



BEE AWARE

Activity Guide



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British Columbia Council, BC Program Committee
107-252 Esplanade W., North Vancouver, BC V7M 0E9

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Introduction

Welcome to Bee Aware, one of three themes presented by the BC Program Committee for the 2021-2022 Guiding year. This Activity Guide is a special May 2022 event that will get your unit outside to enjoy some spring activities and start thinking about how they can become activists. Bee populations impact our world. Bees are found throughout our province and these amazing creatures pollinate many of the crops we eat.

We could not have put together this theme resource without the many contributions of the Area Program Advisers—thank you! We hope that your unit enjoys these activities.

Objective

Bees are an important part of our ecosystem. They are responsible for pollinating about 80 percent of all flowering plants—including many fruits and vegetables. Our objective with this Bee Aware Activity Guide is to provide some new ideas for units to learn and explore together. We hope this theme gives you information to understand and support bees in your community and to advocate for bee-friendly policies.

Requirements

To complete the theme, each unit will complete at least one activity from each section.

All Branches: Learn some facts about bees and their importance globally and locally.

Craft: 1 for all branches.

Food: 1 for all branches.

Game: 1 for Sparks and Embers; 2-3 for Guides, Pathfinders, and Rangers.

Activism: 1 for Sparks and Embers; 2-3 for Guides, Pathfinders, and Rangers.

Scientists: 1 for Guides, Pathfinders, and Rangers.

After you complete the activities, Guiders fill out the following Bee Aware form:
<https://forms.office.com/r/QfQdyhXZtu>.

When you complete the Bee Aware Form, your unit will receive special BC Bee Aware crests. Please note—the deadline to complete your activities and then fill out the form is **May 15, 2022**. We cannot mail crests to units that submit their form after this date.

Fun Facts About Bees

One fun way to recall facts with your unit is to give them a selection of interesting facts at the beginning of the meeting, and challenge them to remember this information until the end of your 1-2 hour meeting. At the end of the meeting, you can ask things like “Bees have 3 main body parts—what are they?” With Guides, you can turn this into a fast-paced quiz, and older branches may enjoy a Jeopardy-style game or Kahoot.

BEE BIOLOGY

- Bees are part of the Insect family. They have three main body parts: a head, thorax, and abdomen.
- Bees have a straw-like tongue called a proboscis to suck up liquids. They also have mandibles to chew food.

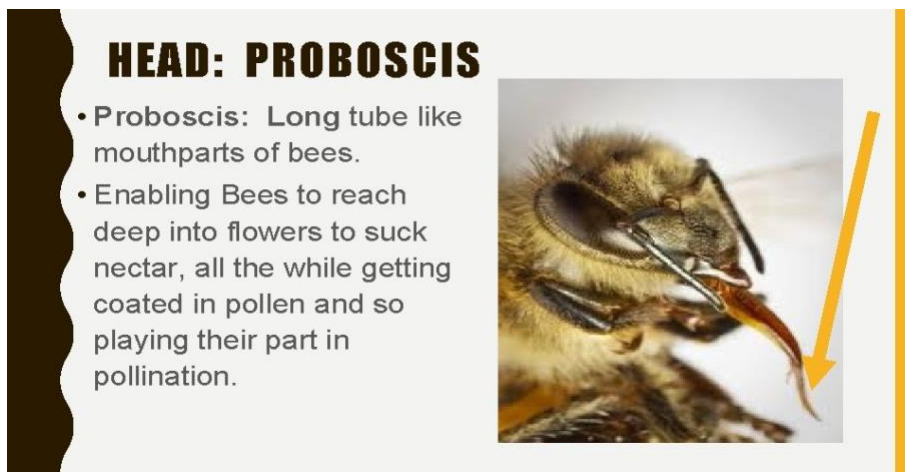


Photo credit: <https://slidetodoc.com/honey-bee-anatomy-student-learning-objectives-students-will/>

- Bees have two stomachs—one stomach for eating and another special stomach to store nectar collected from flowers, or water, so they can carry it back to the hive.
- Bees have two pairs of wings. These wings have tiny toothed edges so they can lock together when the bee is flying.
- There are different types of bees in a honey bee hive: Worker, Drone, and Queen. Each type of bee has its own important role and performs specific duties in the colony.
- Each hive only has one queen bee. She communicates to her hive by letting off a scent (pheromones) and by tiny vibrations. All the bees in the hive know their queen bee.
- The queen bee spends her day being cleaned and fed by worker bees. The queen bee is female and is the only one to produce baby bees.

- A queen bee can produce 2,000 eggs a day. Over her life, a queen bee can lay up to one million eggs. Fertilized eggs become females. Unfertilized eggs become males, with the help of pheromones.
- All worker bees are female. A hive has 30,000 to 50,000 worker bees.
- Worker bees spend their days collecting pollen from flowers and bringing it back to the hive. Worker bees also clean and feed the queen and drones
- All drone bees are male. There are only a few drone bees in each hive.
- Drone bees sleep and eat all day. They are fed by the worker bees.
- Drone bees have bigger eyes to help them find the queen bee when flying.
- Drone bees are kicked out of the hive each winter
- A honey bee can fly 24 km in an hour. That's a speed of 24 km/hr (or 15 mph).
- A bee's wings beat 200 times per second or 12,000 beats per minute.

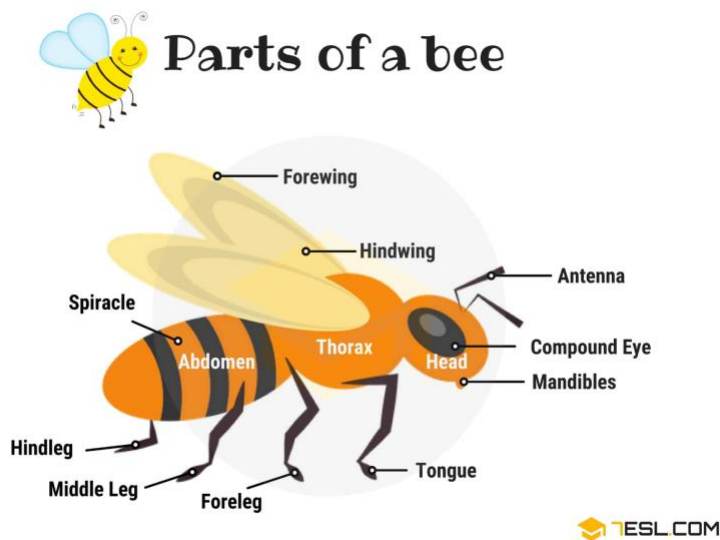


Photo credit: <https://7esl.com/parts-of-a-bee-vocabulary/>

- There are over 20,000 different species of bee, found on every continent except Antarctica. British Columbia has about 500 types of bees.
- Most bees are solitary: they live alone or with their few offspring. Solitary bees don't produce enough honey for commercial production.
- Bees have been around for 30 million years.

BEES AND HONEY

- Most flowering plants—almost 90 percent—depend on insects and other animals for pollination. Honey bees pollinate 80 percent of all flowering plants, including more than 130 types of fruits and vegetables.
- Do you love strawberries, apples, or chocolate? Bees pollinate those plants!

- Bees carry pollen on their hind legs; each hind leg has a special structure called a pollen basket. Pollen is a source of protein and is fed to baby bees to help them grow.
- Some bees, like bumblebees and carpenter bees, can vibrate their flight muscles while hanging below a flower. This is called buzz pollination—it shakes the pollen loose from the flower’s anther.
- Bees dance to communicate with each other about food sources.
- It takes at least eight bees their whole lives to make one teaspoon of honey.
- Bees fly the equivalent of three times around the world to make one kilogram of honey.
- In a single day, one honey bee may visit several hundred flowers.
- Honey contains natural preservatives that prevent bacteria from growing.
- Honey was found in some tombs in Egypt, and it was still edible!
- The type of flower the bees take their nectar from determines the honey’s flavour.

HELPING BEES

- To get more bees in your garden, grow flowers with different colours.
- Bees love blue and love clustered flowers like lavender and rosemary.
- The bee is the only social insect to be partially domesticated by humans.
- Beekeeping dates back 9,000 years. People may have domesticated wild bees or gathered honey and wax for medicines and food. They used beeswax to waterproof pots and used honey as a sweetener.
- There are almost 2,700 beekeepers throughout B.C., operating as a hobby, part-time, or full-time business. That adds up to more than 52,000 colonies.
- Native bees pollinate specific plants and have smaller honey yields.

BEE VIDEOS

If you can show videos at in-person meetings, or virtually, here are some videos all about bees.

Busy Bees: This short video is suitable for Sparks, Embers, and younger Guides. It introduces the basics of bee biology. <https://www.youtube.com/watch?v=ta154f5Rp5Y>

How Bees Make Honey: This short video is suitable for all ages. It provides clear information: <https://www.youtube.com/watch?v=cDIHHCgbMc4>

Like Fruit? Thank a Bee: This short video is suitable for Sparks, Embers, and Guides. It shows how fruit grows after pollination: <https://www.youtube.com/watch?v=txv2k7OoY7U>

Urban Bees: This video is suitable for Guides, Pathfinders, and Rangers. It shows bees in a hive and how to extract honey: <https://www.youtube.com/watch?v=Ft08l9w6lPI>

Bee Creative (Crafts)

This section provides a wide variety of crafts. Feel free to select any activities for your unit—consider their interests, attention span, and manual dexterity. Some crafts require some tools like glue guns and utility knives, so please go over the safety guidelines and provide adult supervision. We challenge you to use recycled or repurposed items as much as possible.

Mason Jar Bee Homes

This activity may take 20-30 minutes.

You Will Need:

- Clean dry water bottles or mason jars with handles (1 per person)
- Paper bags (enough for everyone)
- Rulers (1 per 4 people)
- Pencils (1 per person)
- Glue or tape (1 per 4 people)
- String or twine (1 per 4 people)
- Scissors (1 per person)
- Utility knife (1 per adult)



Photo credit: Claire Sokoloski

Note: If working with Sparks, Guiders can pre-cut the paper bags to save time

What to Do:

1. **** Adults only **** Carefully cut off the top portion of each bottle using a utility knife.
2. Cut approximately 30 rectangles (5 cm x 15 cm) from your paper grocery bag. These don't have to be perfect. Optional: Use a ruler to measure and draw some rectangles. Cut them out to use as templates.
* Note: Check that 15 cm strips will fit into your bottle without sticking out. *
3. Roll each piece of paper around a pencil to create a 'straw' shape. Remove it from pencil. If you want your 'straw' a little tighter, re-roll the now-curved piece with your fingers. Use a small bit of tape or glue to secure at the midpoint. The 'straws' do not need to be the same diameter, so have fun mixing it up!
4. Insert each 'straw' into the bottle until the space is completely filled.

