Plant Life

By Carolyn Martin

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| **Thinking Ahead** |
| *When you start your Plant Life unit you will want to plant about six pots of bean seeds. You will need a few well started plants for Project Eight.* |

**Project One: What Is a Plant?**

Objective: Identify a plant as an object that is alive, that grows, does not move around on its own, and makes its own food.

Suggested materials needed (other similar items may be substituted):
•A carrot with green top
•A flowering plant
•A bug
•A rock
•A crayon
•A houseplant
•A shoe
•Chart paper or student journal

1. Observe each item. Group the plants and the non-plants.
2. Discuss what makes the plants a plant and the other objects not plants.
3. Make a list of plant characteristics on chart paper or have students list in their journals.
4. Have students collect from the outdoors an item that is a plant (or plant part) and an item that is not a plant. Let them share their findings with the class.

Supplementary Ideas:
•Create a plant corner where students can display plants and plant parts.

**Project Two: Grow a Plant**

*Objective: Observe what happens when you grow a plant in an eggshell*

Materials needed:
•An egg per student
•Egg carton to hold eggs
•Potting soil
•Grass seed
•Markers

1. Draw a face on the outside of the egg shell. Crack open the top and empty the inside. Fill the empty eggshell with moist potting soil. Sprinkle the top of the potting soil with grass seed.
2. Water the egghead every other day or when necessary. Watch the egg grow a head of “hair.”
3. When the grass gets long enough give the egghead a haircut.
4. Discuss what part(s) of the egghead is a plant.
5. Older students can add their observations to their journals.

**Project Three: Plant Parts—Roots**

 *Objective: Observe the roots of various plants. State the job of the roots.*

Materials needed:
•Various plants with exposed roots. (Suggestions: dandelion, carrot, ivy, bean, grass, tomato)
•Magnifying glass

1. Ask students to identity the part of the plant that grows underground (roots). Observe the roots of
various plants. Some plants (like the dandelion) have one big root. We eat the roots of some plants like
the carrot. Some have tiny roots.
2. Use the magnifying glass to closely observe the roots. (A plant just pulled from the soil works best for
this observation.)
3. Discuss the job of the root.
a. The root holds the plant in place.
b. The root takes in water and minerals to keep the plant healthy.

Supplementary Activity
•Older students can record their observations in their journals.
•Start a large plant poster. Draw “roots” (or affix real roots from a plant) at the bottom of the poster.
Add a sentence describing the root’s job. Add each part as you learn about it.

**Project Four: Plant Parts—Stems**

*Objective: Observe stems transporting water. State the job of the stem.*

Materials needed:
•Celery stalks with leaves
•Food coloring (three or four colors)
•Glasses of water (one per color)
•Knife

1. Examine a celery stalk. Discuss how the stem connects the roots and the leaves. Cut off about an inch of the stalk. Let the students see the tiny holes on the bottom. These holes are the bottom of tiny tubes that carry water and minerals from the roots to the leaves.
2. Add food coloring to each water glass. Make the color very deep. Add a celery stalk to each glass.
3. Ask the students to predict what they think will happen. Observe what happens over several days.
4. Students may record their observations in their journals. Younger students may draw their observations.
5. Optional: Try this experiment with carnations, tulips, or Queen Anne’s Lace and see what happens.

**Project Five: Plant Parts—Leaves**

*Objective: Observe various leaves. State the job of the leaves.*

Materials needed:
•Variety of green leaves (tree, grass, vegetables, flower leaves)
•Magnifying glass
•Crayons
•White copy paper

1. Examine various leaves with the magnifying glass. Point out the veins in the leaf. The veins carry water into the leaf. Examine the shapes of the various leaves.
2. Ask the students what would happen if you clipped all the leaves off the stem? The plant would die because it would get no food. The job of the leaf is to make food for the plant.
3. Make leaf rubbings by placing a piece of white paper over the leaf and coloring over it with a crayon.
4. Compare the various leaves and rubbings.

Supplementary Ideas:
•Students may make their leaf rubbings in their journals. If possible they should identify and write the
name of the plant the leaves came from.
•Add leaves to the large plant poster and write their job beside them.
•Clip all the leaves off a bean plant leaving just the stem, roots, and flowers. Watch it for several days and see what happens. If new leaves come out, clip them off as well.

