4-H HORTICULTURE/GARDEN ACTIVITY PAGE

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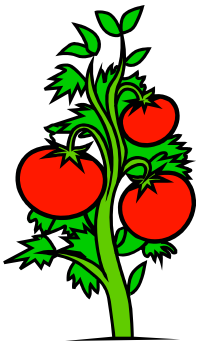
Beginning

Life Skill

Ethical Decision Making

Your 4-H HORTICULTURE/GARDEN Project

When you work with plants, you have to make many important decisions. To make the best decisions, you have to know about plants and what they need. This 4-H project can help. Some of the skills you can learn and activities you can do in this project are listed below. Check your favorites. Then, work with your 4-H leaders and parents to make a 4-H project plan of what you want to do and learn this year.

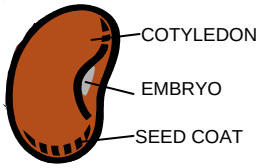


- ☐ Learn the parts of a seed
- ☐ Learn the parts of a plant.
- ☐ Learn how to germinate seeds.
- ☐ Learn what plants need to grow.
- ☐ Learn to transplant and set seedling plants into the garden.
- ☐ Learn about planting tomatoes and cucumbers.
- ☐ Learn the most common growing media for seeds.
- ☐ Enter your vegetables in the local or state fair.
- ☐ Complete a service project using project skills learned.
- ☐ Give a project demonstration in a 4-H club meeting.
- ☐ Other _____

All About Seeds

Many plants, such as vegetables, grow from seeds. There are many types of seeds. Most of them have three main parts. The ***seed coat*** protects the seed and may be very thick and hard. The ***embryo*** grows into a young plant. The ***cotyledons*** (or endosperm) feed the embryo until the young plant can make its own food.

When seeds are first formed, they are alive, able to sprout and grow into a complete plant. When a seed starts to grow, the process is called ***germination***. Look in books or on the Internet to learn more about germination. Share what you learn in a 4-H meeting.



Before You Plant

Before you begin planting, you need to learn a little about growing ***media***. Besides helping plants receive water and nutrients, growing media help plants stand upright.

The most common media is ***garden soil***. This is best for direct seeding into the garden. For starting seeds indoors, purchase ***potting soil***.

If you are growing indoor plants or seeds to be transplanted to an outside garden, you also need ***containers*** in which to plant your seeds. Different plants need different kinds of containers.

Give a demonstration in your 4-H meeting about selecting the best growing media and containers for the plants you want to grow.

Try This—Make a Mini-greenhouse

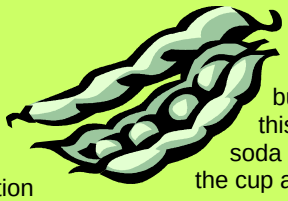
Plants need several things to grow. They need light, air, water, nutrients, soil and the correct temperature. Let's look at how plants use air.

We breathe in oxygen and breathe out carbon dioxide. Plants breathe in carbon dioxide. In the presence of light, plants use carbon dioxide to create food and oxygen. When plants are in the dark, they also need oxygen. Parts of the plants that are never in the light, such as roots, always need oxygen.

Here is an experiment for you to try:
Save two 2-liter soft drink bottles made of clear plastic. Remove the labels but save the screw-tops. Make a mini-greenhouse by cutting the bottle into two pieces. Make the bottom portion approximately 4 inches tall. Cut slits up and down in the sides of the bottom piece and squeeze it together a little bit so the top part can slide over it. Be sure to punch holes in the bottom so excess water can drain away. Do the same thing with the second bottle.

Fill the bottom of each bottle with potting soil. Plant three bean or pea seeds in each. Cover with the upper portion of the bottle. Place the greenhouses in a bright place near a window but out of direct sunlight. Water as needed.

When the plants are 3 inches tall, place the screw-caps on both. Do not open one greenhouse except to water the plants. Place 2 tablespoons of baking soda in a small cup and place it in the other greenhouse. Every morning, add 1 teaspoon of vinegar to the cup, then quickly cover the greenhouse again. The vinegar-baking soda combination will foam up. The bubbles released are carbon dioxide gas. Do this every morning for one month. If the baking soda does not foam after a week or two, wash out the cup and add new baking soda.



