The Academy of Natural Sciences of DREXEL UNIVERSITY

SEED BOMBS

OBJECTIVE

- Make a bee-friendly seed mixture
- Learn about bee-friendly plants

MATERIALS

- Soil
- Clay
- Local seeds

INSTRUCTIONS

1. Mix one part soil with one part clay (each the size of a ping pong ball ping-pong ball sized amount of each)

a. Why do we use dirt to seal in the seeds? Because it is a natural substrate in which seeds grow.

b. Do you have a garden at home or at school?

2. Form the mixture into a sphere. Don't be afraid to get your hands messy!

a. Where do you think would be the best place to plant this seed mixture? Sunny location, soft earth, can get natural rainfall

b. What is your favorite flower or plant?

3. Use your finger to make an indentation in the center of the ball.

a. How many seeds do you think will fit into this golf-ball-size seed bomb?

4. Take a pinch of seeds (15-20 seeds) and put them into the center of the ball

a. What types of bugs have you seen in your yard or local park?

b. How long will it take for the seeds to grow? Seeds will germinate, or begin to grow, 1-3 weeks after you plant and water the seed bomb.

5. Close the hole in the ball so it is a sphere again

6. Throw the seed bomb in your yard (or alongside a highway or in an old abandoned lot!) and plant a pollinator-friendly garden! The seed ball will naturally decompose and release the seeds.

a. What makes a plant pollinator-friendly? One that provides nectar as a sweet treat for insects/birds/other pollinators that inadvertently pollinate the flower while trying to reach the yummy nectar.

BACKGROUND INFORMATION

Bee Information from the USDA

- In the United States, there are over 4,000 species of native bees. Familiar bees visiting garden flowers are the colorful, fuzzy, yellow-and-black-striped bumblebees, metallic-green sweat bees, squash bees, and imported honeybees. These flower-seeking pollen magnets purposefully visit flowers to collect pollen and nectar for food for themselves and their young.
- All bees have very high-energy needs that must be met for their survival. Bees need key resources such as pollen and nectar from a variety of flowers. Bees need these resources for themselves and their progeny. Many bees need water in addition to nectar.
- Bee nesting habits vary greatly. For example:
  - Mason bees construct nests from mud.
  - Leafcutter bees use a "wrapper" of leaves, resin and sand.
  - Carder bees harvest plant fibers.

Bee information from benefits-of-honey.com

The most important crops in the U.S. that honeybees pollinate are alfalfa, almonds, apples (and other cultivated fruits) and certain vegetable.
Most bees excavate their nest tunnels in sunny patches of bare ground, while others seek out abandoned beetle burrows in dead tree trunks or branches.
The majority of bees are solitary, but a few, like sweat bees, bumblebees, and honeybees, are social, living in colonies that consist of a queen, her worker bee daughters and a few males, the drones.

The flowers that are visited by bees are typically:

- Full of nectar
- Brightly colored with petals that are usually blue or yellow or a mixture of these (bees cannot see red)
- Sweetly aromatic or have a minty fragrance
- Open in daytime
- Provide landing platforms
- Often bilaterally symmetrical (one side of the flower is a mirror image of the other)
- Flowers are often tubular with nectar at base of tube
- An example of a bee-pollinated flower is a snapdragon or Penstemon
- Snapdragon flowers have sturdy, irregular-shaped flowers with landing platform. Only bees of the right size and weight can trigger the flower to open. Other bee species or other insects that are too small or too large are excluded.

Many of the flowers pollinated by bees have a region of low ultraviolet reflectance near the center of each petal. This region appears invisible to humans because our visual spectrum does not extend into the ultraviolet. However, bees can detect ultraviolet light. The contrasting ultraviolet pattern called a nectar guide. This guide helps a bee quickly locate the flower's center.

This adaptation benefits both the flower and the bee. The bee can more rapidly collect nectar and the flower is more effectively pollinated.