

# Plants & Flowers

## Mini 4-H



*Draft Developed by:*

Purdue University Cooperative Extension Service  
Area 7 4-H Youth Development Educators from  
Blackford, Delaware, Fayette, Franklin, Henry, Jay,  
Madison, Randolph, Rush, Union, & Wayne counties

# Indiana Academic Standards

Following is a list of Science Standards that the activities in this book meet.

## Kindergarten

K.4.1 Give examples of plants and animals.

K.4.2 Observe plants and animals, describing how they are alike and how they are different in the way they look and in the things they do.

K.6.1 Describe an object by saying how it is similar to or different from another object.

## Grade 1

1.1.3 Recognize that and demonstrate how people can learn much about plants and animals by observing them closely over a period of time. Recognize also that care must be taken to know the needs of living things and how to provide for them.

1.4.2 Observe and describe that there can be differences, such as size or markings, among the individuals within one kind of plant or animal group.

1.4.4 Explain that most living things need water, food, and air.

## Grade 2

2.4.1 Observe and identify different external features of plants and animals and describe how these features help them live in different environments.

2.4.3 Observe and explain that plants and animals both need to take in water, animals need to take in food, and plants need light.

2.6.1 Investigate that most objects are made of parts.



# Mini 4-H Parent's Page



Welcome to the Mini 4-H Program! Mini 4-H is designed for youth to explore a variety of project areas.

Your child received this project manual when enrolling in Mini 4-H. This manual will provide fun, age-appropriate learning activities throughout their year(s) in Mini 4-H and their interest in this project.

As a Mini 4-H parent, your job will be to guide and encourage your child through the activity. It is highly suggested that you do not complete the activities for them. Instead, help them, guide them, work with them, and let them do all that they possibly can. The 4-H motto is "learn by doing" and is the best educational tool that we can provide for youth.

Additionally, the Mini 4-H program is set up to allow your child to exhibit a project at the 4-H Fair. This project is based upon information within this manual.

The 4-H Fair is an exciting time for 4-H members and families. It is a time that allows community youth to showcase their talents, interests, and enthusiasm for learning.

Mini 4-H is fun! Your child will certainly enjoy it. You can have fun too, by guiding and helping as your child participates in the program. Encourage and praise your child as he/she has fun learning and sharing with you.

If you have any questions regarding Mini 4-H or other 4-H programs, please contact your local Extension Office.



# Mini 4-Her's Page



Welcome to Mini 4-H! You are now a member of the 4-H family. You are a special person.

Mini 4-Hers have lots of fun! There are lots of activities for you to explore. You can try new things. You can share it with your friends and family.

Mom, Dad, or another adult can help you with your project. Bring your project to the 4-H Fair and lots of people will be able to see what you have done. You also get a ribbon made just for Mini 4-Hers.

## Things to Know About 4-H

The 4-H Symbol: A four-leaf clover with an "H" in each leaf.

The 4-H Colors: Green and white

The 4-H Motto: To make the best, better.

The 4-H Pledge: I pledge my HEAD to clearer thinking,  
my HEART to greater loyalty,  
my HANDS to larger service, and  
my HEALTH to better living, for my club,  
my community, my country, and my world.





# What Are Plants?



Plants are living things that grow. We see plants all around us. Inside your house you might have houseplants. These plants grow in small pots inside a building. Most plants grow outside your house. Look out your window. What kind of plants do you see? Let's make a list of them.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

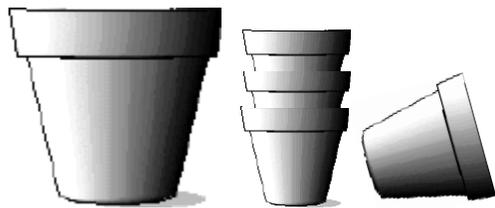
4. \_\_\_\_\_ 5. \_\_\_\_\_ 6. \_\_\_\_\_

Plants need special things to grow. They need sunlight, water, and food (found in soil). They also breathe a special kind of air called *carbon dioxide*. Carbon dioxide is a gas that people exhale or breathe out of their lungs. Without these things a plant will not live very long, just like you need water, food, and oxygen to live.