5. Add a string to hang up your bottle. Water bottles have grooves that are perfect for securing your string in place; mason jars have a handle where you can tie your string.
6. Hang the bee home in a sunny spot and wait for your winged guests to arrive.

Bee Planter

This activity may take 30-45 minutes. Once the paint is dry, add your own bee-friendly flowers and soil.

You Will Need:

- 15 cm clay pots (1 per person)
- 15 cm clay saucers (1 per person)
- 7.5 cm wooden balls (1 per person)
- 5 cm wooden balls (4 per person)
- Pipe cleaners or wire for antennae (2 per person)
- Mini pompoms for nose (1 per person)
- Small googly eyes (2 per person)
- Acrylic paint: yellow, pink, and black (to share)
- Paint brushes (1 per person)
- Cups with water for rinsing paint brushes (1 per pair)
- White craft glue (to share)
- Hot glue guns (to share)
- Glue sticks: with **marine epoxy** works best for terracotta pots (to share)
- Optional: jewels
- Optional: hair dryer



Photo credit: <https://pin.it/124LHHK>

What to Do:

1. With black paint, paint your 4 smaller wooden balls and 1 larger ball. Set them aside.
2. Paint your clay pot and saucer with yellow stripes first. Allow them to dry. Optional: Use a hair dryer to speed up the drying time. Now add the black stripes. (Note: Use yellow first, as it is easier to paint over if there are any mistakes.)
3. Use the marine epoxy to glue the 4 small balls as legs inside the saucer (see photo).
4. With marine epoxy, glue the head at the front of the saucer (see photo). Use white craft glue to add the googly eyes and nose.

5. Shape two antennae out of pipe cleaner or wire. Use hot glue to attach to the head.
6. Paint two small pink circles for cheeks.
7. Use marine epoxy to attach the pot to the saucer, bottoms together (see photo). If you are adding jewels around the base of the pot, use epoxy.

Bee Wind Chimes

This activity may take 30-45 minutes, depending on the age group.

You Will Need:

- Aluminum cans (1 per person)
- String, yarn, or rope (to share)
- Bells or beads (6 per person)
- Clear stiff plastic (to share)
- Googly eyes (2 per person)
- Sharpies (1 per 4 people)
- Dry erase markers (1 per 4 people)
- Acrylic paint: yellow and black (to share)
- Cups with water for rinsing paint brushes (1 per pair)
- Glue guns (to share)
- Screwdriver or hammer (1 per adult)
- Paint brushes (1 per person)
- Scissors (1 per person)



Photo credit: <https://jewelsandheart.com/how-to-make-a-bee-windchime-with-kids/>

What to Do:

1. Take an aluminum can and puncture 6 holes in one side of the can. The holes should form a rectangle. Sparks and Embers: An adult may want to prepare cans in advance.
2. Puncture another hole on the opposite side from the 6 holes. This is for the wings and the string to hang the bee. Sparks and Embers: An adult may want to prepare cans in advance.
3. Use yellow paint to cover the outside of the can. Let dry for a few minutes.
4. Once dry, paint two stripes of black around the can.
5. Using hot glue, attach the googly eyes on the bottom of the can.
6. With a Sharpie, draw a mouth, eyelashes, and/or eyebrows on the bottom of the can.
7. Cut 6 equal lengths of string. Tie a bell or bead to the end of each one.

8. Thread a string through each of the 6 holes, tying a knot on the end so it stays in place. Sparks and Embers may need help with this step.
9. Using a dry erase marker and some clear plastic, draw two wings connected with a small rectangle. Cut out the wings and erase any lines.
10. Cut a small hole in the middle of the rectangle between the wings. Put a string through the hole and create a loop at the top of the string.
11. Now pass this string through the top hole in the can. Tie a knot so it stays in place.
12. Hang your bee outside and enjoy!

Recycled Bee

This activity takes about 20-30 minutes plus drying time. Repurpose household items or recycling to make this cheerful bee craft.

You Will Need:

- Paper beverage trays or egg cartons (to share)
- Clean white plastic milk jugs, construction paper, plastic packaging or bubble wrap (to share)
- Acrylic or tempera paint: yellow and black (to share)
- Paint brushes (1 per person)
- Black pipe cleaners ($\frac{1}{2}$ per person)
- Gogly eyes (2 per person)
- Glue: white craft glue or glue gun (to share)
- Scissors (1 per person)
- Pencils (1 per person)
- Cups with water for rinsing paint brushes (1 per pair)



Photo credit: <https://buggyandbuddy.com/bumble-bee-craft-for-kids-using-recycled-materials/>

What to Do:

1. Cut out the top sections that divide each drink holder on the beverage tray. Alternatively, use a cardboard egg carton; cut out the individual egg holders and trim down to 1 cm high.
2. Paint cardboard pieces yellow.
3. Paint black lines on the yellow bodies. Allow paint to dry.
4. Make wings using a milk jug, construction paper, bubble wrap, or clear plastic. With a pencil draw two wing shapes and then cut them out.

5. Glue the wings on the back of the painted bee bodies.
6. Cut black pipe cleaner into 2 pieces. Curl the ends to form antennae. Glue on top.
7. Glue googly eyes on the front.
8. Optional: Use a small piece of pipe cleaner as a stinger. Glue it to the bottom.

Craft Stick Bee

This activity takes about 15-30 minutes plus drying time.

You Will Need:

- Mini craft sticks (8 per person)
- Plastic milk jugs (to share)
- Tempera paint: yellow and black (to share)
- Sharpies: black and red (1 per 4 people)
- Paint brushes (1 per person)
- Cups with water for rinsing paint brushes (1 per pair)
- Scissors (1 per person)
- Glue (1 per 4 people)
- Black pipe cleaners ($\frac{1}{2}$ per person)
- Googly eyes (2 per person)
- Pencils (1 per person)
- Cardstock: wing templates (2 sizes)



Photo credit: <https://abcsofliteracy.com/craft-stick-bumble-bee-craft/>

What to Do:

1. In preparation: draw a large wing shape onto cardstock and cut out. Repeat with a smaller wing shape. These are your wing templates.
2. Glue 8 mini craft sticks together: lay 7 in a row and glue the 8th stick across them as a brace.
3. Paint the sticks yellow and allow them to dry completely. Once dry, paint alternating sticks black. Allow to dry completely.
4. Cut out the flat sides of a plastic milk jug. Use the wing templates to trace 2 large wings and 2 small wings onto the plastic. Cut them out.
5. Cut the pipe cleaner in half. Curl the ends.
6. Glue the pipe cleaner antennae onto the back of the bee.



7. Glue the googly eyes at the top of the bee.
8. Glue on the large wings, reversing one to make mirror images (see photo). Now glue smaller wings on top of the larger wings (flipping one to make mirror shapes).
9. Draw a smile with black and red Sharpies.

Bee Finger Puppet

This activity takes about 15 minutes. With Sparks and Embers, you may want to prepare the shapes ahead of time.

You Will Need:

- Cardstock: yellow and white (to share)
- 2 cm circle punch (1 per adult)
- Googly eyes (2 per person)
- White string or yarn (1 per 4 people)
- Markers: black and red (1 per 4 people)
- Scissors (1 per person)
- Glue sticks (1 per 4 people)
- Tape (1 per 4 people)



Photo credit: <https://iheartcraftythings.com/bee-finger-puppets-craft.html>

What to Do:

1. Cut out the pieces: 6.5 cm yellow circle, 7.5 cm yellow circle, and 2 white wing shapes.
Note: the bottom of cups are great to use as a circle template.
2. Draw black stripes on your large circle.
3. Use the circle punch to make 2 holes at the bottom, lined up with the black stripes.
4. Glue the smaller yellow circle at the top of the black-striped yellow circle. Make sure the finger holes are at the bottom.
5. Glue 2 white wings on the sides of your bee body, attached at the back.
6. Glue googly eyes onto the face. Use your red marker to draw a smile.
7. Add 2 short pieces of string or yarn as antennae. Use tape to secure them at the back.

Bee Portrait

This activity takes about 15-20 minutes. With Sparks, you can bring pre-cut shapes.

You Will Need:

- Cardstock: yellow, black, blue, and white (1 of each colour per person)
- Pencils (1 per person)
- Scissors (1 per person)
- Glue sticks (1 per 4 people)
- Markers: black and red (1 per 4 people)

What to Do:

1. Fold a piece of yellow cardstock in half. Along the fold, draw half a heart shape.
2. Cut out the heart shape. Repeat to make a second yellow heart the same size.
3. Repeat this process with the black and white cardstock, so you have 2 black and 2 white hearts.
4. Cut 2 small circles from the white cardstock for eyes.
5. Cut out 2 black antennae and 1 black 'stinger'.
6. Using the blue cardstock as a background, glue the hearts in order: black near the bottom, then yellow, black, and yellow. Tuck the white wings underneath and glue in place.
7. Glue antennae, stinger, and eyes.
8. Use markers to add eye details, mouth, and eyelashes (optional).



Photo credit: <https://www.pinterest.ca/pin/757941812289719455/>

Paper Roll Bee

This activity takes about 15 minutes.

You Will Need:

- Paper rolls (1 per person)

- Eye stickers (2 per person)
- Paper: yellow, light blue, and black (to share)
- Scissors (1 per person)
- Glue sticks (1 per 4 people)
- Black markers (1 per 4 people)

**What to Do:**

1. Cut a strip of yellow paper the same width as the paper roll (or a little wider and trim the excess).
2. Wrap the paper around the paper roll and attach with glue. The paper roll should now be completely yellow.
3. Cut 2-4 strips of black paper. Wrap them around the lower part of the paper roll to make stripes. Glue into place.
4. Stick on 2 eye stickers near the top of the roll. Draw a mouth with the black marker.
5. Cut wings out of light blue paper. Glue them on the back of the paper roll.
6. Cut 2 antennae shapes from the black paper. Glue at the top, inside the roll.

(Photo credit: <http://www.easypeasyandfun.com/paper-roll-bee-craft-for-kids/>)

Pop-Up Bee Card

This activity takes about 20-30 minutes. Prepare construction paper ahead of time by cutting into quarters to prevent waste.

