



# Teacher Toolkit

Activity: Patterns in Plant Growth

Presented by: Civic Garden Center of Greater Cincinnati

Grade Level(s) 4<sup>th</sup>- 6<sup>th</sup> grade

## Activity Description

Learn about the life cycle and growth stages of plants through a series of hands-on and interactive activities- including acting out the plant life cycle.



## Ohio Standards Met

- Science, Grade 4: Earth's living history
- Science, Grade 5: Interactions within ecosystems
- Science, Grade 6: Cellular to multicellular: modern cell theory

## Instructions

- Introduction
  - Review the parts of a plant.
  - Discuss the term 'life cycle'. What does it mean? How does it apply to plants?
  - Break into three groups for each of the three stations (or do each station as a whole class).
- Station 1- Observe: Flower Dissection
  - Have students share their observations about flower characteristics.
  - Explain the role of flowers in the plant life cycle and use a diagram to show the parts.
  - In partners, have students use scissors to dissect the flower and categorize the different parts on the worksheet 'Exploring Flowers'.
- Use magnifying glasses to observe the different flower parts.
- Compare characteristics and results from the different flowers using venn diagram.

Thanks to Greater Cincinnati Environmental Educators (GCEE) for collecting activities for the Teacher Toolkit



## Instructions (continued)

- Station 2- Explore: Annuals and Perennials
  - Go over the life cycle of a plant.
  - Explain that all plants follow this sequence, but the time to complete the cycle varies. Explain the difference between annuals and perennials.
  - Use 'The Right Plants' handouts for guidance (see both "Why does it matter?" and "Plant Hardiness").
  - Pass out seeds and have students complete the 'What Can I Plant' worksheet to identify the details of planting for each plant. Discuss.
- Station 3- Garden: Sprout ID and Weeding
  - Choose some spring plant varieties planted in the garden.
  - Show examples of the chosen seeds as plants. (Look at them as other points in their life cycle in pictures if possible).
  - Find these sprouts or grown plants in the garden and remove the weeds that may be growing around them.

## Materials Needed

- Station 1
  - Flowers
  - Scissors
  - Magnifying glass (if possible)
  - Tape or Glue
  - 'Discovering Plants Venn Diagram' (see next page)
  - 'Exploring Flowers' worksheets (see next page)
- Station 2
  - Seeds
  - 'The Right Plants' worksheets (see next page)
  - 'What Can I Plant' worksheet (see next page)
- Station 3
  - ID images of spring plants with accompanying seeds (of plants in garden)
  - Magnifying glass (if possible)

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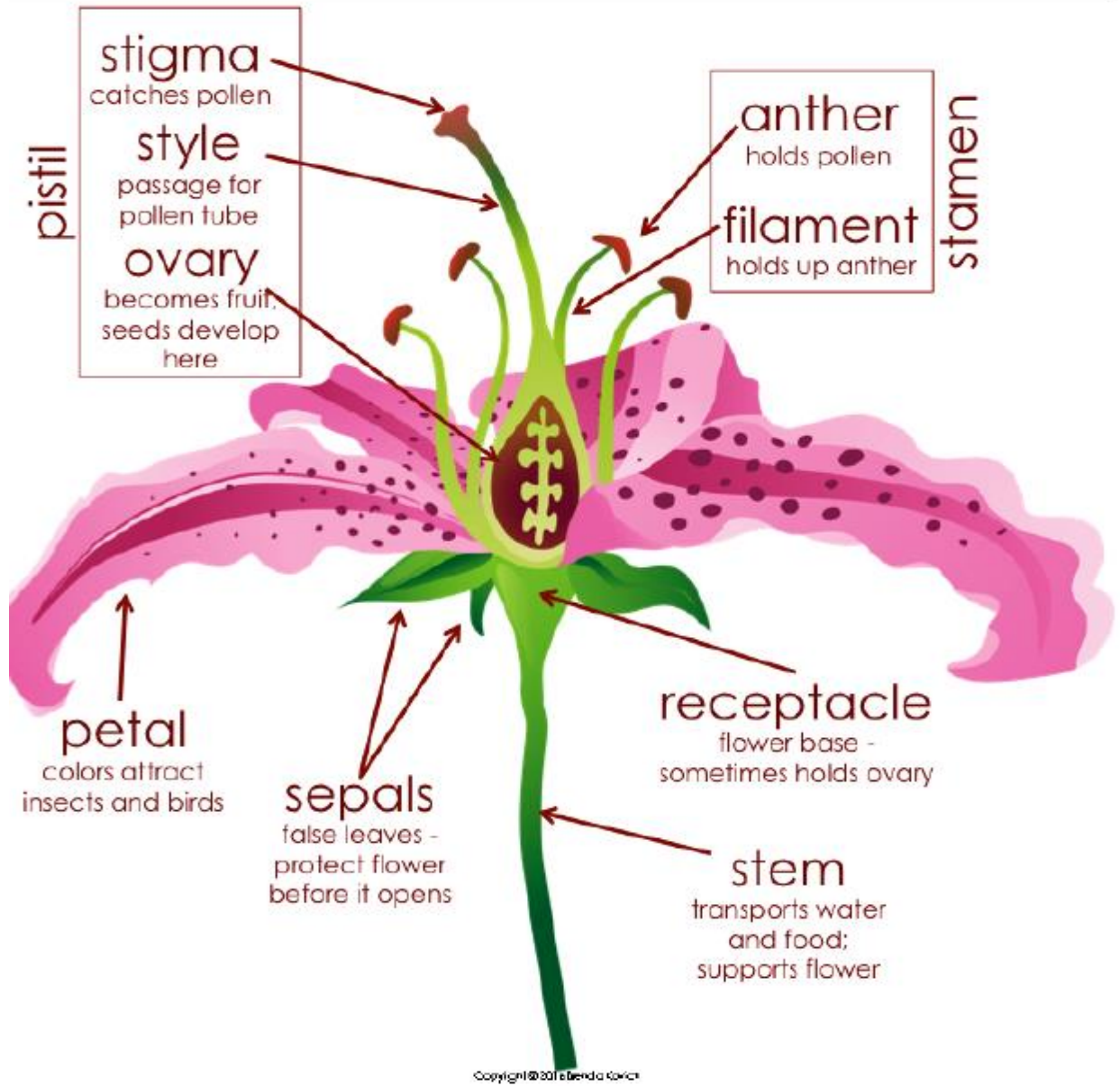