**Project Six: Plant Parts—Flowers & Seeds**

*Objective: Observe various flowers. State the job of the flowers.*

Materials needed:
•Variety of flowering plants (or the flowers of the plants)
•Seed pods of several flowering plants (ideas: dandelion, marigolds, beans, cantaloupe, etc.)
•Bean seeds
•Potting soil
•Paper cup per student

1. Observe the flowers of different plants. Most plants have some kind of flower because the flower’s job is to produce seeds so more plants can grow.
2. Observe the seed pods from the flowers. Compare the various seeds. Discuss the idea that seeds grow into new plants and start the cycle over again.
3. Fill the paper cups with moist potting soil. Plant three bean seeds in each cup. Observe what happens over several days. Students may record their observations in their journals.

Supplementary Ideas:
•Add flowers and seeds to the large plant poster.

**Project Seven: A Seed’ s Secret**

*Objective: Find the parts of a seed. Define embryo and cotyledon*

Materials needed:
•Lima bean seeds (soak overnight)-several per child
•Toothpicks
•Damp paper towels
•Ziploc bag-one per child

1. Give each child a soaked lima bean seed and a toothpick. Examine the seed. Explain that the outside of the seed (skin) acts like a coat and protects the seed.
2. Using a toothpick, gently pry off the seed coat and open the seed. (Be careful to not break the seed into more than its natural halves.) Find the embryo (tiny plant). Explain that this is the part of the plant that will grow into a big plant. Explain that the rest of the plant (cotyledon) is food for the tiny plant. Discuss
the marvel that this tiny plant will “sleep” until moisture and warmth cause it to start growing.
3. Have each child place several soaked seeds on a damp paper towel and place inside a Ziploc bag and seal. Place bag in a warm, dark place. After two or three days observe what has happened.

Supplementary Ideas:
•Examine other seeds. Some seeds are large enough to take apart like the lima bean seeds. Other seeds are too small but if you sprout them on a moist paper towel you can see what happens.
•Draw and write about the seed parts in their journals.
•Make a poster using a variety of seeds taped to poster board. Include a picture from a seed catalog of the type of plant that grows from each seed. Compare the various seeds.

*Seed Parts Chant*“Skin, skin, seed coat protects” *(Rub arms as you chant)*“Embryo, embryo, tiny plant grows” *(Make a fist and slowly uncurl your hand while you speak.)*“Cotyledon, cotyledon, food.” *(Bring hands to your mouth as if you are eating.)*

**Project Eight: A Plant Can’t Grow Without…**

*Objective: Experiment and discover three things most plants need to live and grow.*

Materials needed:
•Four to six healthy bean plants that you’d started earlier
•A sunny window
•A dark closet
•Water
•Petroleum jelly (Vaseline)

1. Display your healthy bean plants. Discuss some of the things you need to live (air, food, water, warmth, etc.) Ask what students think plants need to live and grow.
2. To prove plants need sunlight use one bean plant as a control\* and place in a sunny spot. Put the other plant in a dark closet where it will get no light. Do not forget to water each plant as needed. Observe what has happened after a few days or a week.
3. To prove that plants need water use one bean plant as a control\* and water as necessary. Label another bean plant “no water” and do not give it any water. Keep both plants in a sunny spot. Observe what happens after several days.
4. To prove that plants need air use one of the plants as a control\*. On another plant, smear petroleum jelly on the underside of all the leaves. Be generous and make sure you cover all the bottom side. (The bottom of the leaf has tiny air holes. You are essentially trying to clog all the air holes.) Observe what
happens after several days or a week.

\**You can use the same plant as the control but a real science experiment would use a separate control for each scenario.*

Supplementary Ideas:
•Students can record their observations in their journals.
•Students can make booklets with each page detailing (in pictures and/or words) what a plant needs
to stay healthy and grow.
•Keep watching the plants for several weeks. See what happens.

More Plant Ideas
•Take a nature hike around the school. Observe the different plants. Look for different plant parts.
•Discuss the parts of plants we eat. Sometimes we eat the roots (carrots), sometimes the stems (asparagus), sometimes the leaves (lettuce), etc.