Many flowers are pollinated by one specific animal. Often, this animal has an unusual feature that makes it perfect for pollinating this flower! For example, hummingbirds have curved beaks that match the curve of flowers. Use these cards to build a fantastic flower, then imagine an animal to be its perfect pollinator.

**MATERIALS**
- Plant Trait Cards (Included)
- Markers, crayons, or paints
- Paper
- Science notebook or paper
- Something to write with
- Optional: tape, scissors, pipe cleaners, straws, glue, string, cardboard, felt—any other craft supplies

**PROCEDURE**
- Print and cut out the cards below, OR copy them on to 20 small cards. Sort them into five piles based on their category.

<table>
<thead>
<tr>
<th>COLOR</th>
<th>SHAPE</th>
<th>SIZE/STRUCTURE</th>
<th>HABITAT</th>
<th>MYSTERY TRAIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>a wide, flat, plate-shaped flower</td>
<td>A tree with flowers at the very top</td>
<td>Snowy mountaintop</td>
<td>The flowers only open at night</td>
</tr>
<tr>
<td>Blue</td>
<td>a long, thin, pencil-shaped flower</td>
<td>An aquatic (water) plant with floating flowers</td>
<td>Rocky desert</td>
<td>So much nectar that it spills out when you bump it</td>
</tr>
<tr>
<td>Pink</td>
<td>a baseball-sized bunch of tiny flowers</td>
<td>A grass that grows in bunches close together</td>
<td>Muddy swamp</td>
<td>The flower closes when there are loud noises</td>
</tr>
<tr>
<td>White</td>
<td>a baseball-sized bunch of tiny flowers</td>
<td>A vine that climbs up rocks and trees.</td>
<td>City parks and front yards</td>
<td>Sticky leaves that trap small insects</td>
</tr>
</tbody>
</table>

*Experiment continued on next page...*
PROCEDURE continued...

- Pick one card of each category. This is the flower you will be predicting a pollinator for.
- Draw your flower with markers, crayons, or glue. Include the landscape where it grows. Give your flower a name.
- Then, predict the pollinator that visits this flower. Animals like slugs, possums, and lizards are pollinators too, so let your imagination run wild! Use the questions below to think about how this animal lives.
  - How big is your pollinator? Can it sit on the flower, does it stand on the ground, or hover in midair?
  - What is your pollinator’s mouth like? A beak, a snout, or something else?
  - How does your pollinator get around? Can it fly? Does it swim?
  - What senses does it use to locate the flower?
  - What adaptations, or special characteristics, does it have that allow it to live in the habitat where this flower grows?
- Draw your animal with crayons, markers or paint. Give your animal a species name.
- **Optional:** Build your flower and/or your animal with any crafting materials and recyclables you have around your house!

TRY THIS

Compare your flower to a simple flower that is pollinated by ten different kinds of insects. What would happen to your flower if your animal disappeared? What would happen to the simple flower if one of its pollinator species disappeared? Which flower would have larger consequences?

Ecologists, or scientists who study the ways the species interact, use the word “resilience” to describe how well a species can recover from a change in its environment. Which flower has greater resilience, the flower with ten pollinators or the flower with one pollinator?

Experiment continued on next page...
DID YOU KNOW

Predicting a never-before-seen animal from a flower is something that has really happened! In 1862, Charles Darwin was studying a flower with a 10-inch spur. He predicted that it was pollinated by a moth with a 10-inch tongue. Forty-one years later, a moth was discovered just like the one he predicted.

The flower and the moth came about through a process called co-evolution. Co-evolution happens when two organisms both get an advantage by being more specialized for each other’s needs. The moth gets an advantage from its long tongue by being able to drink the flower’s nectar. The flower gets an advantage from its long spur because the moth drinks from this flower specifically, and the flower is more likely to be pollinated. Since both organisms benefited, generation after generation kept going down the same path!

Co-evolution has occurred many times between flowers and pollinators. It’s why flowers that are the perfect shape for bees to land on have pollen that is high in protein and makes excellent bee food!
3–5 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- Scientists often sort organisms into two categories: generalist and specialist. Generalists are species that can survive in a broad range of environments. Specialists need specific conditions in order to thrive. Is a co-evolved pair of species generalists or specialists? Explain your reasoning in your science notebook.

- Imagine that you’re on an expedition into the wilderness and that you’ve just discovered the plant you made with your trait cards. Write a journal entry in your science notebook about the animal you predict will one day be found to match.