## Flower Dissection

For seeds to develop, pollen must land on the stigma. Then a pollen tube forms and stretches down into the ovary. A seed is formed.

A few plants can be pollinated by wind, but most require help. Insects, bats, and birds are pollinators. Pollen sticks to their bodies as they drink nectar from the flower, and the pollen drops off as they travel from flower to flower.



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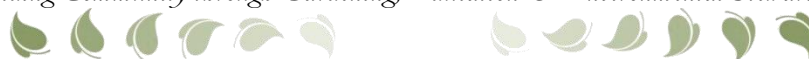
# Exploring **FLOWERS**

Name \_\_\_\_\_

Dissect the flower. Draw, count, and measure each part.

	Draw & label parts.	Count and record number.	Measure and record length.
petals			
stamen			
pistil			

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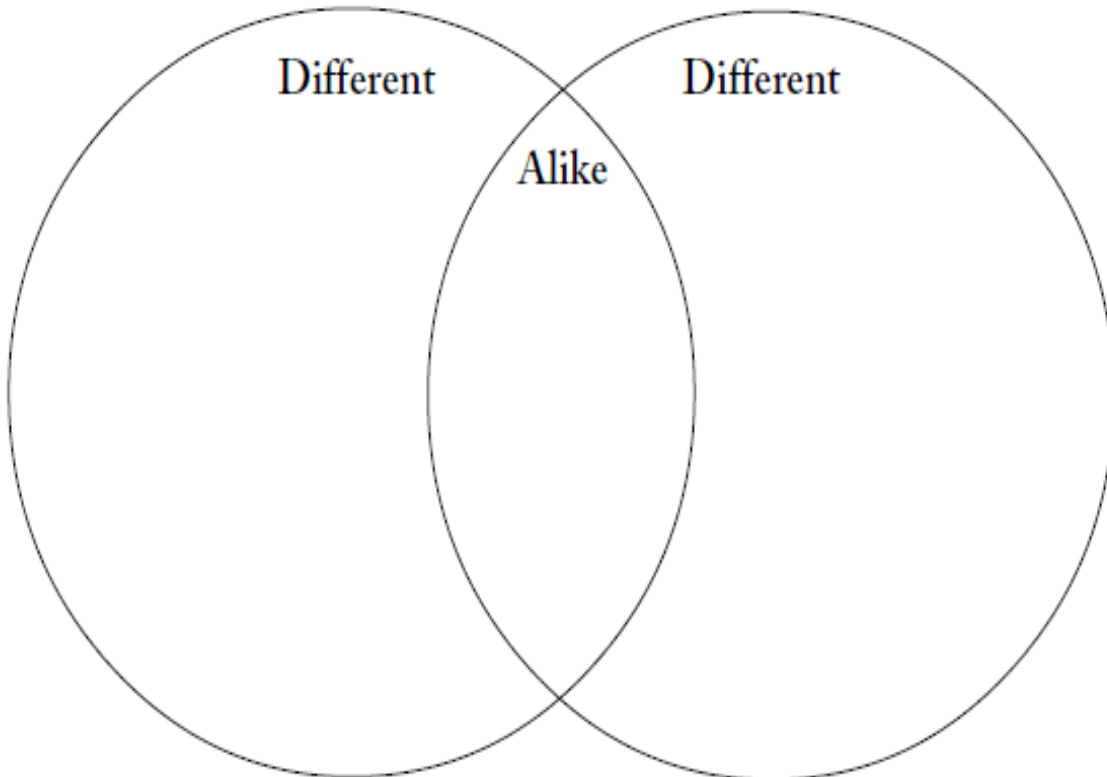