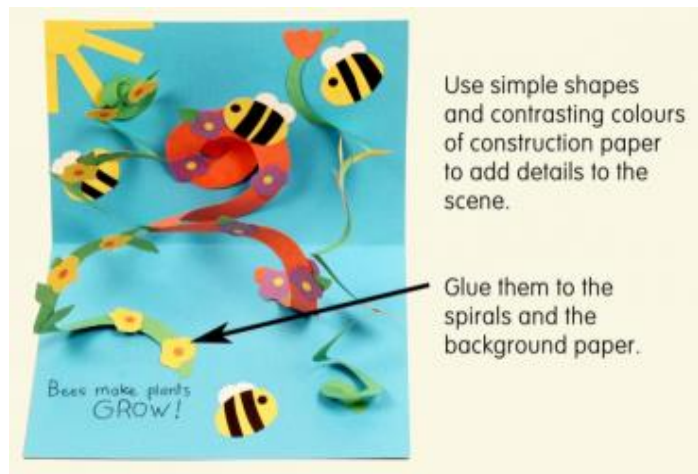
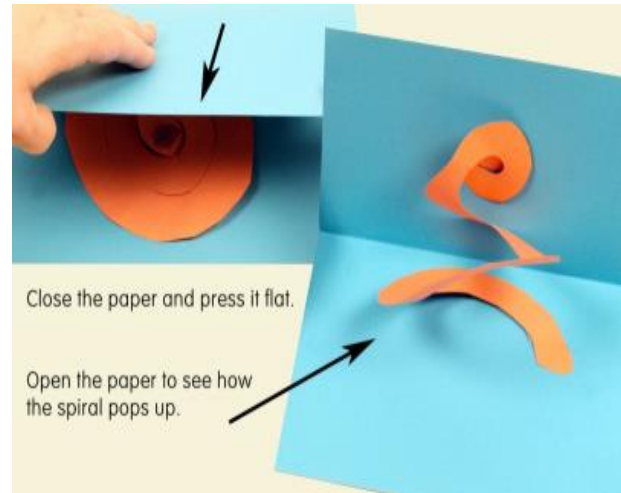
You Will Need:

- Construction paper or cardstock: various colours (2+ per person)
- Scissors (1 per person)
- Gluesticks or white craft glue (1 per 4 people)
- Optional: pencils (to share)

What to Do:

1. Cut a large circle out of $\frac{1}{4}$ piece of construction paper.
2. Cut a spiral into the circle. Start at the outer edge and cut around and around until you get to the centre. If it helps, use a pencil and create a line to follow.

3. Fold a full piece of construction paper or cardstock in half widthwise. This is the card.
4. Open the paper. Place the spiral near the centre of the bottom half.
5. Apply glue to the **back** of one end of the spiral. Glue in place.
6. Now put a dab of glue on the **front** of the other end of the spiral.
7. Close the card and press it flat.
8. Now open the card—the spiral should pop up while being attached to the top and bottom of the card.
9. Make 2 more spirals of different sizes. Glue onto the card top and bottom.
10. Use simple shapes and contrasting colours of construction paper to add bees and other details to the scene.
11. Glue the bees and other details onto the spirals and background card.
12. Open and close the card to see how the scene pops. Write a greeting or bee statement.



(Photo credit: <https://crayolateachers.ca/lesson/spiral-pop-up-card-paper-engineering-contrast-shape/>)

Egg Carton Bee

This activity takes about 15 minutes plus drying time.

You Will Need:

- Cardboard egg cartons (1 per 4 people)
- Scissors (1 per person)
- Gluesticks or white craft glue (1 per 4 people)
- Tempera paint: yellow (to share)

- Paint brushes (1 each)
- Black yarn, in long pieces (2 per person)
- Construction paper: white and black (to share)
- Googly eyes (2 per person)
- Black markers (1 per 4 people)

Photo credit: <https://buggyandbuddy.com/egg-carton-bee-craft-yarn/>



What to Do:

1. Cut each egg carton into sections of 3. One egg carton should make 4 bees.
2. Paint the egg carton sections with yellow paint. Let dry.
3. With a long piece of black yarn, tie one end onto your egg carton. Wrap the whole piece of yarn around the carton to make a black stripe. Knot the end onto the wrapped yarn. Repeat to make a second stripe. (Sparks may want to wrap black yarn all over, rather than in stripes. That works too!)
4. Glue googly eyes on the front. Draw a smily mouth.
5. Cut out 2 thin strips of black paper. Accordion-fold each one, leaving a flat section at one end. Glue each flat section on top of the egg carton to make 2 antennae.
6. Cut out 2 wings from white paper. Glue them to the bee's body by the first black stripe.

Honey Play Dough

This activity takes about 15 minutes plus playing time. No cooking required.

You Will Need:

- 2 $\frac{1}{2}$ cups flour (plus $\frac{1}{4}$ cup later)
- $\frac{1}{2}$ cup salt
- 2 tablespoons cream of tartar
- 1 $\frac{1}{2}$ cups boiling water
- 1 tablespoon vegetable oil
- 2 tablespoons honey



What to Do:

1. In a medium bowl, mix together the dry ingredients.
2. In a separate small bowl, mix the wet ingredients until blended.

3. While stirring, slowly add the wet ingredients to the dry ingredient bowl. If the mixture looks too wet, add in the extra $\frac{1}{4}$ cup of flour.
4. Once combined, turn out the dough onto a cutting board dusted with flour.
5. Knead the dough until it is soft and easy to mould with your hands. If it seems too dry, add 1-2 teaspoons of oil and knead it in.
6. For storage: Keep in an air-tight container. You should be able to use it for months!

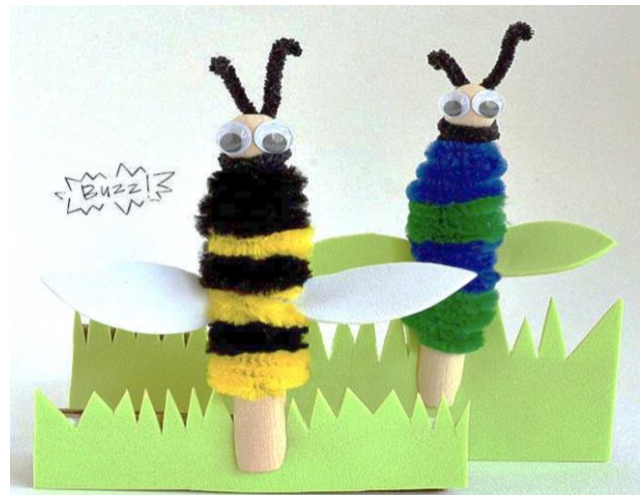
(Photo credit: <https://teachingmama.org/honey-playdough/>)

Clothes Peg Bee

This activity takes about 10-15 minutes.

You Will Need:

- Round wooden clothespegs (1 per person)
- Pipe cleaners: yellow and black (1 each per person)
- Googly eyes (2 per person)
- Cardstock (to share)
- Scissors (1 per 4 people)
- White craft glue (1 per 4 people)



What to Do:

1. Keeping the 2 wings connected, cut them out of cardstock,
2. Glue the wings into the slot in the peg.
3. Wind the pipe cleaners around the peg, going above and below the wings to hold them in position. Alternate the pipe cleaners to make stripes or cut into shorter lengths.
4. With the top pipe cleaner, curl up the ends to make antennae.
5. Add googly eyes or draw on eyes.

(Photo credit: <https://kidsactivitiesblog.com/58116/buzzy-bees-after-school-craft-for-kids>)

Pony Bead Bee

This activity takes about 10-15 minutes.

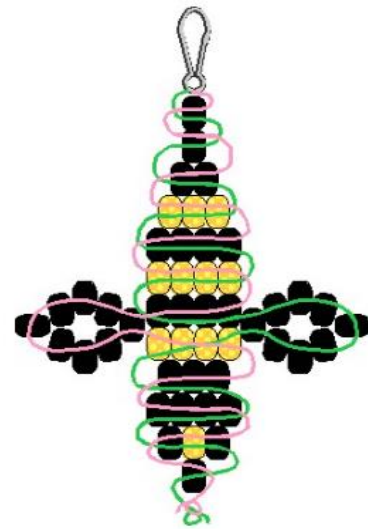
You Will Need:

- Black pony beads (38 per person)
- Yellow pony beads (12 per person)
- Lanyard hooks (1 per person)
- Cord (an arms-length per person)



What to Do:

1. Fold your cord in half to find the centre.
2. Use a half hitch knot to attach the cord to a lanyard hook. (Pass the middle loop of the cord through the hook, then pass the loose ends through the loop. Tighten.)
3. Starting at the end attached to the lanyard hook, add beads using the picture as a guide. For example, the first row is 1 black bead; pass a piece of cord through the bead hole from the right. Then pass the other end of the cord through the bead hole from the left. You should now have a piece of cord coming out each side of the black bead. Tighten and adjust until straight.
4. After adding all the beads, ending with the last row of 1 black bead for the face, finish the bee with a double knot. Make sure the knot is pulled very tight before trimming the ends of the cord.



(Photo credit: <https://www.freekidscrafts.com/pony-bead-bee/>)

Bee Mini Book

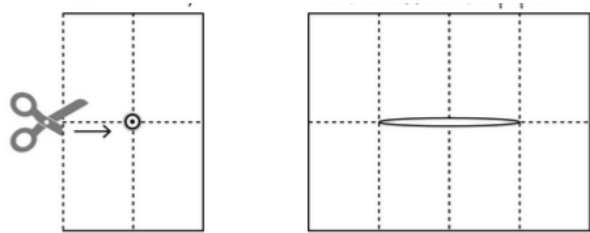
This activity takes about 10 minutes.

You Will Need:

- Colour copies of mini book (1 per person)
- Scissors (1 per 2 people)

What to Do:

1. Print out copies of the mini book. It works best in colour.
2. Fold the mini book page in half along the long side.
3. Now fold the paper in half across the short side.
4. Fold it in half again. You should now see each 'page' in its own rectangle.
5. Unfold the paper.
6. Fold the page in half along the short side again. Cut halfway in (see diagram).
7. With the page folded along the long side, gently push the ends toward each other. The slit section should fold outward to form double-sided pages for the centre of the book.



