

**SUBJECT AREAS:**

Natural sciences

**ACTIVITY DESCRIPTION:**

Learning how plants grow from seed.

**OBJECTIVES:**

- To Learn about growing process and time dedication needed.

**MATERIALS:**

Glass jars, beans, water and cotton

**GRADE/LEVEL:**

Upper Elementary School (12-14)

**DURATION:**

Time: 2 weeks

Activity time in class: 1 hour

**PLACE:**

Classroom

**AUTOR:**

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# How to grow

**INTRODUCTION:**

The process of growing from seed takes time, but it is a very formative and useful process for learning different stages of cultivation of different vegetable crops

**BACKGROUND:**

To explain the cultivation process and learn its different steps, this type of experiment is the best method. By doing this experiment students will carefully follow the process that starts from the seed and what is necessary for the plant to grow.

**Procedure:**

**Outline:** For this lesson it's necessary to prepare all mentioned materials. Students can grow their beans in classroom or at home, the decision can be made together with them.

**Instruction:** Each student will have one jar, 3 bean seeds, a little bit of cotton. It's necessary that each student write their name on the jar, place the bean seeds in wet cotton and place them in the way that the seeds can be seen. The jars should be placed near windows so the seeds can have enough light to grow, also it's important to make sure they have enough of moisture, so students should put water when needed. Students should monitor the process in next two weeks, day by day and insert the description of progress in their notebook, they can also and small drawings to describe better the process.

**Guided Practice:** Guide the students throughout the lesson about on the importance of water and light in the entire cultivation process.

**Formative Assessment:** Make sure your students getting as much as possible from this lesson. Check if they understood with a few questions for continuously monitoring.

**Collaborative Process:** Students will work together in classroom on making their jars. If decided to grow the beans in classroom students can monitor together the process day by day.

**Independent Practice:** If decided to grow the bean seeds at home students will have to do whole process independently. In any case students will take notes in their notebooks about whole process, changes, height of each plant...

## FUN FACTS:

- **Seeds Are Baby Plants** - A seed contains a miniature plant inside, known as an embryo. This seed develops over time into a fully grown plant. Essentially seeds are baby plants. Seeds are actually dormant, meaning they are asleep.
- **Seeds Need Certain Conditions to Survive** - All seeds need moisture, oxygen and the right temperature in order to germinate.
- **We Eat Some Seeds** - Many seeds are nutritious and delicious. Some seeds you may eat on their own and others you may add to certain foods. Many people add poppy seeds, sunflower seeds, chia seeds and pumpkin seeds to their breakfast or yoghurt. Did you know that the cereals are actually the seeds from different grasses?
- **Seeds Can Spread to Different Places in Different Ways** - Have you ever wondered how plants can end up in different places without being planted? Seeds travel to different areas in many different ways. The wind can blow very fine seeds to other layers, if they land in a place with the conditions they need then they will germinate.
- **The Double Coconut Is the Largest Seed in The World** - The largest seed in the world is the double coconut. This rare large seed can be found in the Seychelles Islands. The double coconut is also known as the coco-de-mer, which translates to sea coconut. This plant produces the largest and heaviest seeds in the world. It can measure up to 50 cm in width and weigh up to 25kg! Many of these seeds can fall into the sea and sink to the ground, however after some time their husk breaks down and the seeds float to the surface of the sea. They continue to float until they reach land; some double coconuts have floated 2,000km over the sea.

## ASSESSMENT:

After 2 weeks of growing the bean seeds students can bring them to school (in case they grow the beans at home). They will share their findings and the notes from whole process.

## EVALUATION:

For the evaluation of growing process teacher can ask students to write a growing diary, where the students will note day by day changes they have noted, when and if they added water, when the roots start growing, the length of the plant, etc.