## Activity 1 — What Plants Need

You will need:

- Pencil
- Four small pots or jars
- Paper towels or napkins
- Plastic wrap
- Scraps of paper and tape
- Soil (You can use potting soil or dig some soil up outside. You will not need very much.)
- 20 bean seeds or dried beans (You may not have this at home. Ask your parent or another adult if they can get you some.)
- The "Water, Sun, and Air" chart



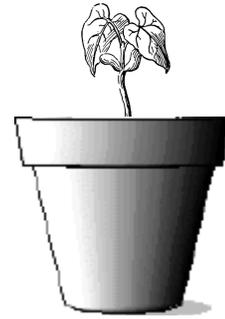
*Activity 1, continued*

Here is what to do:

1. Label each pot or jar. Use a scrap of paper and tape it to each jar.

You will have a total of five labels. These labels will say:

- Jar #1 - No Water
- Jar #2 - No Sun
- Jar #3 - No Air
- Jar #4 - Has Water, Sun, Air, and Soil
- Paper Towel #5 - No Soil



2. Get your pots or jars ready.

- Jar #1 — Fill the jar half full with soil. Plant 3 to 4 seeds about a half inch to 1 inch below the surface. Cover the seeds. **DO NOT WATER THE SEEDS.**
- Jar #2 — Fill the jar half full with soil. Plant 3 to 4 seeds about a half inch to 1 inch below the surface. Cover the seeds. Add water to make the soil moist (not a lot of water). Put the jar in a closet or another place where it will be in the dark.
- Jar #3 — Fill the jar half full with soil. Plant 3 to 4 seeds about a half inch to 1 inch below the surface. Cover the seeds. Add water to make the soil moist (not a lot of water). Cover the pot or jar with plastic wrap so it cannot get any air.
- Jar #4 — Fill the jar half full with soil. Plant 3 to 4 seeds about a half inch to 1 inch below the surface. Cover the seeds. Add water to make the soil moist (not a lot of water).
- Paper Towel — Fold a paper towel or napkin in half, and then half again. Place 3 to 4 seeds inside the folded paper towel. Wet the paper towel.



*Activity 1, continued*

3. Put Jar #1, Jar #3, Jar #4, and the paper towel on a window sill or in a sunny place. Remember, you put Jar #2 in a closet.
4. Pick a good time of the day to check on your plants. Maybe it's when you get home from school or after dinner. You will be checking your plants for five days.
5. Check your jars and paper towel. What do you see? Write your observations, or what you see, in this "Water, Sun, and Air" chart.

Water, Sun, & Air Chart

Day	Jar #1	Jar #2	Jar #3	Jar #4	Paper Towel
Example: Day 1	No plant	No plant	No plant	No plant	Seeds are wet, nothing is growing
Day 1					
Day 2					
Day 3					
Day 4					
Day 5					



*Activity 1, continued*

Let's Grow!

What did you see or observe? \_\_\_\_\_

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Which seeds grew the fastest? \_\_\_\_\_

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How did the seeds look in the paper towel? \_\_\_\_\_

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Why is it important that plants have sun, food, water, and air?

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How are you like a plant? \_\_\_\_\_

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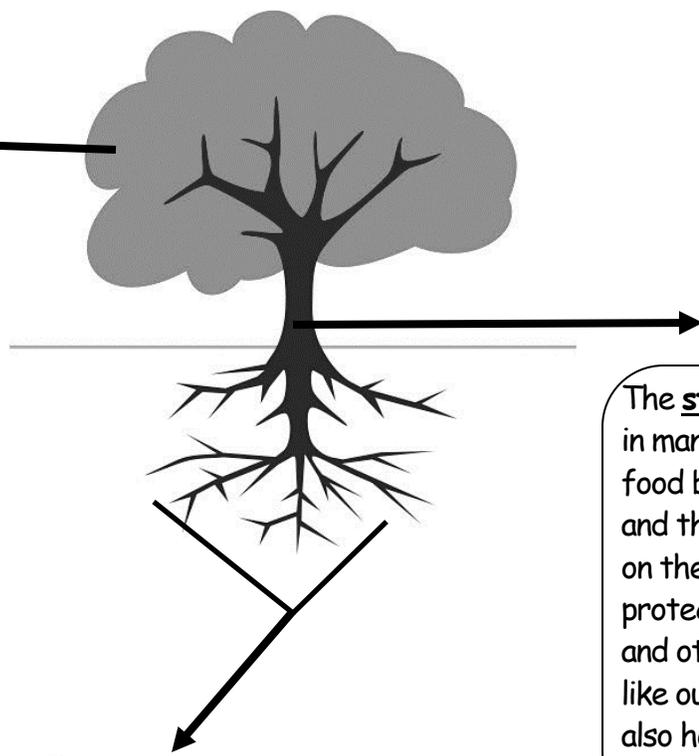
# Parts of a Plant



