



San Francisco
Public Library

STEM CHALLENGE

SPONGEY CHIA PETS

WHAT MAKES THIS STEM?

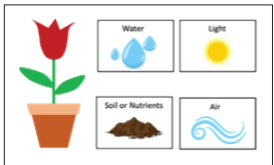
Plants need five things to grow: light, water, air, nutrients, and the proper temperature. Light is absorbed by the plant causing it to produce food that is utilized by the plant for growth. Air is also vital in providing carbon dioxide to help make that food, and to make sure that the environment is an acceptable temperature for growth.

Seeds, even the tiniest ones, contain the food and all the instructions necessary to sprout a new plant.



The plant depends on the **energy** stored within the seed to grow. As the seed soaks up water, food stored inside begins to be converted into energy in the form of **enzymes**. The enzymes trigger the seed to send out roots and **germinate**.

The roots break out of the hard protective outer layer of the seed called the **seed coat**. The roots grow downwards and begin to anchor the plant and absorb water and nutrients.



Next, the seed begins to grow a stem, a process called germination. Once germination takes place, the plant grows, eventually making its own food from nutrients it takes in from the soil and through **photosynthesis**.

This project demonstrates how plants can grow without soil.

MATERIALS

- | | |
|--|---|
| <ul style="list-style-type: none"> • Sponge • Seed packet • Shallow plate/Clear plastic container | <ul style="list-style-type: none"> • Water in spray bottle or other misting container* • OPTIONAL: Marker** • OPTIONAL: Scissors** |
|--|---|

*This item is not provided in the kit.

**These materials are not provided in the kit. If you would like to make your kit in the library, ask a librarian to use their craft materials.

HOW TO DO IT

(Optional steps) Before you begin, you can cut your sponge into any shape you would like. First, trace your shape choice onto the dry sponge with a marker. Then, cut out the shape from the sponge.

Note: Sponges are easier to cut when wet!

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| 1. Soak the sponge and squeeze it out; it needs to be damp, but not dripping. |
| 2. Arrange your sponge on the bottom of the clamshell clear container. Scatter the seeds across the top, gently poking them into the holes. |
| 3. Keep the sponge moist by misting with water. It is important not to let the seeds dry out! Close the top of the container at night to keep the moisture in. The container will help create a mini greenhouse for your Chia pet. |
| 4. Mist often and soon you should have your very own Chia Pet! |

CHALLENGES

- Try growing the sprouts into specific shapes; is it possible? What steps did you take to get the shape you wanted?
- Check your pet every day:
 - o How long did it take for your pet to sprout?
 - o How much water did you use?
 - o How long did your pet's "hair" grow?
 - o Did some seeds not sprout? Why do you think that happened?



For easy video instructions and other challenges, visit on.sfpl.org/stem-challenge.

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