<p>My Mini Bee Book</p>	<p>Mason bees are amazing! In western Canada, they are one of the first active pollinators in spring! Gardeners love them because they are especially good at pollinating fruit trees like apples, cherries, and pears.</p>	<p>NESTING</p>	<p>Mason bees are different from the other bees we often think of! Here are some ways to identify them: Shiny, dark blue-green color Active in spring between March and May About the same size as honey bees</p>
<p>Honey Bee Queens A queen bee's only job is to lay eggs. The other bees in the hive take care of the queen. They feed her and remove her waste. A queen can lay up to 2,000 eggs a day.</p>	<p>POLLINATING</p>	<p>Mason bees build nests in small cracks or holes, using clay or mud — but they can't make their own holes, so that's why we like to provide houses for them! Mason bees don't live in colonies, and typically buzz around alone, but they like to be close to their friends when they nest.</p>	<p>IDENTIFYING</p>
<p>Honey Bee Drones A drone's only job is to mate with a queen. They die after mating. Drones cannot forage for food and they do not have a stinger. Drones have eyes that are close together.</p>	<p>Honey Bee Workers Worker bees take care of all of the hive's jobs except reproduction. They attend to the queen, feed young, guard the hive, and make honey. Worker bees gather nectar from flowers. They store the nectar in an empty honeycomb where it changes into honey. They use the honey and nectar to feed their young. They store the honey as food for the winter.</p>	<p>Bee Facts 1 IN 3 BITES OF FOOD WE EAT is made possible by bees, who spread the pollen that crops need to grow. That includes many of our favourite foods like apples, almonds, coffee, and of course, honey. LIFE IN COLOR Bees have good colour vision. That's why flowers are so showy. They especially like blue, purple, violet, white and yellow Honey bees are brilliant boogiers! To share information about the best food sources, they perform their 'waggle dance'. When the worker returns to the hive, it moves in a figure-of-eight and waggles its body to indicate the direction of the food source.</p>	

Garden Bee

This activity takes about 30-40 minutes.

You Will Need:

- Empty soup or bean cans (1 per person)
- Small metal lids (2 per person)
- Small bottlecaps (6 per person)
- Wire (to share)
- Acrylic paint: yellow and black (to share)
- Paint brushes (1 per person)
- Plastic bottles (1 per 2 people)
- Scissors (1 per person)
- Glue guns (1 per adult)
- Cups with water for rinsing paint brushes (1 per pair)
- Tools: pliers, 2-3 hammers and nails, sandpaper (to share)
- Bamboo stakes or sticks (1 per person)
- Sharpies (1 per 4 people)



Photo credit: <https://crearescout.wordpress.com/>

What to Do:

1. Paint the can yellow. Allow to dry slightly, then add black stripes.
2. Paint the 6 plastic bottlecaps with black paint.
3. Using a hammer and nail, make holes in the bottom sides of the can—two rows of 3 small holes each, for a total of 6 legs. Also make one bigger hole at the bottom centre.
4. With a hammer and nail, make holes in the centre of each plastic lid.
5. Cut 6 pieces of wire, about 8 cm long. Insert one wire through the hole in a plastic bottlecap. Secure it with the pliers by making a small loop in the wire. Put the other end of the wire through a small hole in the can. Make a loop in the wire to hold it in place.
6. Repeat step 5 with each wire, so you end up with 6 legs hanging from the can.
7. Cut a piece of plastic from the bottle. Draw 2 wings with a Sharpie. Cut out the wings.
8. Glue the wings to the top of the can. Note: If you scratch the plastic with sandpaper first, the glue will attach better.
9. Use the Sharpie to draw black circles in the centre of the metal lids. Glue the lids on the end of the can to make the bee's eyes.
10. Place a stick or stake into the big hole under the can. Add your bee to the garden!

Claypot Bee

This activity takes about 30-45 minutes plus drying time.

You Will Need:

- 7.5 cm clay pots (1 per person)
- Large wooden beads (1 per person)
- Paper (to share)
- Scissors (1 per person)
- Disposable aluminum cookie sheets (to share)
- Acrylic paint: black, yellow, and white (to share)
- Paint brushes (1 per person)
- Cups with water for rinsing paint brushes (1 per pair)
- Ribbon (to share)
- Wire (to share)
- Drill with small drill bit (Optional: pre-drill the holes)
- Snips or sharp scissors (1 per adult)
- Epoxy glue (to share)
- Pencils (1 per person)
- Chalk (1 per 4 people)



What to Do:

1. Drill 2 small holes in the top of the wooden ball (for antennae).
2. Draw a teardrop shape on paper—this is the template for the wings. Cut it out. Trace 4 wings on an aluminum cookie sheet. Cut them out with sharp scissors or snips.
3. Paint the wooden ball black.
4. Paint the clay pot yellow. Allow to dry.
5. Paint the wings white.
6. When the clay pot is dry, paint horizontal black stripes on it.
7. Use chalk to draw a face outline on the wooden ball. Paint the face yellow.
8. Cut 2 pieces of wire. Twist each wire around a pencil, leaving the end straight. Glue the straight ends into the holes in the wooden ball.
9. Glue the wooden head on the base of the pot.
10. Overlap 2 wings and glue them together. Repeat for the other set of wings. Now glue both sets on the back of the head—it should look like a bow.

(Photo credit: https://creatingthroughchaos.com/clay-pot-bumble-bee/?fbclid=IwAR2CU3UDDGTZygH2P4ds-36I4IMJKtqcCqKdp7HwLdg0z_uHsGCZmuO6toc)

Bee Hotel

This activity takes about 45 minutes. Most bees are solitary and live in individual tunnels, stems, or hollow tubes in the soil or in tree trunks. Build a bee hotel for solitary cavity-nesting bees to make their nests in your garden.

You Will Need:

- A waterproof container, such as a milk carton, bucket, pipe, or old crate (1 per person)
- Wood blocks or logs (a variety to share, 2-3+ per person)
- Straws or natural stalks, such as bamboo (many)
- Drill and range of drill bits (15 or 30 cm long bits, if possible) (to share)

What to Do:

1. Drill holes into the wood blocks. Make different sizes, ranging from 0.25, 0.3, 0.43, 0.45 or 0.6 cm in diameter.
2. Insert the wood blocks into the waterproof container.
3. Add straws or natural stalks. Fill up the spaces with drilled wood pieces and straws.
4. Place your bee hotel outside, facing south or southeast.
5. Watch your bee hotel for new neighbours!



For additional ideas on creating a bee hotel, visit:

www.nationalgeographic.org/media/build-your-own-bee-hotel, <http://www.wildlifetrusts.org/actions/how-make-bee-hotel>, or watch this video: youtu.be/LS_5rntNexo

Additional tips:

- With paper nesting tubes, it is important to keep the nests dry. Any moisture could cause mould to grow, and this can be harmful for your bees. Make sure your design prevents rain from reaching the nesting tubes. Clean the tubes each year to prevent mould build-up. When appropriate, use fresh paper tubes each year.
- To encourage ground-nesting bees in your garden, leave some undisturbed spots of soil, so the bees can create their own territory. Left alone, the nests will grow year after year.

(Credit: FAO Pollinator Challenge Badge: <https://www.fao.org/documents/card/en/c/cb4803en>)

Safety Pin Bee

This activity takes about 15-20 minutes.

You Will Need:

- Large safety pins (# 2) (1 per person)
- Small safety pins (# 0) (12 per person)
- Seed beads: 13 black, 9 yellow, 28 white, 70 blue (or other base colour) per person

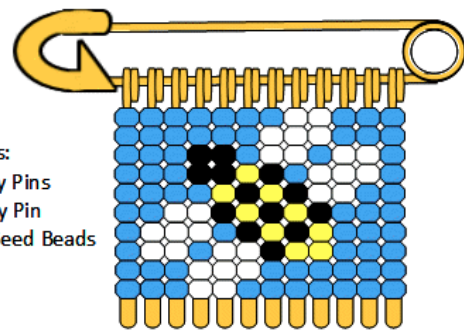
What to Do:

1. For each small safety pin, follow the pattern. Thread the beads in reverse order, starting from the end with the loop. For example, the first pin has 10 blue beads. The second pin has 6 blue, 2 white, then 2 blue beads.
2. Once each small safety pin is completed, place it on the large safety pin.
3. When complete, close the large safety pin to hold the pattern in place.
4. Optional: Pass each small safety pin loop around to the non-fastening side of the large safety pin. This will involve carefully moving it around the coil. Once all pins have been moved, you can use the sharp side of the large safety pin to secure it to a hat or jacket.

(Photo credit: <http://evsbeadiecrafter.com/beadies/swap/bee.gif>)

Bumble Bee

designed by: Evelyn McDermand



Materials:
12 - #0 Safety Pins
1 - #2 Safety Pin
Size 11 Assorted Seed Beads

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Bee Badge

This activity takes about 45 minutes. Create your own bee message!

You Will Need:

- Felt (to share)
- Embroidery thread: black, white, yellow, blue, red, etc. (to share)



- Sharp embroidery needles (1 per person)
- Scissors (1 per person)
- Chalk or pencil (to share)

What to Do:

1. Cut out 2 matching circles of felt.
2. On one felt circle, sketch out a bee and a message. You can spell it out or use the bee in place of 'be': Be Prepared, Be Happy, Be Kind, Be Brave, Be Yourself, Be Amazing, All You Can Be, Be Proud, etc.
3. Thread your needle and embroider a bee. You will need black, white, and yellow embroidery thread. Tie a knot at the back after completing each coloured section.
4. Use running stitch or another stitch to embroider the words.
5. Put the 2 felt circles together and blanket stitch around the edges.
6. Sew (or pin) onto your camp blanket, a camp hat, your jean jacket, or a backpack!

(Photo credit: <https://cacteye.storenvy.com/collections/1647759-patches/products/23287131-bee-yourself-handmade-felt-patch>)

Bee Active (Games)

Choose from a variety of different active games, to be played inside or outside, card games, and other playful activities. Some games are more collaborative and others are competitive.

What Bee Are You?

This fun game uses improv skills to act out bee roles. It's similar to 'Simon Says' but uses the different honey bees in a hive. Choose someone to be 'it'—they call out the different kinds of bees. For each one, players have to act like each type of bee. Switch it up and go faster or slower when calling out each type of bee.

- Queen: shakes, quivers, and makes buzzing noises to calm her hive
- Worker: flies around, cleans the hive, feeds others, super strong and works hard
- Drones: sleepy, inactive, eats a lot

Pollinator Walk

This activity takes about 30 minutes. Go for a walk and try to spot pollinator habitats. Look around in plants and trees, on the ground, and other likely places. Can you spot any hives, burrows, or nests that could be pollinator homes?