There are three main parts to a plant. They are: roots, stem, and leaves. Let's look at this tree and identify the parts. Then we will talk about what these parts do.

## Leaves

Leaves do two main things for plants. First, the leaves breathe the carbon dioxide. Second, the leaves collect light from the sun. The leaves use the sunlight to make food.



## Stem

The stem helps the plant in many ways. It moves food between the roots and the leaves. The bark on the stem of a tree protects it from animals and other things — just like our skin. The stem also helps the plant stand tall.

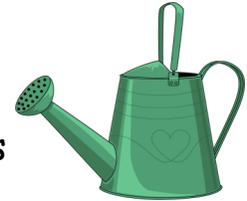
## Roots

We don't see very much of the roots. The roots are under the ground. The bigger the plant, the deeper and wider the roots grow. A 165-foot tree might have roots that are 8 feet deep and as wide as the top of the tree. A flower may have roots that are only a couple of inches deep. The roots are important because they take water and food (minerals) from the soil. Plus, the roots help keep the plant from falling over!

## Activity 2 — Beans in a Baggie

You will need:

- Pencil
- Two clear plastic bags. (You do not need one that zips shut.)
- 8 to 10 bean seeds or dried beans. (You may not have these at home. Ask your parent or an adult if they can get you some.)
- 2 paper towels or napkins
- "A Bean Grows" charts



Here's what to do:

1. Fold the 2 paper towels or napkins separately. Each one will need to fit inside one of the plastic bags. Wet the paper towels or napkins.
2. Place 4 to 5 seeds evenly inside each folded, wet, paper towel or napkin.
3. Carefully put each paper towel or napkin inside a plastic bag.
4. Put one plastic bag in a warm, sunny place. Put the second plastic bag inside a closet.
5. Check the seeds every 2 to 3 days. When you begin to see a small sprout, the seed is *germinating*, or beginning to grow.
6. *Predict*, or guess, when you will begin to see a stem and a root. Write this in the "predict" area on the chart. Check the seeds to see how close you came.
7. Keep checking the seeds until you can answer all of the questions on both of the "A Bean Grows" charts on page 11.
8. If the paper towels or napkins begin to dry out, you will need to wet them again.



**A Bean Grows — Seeds in the Sun**

	Predict	Observed	Date Observed
Which grows first, the stem or the root?			
How many days will it take to sprout?			
How many days before the leaves come out?			
How long is the root the first day it shows?			
How long is the stem the first day it shows?			
What color is the root the first day?			
What color is the stem the first day?			

**A Bean Grows — Seeds in the Closet**

	Predict	Observed	Date Observed
Which grows first, the stem or the root?			
How many days will it take to sprout?			
How many days before the leaves come out?			
How long is the root the first day it shows?			
How long is the stem the first day it shows?			
What color is the root the first day?			
What color is the stem the first day?			