# Garden Lesson: Patterns in Plant Growth

Season: Spring  
Grades: 4<sup>th</sup>, 5<sup>th</sup> & 6<sup>th</sup> Grade

**Discovering Plants** **Fruit and Seeds—Student Handout Two**

## VENN DIAGRAM



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Explore Station: Background information/discussion points

name \_\_\_\_\_

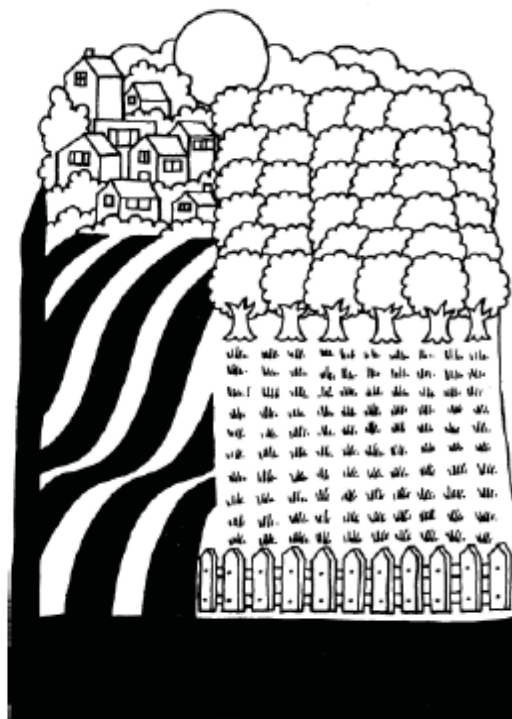
### Student Lesson: The Right Plants Why does it matter?

We must know about the plants we want to place in our gardens and yards, in order for them to be successful.

**Annuals** are plants that grow for only one season in our area. Not all vegetables are **annuals**.

Many flower plants are **perennials**. This means that the root system can live through the winter and send up new leaves in the spring.

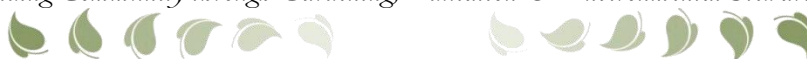
**Climate** affects what plants we can grow and when we can plant them. To find out the best time to plant, we can look at a map of the planting zones in the United States. You can find an interactive map at: <http://www.usna.usda.gov/Hardzone/ushzmap.html> Each color on the map represents the average range in temperatures. The blue zones get very cold and not very warm in the summer. The brown zones stay warm all year and might get very hot, especially in summer. Most seed packets have a planting zone map on them.



A major part of having healthy plants is planting them in the right place. You should have fewer problems with disease and insects when **perennial** plants are in the best spot. Vegetables will also produce better when they have been chosen well and grown under the most favorable conditions. Integrated Pest Management (IPM) starts with making the best choices.

The key to success is: the right plant, in the right place!

