

Oregon



Agriculture in the
Classroom Foundation

Developed By:

JoAnn Jernigan

Summer Ag Institute Lesson Plans

Title of Lesson: Growth in Light versus Dark

Academic Subject: Science

Theme: Growing Wheat from Seed

Grade Level: 4-5

CIM/CAM Standards:

1. Scientific Inquiry/5th grade Benchmark/forming the question/hypothesis.
2. Scientific Inquiry/5th grade Benchmark/designing the investigation.
3. Scientific Inquiry/5th grade Benchmark/collecting and presenting data.
4. Scientific Inquiry/5th grade Benchmark/analyzing and interpreting results.
5. Measurement/5th grade/select tools to measure.
6. Stats & Probability/5th grade/collect, organize, display and analyze data using graphs.

Learner Objective: (The student will)

1. Measure and monitor the growth of plants in dark and light environments.
2. Graph results of different seeds (grains).

Vocabulary:

1. Equalize conditions – under both conditions so that the effect of the one variable will appear.
2. Air flow – making holes to allow air to flow to and through the jar with plants.
3. Monitor – periodically observe the plants to make note of progress.
4. Graph – plot points on graph to show the trend of plant growth.
5. Natural variation – how plants vary due to amount of light.

Anticipatory Set:

Remembering there is “stored food” in the seed, do plants grow at all in the dark?

Instructional Outline (Teaching Content)

1. Students A can fill the light jar, students B the dark jar with soil 2-3 inches.
2. Students A and B will plant 2-3 seeds in each jar. Water as needed.
3. Students B will cover completely the dark jar with foil and place in a dark cabinet.
4. Students A will cover just the top with foil and both jars need holes punched in the top for air flow.
5. Place light jars in a sunlit area, but not direct light.
6. Students C will monitor the jars for several weeks, taking notes of height of plant, length of leaves, color and appearance of their plants.
7. Students A and B will make the graphs of the growth of their plants.

Strategies (What to do, explain or have students do)

1. Divide students into groups of three (3).
2. Each group will have a quart jar labeled light and one labeled dark.
3. The seeds (8 types) will be types of wheat, a different type for each group:

Hard Red Winter
Hard Red Spring
Soft Red Winter
Soft White
Durum
Hard White
Unclassed
Mixed

Closure:

1. What did we observe regarding the stored food within the seeds?
2. What did we observe regarding photosynthesis?
3. The result of natural variation – what did we vary and what are your conclusions?
4. Are the results the same for every kind of wheat?

Resources:

1. Quart jars, one per student for each light and dark jar.
2. Potting soil – for 2-3 inches in each jar.
3. Ruler to measure soil and height of plants and length of leaves.
4. Graph paper.
5. Tin foil.

Evaluation:

Grade their daily notes to monitor plant growth as well as their graphs and condition of plants.