*Activity 2, Continued*

Which seeds germinated the fastest? \_\_\_\_\_

Why? \_\_\_\_\_

How did you know if the stem or the root grew first? \_\_\_\_\_

\_\_\_\_\_

What did the root look like when it started to grow? \_\_\_\_\_

\_\_\_\_\_

How was it different from the stem? \_\_\_\_\_

What was the difference between the seeds in the sun and the seeds in the closet? \_\_\_\_\_

Why were they different? \_\_\_\_\_

\_\_\_\_\_

What did you learn from this experiment that will help you start seeds in the future? \_\_\_\_\_

\_\_\_\_\_

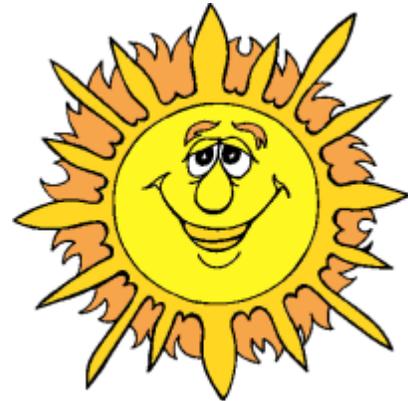
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## Activity 3 — Sun Power

You will need:

- Shoebox with a lid
- Paper cup
- 3 pinto beans or another kind of bean
- Cardboard
- Scissors
- Tape
- Soil



Here's what to do:

1. Fill the cup with soil.
2. Plant the beans in the soil, about 1/2 inch to an inch from the top.
3. Add water to the soil — not too much, just enough to make the soil moist.
4. Allow the beans to sprout. It will take about 5 to 7 days. Don't forget to keep the soil moist — you may need to water the soil.
5. Cut a hole in one end of the shoebox.
6. After the bean plant has grown good leaves and a stem, place the bean plant upright (in the cup with soil) on the end of the shoe box (which is lying horizontally) without the hole. Put the lid on the box.
7. Allow the plant to grow from one end of the box to the other.
8. Open the lid each day to check to see how much the plant has grown.
9. Water the soil as needed.



*Activity 3, Continued*

How many days did it take for the plant to grow from one end of the box to the other? \_\_\_\_\_

Why did the plant grow this way? What did it need? \_\_\_\_\_

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If you are growing plants inside, where is a good place to put them?

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Why? \_\_\_\_\_

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## The Pretty Flower



If you look at a flower, you will see that there is another part of a plant. This plant has leaves and a stem. If you took the plant out of the soil, you would see roots. Why is a flower important?

A flower is very special because it makes seeds. These seeds fall to the ground and will grow into more flowering plants.

People like flowers because flowers have a bright color. Some have a very pretty smell to them. A popular flower is a rose. It comes in a lot of colors (red, pink, white, yellow, and many more). The rose also has a special smell. Perfumes are made from roses because people like to wear the special smell. What flower do you think smells the best?

# Activity 4 — Flower Power

You will need:

- Pencil
- Four different types of flowers or flowering plants
- "Petals" Chart (below)

Here's what to do:

1. This activity is easier to do in the spring and summer when there are a lot of flowers around.
2. Find 4 different flowers or flowering plants.
3. Look at each of the flowers. Count the number of petals. What do the petals look like?
4. Complete the Petals Chart below.

Flower	Number of Petals	Describe What the Petals Look Like

Activity 4, Continued



5. Draw pictures of the different shapes of the petals.

Flower

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Flower

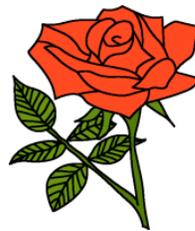
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Flower

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Flower

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*Activity 4, Continued*

Which flower had the most petals? \_\_\_\_\_

Which flower had the fewest petals? \_\_\_\_\_

Which petals were larger — the ones from the flower with the most petals or the one with the fewest petals? \_\_\_\_\_

