

GRADE LEVEL:

K - 5

TIME:

30 minutes, ~15 days
until plant is ready for soil

MATERIALS:

Small zip top bag • yarn
- 30" length per child •
cotton ball • kidney beans
• water.

VOCABULARY:

Germination: The process
in which a seed or spore
emerges after a period of
dormancy under the right
growing conditions.

Cotyledons: A cotyledon
(literally "seed leaf") is
the embryonic leaf-like
structure within the seed
that provides food for
germination. Embryo: The
rudimentary plant usually
contained in the seed.

DESCRIPTION:

Here is a new twist on planting seeds. Kids can make a "living necklace" they can wear or display around the house. It is ideal for learning about plants or introducing the stages of plant growth and development.

A great way to begin is to read an age-appropriate book about plant **germination**. A great one is *Oh Say Can You Seed?* a Dr. Suess-style book that rhymes the vocabulary, making learning about plants fun.

DIRECTIONS:

- 1) Dip cotton ball in water and gently squeeze out the excess moisture so it is not dripping. Flatten it like a pancake or tortilla.
- 2) Place the bean seed in the middle of the damp cotton ball and wrap the cotton around the bean seed.
- 3) Place the seed and cotton ball in the zip top bag and seal tight.
- 4) Thread a piece of yarn a hole at the top of the bag, and tie the ends to make the necklace.
- 5) Kids can wear the seed as a necklace, or place around the house.
- 6) The seed will sprout in three to five days.
- 7) After three days, open the bag to allow the seedling to get oxygen and add a little water. You can either plant the seed in soil at this point, or it can live for about two more weeks on the cotton ball, as long as it is provided with water and oxygen.

EXTENSION ACTIVITIES:

Learn what a seed needs to germinate. A seed is alive! It needs water, soil (or cotton in this case to hold the moisture), the appropriate temperature, and air or carbon dioxide. Most seeds are not affected by light or darkness, but some seeds, including species found in forests, will not germinate until an opening in the canopy allows sufficient light for growth of the seedling.

Hypothesize what environmental conditions affect germination. Ask kids where they think the seeds will germinate best (a sunny window, dark corner, warm place, cold place). Place seed bags in the areas proposed and have kids record their hypothesis, monitor seed germination, and draw daily progress or seed anatomy (roots, root hairs, **cotyledons**, etc.).

Discuss what a plant needs after germination and grow a crop of beans. (Add light and nutrients to the list above.) The bean seedlings can be planted in soil and be grown and harvested. The harvested beans can be eaten fresh (green) or dried. The dried beans can also be planted to grow another generation of bean plants.

Discuss how humans use plants. Humans use plants as food for people and animals, clothing, medicines, housing, the control of soil erosion, aesthetics, etc.



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