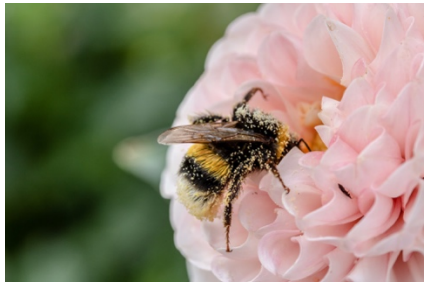


Pollinator Preferences

Many plants and crops rely on pollinators for their reproduction. A **pollinator** is an organism that moves pollen from one plant to another.

But what is pollen? And is pollen the same as nectar? We often hear the words pollen and nectar together but these two plant products are different. **Pollen** is a fine to coarse powder that is the male gametophyte of seed plants. In other words, it contains the genetic material of plants and is vital to reproduction. Pollen must reach the female parts of plants for a seed to form. Once the seed is formed, dispersed, and buried in the earth, a new plant can grow. But how does pollen move from the male parts to the female parts of a plant? It doesn't have legs or wings to move around! That's where pollinators and nectar come in. A pollinator, like a bee or butterfly, will visit a plant and pollen will get stuck to its body. Then this pollen will catch a ride to another plant on the pollinator! And why should the pollinator even visit or land on the plant in the first place? Well, that's where nectar comes in. **Nectar** is a sugary-liquid secreted by plants that is delicious to pollinators. The nectar convinces a pollinator to land on a flower. Insects, like bees and butterflies, drink it. Bees make nectar into honey.



Bee drinking **nectar** while covered in **pollen**

Nectar is one way flowers attract pollinators, but if these insects are far away, they might not know that there is delicious nectar on a flower. If you owned a store that sold nectar to passing insects, what would you do to advertise your merchandise? You'd probably make a sign! Flowers essentially have signs advertising their nectar – the colours and patterns on their petals. They might have lines on their petals that lead pollinators to their nectar, and so, to their pollen.

Different colours attract different pollinators. For example, bees are most attracted to blues and purples, but can't see reds, whereas butterflies are attracted to red, yellow, orange, pink and purple flowers.

Stripes along petals can often indicate to a pollinator the pathway to the nectar and pollen, almost like a landing strip for insects. Interestingly, some patterns on flowers are invisible to humans, and can only be seen in ultraviolet light (which many insects can see). To see wonderful images of different flowers in UV light see: http://www.naturfotograf.com/UV_flowers_list.html

For this week, we've slightly modified a neat experiment in "My Book of Science Experiments" written by Nicola Baxter that tests what type of patterns and colours insects like most. When making your flowers, you can test different colours, different patterns, different combinations of the two, and even keep detailed notes on which types of insects seem most attracted to each option. There are lots of modifications you can try with this activity, so happy experimenting!

Experiment

Materials:

- ⊗ Different colours of construction paper
- ⊗ Cardboard
- ⊗ Markers
- ⊗ Wire: sturdy wire like that in old clothes hangers. Ask a grown-up for help cutting wire to the appropriate lengths.
- ⊗ Modelling clay
- ⊗ Honey

Method:

1. Cut flower shapes out of cardboard and your choice of coloured construction paper. You can start with 4 flowers, 2 of one colour and 2 of another, for example, 2 red and 2 purple. Glue the construction paper to the cardboard, so that your flower shapes are more rigid (with the cardboard backings).
2. Take one flower of each of your colours and draw lines down the petals. For example, draw lines down 1 red and 1 purple flower's petals, but keep 1 red and 1 purple flower plain.
3. Cut pieces wire for the stems of your flowers, making them tall enough to see and observe when you push part of the wire into the soil. We suggest about 8 inches (for 6 inches above ground, and 2 inches of wire pushed into the soil). Bend the wire about half an inch from the top and punch it through the middle of your flowers. Use modeling clay to keep your cardboard flowers on the wire and to cover up the sharp end of the wire.
4. Outside, push the bottom end of your wire stems in the ground near some real flowers in your yard.
5. Put a blob of honey on the clay center of each of your flowers. This represents the nectar.
6. Observe your flowers in action and see which flowers insects land on most! Are insects more attracted to a certain colour flower? Are they more attracted to the flowers with lines or those without? Are different types of insects attracted to different colours or patterns? You can run this experiment again using different colours or different petal patterns with however many different variables you want!