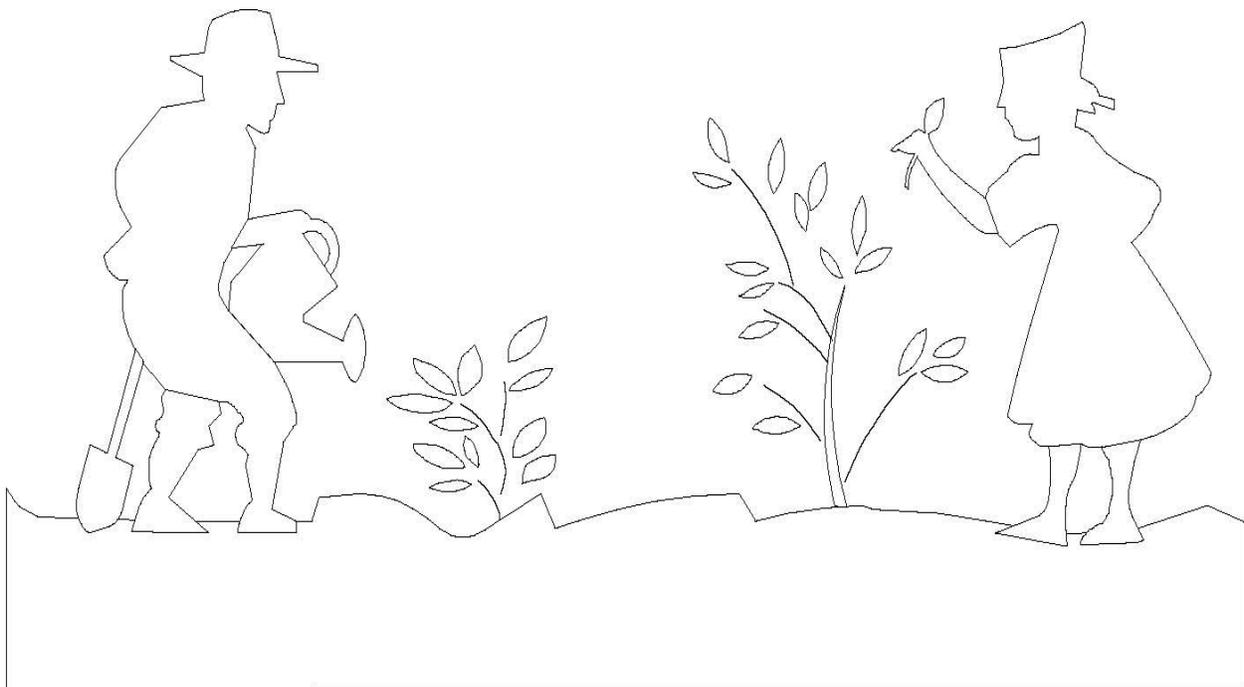
Which flower is your favorite? \_\_\_\_\_

If you were putting flowers in a vase, what flowers would you use and why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Color me!**



# Activity 5 — Name That Flower!

You will need:

- Crayons, colored pencils, or markers

Here's what to do:

Match the flowers with the names in the list at right, and color them.

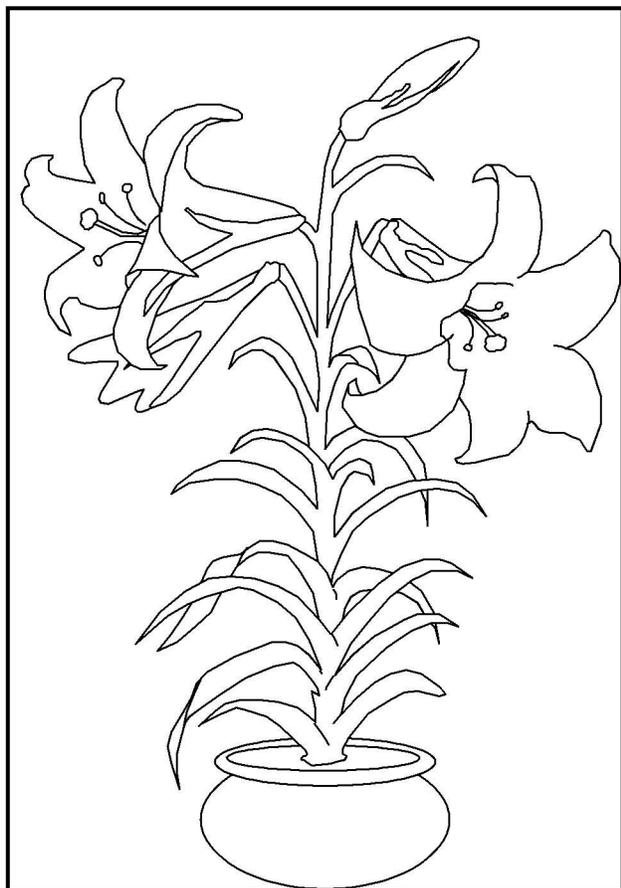
Pick from this list:

