



URBAN GARDENING PROJECTS

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garden ecology

"Ecology" is the science that deals with the relations between living things and their environment. In this project you will learn about the things that a plant needs in its surroundings for its growth and development. Read the "Things Plants Need" HELP sheet for more background.

Just for Fun - Ecology Posters

You will need: poster paper or heavy art paper and watercolors
or crayons

or construction paper, scissors and glue

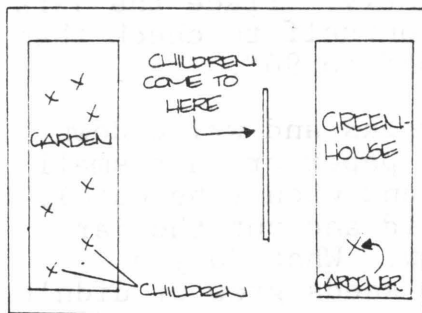
Make a colorful poster showing things that plants need to grow. Some are:

light air warmth fertilizer
soil water organic matter
pollinators (bees, other insects, wind)
protection from weeds, insects and diseases

Can you think of others?

Game - The Gardener and the Children

This is a game that originated in Poland. One player is the gardener and the rest are the children. The gardener sends the children off to work in the garden while he or she works in the greenhouse (at the other end of the room).



The children huddle together and decide on one action that they are supposed to be doing - picking vegetables, watering, hoeing, transplanting, sowing seed, picking fruit, pulling weeds, etc. Everybody agrees on the same motion. The gardener is hard at work and cannot see what they are doing, so he calls them over to his side of the room and asks them what work is being done. All the children start to do the motion they agreed on. The gardener must guess what it was. When he guesses right, the children run back to the garden and the gardener tries to tag them before they get there. Once in the

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garden, a child is "safe." If any are tagged, they go back to the greenhouse with the gardener. The next time the gardener guesses correctly, the children in the greenhouse help catch the others. If the gardener cannot guess what the children are doing after three guesses, he or she has to release all the children in the greenhouse. The game ends when only one child is left in the garden; that child is the new gardener.

Project - Garden Ecology

This project is made up of experiments. Before you do any of them, read the "Things Plants Need," "Watering," "Fertilizing," and "Seeds, Soils, Supplies" HELP sheets. Then read over all the experiments and choose at least two of them for your project.

Water & Air Experiment

You'll need: 3 small jars with lids, clean and dry
9 bean seeds
soil mix (from "Seeds, Soils, Supplies" HELP sheet)
gravel or pebbles for drainage

1. Number your jars #1, #2, and #3, and put the date on them.
2. Put about $\frac{1}{2}$ " of gravel in jars #1 and #2, but *not* in #3. Fill all three jars with dry soil mix, leaving about $1\frac{1}{2}$ " of space at the top. (Either soil mix from the HELP sheet will do.)
3. Put 3 bean seeds on the soil in each jar and cover with $\frac{1}{2}$ " more soil mix.
4. Do not water jar #1.



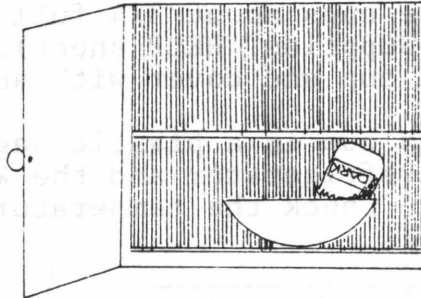
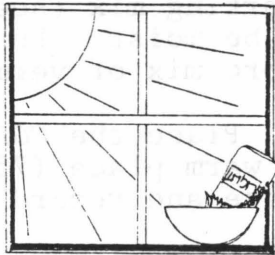
- Pour water into jar #2 slowly until soil is just moist all the way down, but no water stands on top.
- Pour water into jar #3 all the way to the top of the jar. Let it bubble down ("percolate") into the soil and add more if the jar isn't completely full.
5. Put the lids on the jars and close them tightly. Place the jars in a fairly dark place and make a note to yourself to check them in a few days. The temperature should be 65° to 90°.
 6. Observe the jars closely each day for two weeks and write down any differences you see on a clean sheet of paper or in a small notebook. Make note of which beans sprout and when (the date). When the beans sprout, you may remove the lid and put the jar in a sunny place for the bean plants to grow. What do you think caused the differences in the way the seeds grew or didn't grow.

