



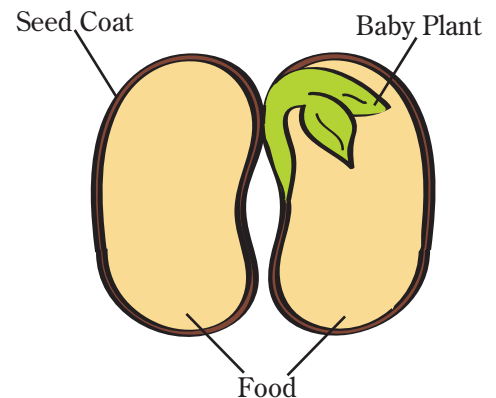
*B*ean Buddy, a gardening activity, was produced as a resource for early childhood education teachers by the Smithsonian Institution's Horticulture Services Division. The objective of this activity is for students to learn about the basic parts of a seed and what seeds need in order to grow (or germinate) including water, sunlight and nutrients from the soil. Creating a living necklace is a fun and educational way to demonstrate what the requirements are for seed germination.

What Do Seeds Need In Order To Germinate?

- **Water** helps to start germination. The baby plant inside the seed cannot grow without it.
- **Sunlight** provides warmth to the seed.
- **Soil** holds moisture and nutrients that the baby plant needs.
- **Air** surrounds the seed and helps to control temperature and humidity. Plants need fresh air to thrive.

With the right combination of these elements (water, sunlight, soil, and air) your Bean Buddy will emerge within 7-14 days.

What's Inside A Seed?



Identify seed parts by soaking a bean in water overnight and dissecting its parts.

Located on the outside of the seed is a **seed coat**. This covering protects the baby plant inside just like a winter coat protects you from the cold.

Can you find the **baby plant** (embryo) inside the seed? Do you see its tiny leaves and roots?

Surrounding the baby plant is **food**. This food provides the embryo with the nutrients it needs to grow.

Bean Buddy Activity: Create a mini greenhouse that can be worn as a necklace.

How to Prepare:

- Cut yarn to a length that will fit around each child's neck.
- Cut paper towels into small squares that fit inside a small resealable plastic bag.
- Punch a hole at the top of each plastic bag.
- Fill spray bottle with water.

Activity Instructions:

Give each child one plastic bag, one strand of yarn, one bean seed and one paper towel square. Have the child place the paper towel square and bean seed inside their bag. Explain that the paper towel represents soil. It will hold the water that the seed needs to begin germination. Have each child hold the bag upright and moisten the towel inside the bag with two squirts from the spray bottle. Explain that seeds need water to germinate. The hole at the top of the bag allows for air flow. Explain that without air the seed will fail to germinate. String the yarn through the punched hole in the bag and have the students wear the necklace. Explain that the warmth from their body acts like the sun. Students can wear the Bean Buddy until the bean seedling sprouts in about 7 to 14 days. When not worn, the Bean Buddy should be kept in a warm place. Squirt more water inside the bag when the towel feels dry.

Supplies Needed

- Package of Bean Seeds
- 2" x 3" Small Resealable Plastic Bags
- Hole Puncher
- Paper Towels
- Water
- Scissors
- Spray Bottle
- Yarn