

Oconto County 4-H

As you work on your project throughout the year, you may find it helpful to take pictures and keep notes. They can come in handy as you plan for ways to share what you have learned and look back on what you've done.

Suggestions for showcasing your project work:

- Tell about what you've learned at **Speaking Fest**
- Show what you've learned at **Demonstration Fest**
- Take your project to the **Oconto County Fair**
- Enter local contests **outside of 4-H** like essay contests, shows and speech contests
- Look for creative ways to share what you've learned with your **club**, your **school** and your **community**

Stay in Touch!

Here's how you can contact your key leader this year:

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Adult Key Leader

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WELCOME TO THE OCONTO COUNTY 4-H

Horticulture PROJECT!



Horticulture is the science of gardening and growing plants. It is a hobby enjoyed by many people world-wide, and is also a very profitable industry.

The introductory 4-H project literature for gardening is called "See Them Sprout". It contains everything you'll need to get started with your horticulture projects!

Enjoy your time growing and studying plants in your garden, your fields, and in nature, and growing on your own in 4-H!



Have fun!

Beginning of the Year

Here is what I would like to learn this year (my goal) in the Horticulture project:

During the Project Year

Here are the steps I will take to meet my goal:

During the Project Year

Here's what I learned, and how I felt about my project experience:

Did you enjoy horticulture?

Was this project fun for you? If not, **that's okay**. It isn't likely that you'll like every project. What's important is that you **tried something new** and that you **learned something**.

What did you learn in this project? What could you have done better? What are you really proud of? These are all good questions to think about when you finish a project.

Thanks for trying out the HORTICULTURE PROJECT!

If you liked this project, you should consider signing up for another year! You will get to dig deeper into the project and discover many new and exciting things.

It's never too soon to get started on next year's projects!



See you in the next project year!

August

Share what you've learned!

Time to let everyone know about the great time you've been having with the Horticulture project! Now is the time to share what you've learned by giving a demonstration at your club, exhibiting at the Oconto County Fair, or anything else you want to do to share everything you've learned over the past year. Don't be afraid to get creative!



If you plan on exhibiting items at the Fair, read the fair premium list CAREFULLY. It will tell you just what to bring. If it says to trim the stems of your green beans to 1/4 inch or to gather 3 stems of cut roses for your display, that's what you should do! The Oconto County Fair Premium List is available online at:

<http://www.uwex.edu/ces/cty/oconto/4h/OcontoCountyFairpage.html>

Your **KEY PROJECT LEADER** - whose name is on the back of this booklet - is your most valuable resource in the Horticulture project. Feel free to give your project leader a call - she loves to answer all your plant & soil questions!



September

Now that summer is over and growing and harvesting time are coming to an end, it's time to start thinking about next year's garden. One way to get started is to collect seeds. Seeds collected now can be stored over winter, and may be planted in the spring as the start of your new gardening activities.

You will need:

- Sandwich bags
- Sharpie Marker
- Back Pack or Bag
- Scissors or a pruner
- Twist ties



Put your supplies in a case or backpack, and head for the flower garden! For each variety of seed you collect, use a separate bag. Or, mix your seeds to scatter them for a wild growing flower patch!

Gently cut the seed head off of the stem, leaving about two inches to hold onto. Put the entire seed head into the bag and gently remove the seeds. When you have harvested all you want of that flower, zip the bag and mark the bag with the name of the flower, the date you collected them and where they came from.

Wind-sown seeds resemble the top of a dandelion. The actual seed is nestled under the fluff, which is used to catch air currents and float away. For these, carefully place one of the sandwich bags with tiny holes over the seed head, and secure it to the stem with a twist tie. Cut the stem below baggie and twist tie. You will need to take this to the house or shed before opening, because if there is the slightest breeze your seed will be gone.

Some flowers, like globe thistles or purple coneflowers, make you work for their seeds. The actual seeds are protected in VERY prickly cones. To harvest them, you will have to remove the seed head and store it in a cool dry place for several weeks, or until they dry completely. When they are dried you can shake or bounce the seed heads over a pie tin or a plate - the seeds should shake out easily. These flowers are designed to be difficult - birds have to work harder and more carefully to take the seeds, and by shaking the plant so much, they usually drop more seeds than they can actually eat!

After you have all of your seeds take your harvest in the carefully marked bags to the house or garden shed and make a seed collection data sheet. As you make your list, number each seed packet so the journal and the bags correspond. We will be planting some of these later, store your seeds in a cool dark place.



