

**Seeds: Thematic Unit**  
**Science**  
**Brenda Ault**

**Introduction:**

Students will be able to study, compare, sort and observe seeds. They will gain an understanding of the conditions needed for seeds to grow. Students will gain a understanding of the importance of seeds in our lives.

**Objective:**

- Students will observe and document changes in seeds when soaked in water.
- Students will observe and record seeds in various stages of growth.
- Students will compare seeds by size, shape and color.
- Students will identify the conditions needed for plants and seed to grow.
- Students will identify how all seeds are alike.
- Students will identify the purpose of seeds.
- Students will identify fruit that protects seeds.

**Standards:**

1. Process of measurement.
  - a. Select appropriate unit of measurement for a given characteristics of an object using standard units of measurements.
    - 1.) Estimate a measurement.
    - 2.) Compare the estimation to actual measurement.
    - 3.) Evaluate the reasonableness of the estimation.
2. Graphs - Construct, read and interpret displays of data to make valid decisions inferences and predictions.
  - a. Make and label a graph from organized data.
  - b. Predict and measure the likelihood of events and recognize the results may not match Predicted outcomes.
3. Gather, organize and accurately, clearly and sequential report information gained from personal observation and experiences such as science experiments, field trips and classroom visitors.
  - a. Record observations.
  - b. Introductory statement.
  - c. Report events sequentially
  - d. Concluding statements.

**Math Skills:**

1. Counting
2. Shapes
3. Sequencing (Seed Size)
4. Graphing
5. Weighing
6. Estimating and predicting

**Science Process:**

1. Estimating
2. Recording Data/ Collecting Data
3. Generalizing
4. Comparing

## 5. Observing

### **Curriculum Coordinates:**

Language Arts, Social studies, and Art.

### *Lesson One*

#### **Objective:**

Students will observe and document the changes in lima beans that have been soaked in water overnight.

#### Questions for discussion:

1. What does a dry seed look like?
2. What happened to the seed soaked in water overnight?
3. What does a seed look like inside?
4. Do you think all seeds look the same? Why or why not?
5. Distribute one dry lima bean and one water soaked lima bean to each student prior to questions.
6. Compare the water soaked bean to the dry lima bean. Trace the seeds and measure their length. Split the seeds into parts; study the two halves and compare. Discuss the parts of the seeds embryo, seed coat, and stored food. Document the changes.

#### **Materials:**

Lima beans (one dry per student) and (one wet Lima bean soaked over night per student)

Worksheets: Aims Education Foundation.

Books:

Magic School Bus

Seeds & Video

Carrot Seeds

The Giant Turnip

### *Lesson Two*

#### **Objective:**

Students will discuss and documents what conditions are needed for plants to grow. (Water, air, proper temperature).

#### **Activity:**

Students place their lima beans inside a dampened paper towel. Then place the paper towel, with the seed on top, inside a zip lock baggy. Place the sealed baggies in a dark area. Have students predict how long it will take for their seeds to sprout. Once the beans begin to sprout, place them in the window or on a bulletin board. Students will continue to observe and record seeds growth. Students will be required to draw or write the changes daily.

#### Questions:

1. Why do you need a wet paper towel?
2. How many days will it take for the seeds to sprout?
3. Which part do you think will appear first? The root or stem?
4. How many days will it take for leaves to appear?

**Materials:**

Ziploc Baggies

Lima beans

Paper towels

Worksheet by Aims Education Foundation.

### *Lesson Three*

**Objective:**

1. Students will observe and sort a variety of seeds (Lima beans, kidney beans, popcorn, sunflower seeds, garbanzo beans, and black-eyed peas).
2. Students will identify how seeds are alike.
3. Students will identify how all seeds serve the same purpose.

**Activity:**

Provide each student with a seed sorting sheet and an assortment of seeds. Place students in groups of three to four before sorting seeds. Ask students to estimate how many seeds are in their cup. Ask students to use a magnifying lens to study seeds closely.

**Questions:**

1. What are the shapes of the seed? Which seed type did you have more of in a group? The least?
2. How are seeds alike? Different?
3. What colors do you see?
4. Are all seeds the same shape?
5. Are all seeds the same size?

**Materials:**

Seed assortment: Popcorn, black-eyed peas, lima beans, kidney beans, garbanzo beans, and sunflower seeds.

Small Dixie cups.

Worksheet by Aims Education Foundation.

### *Lesson Four*

**Objective:**

Students will compare size, shape, and color of seeds. Students will examine and compare the following fruits and vegetables: Oranges, apples, lemons, bell peppers, melons, tomatoes, pears, avocado, and peaches. Students will identify those plants that have better survival rates because of the seeds the fruit protects.

**Activity:**

Place students into groups of three or four. Provide each group with half of a fruit and vegetables from the list above. \*Fruit should be cut small enough to fit on a worksheet. Students will record the number of seeds in each fruit by coloring in the graph.

**Questions:**

1. How do plants start?
2. Where do we get seeds?
3. Do all fruits and vegetables have the same number of seeds?
4. Are all seeds the same size?
5. Why do some plants have more seeds than others do?

6. How are seeds the same? Different?

**Materials:**

Fresh fruit and vegetables:

Orange, Bell peppers, Apples , Melons, Lemons, Tomatoes, Peas, Avocados, Peaches.

Sharp knife

Paper plates

Paper towels

Work sheet by Aims Education Foundation

*Lesson Five*

**Objective:**

Students will plant assorted seeds in zip loc Baggies and document growth of roots, stems, and leaves.

**Activity:**

1. Students will select two seeds that are different from each other. (Popcorn-garbanzo beans).
2. Place a damp paper towel inside a zip loc baggie with seeds on top. Students will tape both seeds to the paper towel in order to compare growth.
3. Tape Baggies to a window or near a window so students may observe the root growth down and the stem and leaves grow up.
4. Provide students with a measuring ruler to attach to the front of their Baggies. (Make sure the O mark is lined up with both seeds).
5. Students will make a picture book "How my seeds grow". They will observe and record daily (or every two days) any changes that occur.
6. Seeds may be transplanted later into cups. (Clear cups work well).

Questions:

1. Which seeds sprout first? Why?
2. What will come first: The root or stem?
3. Do you think we will add water to the seeds? Why or why not?
4. How will they get their food?

**Materials:**

Ziploc Baggies.

Variety of seeds from lessons three.

Paper towels.

Worksheets by Aims Education Foundation.

*Lesson Six*

**Objective:**

Students will use data collected on seeds to present an oral report. Students will use data collected on seeds to write a written report. This report will include an introductory statement, report events sequentially and a concluding statement.

**Special Education Modifications:**

Students with learning disabilities will be provided with a worksheet to help them complete the writing assignment.