- Tulip
- Lily
- Bachelor Button
- Daffodil
- Rose
- Crocus
- Iris
- Geranium
- Poinsettia
- Sunflower

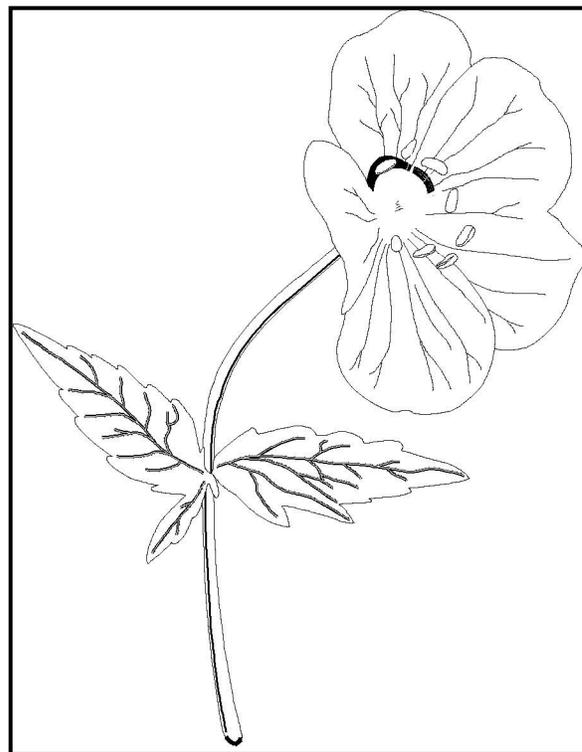


1. \_\_\_\_\_

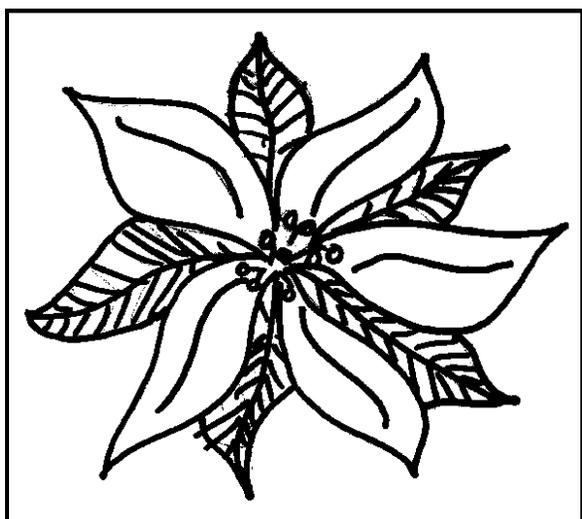
Activity 5, Continued



2. \_\_\_\_\_



3. \_\_\_\_\_

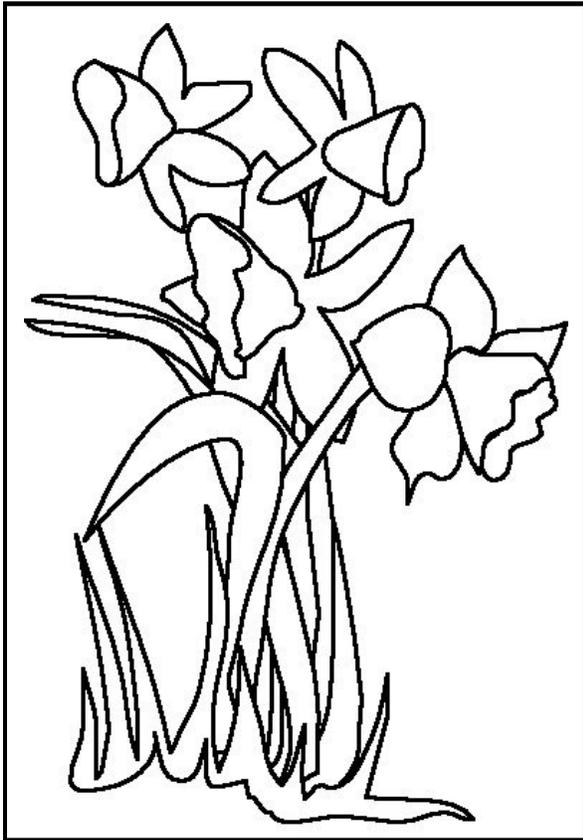


4. \_\_\_\_\_

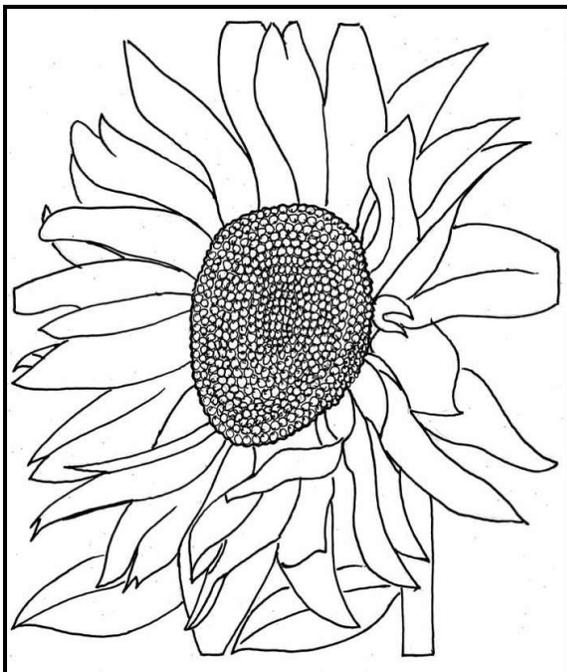


5. \_\_\_\_\_

Activity 5, Continued



6. \_\_\_\_\_



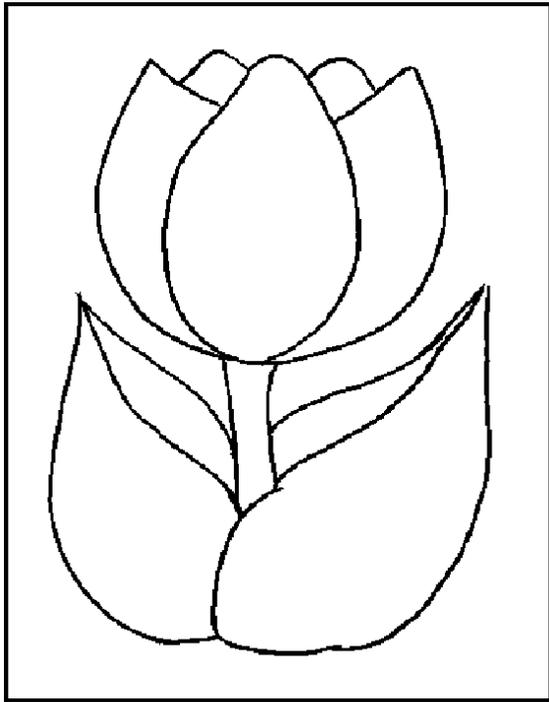
8. \_\_\_\_\_



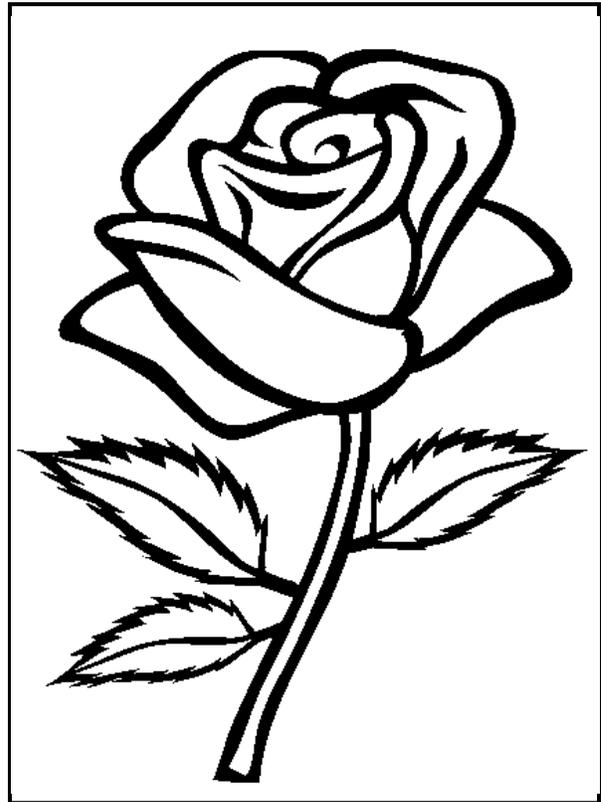
CELEBRATING WILDFLOWERS

*Centaurea cyanus*  
Bachelor's Button or  
Corn Flower

*Activity 5, Continued*

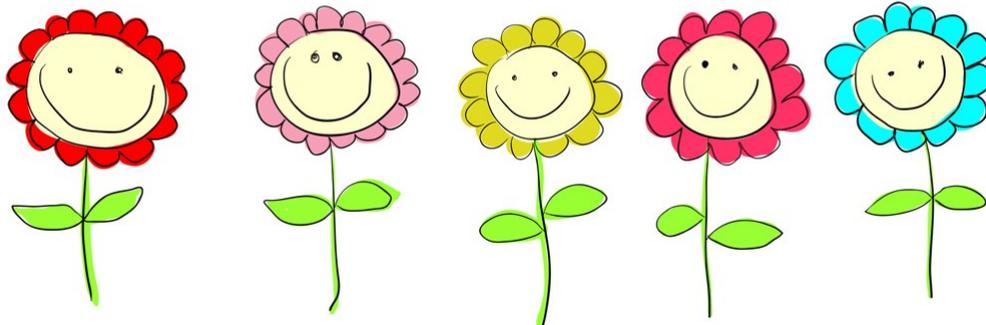


9. \_\_\_\_\_



10. \_\_\_\_\_

*The answers to Name That Flower are on page 23.*



## Activity 6 — Where Did the Water Go?

You will need:

- One jar filled with water
- A white flower — a carnation works the best
- Food coloring (Ask a parent or other adult before you use this. It can make a stain.)



Here's what to do:

1. Fill your jar with water.
