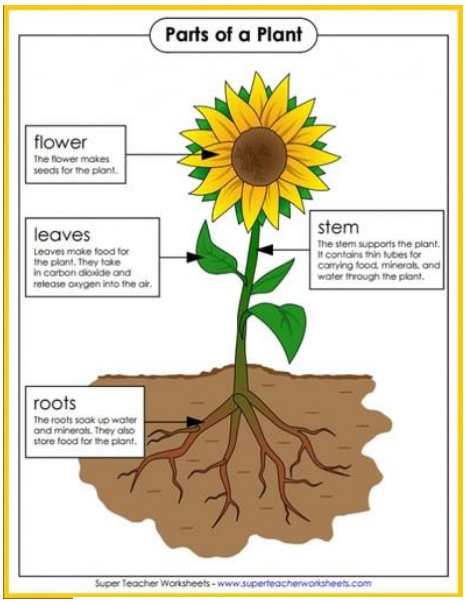
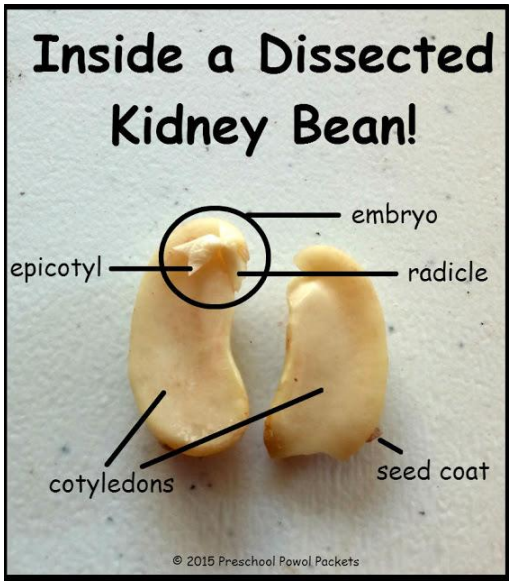
Adventures in Backyard Science

Parts of a plant



Parts of a seed



Suggestion: Two or three days before our program, soak some bean seeds. Rinse them after 12 hours and soak them another 12 hours. Rinse again and spread them out on paper towel. Continue to re-rinse every 12 hours so you have a batch of sprouted seeds.

1 day before our program, soak another few bean seeds, rinse after 12 hours and soak another 12. They should be soft and easy to dissect but not have the ***radicles*** (baby roots) growing from them. ** With an adult's supervision/help, you can carefully dissect a bean using a plastic knife. Compare the two beans.

Use the plastic knife to carefully cut the bean in half. The soaked beans will often start to split down the middle where it is easiest to find the bean embryo. If you cut the "wrong" way, you can easily cut it again to see the embryo. The bean embryo looks like a "baby bean." The rest of the bean is the ***cotyledon***, or food for the baby bean.

Suggestion: Take a leaf (tree or plant) and pour water over it until it is lightly covered. Let it sit for a few minutes and observe. What do you see? Let it sit for 30 -60 minutes and observe again.

** When a leaf is submerged it is using light to continue the process of photosynthesis. Part of this process is to let oxygen out of the **leaves**. **It** is this oxygen that **you** are seeing as bubbles in the **water**. So while a plant does not breathe like **we** do (using lungs) **it** does take in and release air.

***Photosynthesis is the process in which green plants use sunlight to make their own food. Green plants use this light energy to change water and carbon dioxide into oxygen and nutrients called sugars.

Germination Activities:

#1 - **Ziplock Seed Sprouter** Small plastic bag, paper towel, beans Dampen paper towel and Dampen a **paper towel** and fold it into the **bag**. Place the **seeds** along one side of the **bag**, pressing them against the **paper towel**. Seal the **bag** tightly, and hang in a window using tape. Make sure the **beans** are visible on the side of the window where you can observe the **seeds sprout**.

#2 – **Egg carton greenhouse** Egg carton, seed packet, gardening soil, plastic bag Fill several egg cups with soil, sprinkle each cup with several seeds, water soild well and cover containers with plastic wrap or a plastic bag. This creates a greenhouse and you should not have to water again til they sprout. Place on a windowsill for sunlight. When little bits of green come up, remove the plastic and keep the soil moist. When plants grow, transplant them to a larger pot or garden.

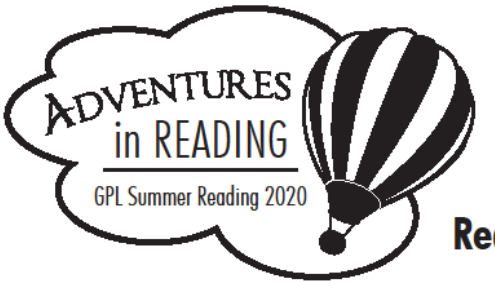
#3 - **Clay Pot** terra cotta pot, soil, seed packet, foam brush, 4 cups tempera paint Fill the pot with dirt, plant several seeds, water and keep pot in spot with sunlight. When plants sprout and grow, you may need to transplant to a larger pot or garden.

#4 **Terrarium** jar with lid, small rocks, activated charcoal, soil, decorative stones, plant Spread the activated charcoal over the bottom of the jar (use a plastic spoon to sprinkle the charcoal as it will be messy.) . Next add a layer of small stones. Scoop a thick layer of soil into the jar on top of the stones. Secure the plant clipping into the soil and decorate with glass stones. Spritz well with water until moist and cover.

You may add additional plants – ferns, succulents and cacti are good candidates for a terrarium. Try to keep a bit of humidity in the jar. If there is a bit of moisture on the side of the jar, it's fine. If not, give the jar a gentle spray of water or drip a bit of water along the side of the jar. It is generally not best to simply pour water in the jar. And, overwatering can happen very quickly! A little bit is all you need.

#5 **Natureprint Paper activity** – *Note: store paper in a cool, dark place; do not expose paper to sunlight until ready to print.* Select flat objects to print –weeds, leaves, etc.

Tip --Pin Natureprint paper at corners, blue side up, to a corrugated cardboard for support. Place objects to print on top of Natureprint paper (very lightweight objects can be held in place by covering with plastic wrap or a piece of clear plastic in place of pins.) Expose to the sun until blue paper turns very pale blue – about 2 minutes. Times will vary but do not over expose. After removing objects from paper, protect print from direct sun and soak in a container of plain water for about a minute. Dry flat. Image will sharpen during the drying time.



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