July

Now that you've learned all about soil, it's time to start exploring other ways for a plant to grow. But how can you grow plants without SOIL? To find out, you'll have to learn about a fascinating plant science called **hydroponics**.

You will need:

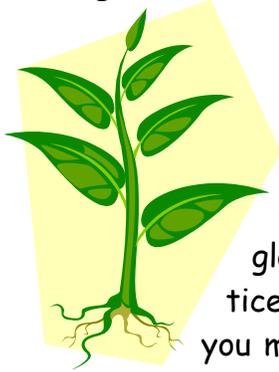
- Healthy plant seedling (tomato or marigold works best - see April's activity on how to start seedlings)
- A small pot with a drainage hole
- A glass jar
- A cotton wick
- Small gravel, or glass marbles
- Nutrient solution (liquid fertilizer, like Miracle-Gro®)



Mix the fertilizer according to the directions on the package to create your nutrient solution. Fill the jar about half full of solution. Untwist one end of your wick to fan it out, and run the other end through the drainage hole on your pot so that the fanned-out end is pulled to the bottom of the pot. Drop the wick in the solution, and rest the pot in the mouth of the jar. Place your seedling in the pot and carefully surround it with gravel or marbles. Place your hydroponic system in a warm, sunny location, and watch your seedling grow!

What happened? Plants grown by hydroponics have the same needs as plants grown in soil - **water**, **sunlight**, and **nutrients**. Under normal conditions, plants obtain all of their nutrients from the soil, but in a hydroponic system, all the nutrients they need are in the water!

Check on your compost bag at least once a day. Add enough water daily to keep the soil moist but not wet. Observe your worms at work! Watch the worm food in your bag and write in your notebook about what is happening. Be sure to include drawings.



After 3-4 weeks you will notice major changes in the worm food. Remove some of the soil take a look at it (a magnifying glass may be helpful). Record what you notice. Compare your drawings now to the ones you made at the beginning of your study. Write about what you notice. How does the soil feel now? Record your ideas in your notebook.

What happened? Think about how the soil has changed over the course of a few weeks. The breakdown of organic material, called **decomposition**, is vitally important to plant life, and worms are an important part of decomposition. The worms "eat" the organic matter (your "worm food") to simplify the nutrients that the material is made of. These simple nutrients can then be absorbed by the plants to give them the sustenance they need to grow.



October¹



October is the time of the year to begin potting your favorite spring bulbs to prepare them for winter flowering. Tulips, daffodils, hyacinths, crocus, muscari, and lily-of-the-valley can be forced into flower in late winter and early spring. A pot of fragrant flower blossoms on the windowsill in February can really lift the spirits of a winter-weary gardener!

You will need:

Flower bulbs

Potting soil

6-inch flower pot (or other similar container)

Newspaper

Sandwich bags

Begin by covering your work area with newspaper for easy cleanup. First, make sure your pot has several drainage holes, then fill it half-full with potting soil. Next, gently place the bulbs in the pot and loosely cover them with more potting soil. Normally the "noses" of the bulbs are exposed. Plant the bulbs close together in the pot. Usually 6 tulip bulbs, 3 hyacinths, 6 daffodils, or 15 crocus, will fit into a 6-inch pot.

(**Note:** The flat side of tulip bulbs should be placed next to the rim of the pot.) Water your flower pot immediately after planting.

1) Adapted from "Soil Science and Worm Composting", by Julie Newton, Huntington Beach City School District, Huntington Beach, CA

After planting, the bulbs must be given a cold temperature treatment. This cold treatment allows the flower to undergo critical root and bulb development, and is an imitation of the natural winter a flower would experience outdoors. Lucky for us, this process can be done in a refrigerator, and in about half the time as a real winter! To do this, cover your pot with a sandwich bag and place it in your refrigerator's vegetable section. Check for water every 2 weeks, and let them chill for about 12 weeks.

After your pots have been chilling for 12 weeks, you can remove them from the refrigerator — If you planted your bulbs on October 15, you can take them out on January 15. Place the pot in a cool, sunny location for a week or two, or until the shoots and leaves begin to expand. Then it can be moved to a warmer location, such as the living room. Warmer temperatures will result in rapid growth. After three to four weeks, your flowers should begin blooming, and filling your winter-weary home with wonderful springtime color and scent.



1) Information taken from "Forcing Bulbs for Indoor Beauty in Winter", published by the University of Minnesota Extension.