Now that you are aware of where pollinators live, how can you be more careful to protect them from now on? One of the best ways to help wildlife is to preserve the environment where they live. Make a list of five ways you can help protect these creatures and their homes.

Bee and Ladybug Tic-Tac-Toe

This activity takes about 30 minutes plus playing time. You could make the markers one week and play the game at the next meeting. Or make them at camp.

You Will Need:

- Small flat rocks (5 per person)
- Paint or permanent markers: yellow, black, red, white (to share)
- Paper (1 piece per 2 youth)

What to Do:

1. Divide into 2 groups. One group will be the ladybugs and the other will be the bees.
2. Give each person 5 rocks. The bee group should decorate their rocks as bees, while the ladybug group makes ladybug rocks.
3. Let the rocks dry completely.
4. Make a tic-tac-toe board: On a piece of paper, draw a 3 x 3 grid (two evenly spaced lines up/down and two evenly spaced lines side to side).
5. Pair each bee with a lady bug. Play tic-tac-toe using the decorated rocks.



(Adapted from: <https://www.pinterest.ca/pin/1759287340980099/>)

Musical Flowers

This game can expand to fill time, from 5-10 minutes to longer as the unit prefers. This bee game is a variation on musical chairs. In advance, make large flowers out of poster board, with one flower per person. Laminate the flowers to make them more durable.

Starting with one fewer flowers than the number of players, tape the flowers on the floor around the room. Taping them down keeps them more secure and helps prevent slipping.

To start the game, play music such as 'Flight of the Bumblebee'. While the music is playing, the players buzz around the room like bees. When the music stops, everyone tries to land on a flower. The person who doesn't get to a flower is out of that round. Remove one flower from the floor and play again. To speed up the game, remove two or three flowers after each round.

Nectar Relay

This activity takes about 15-20 minutes. One bee can hold enough nectar to fit into an eyedropper on each trip. In this relay race, you will use actual eyedroppers to see how many trips it takes to carry enough nectar.

You Will Need:

- 2 eyedroppers (1 per team)
- 4 cups (fill 2 of the cups with water, leave 2 empty)

Both teams start at one end of a playing field. Each team needs a cup of water placed at the far end to represent nectar, with a smaller empty cup at the home end. The cup sizes don't matter as long as both teams have the same sizes.

Each team forms a line at the start. The first player on each team takes an empty eyedropper and runs across to the full cup of water (nectar). The goal is to fill the eyedropper and run back to the the empty cup at the starting line. The player squeezes the water from the eyedropper into the cup, then passes the eyedropper to the next person. Keep taking turns to collect 'nectar' and bring it back to your 'hive'. The first team to fill their collection cup wins the relay.

Bee Memory Match

This activity takes about 10-15 minutes. You will need memory match cards—two copies for each person.

Cut up the memory cards, shuffle them, and place them face down. Each person plays with their own set. Quickly flip over two cards at the same time and see if they match. If they do, keep both cards; if they don't match, flip them back face down. Try to remember where the cards are. Who can match up all of their pairs first?

As a fun extra, do a mini bee scavenger hunt. Wind yellow and black pipe cleaners around small pieces of tulle to create mini bees. Hide them around the area you are in.



Download the cards here: https://123kidsfun.com/images/pdf/bee_game/memo-game-bee_1.pdf

(Adapted from: 123kidsfun.com)

Waggle Dance Game

This activity takes about 30-60 minutes. How do bees tell each other where to find pollen? Try being bees who find 'pollen' and dance to tell the hive. This activity is on the Girls First platform: <https://experience.girlguides.ca/node/415416>

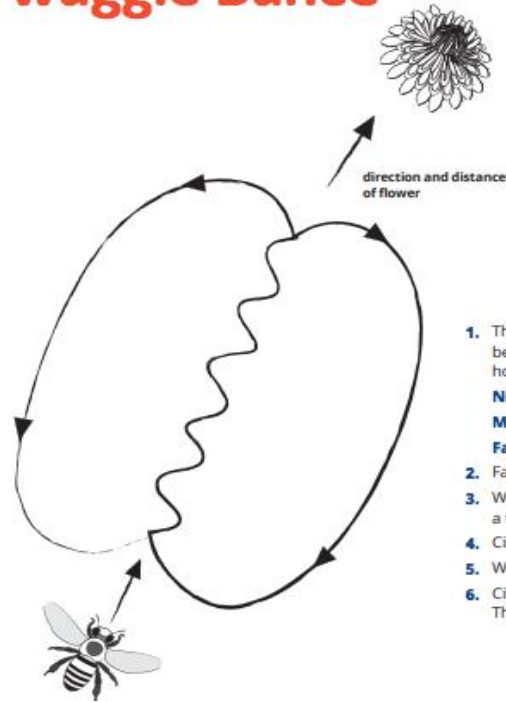
You Will Need:

- Ribbon or similar colourful markers (1 piece per group)
- Scissors (to share)
- 'Doin' the Waggle Dance' handout (1 per group)
- Video or phone camera (optional)

What to Do:

1. Go to an outdoor area with trees, bushes, and other places to hide objects.
2. On the way there, look at all the flowers. What colours are the petals? Which flowers are scented? Can you see pollen (white, yellow, or brown powder)? Are there any bees?
3. Explain that pollen is food for bees. Pollen is a high-protein meal, like a burger; flower nectar is a sugary snack, like soda. Bees find pollen by using the colour or smell of a flower. After collecting some pollen, they tell the bees back at the hive where to find it.
4. Ask: Bees can't talk. How do they tell the other bees where the pollen is?
5. Demonstrate and practise the Waggle Dance, a simple way to understand how bees communicate. The number of 'waggles' tells other bees how far away the flowers are.
 - a. Using a ribbon as your flower, decide how far away it is:
 - i. Near: Do 1 waggle dance
 - ii. Medium: Do 2 waggle dances
 - iii. Far: Do 3 waggle dances
 - b. Start the dance by facing toward the flower.
 - c. Waggle your bottom while walking a few steps.
 - d. Circle to the right and go back to the starting place.
 - e. Waggle-walk a few steps again.
 - f. Circle to the left and go back to the start. That's one waggle dance!
6. Now play the Waggle Dance Game: This can be either a race or cooperative game. Divide the unit into 2-4 groups. If this is a race, each group forms a line. Stand in the centre of the area, close your eyes, and count to 10 while the first person secretly hides a 'flower' (a coloured ribbon). The hider returns to the group and does the Waggle Dance. See how fast the next person can find the flower from the Waggle Dance clues. Work through the group so everyone has a turn doing the Waggle Dance.

Waggle Dance



1. The number of "waggles" tells the other bees how far the flowers are. Decide how far away the "flower" (ribbon) is:
Nearby: Do 1 waggle dance
Medium: Do 2 waggle dances
Far: Do 3 waggle dances
2. Face the direction of the flower.
3. Waggle your bottom while walking a few steps.
4. Circle to the right, back to start.
5. Waggle-walk again.
6. Circle to the left, back to start. That's one waggle dance!

- Discuss: Where can bees in our community find flowers? Why do flowers make food for bees? What's in it for them? Explain that some of the pollen sticks to the bee's body and then gets carried to another flower.

(Image credit: https://pbskids.org/plumlanding/educators/activities/pdf/WaggleDance_Family_Activity.pdf)

Nature's Web

This activity takes about 15-30 minutes. With this tossing game, explore how ecosystem changes can affect all the animals and plants that live there. This activity is on the Girls First platform: <https://experience.girlguides.ca/node/342336>

An ecosystem is a community of living things, like animals and plants, that interact with non-living things, like rocks and soil. Everything in an ecosystem is connected. In some parts of Canada, bears and bees are part of the same ecosystem and rely on each other to survive.

You Will Need:

- Who Am I Cards (1 set)
- Yarn or twine (at least 100 metres long)
- Masking tape (to share)

What to Do:

- Form a circle with the whole unit.
- Each person picks a 'Who am I' card and tapes it to their shirt where everyone can see it. The person with the sun card holds the ball of yarn.
- The person with the sun card starts. Pass the yarn to anyone with a card that relies on the sun to survive. When you pass the yarn, explain why that animal, plant, or element needs the sun. Keep holding the end of the yarn to show that it started with you.
- The person who received the yarn then passes it to another animal, plant, or element that needs what's on their card to survive. Keep holding onto part of the yarn.
- As you pass the yarn and build your web together, check that everyone in the circle has a piece of yarn in their hand. If you get stuck, pass the yarn backwards and try to make different connections in your web.



6. Once everyone is holding a piece of the yarn, pull it tight and look at the pattern you've created. What do you think this web represents in nature?
7. Ready to shake things up? There's been a change in your ecosystem! A new neighbourhood is being built nearby and the builders will need to chop down all the trees to make space for new houses. Everyone with a tree card must drop their yarn and step out of the circle.
8. Does your card need trees to survive? Share what would happen without the trees. If you need trees to survive, drop your yarn and step out of the circle.
9. If you're still in the circle, put your hand up if something you need to survive has left the circle. Share what you think would happen without it. Drop your yarn and step out of the circle.
10. Keep going until no one else in the circle is affected by the ecosystem change.
11. As a unit, talk about some other changes that would impact an ecosystem.
12. Play again. See what happens after a different change happens to the ecosystem.

Bee Jeopardy

Are you meeting virtually or have good internet access at your meeting place? These Jeopardy-inspired games are fun for Guides, Pathfinders, and Rangers. Choose from a range of formats from teams, matching cards, and multiple choice. Each activity takes about 10-25 minutes.

'Pollinator or No Pollinator' on factile: <https://www.playfactile.com/keu2573x7r>

Bee Chefs (Food)

Choose from a variety of food-themed activities, depending on the interests and abilities of your unit. Some of these activities involve honey while others focus on bee-pollinated fruits and other foods. Be mindful of any food allergies, sensitivities, or possible food restrictions in your unit before completing any of these food-themed activities. For example, avoid doing a honey-based food activity if any of your members are vegan.

Favourite Fruits and Veggies

This activity takes about 10-15 minutes. Ask your unit about their favourite fruits and vegetables. Using a quick show of hands, figure out the top five fruits and vegetables. Do you know how each is pollinated? Bring a resource book or check the internet to find out if these fruits and vegetables rely on bees. How do different pollinators help these fruits and veggies?

