downwards, and a green shoot grows, pushing the seed upwards.

**Stage 4** The seed coat breaks away and two small leaves appear on the shoot.

**Stage 5** More small leaves appear on the tip of the shoot.

## Seed Race: How fast to different types of seeds germinate?

Which seeds germinate quickest? Try this experiment at home to find out. Follow the instructions below to plant the seeds. Check your seeds daily looking out for the different germination stages. Whenever one of your seeds reaches a germination stage, record the date below the corresponding stage on the chart and colour in the seed. **The first seed to reach stage 5 wins the race!**

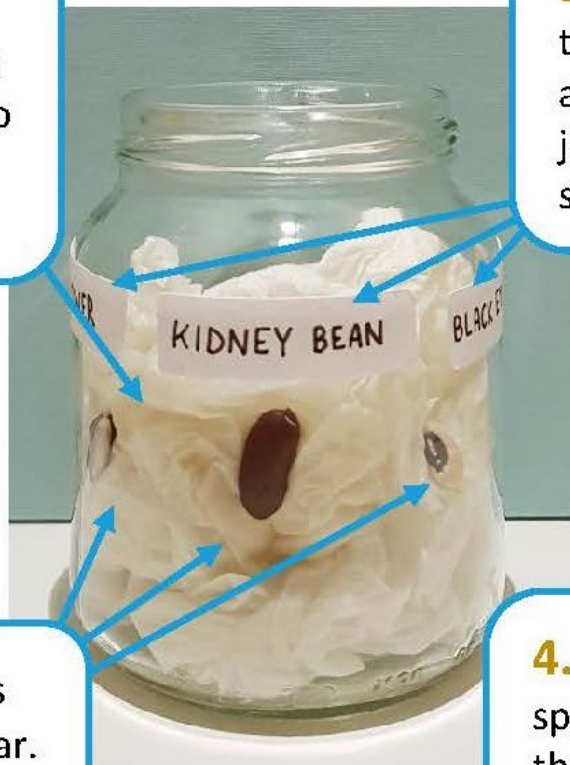
### How to plant the seeds:

**1.** Soak the paper towels and place them in the jar. Make sure to squeeze out all the excess water first!

**2.** Spread the seeds evenly around the jar. Use a (chop)stick if needed.

**3.** Write the name of the seeds on the labels and stick them on the jar. Make sure you can still see the seeds!

**4.** Find a nice and sunny spot for your glass jar. By the window is ideal. Water the glass again when the paper towels become dry.



### Example: germination sunflower seed

The image to the right shows germination stages 1-3 for a sunflower seed. You can see the root and shoot have started to grow, and the cotyledon has appeared.



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# The Seed Race

Start date: \_\_\_\_\_

Sunflower



START

1	2	3	4	5
Date:	Date:	Date:	Date:	Date:

FINISH

Kidney bean



START

1	2	3	4	5
Date:	Date:	Date:	Date:	Date:

FINISH

Black eyed pea

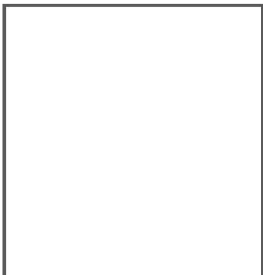


START

1	2	3	4	5
Date:	Date:	Date:	Date:	Date:

FINISH

Draw your own seed!



START

1	2	3	4	5
Date:	Date:	Date:	Date:	Date:

FINISH

Label and colour the different parts of the seed germination stages!

Choose from:

- |            |           |
|------------|-----------|
| Food store | Embryo    |
| Shoot      | Leaf (2x) |
| Root       | Coat      |
| Root hair  | Cotyledon |

