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

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

Aster 	Beetles, Flies, Bees	August-October	24” apart	Full sun to partial shade
Goldenrod 	Beetles, Bees, Flies	August through October	36” apart	Full sun

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)