Eat Your Flowers
Testing the effects of soil types on edible flowers

Objective
Students read about flowers that are edible and conduct scientific experiments with marigolds.

Background
The culinary use of flowers dates back thousands of years. The earliest recorded reference is from 140 BC. Flower cookery has been traced back to ancient Roman, Chinese, Middle Eastern and Indian cultures. Edible flowers were especially popular during the reign of England’s Queen Victoria. Today many restaurant chefs and innovative home cooks garnish their entrees with flower blossoms for a touch of elegance.

Not every flower is edible, nor is every flower part. The stamen and pistil are not edible, but the petals of some flowers are.

Flowers are rich in nectar and pollen. Some are high in vitamins and minerals. Roses, especially rose hips, are very high in vitamin C. Marigolds and nasturtiums contain vitamin C, and dandelion blossoms contain Vitamins A and C. Flowers are also nearly calorie-free.

Vitamin C is a water-soluble vitamin that helps to absorb iron and keeps connective tissues healthy. It is a nutrient that is required in very small amounts. In addition to the flowers mentioned above, it is also found in strawberries, bell pepper and citrus fruits. The richest natural sources are fruits and vegetables. It is also present in some cuts of meat, especially liver.

Vitamin A, a fat-soluble vitamin, plays essential roles in vision, growth and development, the development and maintenance of healthy skin, hair, and mucous membranes, immune functions, and reproduction. Vitamin A can be found in foods such as sweet potato, carrot, kale, apricots, mango, turnip greens, and spinach.

Flowers grown in different locations can have different flavors because of different soil types, fertilizers and environmental conditions. Flowers may taste different at the end of the growing season and can vary from year to year.

Most growers cannot make a living growing only edible flowers. Edibles are usually grown in conjunction with cut flowers, herbs, specialty lettuce, and/or other vegetables. Flowers complement other plants by attracting pollinators and other beneficial insects.

Some common edible flowers are:
- basil—flavor is mild, similar to the leaves.
- carnations—surprisingly sweet petals can add color to salads.
- dandelions—sweetest when flowers are young; honey-like.
- daylilies—slightly sweet with a mild vegetable flavor.

Resources Needed
- seed packets, seed catalogs and/or gardening books for reference
- plant potting containers (small starter flats and small pots for transplanting bedding plants)
- 3 different growing media (sandy soil, clayey soil, soilless potting substrate)
- marigold seeds
- sunlit window area or grow-light plant stand
- plant markers to label all plants and growing media
- notebooks
**Rules for Eating Flowers**

- Eat flowers only when you are positive they are edible. If uncertain, consult a good reference book.
- Just because flowers are served with food does not mean they are edible.
- If pesticides are necessary, use only those products labeled for use on edible crops.
- Do not eat flowers from florists, nurseries or garden centers.
- Do not eat flowers picked from the side of the road.
- Remove pistils and stamens from flowers before eating. Eat only the flower petals of most edible flowers.
- Introduce flowers into your diet in small quantities, one species at a time.
- If you have allergies, introduce edible flowers gradually, as they may aggravate some allergies.
- Enjoy the different flavors and colors that edible flowers add to many foods.

Iowa State University

---

**Some common poisonous flowers** are autumn crocus, azalea, buttercup, butterfly weed, calla lily, Christmas rose, daffodil, delphinium, clematis, foxglove, hydrangea, iris, jasmine, morning glory, lily of the valley, and wisteria, among others. Use a good reference book to make sure flowers are edible before eating them.


---

**Activities**

1. Read and discuss background.
   - Provide seed packets, seed catalogs and/or gardening books for students to see photographs of the edible flowers listed.
   - Provide samples of some edible flowers for students to taste. (See list in the background.)

2. Students will grow marigolds in three different kinds of growing media. Marigolds are recommended because they are quick to germinate and easy to grow. If time does not permit growing flowers in the classroom, students will plant the flowers in the classroom, grow them at home and communicate results.
   - Divide the class into three groups.
   - Provide copies of the “Scientific Method Format” from the “Resources” section.
   - Review the steps of the scientific method.
   - Each group will answer the question: “Can different growing media affect the flavor of an edible flower?”
   - Students write a hypothesis for the investigation.
   - Students design the experiment.
   - Students gather material.
   - Each group will plant seeds in each of the three growing media.
   - Plant the seeds. Follow package directions for growing.
   - Each group will record the steps and care given its seeds into a notebook.
   - Students will transplant the plants into larger pots as the plants grow.
   - Groups will research information for accelerating bloom time and continue gathering data.
   - When the flowers bloom, set up a blind “sensory room,” where panelists (students) are separated.
   - Students sample the flowers to compare flavors and determine if there

---

English daisy—mildly bitter taste, used mostly for decoration.
hibiscus—cranberry-like flavor; can be used in salads.
honeysuckle—sweet honey flavor.
pansy—slightly sweet, green or grassy flavor.
violets—sweet, perfumed flavor.
nasturtium—peppery taste.
squash blossoms—similar to squash.

---

Iowa State University
is a difference in taste of the flowers grown in the different media.
—Students analyze data to determine if the hypothesis is supported and if
the soil type affects the flavor of the flower.
—Each group communicates its results to the class.
3. Students research online or in the library to develop a list of edible flow-
ers.
—Students visit a local greenhouse or florist to identify edible flowers.
4. Students research foods that contain Vitamins A and C.
—Students will taste-test foods that contain Vitamins A and C (kiwifruit,
papaya, Brussels sprouts, kale, mangoes, turnip greens).
6. Provide food labels from canned fruit and vegetables.
—Students search the RDAs for the amounts of Vitamins A and C in each
food.
—Students make bar graphs showing which of the foods provide the
greatest percentage of recommended daily allowance (RDA) for each of
the vitamins.

Extra Reading

Vocabulary

culinary—of or relating to
the kitchen or cooking
edible—fit or safe to be
eaten
nectar—a sweet liquid
given off by plants and
especially by the flowers
and used by bees in making
honey
pesticide—a substance
used to destroy pests
pistil—the seed-producing
part of a flower consisting
usually of stigma, style, and
ovary
pollen—a mass of tiny par-
ticles in the anthers of a
flower that fertilize the
seeds and usually appear as
fine yellow dust
stamen—an organ of a
flower that consists of an
anther and a filament and
produces the pollen
water-soluble—capable of
being dissolved in water