

4-H Hands-on Science



Inquiry Card Size Situations

Type of Inquiry:

PEOE

Process Skills:

Observing, predicting, explaining, questioning, comparing, contrasting.

The Scenario:

The quality of seeds is critical for a successful harvest. In this activity, the young scientists will start by exploring one variable that might affect the quality of the harvest: the size of the seed. They will then explore other variables related to the seeds. Because they are controlling variables, they will use the same crop and variety (e.g. oats) and look for seeds of different sizes. Because they are focusing on the actual quality of seeds, they will not change any of the growing conditions.



Open-Ended Inquiry Questions:

- If I change the size of the seed, what will happen to the number of seeds that will germinate?
- If I change the size of the seed, what will happen to the height of the plant after 3 weeks?

Instructions:

1. Give the instructions to the young scientists on how to conduct the experiment.
 - Using oat seeds of the same variety from the same supplier, sort the smaller seeds and the larger seeds in two groups. Grow 100 small seeds in one group and 100 large seeds in the other group for 3 weeks making sure they have the same growing conditions.
2. Let them PREDICT what will happen and EXPLAIN their prediction.
3. Let them plant the seeds according to the instructions and observe what will happen **during the 3 weeks**. Let them write their OBSERVATIONS and EXPLAIN them based on their current knowledge.
4. Brainstorm with the young scientists what they could change for the next cycle of the PEOE.
5. Repeat the cycle by changing only one variable at a time.



Possible Independent Variables:

Size of the seeds, age of the seeds, whole seeds vs. broken seeds, colour of the seeds.



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