

Plant Growth Experiment

Age/Grade Range

- Ages: 8-18+

Group Size

- In pairs or small groups
- No maximum or minimum

Time

- Set-up: 24 hours + 5-10 minutes
- Activity: 30 minutes + 4 weeks of maintenance and observations

Materials

- Potting soil
- Vegetable seeds
- Medium peat pots (2 per group)
- Grow light with timer
- Biochar (can be purchased at garden supply stores)
- Rain water, or tap water that has been left to stand in an open container overnight to allow the chlorine to evaporate
- Mycorrhizal fungi (can be purchased at garden supply stores)
- Fish or seaweed fertilizers
- Measuring spoons and measuring cups
- Labels for pots
- Watering device
- Large bowl for mixing soil

Set Up

1. Prepare biochar mixture: $\frac{1}{4}$ cup biochar, 4 cups of rain water or unchlorinated water, 3 tsp fish or seaweed fertilizer, $\frac{1}{4}$ teaspoon mycorrhizal fungi. Soak for 24 hours.
2. The next day, prepare other materials and activity stations.



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Topic

- Local Food Production

Objective

- Compare the growth rate and health of plants started in plain soil versus soil enhanced with biochar inoculated with mycorrhizal fungi and organic fertilizers.



Activity Directions

1. Set up your control group. Fill one peat pot with regular potting soil and plant three or four seeds. Water with unchlorinated water. Label this pot as *potting soil*.
2. Using bowl, mix four or five cups of potting soil with biochar and fertilizer solution until soil is moist like a wrung-out sponge (to test, squeeze a handful of soil in your hand, only a few drops should come out). Fill peat pots with fertilized soil and plant one with three or four seeds. Label this pots as *fungi fertilizer*.
3. Place all plants under grow light and set timer for 14 hours of light/day
4. Keep soil moist of both pots by watering regularly with unchlorinated water, for 4 weeks.
5. Once a week fertilize the *fungi fertilizer* plants with a small amount of fish/seaweed fertilizer added to un-chlorinated water or compost tea.

Questions/Points of Discussion

- Record date that the seeds germinate and note any differences between the groups.
- Record weekly measurements of plant height.
- Record weekly observations of plants including number of leaves and general plant health.
- Take or draw pictures to illustrate differences between the test and control plants.