2. Carefully add 4 to 5 drops of food coloring. Mix the food coloring with a metal spoon (it won't stain the spoon).
3. Cut the bottom of the flower stem at an angle. This will help the flower absorb the colored water into its stem.
4. Let the flower stand in the jar until the petals of the flower turn color. Try something fun: Want a flower with 2 colors? Split the flower stem about halfway up and place each piece of stem in a separate glass (next to each other). Each glass should have a different color water.

Why did the petals turn color? \_\_\_\_\_

\_\_\_\_\_

What color did they turn? \_\_\_\_\_

Did they match your food coloring? \_\_\_\_\_

How could you use this activity in the future? \_\_\_\_\_

\_\_\_\_\_



# What to Exhibit



Here is a list of projects that can be shown at the County Fair. Choose ONE project you would like to try. You do not have to complete them in any order. If you have any questions, call the Extension Office. There are people there who can help you.

- Three cut flowers in a vase. The flowers can be the same kind or different kinds. Attach a small label that tells the kind of flower.
- A flowering plant in a pot. Attach a small label that tells the kind of flowering plant.
- A house plant. Attach a small label that tells the kind of plant.
- A cactus. Attach a small label that tells the kind of cactus.
- Exhibit a colored flower. See Activity 6 for directions.
- Make a poster that shows the different parts of a plant.
- Find at least 3 pictures of flowers. Write the names of the flowers next to their pictures. You can use the flowers in this book. Put the pictures in a self-made notebook.

For information on how to label your project with your name, when to enter your project in the fair, and where the project needs to go, contact your Extension Office.

## Have fun!

Answers to Name That Flower!  
 1. Iris; 2. Lily; 3. Geranium; 4. Poinsettia; 5. Crocus; 6. Daffodil; 7. Bachelor Button; 8. Sunflower; 9. Tulip; 10. Rose.

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