Honey Taste Test

This activity takes about 10-15 minutes. Honey flavour varies with different flower sources, locations, and seasons. Use your senses to investigate these differences. See what you like best! Common varieties include wildflower, clover, blueberry, and buckwheat.

You Will Need:

- 4-6 different types of honey (cover the labels)
- Dry pasta (thick varieties like fettucine or linguine) (1 per person for each type of honey)
- Small dishes (1 per honey)

What to Do:

1. Place the honey jars on a table or counter. With the unit, look at the colour differences you can see. How do you think that happens?
2. Taste one jar at a time. Pour a small amount of honey into a dish. Each person should dip their pasta 'stick' into the dish and coat it with honey. Before tasting it, smell the honey on the pasta stick.
3. Describe what you taste. Guess what type of honey it is.
4. Reveal the label before moving on to the next honey.
5. Repeat the process with each honey, using a new pasta 'stick' each time.
6. What types of food are available to bees where you live? Can you taste the difference?

Pollinator-Free Food

This activity takes about 10-20 minutes. It can be done individually or in small groups.

You Will Need:

- Paper (1 sheet per person)
- Pencils (1 per person)

What to Do:

1. Plan a week-long menu for yourself. The complication: you can only use foods that do not need pollinators to be produced.
2. Look over your plan. What does your menu look like? Does it look tempting? What else would you like to add? Which pollinator-derived foods do you miss the most?
3. Now make a second menu that includes your favourite foods that are produced with the help of pollinators.
4. As a unit, compare your different menus.
5. For an extra challenge, try following your 'no pollinator' menu, with the help of your caregivers, for a day—or even a whole week.

Bee Fruit Plate

This activity takes about 15 minutes.

You Will Need:

- Plates (1 per person)
- Knives (1 per person)
- Tongs for serving
- Cutting boards (1 per 2 people)
- Round cookie cutters (to share)
- Apple slices (3 per person)
- Pineapple slices (2 per person)
- Fresh blueberries ($\frac{1}{4}$ cup per person)
- Mini chocolate chips (10-15 per person)
- Toasted oat cereal (2 per person)



What to Do:

1. On a plate, each person should collect their apple slices, pineapple slices, blueberries, and mini chocolate chips.
2. Share each cutting board between 2 people. With a butter knife or paring knife:
 - a. Cut one apple slice in half.
 - b. Cut $\frac{1}{4}$ off the last 2 apple slices.
 - c. Cut one pineapple slice into 2 strips and 2 small chunks.
 - d. Cut the other pineapple slice into a circle using a cookie cutter.
3. Assemble your fruit bee according to the picture: the pineapple circle is the head, alternate blueberries and pineapple for a striped body, and use the apple slices as wings.
4. For the finishing touches, create 2 antennae with chocolate chips and pineapple chunks. Place 2 toasted cereal rings for eyes, with chocolate chips for pupils.
5. Make a smile with chocolate chips. Enjoy your tasty bee!

(Adapted from: <https://360familynutrition.org/2013/05/fun-snack-creation-bee-fruit-plate.html>)

Bumble Bee Spring Snack

This activity takes about 10-15 minutes.

**You Will Need:**

- Yellow plums or apricots (1 per 2 people)
- Black grapes (a handful per person)
- Apple slices (2 per person)
- Baby carrots (1 per person)
- Dried currants (2 per person)
- Circular cereal (a handful per person)
- Toasted oat cereal (2 per person)
- Knives (1 per person)
- Cutting boards (1 per 2 people)
- Plates (1 per person)

What to Do:

1. On a plate, each person should collect their grapes, apple slices, baby carrot, currants, and circular cereal. Share one plum between 2 people.
2. Share the cutting boards between 2 people. With a butter knife or paring knife:

- a. Slice the yellow plum in half. Each person places their half plum on their plate, cut side down, for the bee's head.
 - b. Place 2 dried currants on the yellow plum for eyes.
 - c. Slice 2 thin slices of baby carrot. Place the slices above the plum as antennae.
Place 2 circles of toasted oat cereal at the tips.
3. Slice the black grapes in half.
 4. Make alternating stripes of circular cereal and black grapes to make the bee's body.
Add a tiny slice of black grape at the bottom for the stinger.
 5. Slice the apple slices into moon shapes. Place one slice on each side of the bee's body for wings.

(Adapted from <https://www.kixcereal.com/kix-cereal-food-art-bumblebee-spring-snack/>)

Bumble Bee Cookies

This activity takes about 30 minutes, plus optional chilling time.



You will need:

- Girl Guide cookies (1 per person)
- Yellow candy melts (2 packages)
- Black candy melts (1 package)
- Mini pretzels (2 per person)
- Candy eyeballs (2 per person)
- Baking sheets (to share)
- Waxed paper (to share)
- Microwave-safe bowls (2 to share)
- Ziplock bag (1-2 to share)
- Scissors (1 to share)
- Forks (a few to share)

What to Do:

1. Line baking sheets with waxed paper.
2. In a bowl, melt black candy according to package directions.
3. Lower each pretzel into melted black coating. Use a fork to thoroughly coat the pretzel and then remove. Allow excess coating to drip off pretzel. Place on waxed paper and allow to set.
4. Transfer the remaining melted black coating into a ziplock bag and set aside.

5. In a bowl, melt yellow candy according to package directions.
6. With a fork, lower each cookie into melted yellow coating. Gently submerge to coat, then remove cookie, tapping gently against the edge of the bowl. Let excess coating drip back into the bowl. Place the coated cookie on the waxed paper. Allow to set completely.
7. To speed the process, refrigerate or place in freezer with cookies in a single layer.
8. Take the ziplock bag with black coating and snip one small corner. Use this bag to pipe 3-4 black lines across the yellow cookie. Allow to set.
9. Place 2 coated pretzels together to form wings. Squeeze ½ teaspoon black coating between the pretzels. Now place a cookie on top.
10. Place a dot of black coating on the back of each candy eye. Press eyes onto cookie.
11. Allow cookies to set completely at room temperature or refrigerate for faster results.

(Adapted from: <https://kitchenfunwithmy3sons.com/bumble-bee-oreos-2/>)

Honey Soda

You can use honey to sweeten your food. Fruit sodas are a refreshing option, especially in warm weather. Start with a simple syrup, add fruit or herbs as flavouring, and create your favourite syrup. Then you can whip up a tasty soda anytime. Try making some sodas with your unit as a special cooking activity.

You will need:

- Glasses (1 per person)
- Ice (to share)
- Paper straws (1 per person)
- Soda water or seltzer (to share)
- 1-3 tablespoons flavoured syrup
(see recipes below)

What to Do:

1. Fill a tall glass with ice.
2. Add the flavoured syrup.
3. Top with seltzer.
4. Stir gently with a straw and enjoy.



Photo credit: <https://divascancook.com/strawberry-soda-recipe-juneteenth/>)

Flavoured Syrups

Step 1: Make a simple syrup

Heat 1 cup water in a small saucepan (or microwave-safe container) until steaming, but not boiling. Add 1 cup honey and stir until completely dissolved.

Step 2: Add flavour to the simple syrup

Honey-Herb Syrup: Starting with warm simple syrup, add 3 sprigs of fresh herbs. Steep 20-30 minutes. Strain and cool.

Honey-Fruit Syrup: Starting with warm simple syrup, add 225 grams of peeled, chopped (or mashed) fruit plus 1 teaspoon vanilla (optional). Steep 20 to 30 minutes. Strain and cool.

Honey-Citrus Syrup: Starting with warm simple syrup, add ½ cup of fresh citrus juice and 1 tablespoon citrus zest. Steep 20-30 minutes. Strain and cool.

Honey-Spice Syrup: Starting with warm simple syrup, add ¼ cup of whole dry spices or ½ cup of chopped fresh spice (e.g., ginger). Steep 20-30 minutes. Strain and cool.

Tip: Experiment with flavours to create the ultimate soda. For instance, how about Cherry Vanilla, Peach Ginger, Strawberry Mint, or Orange Mango.

(Adapted from: <https://www.wholekidsfoundation.org/blog/sweet-on-honey>)

Olive and Cheese Bee Snack

Add some buzz to a bee-themed meeting or day camp with this protein-filled snack. The quantity of ingredients will depend on your unit size and whether this is a novelty food or more substantial snack. With supervision, all members can cut olives and slice cheese circles. Younger kids may need assistance with cutting blocks of cheese into slices and piping cream cheese.

You Will Need:

- 1 block Cheddar cheese
- 1 block cream cheese
- 1 block Monterey Jack cheese
- Black olives
- Black food marker
- Cutting boards
- Paring knives

- Small circular cookie cutter
- Toothpicks
- Ziplock bag
- Scissors

What to Do:

1. Cut the black olives into thirds.
2. Cut the Monterey Jack and Cheddar into slices.
3. With a small cookie cutter, cut circles out of the cheese slices.

Another option: Use an olive slice as a template to cut out cheese circles the same size.

4. Cut the Monterey Jack cheese circles into quarters. These will be the wings.
5. On a toothpick, stack alternating slices of Cheddar and olives to make the body.
6. Soften the cream cheese and place in a Ziplock bag. Cut a corner to make a piping bag.
7. Gently squeeze the bag and pipe cream cheese along a Monterey Jack quarter. Attach this wing to the body. Repeat to make the second wing.
8. Pipe small cream cheese dots. Use the food marker to make black dots for pupils.
9. Repeat this process until you have the desired number of bees.



(Photo credit: <https://glitterandbubbles.com/cheese-olive-bees/?crlt.pid=camp.MnyKtpm9FBcN>)

Bee Activists

Being an activist means using your voice and your actions to support your beliefs. We've suggested some ways to help bees and other pollinators in your community, but this is just a starting point. Find out about local issues and initiatives, and your unit can create suggestions and solutions for positive change. Maybe that means approaching the town council to ask about replacing park flowers with native plants. Or petitioning a developer to allow garden boxes on unused land. Or maybe even learning about beekeeping and putting a hive on the roof of your building. Use your creative thinking to come up with amazing ways to help our bee friends. They will certainly help us in return.

Pollinator Garden

Find out which native plants are best for local pollinators. Now plant a garden full of these plants to support pollinator populations. This activity can be found on the Girls First Platform: <https://experience.girlguides.ca/node/332971>

Pollination allows plants to reproduce and grow more plants. When pollinators like bees and butterflies feed on a flower's nectar or pollen, they pick up pollen and transfer it to other flowers on other plants. This process is how plants grow fruits and create seeds.

