Pollinators K-2

*Bees*

1. Read the Book- *Honeybee: The Busy Life of Apis Mellifera* by Candace Fleming and illustrated by Eric Rohmann
2. Teach the Students the Waggle Dance to demonstrate how bees communicate (https://www.theapiarist.org/the-waggle-dance/)
3. Help Students make "Bee hotels":

   What you need to make a bee condo:

- Brown heavy cardstock paper
- Cardboard tubes (from paper towel rolls)
- Paper straws (not plastic)
- Scissors
- Non toxic clay
- Hole punch and string

1. Trim cardboard tubes into about 3" lengths.

2.Fold brown heavy cardstock or a recycled cereal box into a rectangle shape to house the cardboard tubes. Glue tubes inside rectangle.

3. Fill cardboard tubes with paper straws and trim straws to fit. If needed, secure straws in cardboard tubes with glue.

4. Fill ends of one side of paper straws with clay

5. Fold a rectangle of cardstock into a sloped roof and glue on top of rectangle shape. Punch a hole in the top of the roof and add a piece of string for hanging the condo.

6. Add a rectangular piece of paper as a base to complete your bee condo.

Pollinators 3-5

**Seed Balls**:

Seed Ball Recipe:

2 parts potting soil

5 parts pottery clay mix from your local art store

1-2 parts water

1-2 parts seeds of your choice

Large tub to mix ingredients

Large box to dry and store seed balls

Directions: Mix the soil, clay and 1 part water thoroughly. There should be no lumps. Slowly add more water until the mixture is the consistency of the toy store molding clay that comes in a can. Add seeds. Keep kneading the dough until the seeds are well mixed in. Add more water if necessary. Take small bits of the clay mixture and roll into ball about one inch in diameter. The balls should hold together easily. If they're crumbly, add more water. Dry seed balls for 24-48 hours in a shady place before sowing or storing. They store best in a cardboard box. Do not use plastic bags. The last step in how to make flower seed balls is sowing them. Yes, you can place them carefully over the area to be planted or you can gently toss them one at a time, which is a lot more fun. Don't bury them and don't water them.

**PLANT PIGMENTS (from NACD Pollinator Field Day Guide)**

Materials

• Large flower petals in red, blue and purple. You can also try other colors if they are available.

• Small plastic baggies

• Hammer, rubber mallet or rolling pin

• Water

• Small paper or plastic cups

• Measuring spoons (teaspoons)

• Droppers

• White vinegar

• Baking soda solution (two cups water, 1 teaspoon baking soda)

Background Information

We know that many pollinators are attracted to flowers because of their beautiful colors, but where do those colors come from? Inside the flower petals are colored molecules called pigments. Each of these pigments has a particular shape. If there is a change in the molecular shape, the color can change.

Depending on how much time is available and the ages of the students, you may want to omit adding the acid and bases to the petal juice and focus on observing the color.

Station Instructions

Ask students if they have a favorite flower and why they like it. Many of the answers may relate to the color of the flower. Ask students why flowers are so brightly colored. Tell students that the color of a flower can be an adaptation to attract pollinators. But where does this color come from? Tell students they are going to observe the pigments in flowers. Some students will need your help or the help of a chaperone.

Working in small groups (2-3 students), have students choose some flower petals (at least 5); tear them up into small pieces and place them in a plastic bag. Squeeze out the air and seal the bag.

Using a hammer, rubber mallet or rolling pin, carefully smash the petals into a pulp without damaging the bag.

Open the bag and slowly add 5 teaspoons of water. Have students use their fingers to keep squishing the petals until the water fully changes color. Make sure that each student gets a turn.

Let students carefully pour out the water that has been colored by the pigment in the petals into a small cup, leaving the pulp in the plastic bag.

Have the students gather some observations about the solution they created. Is there anything that they

noticed?

If time permits, have students use droppers to add a few drops of their solution to an empty cup. Ask them to make a prediction about what would happen if they added a few drops of vinegar or a baking soda solution.

Explain that within each flower petal are pigment molecules that give the flower its color. Ask students why they think flowers might change color during their lifecycle or why leaves change color in the fall. What does that tell us about the pigment in plants?