

Native Bee Hotel

<p>Educational Elements</p> <p>Key Concepts: Understand the importance of native pollinators and their place in the ecosystem.</p> <p>Age Level: 6 - 12</p> <p>Life Skills: Communication, Planning/Organizing, Service Learning, Teamwork</p> <p>Science and Engineering Practices:</p> <ul style="list-style-type: none">- Asking questions and defining problems- Analyzing and interpreting data- Constructing explanations and designing solutions <p>Success Indicators: After completing this activity, participants will be able to:</p> <ul style="list-style-type: none"><input type="checkbox"/> Identify one to two key pollinators in addition to the honey bee.<input type="checkbox"/> Describe bee lifestyle as either solitary or social.	<p>Materials and Methods</p> <p>Lesson Time: 40 Minutes</p> <p>Space: Indoors or Outdoors</p> <p>Materials:</p> <ul style="list-style-type: none"><input type="checkbox"/> Image of Mason Bee life cycle<input type="checkbox"/> Tin Can or terra cotta pots<input type="checkbox"/> Paint and paint brushes<input type="checkbox"/> Ruler<input type="checkbox"/> Scissors<input type="checkbox"/> Newspaper<input type="checkbox"/> Pencils<input type="checkbox"/> Glue stick<input type="checkbox"/> Bamboo sticks<input type="checkbox"/> Drill<input type="checkbox"/> Untreated wood <p>Overview: Participants learn about the role of native pollinators while contributing to their habitat. Using recycled materials, participants will build solitary bee houses.</p>
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Do:

Before activity: Review the lesson and be familiar with the activity and materials.

During activity:

1. Begin with assessment questions.
 - *Why do plants make flowers? Who are they trying to attract?*
 - *We typically think of the honey bee as a pollinator, but who are some others?*
 - *Why would we want pollinators on the farm?*
 - *How could we encourage pollinators of all kinds to make this their home?*
 - *Is the farm doing anything well? What could we do better?*
2. Discuss with participants the different types of bee habitats on the farm.
 - *What does a honey bee house look like? Have you ever seen a wasp nest? What did that look like? Not all bees live in colonies like the honey bee. Some bees live solitary lives. The Mason bee is one such example.*
3. Explain to the group that we are going to build houses for the solitary Mason Bee. Share with the group the bee's life cycle.
 - *What do you think the ideal house for a Mason Bee should look like based on what we know about it?*
 - *Do you think that there are some building materials that the mason bee prefers over others? What do you think those are?*
 - *Is there anything that we shouldn't put in the mason bee's house?*
 - i. Begin passing materials out to campers.
 - ii. Campers measure the length of the housing encasement (tin can or terracotta pot) and cut the appropriate length of newspaper strips to fit inside.
 - iii. Wrap newspaper around pencils, dabbing glue onto the loose edge. Remove the pencil from the center of the rolls.
 - iv. Continue to make newspaper rolls until the tin can or terra cotta pot is full.
 - v. Decorate the outside of the can to welcome the new residents.
 - vi. Take your new Mason Bee hotel to one of the frames for the participants. Participants may choose to place it in the Education Garden or the Apple Orchard by the Children's Garden.

Reflect:

4. **After activity:** Facilitate discussion among participants about their observations and wonderings.
 - *Knowing what we do about Mason bees, how does this home appeal to them?*
 - *Did you select certain colors and patterns to decorate the outside of the home? Why?*
 - *What was something you considered when choosing where to place your hotel?*

Apply:

5. After Activity: Check for understanding.

- *What is the difference between this housing and other bee housing on the farm? Why is this important?*
- *If we did not provide this habitat, where do you think the Mason Bee would make its home?*
- *Is the farm the only place we need pollinators? Why are they important for say, roadsides, forests, and your backyard?*
- *So earlier we talked about other types of pollinators, what could we do to bring them to the farm?*

<p>Ways to Extend:</p> <ul style="list-style-type: none"> - Hand pollination - Flash Cards: Which foods were produced with the help of pollinators? 	<p>Resources to build on background knowledge:</p> <ul style="list-style-type: none"> - If you read nothing else, check this out: https://e360.yale.edu/features/bee_collapse_co2_climate_change_agriculture - Mason Bee Lifecycle: https://www.buzzaboutbees.net/mason-bees.html
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Science & Engineering Practices	Action	Activity Step
Asking questions and defining problems	Participants discuss the role of pollinators in the food system. Questions are posed about the needs of pollinators and how people can improve habitat.	During Activity 1, 2, & 3
Analyzing and interpreting data	Participants study the lifecycle of pollinators and use the information to design homes and place the homes in an ideal habitat.	During Activity 3 After Activity 4
Constructing explanations and designing solutions	Participants discuss the issues facing pollinators and consider ways that habitat can be engineered to improve their population numbers.	After Activity 5