June¹

By now, summer is starting and your garden plants are planted outside. Hopefully, they're growing good in some good, rich soil that's full of all the nutrients they'll need to flower and be fruitful throughout the growing season. But do you know what makes good soil so, well, good? To find out, you'll get some surprise help from some of nature's greatest creatures: worms!



You will need:

- 1 medium or large zipper-style freezer bag
- 1 cup of damp soil
- "Worm food" (newspaper, coffee grounds, fruit & vegetable peelings, crushed eggshell, & oatmeal work well)
- 3-5 worms
- Notebook

Take a look at your soil. Draw a picture and color it to show what you see right now. Do the same thing with your worm food. How does the soil feel? Record your ideas in a notebook.

Punch 4-6 holes in the top half of your bag (near the zipper). Fill the bottom of the bag with the damp soil. Add your worm food mixture and carefully transfer worms into your compost bag. Carefully close the zipper and store your bag in a cool, dark place.



Now, soak your seeds overnight in a cup.

To prepare your jar, cut two paper towels to the right height to fit the inside the jar. Wet the jar, and line the inside with your towels. The dampness should help the paper towel stick to the jar. Put one inch of water in the bottom of the jar. Carefully tuck each seed in between the towels and the jar near the top of the towels.

Starting on day two (and every *other* day after that,) use a tape measure or ruler to record the length of each tail. These "tails" will become the **root systems** of the sprouting plants. At first, you may need an adult help you read the tape measure or ruler because the roots start very small!!! Record the length of the tails on your graph.

Watch the seeds daily. Add water as needed to keep the jar moist. If you want, you can draw the tails you see on each seed on the picture you drew of that seed. If any seed forms roots or does anything cool on an "off day" (a day you're not recording on your chart) be sure to make note of it on your paper, somewhere beneath your chart.

What happened? The seeds soaked up the water overnight and became soft. Once in the jar they remained soft enough to burst open and send out roots. All seeds contain enough stored **nutrients** to start the growth of the roots and send out their first set of leaves. However, the plants food stores is limited, and after roots and leaves begin to form, the plant has to take nutrients from the soil in order to survive.



November

Take a look outside. Do you notice anything different about this time of year? How about the trees? By now, all the leaves should be their fall colors - one shade or another of red, orange, yellow, or brown. To celebrate the beauty of the fall leaves, lets make our own colorful project using leaves!

You will need:

- Assorted leaves
- Assorted craft paints
- Newspaper
- Computer paper, card stock, or construction paper



Cover your working area with newspaper. Next, smoothen your leaves out as flat as possible, then turn them over on the newspaper so that the bumpy veins are up. To create a stamp, cover the back of the leaf with paint. Carefully turn the leaf over onto the white paper, and with another piece of paper cover the leaf and press down firmly. Stamp your remaining leaves the same way, using different colors to add variety to your project. When you are finished, let your painting dry completely. Label each of your leaf prints with the kind of leaf, where it was collected, who collected it, and the date it was collected. This is similar to the way nature scientists take samples of the trees they're studying!

If you have enough time and paint, you can also make greeting cards, stationary, and many more creative projects!

December

Have you ever wondered how a plant gets food from deep in the earth all the way up to its farthest leaf tips? Let see if we can figure it out!!

You will need:

- Leafy Celery Bunch
- White flowers (carnations work best)
- Tall glasses or jars
- Red and Blue food coloring
- Kitchen knife



Fill three glasses with water. Put red food coloring in one and blue in the other. In the third glass, mix red and blue food colorings to make purple. Cut a slice off the ends of the flowers and the celery. Put the flowers in the red and blue, put the celery in the purple.

If you want, you can split the stem of one flower, and put each section of the stem in a different colored water

Look at these the next day. Cut a stalk of celery, then cut a few slices of it. See how the purple color is in the little veins? What do you think has happened?

What Happened? Plants carry water up their stalks to leaves or petals through tiny tubes called **xylem**. This upward movement of water is called **capillary action**. In this way, water and nutrients from the soil are carried to all parts of the plant. By coloring your water, you can see the results of capillary action with your own eyes!



May

Now that the seeds for your garden are planted and ready to go, you can take some of your leftover seeds and see for yourself how your seedlings got started!

