Which Way Will They Grow?

Objective/Purpose:
This activity is designed to allow the students to see hands-on the parts of plants by doing 2 activities. In one activity, students will identify parts of a bean. In another activity, students will place beans in a Ziploc baggie, let them sprout, and rotate the beans continuously for 10 days. They will hypothesize what will happen to the roots and will keep a seed journal everyday. If the experiment goes as planned, as the students rotate the bean, the roots will grow more towards the ground each day. The main objective of this lesson is to give students a visual of each plant part while you discuss their roles.

QCC and Standards
10 Topic: The Living World: Plants
   Standard: Describes how plants use water, nutrients and light to produce their own food in a process called photosynthesis. Compares plants grown with all of these resources with plants deprived of these resources

11 Topic: The Living World: Plants
   Standard: Compares variables that might affect the growth of plants. Identifies and tests how variables such as temperature, light, water and nutrients affect plant growth.

12 Topic: The Living World: Plants
   Standard: Identifies and explains function of main parts of a plant. Names parts of plant and explains function of each (root, stem, leaf and flower).

Material's Needed:
1. 1 Ziploc bag per student
2. 2 paper towels per student
3. Water
4. 1 bag of Lima Beans
5. Bulletin board space to hang the baggies

Background Information
Before this lesson, we discussed the parts of the plants in detail. Their science books were a good resource and really did a good job of explaining this, along with good examples. We talked about things we see everyday and also eat to put the parts of the plant in perspective.

Preparation
1. Lima beans for dissection must be soaked in water for at least 24 hours before the activity.

Procedure
Activity 1: Seed Dissection
1. Hand out paper towels to each student. Then give each student one dry bean and one soaked bean.
2. Have the student fill out the "Lima Bean Dissection" worksheet as they go along.
3. Have the students take the seed coat off of the bean.
4. Have the students split the bean into halves. Have them look for and identify the root and leaves, if they are present (not all beans will have these, if not, they can look on with a friend).
5. When they are finished, throw away paper towels and seeds and have them clean up their area.

Activity 2: Seed Growth
1. Give each student a Ziploc baggie.
2. Have each student fold a paper towel into fourths. Then soak the paper towel with water. Place it in the baggie.
3. Add 3-4 dry lima beans into the baggie and seal it.
4. Hang the baggies on the wall or bulletin board. Every couple of days, rotate the bags a quarter turn and water the seed and paper towel.
5. When the seed "blossoms" and grows roots and leaves, the roots should grow downwards with every turn in order to reach the water supply. Have the student keep a "seed journal" everyday to draw a picture of their seeds and make notes of it's changes.

Safety Issues
1. Don't let the students eat the beans.

Teacher Procedures
These two activities are good if you are doing your class in centers or you can do them on separate days. Also, the seed journal is a good time filler for other days when some students finish things early.