

# Jack and the Beanstalk - Plant a Bean and Watch it Grow

## Summary

Students will plant bean seeds, watch them grow, measure them with nonstandard objects. In addition, students will describe the beans' growth in a journal and record the growth on a calendar.

## Materials

- [\\_\\_\\_\\_\\_ and the Beanstalk book](#) (pdf)
  - one completed copy for the teacher and one blank copy for each student
- [My Beanstalk Calendar](#) (pdf)
  - Three bean seeds for each student--a variety of beans is more fun
  - Small plastic cup for each student
  - Clear plastic food handlers gloves
  - Cotton balls
  - Magnifying lenses
  - Clear jar
  - String for measuring
  - mm ruler
  - A number of activity related books on a table such as: calendars, books showing plant growth, books showing linear measurement tools and applications, pictures of plant scientists at work, gardening catalogs

## Background for Teachers

This activity will serve students best if done in the last three months of Kindergarten. Students will plant bean seeds, watch them grow, measure them with nonstandard objects (string, cubes, etc.) and describe their growth over several weeks in a journal. This is very flexible and can be incorporated as individual or group plantings, individual or group journaling. The students will learn to mark each day on a calendar and record observations daily. They will increase mastery of naming days of the week, the concept of a week, and the concept of a month, if frequently emphasized throughout the activity. There are numerous content area connections and skill development opportunities in this activity. The journaling provides authentic need for writing applications. The plant provides authentic purpose for measurement and scientific observation. Every student can succeed because it allows for a broad range of reading, writing, and problem solving skills.

## Intended Learning Outcomes

1. Demonstrate a positive learning attitude.
2. Develop social skills and ethical responsibility.
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

## Instructional Procedures

### Invitation to Learn

Refer to the story of *Jack and the Beanstalk*. Ask the following questions: "What was it about the beans that was magic? Are there really magic beans? How long did it take the beanstalk to grow in the story? How long does it take real beanstalks to grow?" Tell them they will plant some beans and watch them grow. Will any of their beans be magic beans?

### Instructional Procedures

#### Day 1

Introduce [\\_\\_\\_\\_\\_ and the Beanstalk book](#) (pdf). Show students a sample of a completed book so they know what the long-range goal is for the book project. Determine where the books should be placed each day so they are not lost. Hand out the books. Each child does the following:

Write your name on the book.

Find today on the *My Beanstalk Calendar* handout and write, "Day 1." Find the page that says, "Day 1" in the book. (Tell them today is the first day of this experiment, so this calendar will show how many days we will do the experiment, not what day of March it is. Emphasize how to find the day of the week, and what the name of that day is daily through this activity.)

Tell them they have marked it on their calendar and now they will do the job for the first day in their journal. Point and read the words together on the Day 1 page. You may choose to have the words written on a chart. Read them together on the chart and then again in the book. Students should point to, or underline, each word for one-to-one correspondence, even if they cannot read them.

Students go to an area where there are three seeds in a small plastic cup for each student. It helps to have their names already written on the cups with permanent marker. They observe their seeds (explain that "observe" means to look carefully at the size, shape, texture, color, etc.). As they are observing, ask questions about size, texture, and color to prompt observations. Students talk with friends about what is the same and different.

Students measure the seeds with pieces of yarn or string and record the size with a marker.

Students draw the three seeds on the Day 1 page of their books and write some descriptive words. (You can write words on a chart for those who cannot yet invent spelling for themselves.)

Students fill the cup with hot water and put the seeds in the water to soak overnight.

#### Days 2 and 3

Find the day of the week for today on the journal calendar and write "Day 2."

Read the words on the Day 2 page in the journal together.

Place seeds on a paper towel. Observe them. Are they different from yesterday? (Write descriptive words they suggest on a chart as they observe their seeds.)

Measure seeds with the same strings. Are they different?

Draw a picture of the seeds on the Day 2 page in the book and write words about them. Put them back in the cup with hot water.

#### Day 4

Complete steps 1-4 above.

Work in groups of five. Write the name of each group member on one of the fingers of a clear, plastic glove. Place a wet cotton ball in the tip of the finger and place seeds on cotton. Tape the glove to a window at a level where they can see their name and seeds. OR plant one set of seeds in a plastic baggie with cotton balls or paper towel in the bottom for the whole class to observe. (Ask them what they think will happen.)

Plant one set of beans close to the side in a clear jar with soil & water as the class beanstalk. Draw pictures of the seeds in their new homes and write words to describe. (Write words and short sentences on a chart to assist them as needed.)

#### Day 5 through the end of the experiment

Record experiment Day number on journal calendar.

Observe seeds. Draw them in journal. Write about them. Measure them.

Teacher should ask questions and write words and short sentences on a chart daily to assist in vocabulary and writing conventions.

When measurable growth appears, have students begin to measure it with a string, mark with a marker dot, and also measure with a ruler with millimeters marked on it. Ask daily, "What do you think will happen next?" As the plants in the plastic begin to die and the one in the pot continues

to grow, ask students why this is happening.

Ask questions related to the story, "What did we do differently than what Jack and his mother did? What do seeds need to grow? Would you be like a giant, relative to your class beanstalk? What would happen if you tried to climb on it?" What kinds of plants could we climb without breaking them?

Grow the beans for as long as seems practical in your classroom. Continue watering, measuring and discussing the changes. When the daily changes and recording become redundant, a team or individual may be assigned to be the bean plant scientist for the day and report to the group. You may move to measuring once a week, but daily marking of the calendar in the book is important to the time measurement part of the unit. Ideally, you need to grow the beans for one month so students experience individual accountability to daily recognition of calendaring over that time period. They often learn better what the days of the week are by the end of the month when it is an individual, rather than group process.

### Extensions

This activity is a guaranteed success experience for every student because they can work with other students and can achieve daily the minimum standard for success on each part of the activity. There is no particular benchmark except full participation in each step of the activity.

The table with extension books and materials provide opportunities for those who have more interest in the subject and those who complete their work more quickly.

Students who finish early may also choose to assist those who have a harder time staying on task.

Whole group extensions--shared reading.

### Family Connections

Send a note home describing the activity and encouraging parents to engage in conversation with the students about the progress of their bean garden. Also encourage them to visit the class and look at the journals.

Send home a paper with instructions for a family beanstalk drawing project. Ask that all in the family draw some part of the beanstalk and write their names by it. Encourage students to tell the story to their families.

Invite families to plant a bean at home and have a contest to see whose bean grows fastest.

Suggest that they help students measure it every day with a string and make a mark, just like at school. The students could bring the string from home to compare to their beans at school.

### Assessment Plan

The daily journal and string measurement provide ongoing assessment of on-task participation as well as opportunity for writing development assessment.

Put everyone's names on slips of paper or craft sticks and rotate the answering of daily questions and input in regards to calendaring mastery, observations, descriptions, predictions, etc. Keep a class list on a clipboard during the activity with space for checking off oral language and other skill observations as they answer questions and work in their journals.

At the end of the activity, ask students to practice saying the days of the week in order to each other, showing each other the days on their journal calendar. Ask them to teach their friend and help him/her work on it until s/he thinks it is learned well. Then tell the teacher when they can both do it. Spot check students you think may not have mastery.

Give everyone a paper with a blank calendar with no words. Ask them to sit somewhere in the room where they cannot see anyone else's paper and no one can see theirs. Ask them to color all the Mondays purple, the Tuesdays yellow, etc.

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