Experiment with Light

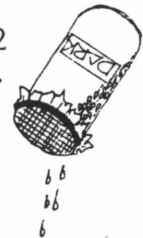
You'll need: two clean jars
 1 ounce alfalfa seed (if you get them from
 a health food store or grocery you can
 eat them later)
 cheesecloth }
 rubber band } or a sprouting lid
 water



1. Cover the bottom of each jar with alfalfa seeds, and cover the seeds with water. Let them soak overnight.
2. Put two thicknesses of cheesecloth over the mouth of the jars and secure with a rubber band. Turn the jars upside down over the sink or a bowl and allow to drain. (Note: You can use the rinse water for house plants - it will have a little bit of nutrients in it.) Rinse with clear water and drain again. Label one jar *LIGHT* and the other *DARK*. Again, turn each jar upside down in a small bowl for best drainage. Put the first jar in or near a window and the second jar in a cabinet. Keep the cabinet door closed.



3. About twice a day, rinse and drain the sprouts as in step 2 and put the jars back in their places. Do this for a week.
4. On a separate sheet of paper, write down the differences between the two jars full of sprouts. Which do you think would keep growing the longest? Why?



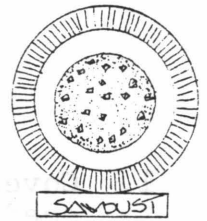
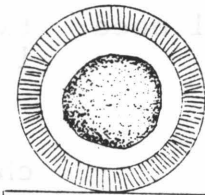
Now you can eat them - on sandwiches, in salads, or alone!

Soil & Organic Matter Experiment

You'll need: $1\frac{1}{2}$ cups soil high in clay (sticky)
 $\frac{1}{4}$ cup sawdust
 2 paper or styrofoam plates
 water

1. Label one plate *SAWDUST* and the other *NO SAWDUST*.
2. Measure out one cup of soil and moisten it until it will make a mud cake (a soil low in clay will not hold together well, so you may have to get some soil from somewhere else). Put the mud cake on the plate marked *NO SAWDUST*.
3. Mix the other $\frac{1}{2}$ cup of soil and the $\frac{1}{4}$ cup of sawdust. Moisten the mixture and make another mud cake. Put this on the plate marked *SAWDUST*.

4. Put both plates in the sun to dry. When they are completely dry, break the mud cakes with your fingers. Which cake was more crumbly? Why do you think so? Which soil do you think plants would prefer to grow in? Why? Write the answers to these questions, and any other comments you'd like to make, on a clean sheet of paper.

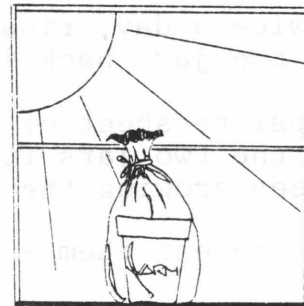
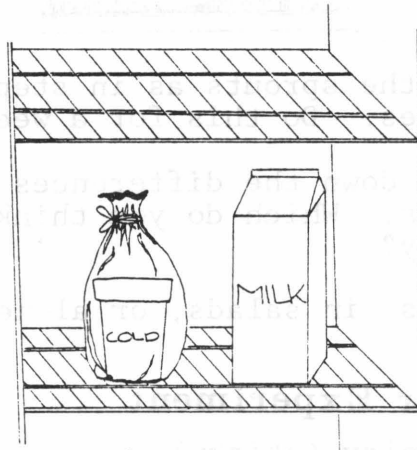


Warmth Experiment

You'll need: 2 paper or styrofoam cups
seed-starting mix or vermiculite
6 bean seeds
2 plastic bags (about quart size) and ties



1. Punch a few small holes in the bottom of each cup. Label one cup *WARM* and the other *COLD*. Also write on each cup the day you are planting.
2. Fill the cups about 3/4 full with seed-starting mix (see "Seeds, Soils, Supplies" HELP sheet). Mix should be moist. Put 3 seeds in each cup and cover with about 1/2 inch more mix or vermiculite.
3. Put each cup in a plastic bag and tie it. Place the *COLD* cup in the refrigerator and the *WARM* cup in a warm place (75° or above). Check the temperature of each place and record it.



4. Check the cups every day until the seeds sprout. Add water if soil starts to dry out. How many days does it take the seeds to sprout in the warm place? in the cold place? Can you explain the difference? Write the answers to these questions on a separate sheet of paper.

Extra projects

If you would like to do all four projects, you can count the other two as extra projects. Or, see your leader for information on (1) Hydroponics (growing plants without soil) or (2) Building a Compost Pile as extra projects.