You will need:

- Glass jar with a lid (pickle jars or mayonnaise jars with wide mouths work well)
- Seeds
- Water
- Ruler or cloth tape measure



Choose six large, hard-shelled seeds from the ones you collected in the fall. If you do not have any seeds, you can buy them in nearly any store. Lay the seeds out so they are in the order you will place them in the jar. On a piece of paper, draw a picture of each seed and write its name next to it. Number your seeds 1-6, and write the number next to each drawing. Make a graph below your pictures that looks like this:

	Seed 1	Seed 2	Seed 3	Seed 4	Seed 5	Seed 6
2nd Day						
4th Day						
6th Day						
8th Day						
10th Day						

April



Spring is here, and it's almost time to start planting your garden! Although it's still a bit early to plant outside, this is the perfect time to start your garden plants indoors, using the seeds you collected back in September!

You Will Need:

- Styrofoam or paper cups
- Potting soil
- Assorted seeds that *you* collected
- Push pin
- Marker

Use the push pin to create drainage holes in the bottoms of your cups. Fill the cups with potting soil to about 2-3 inches from the top. Mark each cup with the kind of seed you will be planting.

To plant the seeds, make a small impression in the center of each cup with your finger or the end of the marker. Place your seeds in the depression and cover them with soil. For very small seeds, sprinkle them evenly across the top of the soil and do not cover. Water your seed cups thoroughly. Keep your seedlings in a bright room but out of direct afternoon sunlight. Check your plants daily, watering as needed to keep the soil moist. After a week or so, your seedlings should begin to sprout. By the middle of next month, after all danger of frost is gone, you can plant your seedlings outside in anywhere in your garden!



January

While it might be winter outside and no new plants are growing there, you can grow your very own unique new plant indoors! Using a **propagation** method known as **grafting**, you can combine *two* different plants to make *one* very special plant for you to enjoy.

You will need:

- 2 small cacti
- Leather or thick rubber gloves
- String or rubber bands
- Clean, sharp knife
- Rubbing alcohol

If you're interested in learning more about propagation, see the "Plants from Parts" activities in the **See Them Sprout** 4-H Project Activity Guide.

Sterilize the knife by dipping it in the rubbing alcohol. Be careful when handling the knife or have an adult help you. Once the knife has been sterilized, do not touch the blade - this will contaminate it with bacteria that could be carried inside the cacti.

Using the sterilized knife, carefully remove the tops of each cactus, cutting straight across. Place each removed top on the opposite cactus. Be sure the center sections, called **piths**, line up as closely as possible, then press each top carefully but firmly onto the new bottoms. Tie string or rubber band around each cactus to hold the new tops and bottoms together.



Keep your cacti in warm sunshine, and in about a month the grafts should be healed. Remove the strings and enjoy your original creation!!

February

It's still winter, but that doesn't mean you can't keep up with your horticultural activities! This month, you can create your own tiny garden in a miniature, home-made greenhouse called a **terrarium**. You can even use some of the flower seed you collected last fall!

You will need:

- 1 plastic 2-liter soda bottle
- Potting soil
- Seeds (from short to moderate height plants)
- Gravel
- Water
- Spoon



Begin by poking a few air holes in the top part of the bottle. Then, pour a layer of gravel (or bits of broken pottery) on the bottom of the bottle. Next, spoon the soil into the bottle on top of the gravel, filling it to about 1/3 full. Sprinkle your seed on top of the soil and water lightly. Screw the cap back on, and place your terrarium in a sunny location.

Check your soda-bottle terrarium often for water - the soil should always be moist, but not too wet. After a week or so, your seeds should be sprouting, and by early Spring, you should have full-sized flowering plants!



March

Time to get creative! By now your forced flowers have probably stopped blooming, and nothing is growing outside quite yet. Now is the perfect opportunity to create your own flower!

You will need:

- Styrofoam
- Pipe cleaners
- Construction paper
- Glue
- Craft paint
- Any other creative material *you* want to use!



Start by making a stem - you can do this with pipe cleaners, paper towel tubes, dowels, or pencils, depending on the size and shape of your flower. Next, add leaves (and maybe branches), using construction paper, cloth, or just about anything flat. Next, use a combination of creative materials to create the actual flower on top - remember, it's *your* project, you can do it however you like!

Remember, all flowers have the following parts: roots, stem, leaves, peduncle, sepal, stamen, pistils, and petals, and some may have fruit! Once you have finished your flower, label all of the parts. For more information on flower parts, visit <http://www.uoregon.edu/~sdenner1/flower/partsofflower.htm>.