

RAFT IDEAS

Topics: Capillary action,
Plant growth

Materials List

- ✓ Strawberry basket or equal
- ✓ Plastic tray that can hold an inverted strawberry basket
- ✓ Strip of absorbent fabric
- ✓ Containers for starting pots, absorbent or with a wick (string) out the bottom (or use peat pellets)
- ✓ Potting soil, as needed
- ✓ Spray bottle
- ✓ Water
- ✓ Seeds
- ✓ Clear plastic wrap

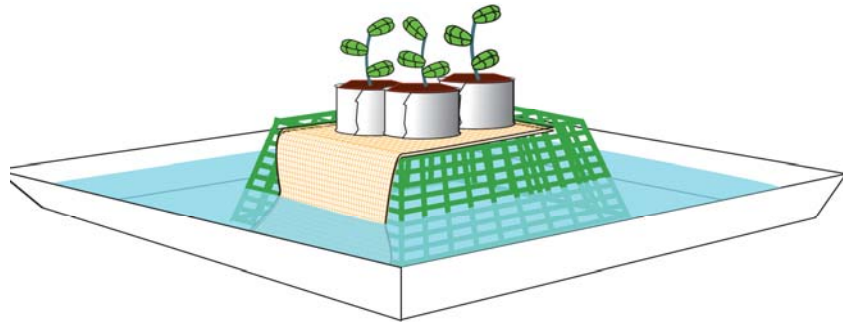
This activity can be used to teach:

(CA Science Standards)

- Plant structures and functions (Grade 3, 3.a; Grade 5, 2.0; Grade 7, 5.0)
- Environments affecting plant development (Grade 2, 2.e; Grade 4, 3.b)
- Scientific experimentation (Grade 5, 6.b – 6.i; and above)

Capillary Capers

Create a self watering seed germinator thanks to capillary action!



Watch water travel “uphill” to provide constant moisture for seed germination.

Assembly

1. Invert a strawberry basket into a plastic tray with a rim about 6 cm (2-1/2”) high.
2. Cut a strip of absorbent fabric the width of the bottom of the basket and twice as long. Place the strip over the up-turned bottom of the basket such that one end drapes down into the plastic tray. Place the plastic tray in a sunny location. If needed, cover the location’s surface first to prevent any water damage.
3. Add water to the tray to create a depth of about 3 cm (~1”).

To Do and Notice

1. Notice the fabric becomes damp starting at the end that is in the water and progresses until reaching the other end that is high above the water’s surface.
2. Place soil filled starting pots, or peat pellets, on the fabric as shown above.
3. Use water in a spray bottle to spray the soil, or pellets, until fully soaked.
4. Create a depression or hole, add seed(s), cover, and spray on more water.
5. Cover with clear plastic. Remove the clear plastic when germination occurs.
6. Add more water as needed to the tray to keep the lower end of the fabric wet.
7. Notice the soil or pellets stay damp as long as the fabric below is damp.

The Science Behind the Activity

Capillary action is due to the attraction of water molecules to each other and to, most, contacted materials, such as plastic/glass containers and many fabrics. The water’s attraction to the container will cause the water to curve up the sides slightly (form a meniscus) as the water molecules that are attracted to the side also pull along the nearby water molecules near the surface. Water molecules in contact with an absorbent fabric will be attracted into the structure of the fabric and will pull along more water molecules in turn. These forces are greater than the downward force of gravity so the fabric will eventually become completely damp from end to end. The same process will wick moisture into the soil of the pots. Some potting materials are relatively hydrophobic (they repel water), unless thoroughly moistened.

Web Resources (Visit www.raft.net/more for how-to videos and more ideas!)

Capillary action information from the US Geological Survey website - <http://ga.water.usgs.gov/edu/capillaryaction.html>