



In this FACTivity, you will examine how different amounts of light affect another type of seed's germination. You will compare this seed's germination pattern with the germination pattern of Oriental bittersweet. You will answer the following question:

How does the amount of light affect the germination of lima bean seeds compared with the amount of light affecting the germination of Oriental bittersweet seeds?

You will use the following method to answer this question:

1. Get 16 pieces of screening, like the screening you might find on a screen door. Each piece should be about 4 inches square.
2. Get 12 lima beans from a seed store. Put potting soil in 12 plastic cups and then plant seeds about 3/4ths of an inch to 1 inch below the surface of the soil. Water the soil until it is moist. Number each cup from 1 to 12.
3. Place cups 1–4 in direct sunlight. They will receive 100 percent sunlight.
4. Cover cups 5–8 with one layer of screening. Cover cups 9–12 with four layers of screening. Cups 5–8 will receive 50 percent sunlight, and cups 9–12 will receive 10 percent sunlight.
5. Place cups 5–12 near the cups in direct sunlight.
6. Note that the screening will provide different amounts of shade for the cups.
7. Water the seeds every day and replace the coverings. Count the number of days until each seed germinates. Use the chart below to record your data.

8. After all the seeds have germinated, look for a pattern in the germination of the seeds. Is the pattern similar to or different from the pattern of Oriental bittersweet germination (from table 2 in the "Findings" section)? How is it similar or different? Now answer the question posed at the beginning of this FACTivity.
9. Continue to water the seeds for 2 weeks and record their progress. At the end of 2 weeks, measure and record the length of the stems. Compare your findings with the findings in table 2. How are your findings similar or different?
10. Basing your conclusion on the findings in the study of Oriental bittersweet, what might you conclude about the ability of lima bean seeds to survive in the same manner as Oriental bittersweet? What would you need to do to be certain of your conclusion?

## Alternative Method of Seed Germination

Use three 9- by 11-inch trays. Place four to five moist (not soaked) paper towels on the bottom of each tray. Place 10–12 lima bean seeds on the paper towels in each tray. Cover the trays with plastic wrap and place them in direct sunlight. Cover one of the trays with a double layer of screening and another with four layers of screening. Keep the paper towels moist. Observe and record the germination of the seeds using a chart similar to the one shown below. This method of germination will enable students to see the seeds germinate.

Cups	Cup 1 Full sun	Cup 2 Full sun	Cup 3 Full sun	Cup 4 Full sun	Cup 5 Med. shade	Cup 6 Med. shade	Cup 7 Med. shade	Cup 8 Med. shade	Cup 9 Most shade	Cup 10 Most shade	Cup 11 Most shade	Cup 12 Most shade
Days until germination												

If you are a Project Learning Tree-trained educator, you may use PLT Pre K–8th Activity Guide #27, "Every Tree For Itself," and Activity Guide #41, "How Plants Grow," as additional

activity resources. These activities teach plant growth requirements and competition for resources, and they investigate various conditions for plant growth.