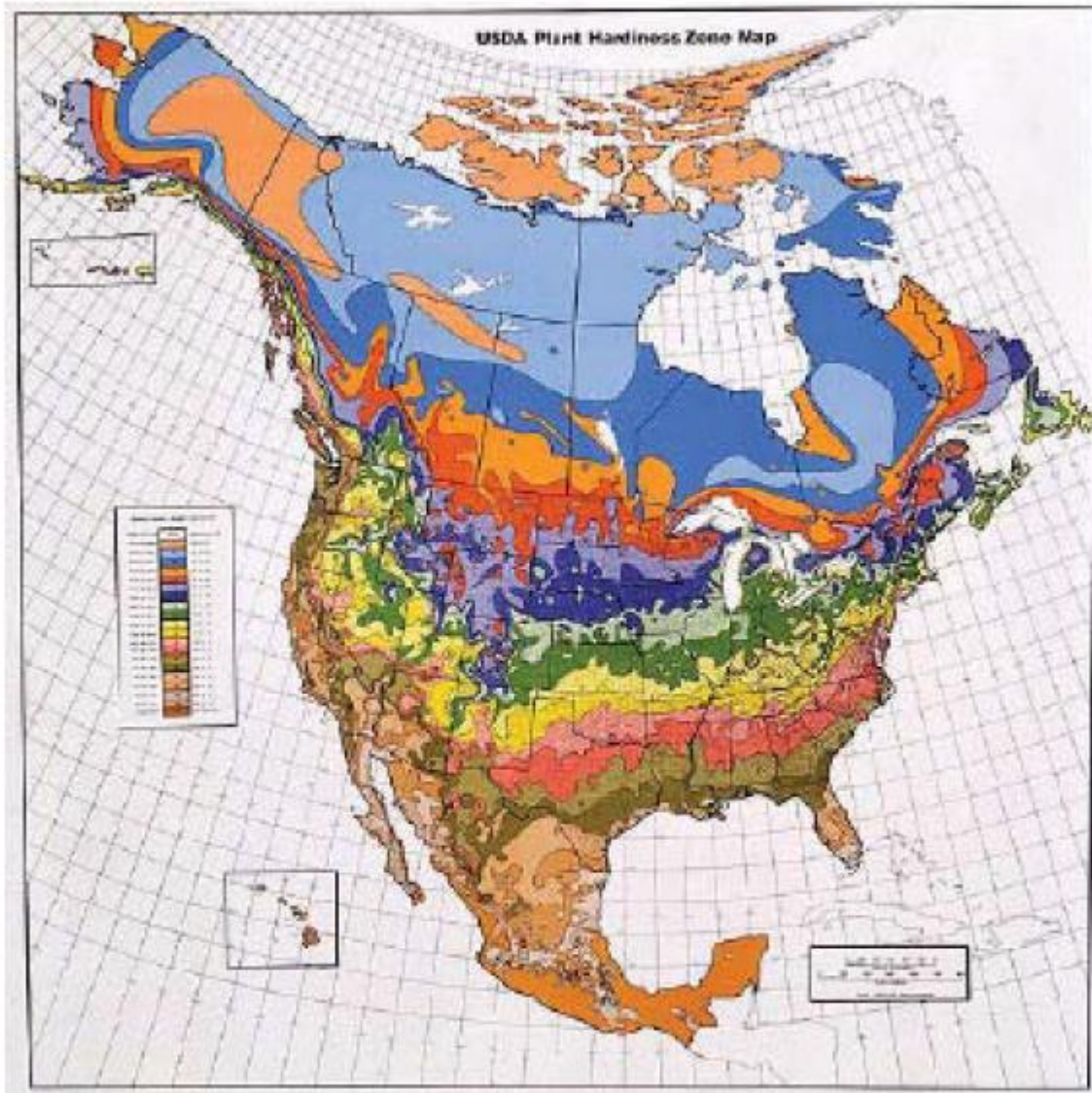
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## Garden Lesson: Patterns in Plant Growth

Season: Spring  
Grades: 4<sup>th</sup>, 5<sup>th</sup> & 6<sup>th</sup> Grade

Student Lesson: The Right Plants  
Plant Hardiness



To be successful farmers or gardeners, we must learn about the needs of the plants and the environment we want to plant in. We must remember to consider the sun, water, and soil conditions, as well as the size of the plant when it is **mature**. (Don't plant a tiny tree seedling right next to your house! It won't always be small!) Is the plant **annual**, and does it have a long enough season to grow and flourish? Is it a **perennial**, and will it be successful where we plant it for years to come?

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### What Can I Plant?

Deciding what to plant in your garden can be a challenge! There are many factors involved in determining what can be planted. One of these factors is the life cycle of the plant. Luckily, the information provided on the back of the seed packets can be very helpful!

To figure out if something will grow in your garden, look at the:

1. Seed type \_\_\_\_\_
2. Zone \_\_\_\_\_
3. Days to harvest \_\_\_\_\_
4. Annual or perennial \_\_\_\_\_

Once you've figured out if the plant will grow in our area, look at the planting specifics:

5. Spacing \_\_\_\_\_
6. Depth \_\_\_\_\_
7. Sun requirements \_\_\_\_\_

