



Design a Pollinator Garden

Content Connections:

Math - Area, Perimeter, measuring

Engineering - Design a solution to a problem using available tools and resources

Language Arts - Research and application

Visual Arts - Colors and Patterns, functional design

Grades: 2nd-7th

Time: 1-2 hours

Objective: Students will be able to research the space requirements and height of plants by using seed packets, seed catalogs, or websites. Calculate the perimeter and area of the school's garden beds. Use graph paper to map out a garden plot according to the space requirements of different plants.

Materials:

- One-inch graph paper per group
- Pencils
- Flowering plant inventory list or research materials

Procedure:

1. Discuss how butterflies and other insects use plants for food and how plants need pollinators for reproduction. Explain that pollinators, especially insects, need special plants at different times in their life cycle.
2. Introduce the project, to plan and design a pollinator friendly garden that will support all types of pollinators throughout the year (Spring-Fall). Discuss with students what things they need to consider and what will they need to do more research on to find out how to best design their garden. Allow students time to research (independently or with materials provided). Questions to consider include:
 - a. What are the types of pollinators?
 - b. What types of flowers does each type of pollinator prefer?

- c. Do these pollinators need different types of plants at different life stages?
 - d. When do each plant's flowers bloom?
 - e. How long does each type of flower bloom?
 - f. How much sunlight does each flowering plant need to grow?
3. If research time is limited, instructor can provide students with a plant inventory sheet that includes a picture of the flower to show shape and color, flower size, bloom time, bloom length, whether it is an annual or perennial, and mature plant size. If desired, alter the provided flowers to match local wildflowers (See attached inventory sheet)
4. Provide students with one-inch graph paper and explain that on our grid, one inch will equal one foot. Tell students they may use any combination of plants they choose, as long as they follow the space requirements. Give students about 30 minutes to design their gardens with their partners.
5. Make a career connection with Landscape Architecture. As students are working, Make suggestions as to the garden design, such as choosing colors that blend and making sure all plants are visible (i.e., tall in back, short in front).

Extension:

- For early elementary students, provide pictures of flowers cut to size and shape that will fit on graph paper. Ask them to fill the space and consider making patterns in the garden.
- Challenge upper elementary students to create a garden that includes other shapes such as circles, triangles, and octagons. Ask students to design a three-dimensional garden that includes fencing, wire cages, or climbing poles.
- Ask older students to create garden maps for younger students who are planting a garden plot, and then have them assist the younger students in following the plan.
- Explore varieties of plants and try planning a pollinator garden for a different environment. How would the garden and flowers change if it were planted in a different part of the world?

References:




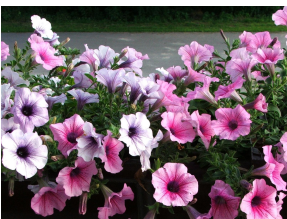
New Jersey Agricultural Society: [Making A Garden Map](#)






Clemson Cooperative Extension: ["Bee" A Friend to Pollinators](#)

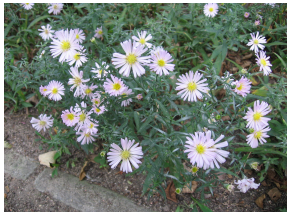

Design a Garden

Flower Inventory:

Use this list of flowers and their characteristics to help you determine which plants you will put in your garden to attract all types of pollinators all year long!

| Flowering Plant | Pollinators Attracted | Bloom Time | Plant spacing when planting | Amount of sunlight |
|--|--|-------------------------------|-----------------------------|---------------------------|
| Bluebells  | Bumble Bees, Butterflies | Mid-April through Late-May | 6" apart | Partial shade |
| Phlox  | Butterflies, Moths | April through June | 18" apart | Full sun to partial shade |
| Penstemon  | Bees, Hummingbirds | May through June | 24" apart | Full sun to partial shade |
| Petunia  | Bumble Bees, Butterflies, Hummingbirds | Late-May through August | 12" apart | Full sun |

| | | | | |
|--|--|-----------------------------------|------------------|--------------------------------------|
| <p>Milkweed</p>  | <p>Butterflies, Moths,</p> | <p>June through August</p> | <p>18" apart</p> | <p>Full sun</p> |
| <p>Blanketflower</p>  | <p>Bumble Bees, Bees, Flies, Wasps, Butterflies</p> | <p>June-September</p> | <p>18" apart</p> | <p>Full sun</p> |
| <p>Tickseed</p>  | <p>Beetles, Solitary Bees</p> | <p>June through September</p> | <p>24" apart</p> | <p>Full sun</p> |
| <p>Yarrow</p>  | <p>Beetles, Flies</p> | <p>June through September</p> | <p>18" apart</p> | <p>Full sun to partial shade</p> |
| <p>Bee Balm</p>  | <p>Bees, Bumble Bees, Butterflies, Moths, Hummingbirds</p> | <p>July through September</p> | <p>18" apart</p> | <p>Full sun</p> |

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|--|---------------------------------|-----------------------------------|------------------|--------------------------------------|
| <p>Aster</p>  | <p>Beetles, Flies, Bees</p> | <p>August-October</p> | <p>24" apart</p> | <p>Full sun to partial shade</p> |
| <p>Goldenrod</p>  | <p>Beetles, Bees, Flies</p> | <p>August through October</p> | <p>36" apart</p> | <p>Full sun</p> |

Garden Summary:

My garden will be...

_____ feet by _____ feet, or _____ feet square

In my garden, I will plant...

And will attract...

The first flower to bloom will be _____ (flower) in _____ (month)

The last flower to bloom will be _____ (flower) in _____ (month)