Shrinking habitat—where pollinators can build homes and find food—is the major threat to bee and other pollinator populations. A garden helps create a habitat corridor. Your garden could be at home, near your meeting place, or somewhere in your community like a traffic circle or outside a community centre. Ask for permission if you are creating a garden on public or private land. Fill your garden with colourful plants that are rich in pollen and nectar. Put up a sign about your pollinator garden and encourage your family, friends, and neighbours to follow your lead.

But wait! Don't forget about keeping your new bee garden safe for pollinators. Use organic products and natural techniques to keep your garden healthy. Put compost on your garden to add nutrients to the soil. Add beneficial insects like ladybugs to keep away pests. Avoid treating your garden with any synthetic pesticides, fertilizers, or herbicides. In particular, neonicotinoid pesticides are very harmful to bees.

You Will Need:

- Potting soil (to share)
- Garden spades (1 per person)
- Native plants (seeds or saplings, enough to share)
- If using pots: flower pots or buckets, gravel, compost, garden forks, mulch (to share)
- Optional: a local gardening or field book

What to Do:

Part 1: Find the Right Plants

1. Chat about the relationship between pollinators and plants. What do plants offer to pollinators? What do pollinators offer to plants? Need more information? Check out the link in the 'Credit/References' section in Girls First.
2. Research the native plants in your area that best support bees or butterflies. You can use a local gardening guide or David Suzuki's pollinator garden guide (in 'Tips, Tricks and More' on Girls First) to help you decide on the plants you want to use. Some of the

plants in Canada that bees are most attracted to are: blueberry, lavender, chive, dahlia, cornflower, cosmos, and pumpkin. Bees are attracted to blue, yellow, white, and purple flowers. Butterflies are attracted to: milkweed, black-eyed Susans, and wild bergamot.

3. Consider planting flowers that bloom at different times. If all your flowers bloom at the same time, the pollinators will have a feast but then run out of food once the flowers are gone. Plant a variety of flowers to bloom through spring, summer, and into fall—that will keep bees and other pollinators fed and happy.
4. Buy local organic seeds or seedlings at a garden shop.

Part 2: Plant Your Garden

Gardening in Pots

1. Fill the bottom of your garden pot with gravel so the base is covered.
2. Pour in garden soil until there's just a little bit of space left at the top.
3. If you have compost, add it in with your soil and mix.
4. Plan out where you want your plants to be within the container. It's recommended to have the tallest plants in the middle of the container and the shorter ones at the edges, so all the plants will be able to get sunlight. Arrange plants in groups of three or five to mimic nature's planting style. Clumping flowers together helps pollinators spot them.
5. Plant your seedlings or seeds into the soil.
 - a. If you're planting seedlings, dig a hole in the soil. Pull the seedling out of its pot by gently pressing on the sides of the pot. Lightly squeeze the roots to loosen them and then press the plant down in the new soil. Add soil around the plant so the roots and base are covered.
 - b. If you're planting seeds, follow the instructions on the back of the seed packets. Some seeds need to be planted deeper than others.
6. Water your garden so that soil is moist.

Gardening in a Garden Bed

1. Check out how much sun your plants need and find a spot outdoors that gets that amount of sun.
2. Water the soil you'll be working with so it's moist but not wet.
3. Grab a garden spade or garden fork and use it to break up the top 20-30 cm of your soil.
4. Pour compost or potting soil on top of the plant bed and mix it in with the soil that's already there.
5. Plant your seedlings or seeds into the soil.
6. If you have it, add a layer of mulch around your plants.
7. Water your garden.

Native Bee Homes

Most bees are solitary, with the exception of honey bees and a few other social species. In fact, 70% of solitary bees live underground, while only 30% live in holes inside trees or hollow stems. Bumble bees build their nests in undisturbed land, so you can provide a safe haven by leaving part of your garden untouched. Allow a little open space, leave part of the grass unmowed, and let some wild clover grow in places.

When you tidy your garden in the fall, leave dried stalks on your plants. Hollow plant stalks often provide winter homes for small bees and other insects. Keep stalks, stems, reeds, bushes, and long grass, especially over the colder months. Another option is to cut the stalks and leave them stacked tidily, out of the way, until the following year. Bees will use a small brush pile and fallen leaves, as well as muddy patches—these unassuming features provide the habitat and mud that bees need to over-winter.

Bee Bath

Foraging and collecting nectar is busy and thirsty work for bees. They need to stop to drink and rest as they work, but birdbaths are too deep for bees. You can make a bee oasis to give them a nice break. Line a shallow bird bath, dish, or bowl with flat rocks around the edges. Pour clean water into the dish, leaving the rocks sticking up above the water surface. Bees will use these 'islands' to land and take a long, refreshing drink. Change the water regularly to provide clean water and avoid creating a breeding spot for mosquitoes.

Bee Scientist

Many organizations use citizen scientists to collect data on pollinators. For example, you can take photos and gather location information about native bees, then upload this information. Your photos and sightings help conservation experts to track and monitor important pollinator populations. Your unit (or a guider) may need to create an account to submit information.

- **Bumble Bee Watch:** This collaborative project uses community science to track and protect North American bumble bees. Check your garden, parks, and other natural areas for bumble bees. Take photos and note locations and dates. You might even help spot a

rare species before it goes extinct. Your unit will need an account. Find out more here: www.bumblebeewatch.org

- **Nature Kids BC:** Their pollinator survey comes with clear instructions about how to find a suitable natural space in your community and how to record information for 20 minutes. Surveys can be done from April to September, but May and June are best! You can send your survey sheet and photos by email (no registration required). Instructions and ID card are available here: <https://naturekidsbc.ca/be-a-naturekid/stewardship-citizen-science/pollinators/>
- **Insight Citizen Science app:** This free iOS app was launched in 2019. Developed in BC by Border Free Bees partnered with Pollinator Partnership, you can learn how to identify pollinators, contribute data to ongoing projects, and be part of local conservation efforts. Observations take 5 minutes, can be recorded without internet, and the app lets you see what other people have reported. You will need to download the app and create a unit (or guider) profile. More information can be found here: <https://insightcitizenscience.com/>

Beeswax Wraps

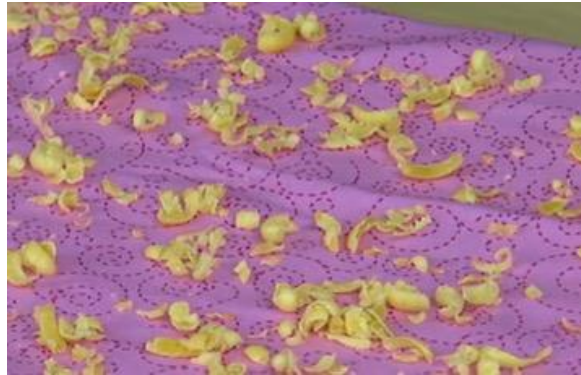
Honey bees make a natural wax, which they build into honeycomb to store their larvae and honey. This edible beeswax can be used in many different ways from lip balm to candles. Creating beeswax wraps is a popular way to replace plastic wrap in the kitchen. The suggested size will work for sandwiches. Make smaller squares to wrap cut fruit or cheese. Make larger squares to cover dishes. Optional: make several sizes using a different fabric for each size. When using, clean these wraps by rinsing with cool water and mild soap.

You Will Need:

- Clean cotton fabric, cut into 30 cm x 30 cm squares (1 per person)
- Beeswax, food grade (15 g per person)
- Container or bowl
- Scrap cloth like a towel or sheet (1 piece per ironing station)
- Parchment paper (2 pieces per ironing station)
- Irons (1 per station)
- Graters (to share)
- Pinking shears (to share)
- Hangars and clothespins (to share)

What to Do:

1. Make an ironing station: Lay some scrap fabric on a flat surface like a table or counter. Place a piece of parchment paper on top to cover it. Have the second parchment paper ready. You can make several stations, each with an iron and an adult to supervise.
2. Use the pinking shears to go around your square of cloth. This will prevent fraying.
3. Grate the beeswax into a container. Have the kids take turns grating from a larger block so they can see and feel the texture while not worrying about grating their fingers. Tip: stabilize the grater and always grate away from your body.
4. Heat the iron, using a low to medium setting (no steam).
5. Lay your prepared cloth on the parchment paper. Sprinkle grated beeswax onto the cloth and spread it around. Don't use too much—you can add more later if needed.
6. Set the second piece of parchment paper on top, so it covers the whole cloth and beeswax.
7. Place the iron on top of the parchment paper. Move it slowly and gently over the whole surface. As the wax melts, you'll see a change in the colour and texture of the cloth underneath. With the iron, gently spread wax into any bare patches.
8. Check the cloth by carefully lifting the parchment paper. If there are places with no wax, sprinkle a little more beeswax on those spots. Replace the parchment paper and melt the wax by ironing.
9. When all the wax is melted, set aside the iron. Remove the parchment paper and carefully lift off the wrap. It will be hot! An adult can do this step.
10. Hang up the wrap to cool and dry. This will only take a few minutes.



(Adapted from: <https://www.youtube.com/watch?v=uYTPUT0pXts>)

Shop Local

Local beekeepers prepare local honey, even in towns and cities. When you choose to buy local products, you reduce the food miles travelled by your food, keep costs lower for beekeepers, and support local food production. In addition, raw local honey is not treated with any chemicals. While it may not last as long in the cupboard, it will taste much better than commercial honey blended from many sources.

Your unit can visit a farmer's market to see locally grown and produced foods. There's often a beekeeper who can provide details about where they keep hives, how their bees are treated, and how they get honey from the hive to the jar to the market.

Honey Farm

Go one step further than visiting your local farmer's market. Look into the possibility of a field trip to a honey farm to get a firsthand look at how honey is produced and bottled. Contact the honey farms in your area and see if they offer tours; sometimes farms will agree to provide access for Girl Guides, even if they don't do commercial tours. Seeing the hives and honeycombs in person is a one-of-a-kind learning experience, and really builds an appreciation for the work of pollinators and apiarists (beekeepers).

Honey Bee Protectors

As a group, think about the challenges facing honey bees and why it's important to help them thrive. Use what you know about bees plus your imagination and creativity to think of possible actions to take.

