

3-5
years

pri-sci-net



inquire
investigate
evaluate
connect

Science Content:

Biological Sciences: Planting seeds

Target Concepts/Skills:

Rate at which plants grow, design and carry out fair tests

Target Age group:

3-5 years

Duration of activity:

80 minutes

Summary:

Children are divided into five groups and each group plants in a pot a number of seeds of wheat (or other type of seeds which grow quickly). Each group places its pot at a different place (places with/without light, with/without air, with/without water etc). Children observe and keep a record of the changes happening to the seeds for a specific pre-defined period of time (e.g. one week). Finally, children, with the guidance of their teacher, try to identify the factors that influence the growth of the seeds based on their observations and their records.

Objective:

By the end of the activity children should be able to:

- Identify factors that influence the rate at which plants grow
- Think and find ways of isolating the factor that should be varied
- Identify factors that need to be kept constant
- Recognise/identify factors
- Attempt to control variables

Resources:

For each group:

- 5 Pots with peat;
- Seeds to sow
- Water to water plants
- Optional (digital camera to photo plant at different stages)

Planting Seeds

Authors: *Initial Version*

C. P. Constantinou, G. Feronymou, E. Kyriakidou and Chr. Nicolaou
Science in the Kindergarten: a resource for the pre-school educator.

2nd edition

Ministry of Education and Culture, Nicosia, Cyprus, 2004.

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Planting Seeds

Lesson plan (with inclusion of teacher notes) - Description of activity

Activity 1 (10 minutes): The lesson starts with a story about some chickens that have gathered seeds of wheat to save them so as to have food for the winter. Five chickens were asked to watch out for the seeds (the brown, the white, the black, the colorful and the forgetful chicken). The five chickens decided to plant the seeds, instead of just save them, to have more seeds for next winter; each one of them planted the seeds in a pot and placed the pot at a different place: outdoors, in a cold place, in a closed box, in a closed bag and on the top of a shelf. All of them watered the seeds every day except for the forgetful chicken that always forgot. The teacher does not give an end to the story and asks the children to predict what would happen to each one of the pots.

Activity 2 (25 minutes): Through discussion, the children are encouraged to identify the factors, referred to in the story (water, light, air and temperature), that might influence how fast the seeds would grow. Children are then asked to form five groups and plant their own seeds to find out what actually happens. Each group is given five pots and approximately the same number seeds to plant

and then places the pots at the same places that the chickens in the story did. The children make a symbol for their group and place it on the pots so that each group will be able to identify their pots. Each group is also responsible to know where to place each one of their pots and when to water them (encourage them to keep notes/ use a diary). The pots will be observed for a specific period of time (e.g. 1 week) and children will systematically observe and take notes of the seeds (e.g. every day). During this period of time a discussion will take place about the possible ways to interpret different results. For example: Assume that all the seeds have grown in all the pots, except for the one placed in the closet; what could we infer from this?

Activity 3 (20 minutes): After the specified time interval has elapsed, each group presents its results and the children compare their notes and results to draw conclusions. Their conclusions are written down with the help of the teacher.

1. Engage (Forming Hypotheses)

Decide which question to investigate (=the challenge)
What do children already know? What are their ideas? (ensure that the question to be investigated is meaningful for the children): Challenge: What are the factors that influence how fast

seeds grow? Children formulate a hypothesis (make predictions) based on a story they are presented with and their own experiences, which might refer to factors such as water, light, air and temperature.

2. Inquiry (Designing and running experiments and observations) Plan and conduct investigations in order to collect data

During activity 2 each group is given five pots and seeds to plant and then places the pots at the five different places that the chickens in the story did (outdoors, in a cold place, in a closed box, in a closed bag and on the top of a shelf). The children make a symbol for their group and place it on the pots so that each group

will be able to identify their five pots. Children are responsible to know where they have placed each one of the pots, when they need to water them and to systematically observe and take notes of the seeds (e.g. every day for a week).

Planting Seeds

3. Evaluation (evaluate evidence)

- Conclusion: use data to construct knowledge and generate evidence.
- Demonstrate understanding of concepts and/or ability to use inquiry skills

Activity 5 (15-20 minutes): Evaluation activity: The teacher begins a classroom discussion through the use of questions like: 1) What happened to the seeds planted by the white chicken/ the black chicken etc? 2) Why do you think that this happened? 3) What can you suggest to the white/ brown/ forgetful chicken to do if she wants her seeds to grow (more)?

Finally, children can write a letter (with the help of the teacher) to advice the five chickens about what they should do to help their seeds grow.