After one month, compare the growth of the two sets of plants. Look at the number of leaves and the height of the plants. Did any plants die? If plants need both carbon dioxide and oxygen, how did either set of plants survive? Share your results in a 4-H meeting.

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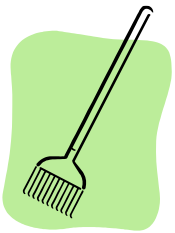
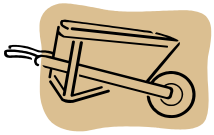
Tools of the Trade



Every gardener needs tools to work with plants. For example, a gardener uses wooden stakes and string to make straight rows, a hand trowel for transplanting and a watering can to water the plants. Listed below are several tools that you might need to work in your yard or garden. Look in books and on the Internet to find out how each tool is used. Make a poster about the tools and their uses. Share your poster in a 4-H meeting. Then, look for the words in the puzzle.



CULTIVATOR
GARDEN SPADE
HAND TROWEL
HOE
RAKE
SHOVEL
SPADING FORK
SPRAYER
STAKES
STRING
WATERING CAN
WHEELBARROW

E L E W O R T D N A H K
D W P R K O E W S H R C
A L H H E B N E Q O V U
P E X E F Y K A F E X L
S V F J E A A G W X S T
N O K R T L N R H J Q I
E H C S A I B C P N T V
D S K L D K J A H S Y A
R O D A K W E O R F D T
A Y P S T R I N G R N O
G S U C J N D M J O O R
W A T E R I N G C A N W

Career Scavenger Hunt

By asking others, researching on the Internet or reading a book or magazine—search for a job that uses horticulture/garden skills and knowledge. Here's what you are looking for.

1. Job Title _____
2. Job Description _____
   _____
   _____
3. Education Required _____
   _____

Water Wonders

Try the following experiment to learn more about the effect of water on germination and plant growth. Be sure to record your observations throughout the experiment. Share what you learn with others and keep a record in your 4-H project folder. At the end of the experiment, answer this question: *Why is water necessary for plant growth?*

1. Fill four flower pots 3/4 full with dry potting soil.
2. Plant six corn seeds 1 inch deep in each pot.
3. Number the pots (1,2,3,4). After planting, pour 1 cup of water in each of the pots numbered 1, 2 and 3. Do NOT water pot 4.
4. Ten days after planting, count the number of plants that have come up in each pot. Did all the seeds germinate? Why or why not?
5. After counting the plants, add 1/4 cup water in pot #3, 1/2 cup to pot #2, 1 cup to pot #1. Do not add any water to pot #4.
6. After 7 days, measure the height of each plant in each pot.
7. Water the pots every 7 days as follows: 1/4 cup in pot #3, 1/2 cup in pot #2, 1 cup in pot #1. Do not add any water to pot #4. Which plants grew faster?

Service Ideas

- Donate part of your harvest to help feed the hungry people in your community.
- Plant flowers at a nursing home.
- In your school 4-H club, volunteer to establish a garden.
- Make a display about gardening and exhibit it at your school.

Don't forget to submit your project report to your 4-H leader.

Additional Resources

Making decisions is an important part of gardening. This activity sheet has given you the opportunity to explore things to think about as you make decisions in the horticulture/garden project. You've learned about seeds, explored gardening tools, grown a greenhouse and other cool things. But this is just the beginning! Use the resources listed below to continue learning about horticulture and gardening.

- School & public libraries
- People who know about horticulture and gardening
- Horticulture/garden magazines
- 4-H project groups
- The 4-H horticulture/garden Web page: **http://www.utextension.utk.edu/4h/projects/horticulture.htm**

For more ideas, contact your 4-H office.

Other 4-H Horticulture/ Garden Activities

Project groups
Fair entries
Demonstrations
Exhibits

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