You Will Need:

- Large pieces of paper or poster boards
- Markers
- Post-it notes
- Pens and pencils

What to Do:

Use the following questions for discussion:

1. Why is the honey bee population declining?
 - Cutting down and mowing their habitats such as fields, meadows, and forests
 - The use of chemicals on lawns and crops
2. Why is important to save honey bees?
 - They help produce much of the fruits and vegetables we eat
 - They pollinate flowers which make more flowers and plants
3. How can we protect honey bees?
 - Use earth-friendly products at home and in our gardens

- Educate others about honey bees
 - Work with organizations that advocate earth-friendly farming and support laws against using harmful chemicals
4. How can we create our own bee-friendly habitat?
 - Create a special spot at home to plant bee-friendly flowers
 - Work with community organizers to dedicate land for planting bee-friendly flowers and plants.
 5. Think of ideas for a ‘take action’ project. Write your ideas on post-it notes and stick them to the poster boards.
 6. Vote on the preferred project. Now take action!

(Adapted from: https://www.girlscouts.org/content/dam/NE_Texas/documents/fliers/Honey%20Bee-%20Citizen%20Science%20Kit.pdf)

Honey Bee Protectors, Part 2

Now that you have decided your Take Action project (above), it’s time to think about how it will happen, including all the little details. Divide up into small groups of 3-4. Each group should think about ways to tackle the project, coming up with different sorts of ideas. Give the groups a limited time for this step, like 10-15 minutes. Come together as a unit and have the groups share their ideas. Write the suggestions on a whiteboard or poster board. Offer feedback on additional things to think about.

If the unit wants to make a video:

- How will they film it?
- What do they want to say?
- Do they want to use costumes?
- Do they want to use music?
- How will they show it to people: in class, a school assembly, gathering of families, an adult posting it safely online?

If the unit wants to create posters for their schools:

- What materials will they need?
- Who can they ask for permission to put posters on the walls?
- How should they ask for permission? If they want to make a presentation to the principal, what should they say?

- If they get permission, what should the posters say?
- What will the posters look like?
- When do they want to hang up the posters?
- Do they want to get other students to join them?
- Are the posters for the community: meeting place, community centre, library, etc.?

Now follow up and take action!

(Adapted from: https://www.girlscouts.org/content/dam/NE_Texas/documents/fliers/Honey%20Bee-%20Citizen%20Science%20Kit.pdf)

Understand Bees

Take some time to learn the differences between bees and wasps. While many species share the same yellow and black stripes, they are very different. Bees are vegetarian and focus on foraging for pollen and nectar. Pollen sticks to their hairy bodies as well as in the special pollen baskets on their back legs. They can travel up to 5 kilometres and take food back to their home. They only sting in self-defence, if they feel threatened. Always try to remain still and calm if one lands on you. It will simply fly away again, when it realizes you are not a flower.

If you spot a hive or nest, don't stand in front of the opening. Bees race back and forth to their home and may be attracted by colourful clothing. If you get angry or scared, your body produces a special hormone called a pheromone. Bees can smell these pheromones and may stay around longer out of curiosity about the smell.

In comparison, wasps are carnivores and can be found around picnics and barbeques, attracted by the smell of meat and other foods. They are good hunters and help keep insect pests under control. They do a little pollinating when they visit flowers for a sip of nectar, but pollen doesn't stick well to their smooth bodies. If you are approached by a wasp, stand still or walk away slowly. Keep your movements slow and don't swat at it.

Want to know more about these amazing insects? Check out some bee biology cards (<https://www.greatsunflower.org/node/1000280>) or use a slide show to get great identification tips (<https://www.greatsunflower.org/node/1000250>).

(Adapted from: <https://seeds.ca/sw8/web/pollination/pollinator-profiles/wasps>)

Herb Garden

If you live in an apartment building or don't have a garden, consider planting a herb garden. All you need are some pots or a small planter, soil, and seeds. Look for locally sourced organic seeds, such as West Coast Seeds, BC Eco Seed Co-op, Saanich Organics, and other local farms. Your small herb garden helps bees and provides fresh organic herbs for cooking. Bees love chives, fennel, lavender, mint, oregano, rosemary, sage, and thyme.

Bee-Friendly Community

Join with friends, family, and your local community to make some noise for pollinators.

- Connect with your local authorities and ask them to develop local or national plans to protect pollinators. Offer suggestions and support.
- Work with local authorities to launch a campaign to raise awareness about the importance of pollinators.
- Spread the word through social media.
- Organize a community event. For example, you could join or host 'World Bee Day' celebrations, observed on May 20th each year.
- Work with a local plant nursery or garden centre to hold a training session on how people can make their gardens more pollinator-friendly.
- Work with local organic farms and farmers to hold an event on pollinator-friendly pesticide techniques.
- Invite local beekeepers to organize an introduction to beekeeping event.

(Adapted from FAO Pollinator Challenge Badge)

Bee Scientists

Here are some different ways to get a little more analytical and scientific about bees and other pollinators. Practice your powers of observation and get a better understanding for how science and conservation work.

Pollinator Survey

Want to get scientific about your local pollinators? You can create a map or do a survey to observe them. You can do this in your community to understand local pollinators. If you enjoy this approach, consider joining a citizen science effort.

You Will Need:

- Paper
- Pencils
- Clipboards
- Measuring tape or string.
- Stopwatch
- Field guides or ID cards

What to Do:

1. Go to the garden or outdoor location you want to study.
2. Mark a starting point, then measure a 50 metre line and mark the end point.
3. Survey along this line, looking at a 2 metre width along it (1 metre either side). Walk at an even pace for 15 minutes, covering the entire 50 metre line.
4. Identify and count all the insects, birds, and other animals at you see foraging on flowers. Record your observations. This resource shows many of the usual suspects you may encounter: <http://www.naturekidsbc.ca/wp-content/uploads/2018/04/Life-in-the-Flowers-Card-Final-Web.pdf>.
5. Identify all the plants within the same area. How many flowers are on each plant? Record your observations.

(FAO Pollinator Challenge Badge. Activity adapted from: <https://w3.biosci.utexas.edu/jha/wp-content/uploads//Pollinator-Habitat-Surveys.pdf>)

Electric Bees

Bees and other flying insects create static electricity as a positive charge on their bodies as they fly. This happens because flying creates friction between their bodies and air molecules, which rubs off electrons.

Matter is made up of atoms with an equal number of protons and electrons. **Protons** are positive (+) charges contained in the nucleus of atoms, while **electrons** are negative (–) charges outside the nucleus. When materials rub against each other, electrons are brushed off one material and collected by the other. The material losing electrons becomes positively charged and the material gaining electrons becomes negatively charged.

Flowers have a negative charge, and pollen grains on flowers also have a negative charge. A bee's body is positively charged, so it gets covered by pollen because it attracts the negatively charged pollen.

Static electricity is the build-up of an electric charge on the surface of an object. Both the bee and the flower have static charges: the bee has an excess of positive charges and the flower has an excess of negative charges. Lightning is the most extreme example of the discharge of static charges. You experience a much less dangerous static discharge when you rub your feet on a carpet and touch a metal doorknob.

Let's get back to why a bee gets so covered with pollen. We're going to model how pollen leaps from a flower to the charged surface of a bee.

1. Tear tiny pieces from a sheet of paper. Spread the pieces on a flat surface, like a table.
2. Inflate and tie a balloon.
3. Rub the inflated balloon back and forth on your hair 4-5 times.

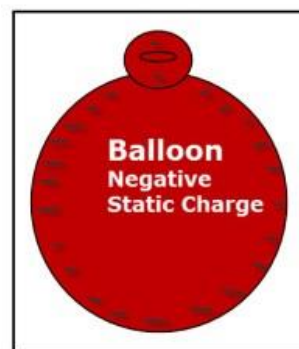
Troubleshooting: Hair should be clean and dry. You can use fur, wool, or polyester instead.

4. Immediately hold the balloon near—but not touching—the paper pieces.

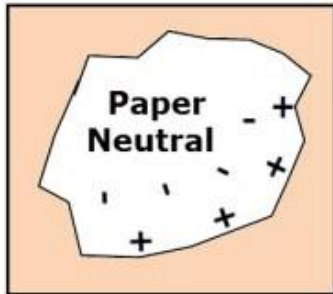
ZAP!!! The paper pieces leap up to the balloon and stick to its surface. This is the same way that pollen grains leap to and stick on a bee's body.

What's happening? All materials have an equal number of positive and negative charges, thus they have no net charge and are said to be neutral. When two materials move against each other, the friction of this motion causes electrons to be brushed off one material giving it a positive static charge. The other material gains the electrons, thus giving it a negative static charge.

Rubber is a material that tends to gain electrons. Human hair, animal fur, wool, and polyester are materials that easily lose electrons.



When you rub the balloon on your hair, the balloon becomes negatively charged and leaves your hair positively charged.



The pieces of paper have no charge, but holding the negatively charged balloon repels the electrons near the surface of the paper. This leaves the paper's surface with a positive charge. This is called an **induced charge**. The paper has not lost nor gained electrons—instead, the negative electrons are just repelled by the negative charges on the balloon.

(Adapted from: <https://homeschool.scienceprojectideasforkids.com/2021/static-electricity-pollination/>)

Pollinator Syndromes

Different flowers attract different pollinators. You can look at a flower's shape, colour, and pollen to determine who generally pollinates that plant. These characteristics are known as pollinator syndromes. Pollinators find flowers using a combination of features (pollinator syndromes): flower colour, odour, quantity of nectar, location and type of pollen, and flower structure.

Go on a walk and examine the different flowers you see. Record traits for each type of flower and guess who is supposed to pollinate each plant. Make a list—did you find more plants pollinated by bees, butterflies, flies, wasps, etc.?

Use this worksheet to track the flowers that you see:

https://www.pollinator.org/pollinator.org/assets/generalFiles/Pollinator_Syndromes.pdf

Local Connections

Hives for Humanity (Vancouver): <https://www.hivesforhumanity.com/>

Surrey BeeKeepers: <http://www.surreybeeclub.ca/>

Langley Bee Keepers: <https://www.langleybeeclub.org/>

North Shore Bee Keepers: <http://northshorebeekeepingclub.weebly.com/>

Sunshine Coast Bee Keepers: <https://www.facebook.com/SunshineCoastBeekeepers>

Nanaimo Bee Keepers: <http://www.nanaimobeekeepers.com/>

Kamloops BeeKeepers: <https://www.kamloopsbeekeepers.com/>

North Okanagan Beekeepers: <http://northokanaganbeekeepers.ca/>

RDCO Bee and Flower Program: <https://www.rdco.com/en/parks-and-trails/attend-nature-programs-and-events.aspx>

Bee Health: <https://honeybeehealthcoalition.org/>