

April 2007: 30 Days of Green

SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

April is National Garden Month® — When you garden, you GROW!

[home](#) [index of activities](#)

April 19

Engage Your SENSES

Experience a diversity of plant adaptations, from the sweetest aromas to the thorniest thorns.

[>>Printer-friendly pdf](#)

background Bright-colored petals, fuzzy leaves, inviting aromas...a walk in nature provides a smorgasbord for your senses. Plants possess characteristics that intrigue the eye with colors and textures, engage the nose with both pleasant and unpleasant odors, tantalize the tongue with flavors ranging from sweet to spicy, encourage touch with soft and smooth surfaces or repel it with sharp thorns, and also turn an ear with the natural music produced by the wind.

These 'sense-sational' qualities are for more than just show — most are adaptations that help plants survive in their environments. Here are a few examples:

Leaf Adaptations

Leaves are highly specialized to match the conditions in their native environment. Specific size, shape, and structure allow plants to meet needs for sunlight, moisture, and even fend off predators.

Size — Plants growing in shade may develop larger leaves to help capture as much sunlight as possible. Smaller leaves like pine needles and cactus spines can help decrease the amount of water loss by transpiration in high wind or in arid climates.

Surface — Waxy coatings prevent water loss due to transpiration and are often found on plants that evolved in arid regions. But they can also help plants in areas where there's a lot of rain by allowing excess water to drain easily from leaf surfaces. Hair-like coatings and thorn-like points on leaves discourage creatures from making the plant its next meal.



Odor — Many plants, such as our favorite cooking herbs, contain fragrant oils. These scents can attract helpful insects and repel pests. For example, strong-smelling marigolds are seldom bothered by browsing deer or insects. Gardeners take advantage of this trait by planting them around vegetable gardens to fend off pests.

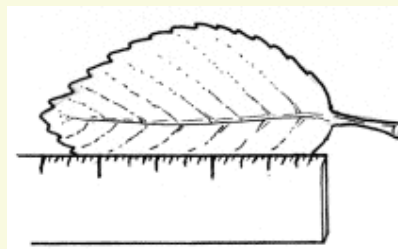
Drop — By dropping leaves in the fall plants protect themselves from harsh winter conditions. Leaves produce food

for the plant, but they also require a lot of sun and moisture to



activity

- Take a nature walk and collect different leaf samples. As they collect, ask students to record information about the plant they came from (size, shape, etc.) and location details including sun exposure and soil moisture.
- Further observe the leaves in the classroom using hand lens and/or microscopes. Make observations using each of the senses except taste (take time to explain that some plants are harmful to people and only plants that are known to be safe should be



maintain, and both are in short supply during the winter. By entering a dormant state and dropping leaves, deciduous plants become more efficient during the lean winter season.

Flower Adaptations

To compete for the attention of pollinators, flowers have evolved ingenious methods to entice hungry bees, birds, moths, butterflies, and beetles to act as liaisons between blooms that would otherwise never touch. Their main offerings are sugar-filled nectar and protein- and vitamin-rich pollen. But the amazing diversity of flowers results from their unique adaptations to lure a range of pollinators.



Colors/Patterns — Since most pollinators fly, flower color sends a bold signal to potential partners passing by. Many flowers, such as foxgloves and irises, also feature stripes, spots, or other markings that guide pollinators toward food. (Some of these nectar guides are invisible to humans but quite apparent to hungry bees!) Some, such as Gaillardia (blanket flowers) have concentric rings, providing a target focused on the nutritious nectar "bull's eye." Lilies have ridged petals that similarly guide their guests.

Scents — Aromatic blooms signal food to roving bees, butterflies, moths, wasps, and some flies. Certain orchids actually emit an odor evocative of female insects to arouse the males to visit! Other flowers, such as skunk cabbages, smell like rotting flesh to attract insects such as carrion-eating flies or certain beetles looking to lay eggs. Flowers that appeal to a wide range of pollinators often have light aromas, which accommodate a variety of taste buds. Others, such as those that bloom at night, have strong, distinct scents that attract moths and bats in the dark.

Shapes — Flowers' shapes are important for protecting pollen, attracting or precluding certain pollinators, or ensuring that pollen is picked up and transferred. For instance, butterflies tend to prefer flat, open surfaces with views (e.g., zinnias), while certain bees seem to like those with special petals that serve as landing platforms (e.g., delphiniums).

Seed Adaptations

Seeds possess adaptations designed to help with relocation. To ensure the survival of their species, plants need to move away from their parents to tap into new resources for healthy growth, but they can't just take a bus. Instead they have developed adaptations to help with their move. For example, maple seeds have wings to help them glide through the air; coconuts can float in water, cockleburs hitchhike by grabbing onto animal fur. Many seeds travel inside animals. Seeds that are surrounded by edible fruit (berries, apples, etc.) are consumed by animals and then dropped off in other locations surrounded by a plentiful supply of rich, organic matter (AKA manure).

consumed). What do they look like (size, color, and shape)? How do they smell? What do they feel like (texture)? Brainstorm reasons why these characteristics would benefit the plant in their environment.

- Use a plant identification key or field guide to determine each sample's identity. Research each plant for additional information how they are adapted to their environment. Compare research findings with the results of the brainstorming.

REPRODUCIBLES

Observation Worksheet									
Sample	Host	Host of	Host of	Observation	Observation	Observation	Observation	Observation	Observation
	Character	Plant	City	Lung	Lung	Lung	Lung	Lung	Lung

[Observation Worksheet](#)

- Follow up by asking students to plan an herb garden — a perfect location for exercising the senses. Details on planning an herb garden are available at [Creating Herb Gardens](#).



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