

Building a Mason Bee House



How To Build a Mason Bee House

Mason Bee houses are a great ADST project for students in grades 7.

The first thing that you will need to do as a teacher, is get trained in using your school Maker Cart. Once you are Safe and Certified you will need to do an inventory on your ADST Toolbox kits (there are 12 for your school) and your Maker Cart. Each cart and your 12 kits have master lists of what should be in them. If you are not sure or if you will need additional resources, please contact your District Careers Coordinator and they will be able to help you, Dawn.Anderson@sd71.bc.ca or Steve.Claassen@sd71.bc.ca

Jr. ADST (Applied Design Skills and Technology)

ADST courses have been designed so that students can gain hands-on learning experiences and skills through design and creation. The Curricular Competencies within these courses ask students to understand context, define what they need to do, ideate with others and evaluate, prototype, test their ideas, make and share.

With this, these booklets have been designed to support new to experienced users and there are many ways to approach each step.

Feel free to challenge your students to come up with new ways to complete a step in the booklet. Some of the steps are challenging and should be completed with a partner.

Please share if you have a good approach to a step and we can tweak the booklet for all.

For this project you will need the following items:



1. Hammer
2. F Clamp
3. Measuring Tape
4. Safety Glasses
5. Compostable Straws
6. Drill and drill bit
7. 1 ½ Inch Nails
8. 1, 1" x 4" that is 6' long
9. Sandpaper
10. Ear Plugs
11. Hand Saw

Once you have everything you are ready to start your project. Don't forget to put on your safety glasses.

STEP 1:



- You will need to measure out 4, 6" pieces on the piece of 1" x 4". These will be the square walls to your house.

Step 2:

- Once you measure out your 4, 6" long pieces, you will need use your bench hook, glasses and hand saw to cut the wood. These 4 pieces will be used as your walls to your bee house.

Step 3:

- Once you have your 4, 6" pieces of wood, you will need to nail them together to make a square. To do this, you will need your 4 pieces of wood, your f clamp or a partner, 8 nails and your hammer.
- I suggest that students work in partners and help each other nail their walls together instead of using an f clamp. I used an f clamp as I didn't have a partner.



- In order to nail your wood together you should set some pre-nail holes so that your house goes together easily as it can be challenging to nail these together. One partner will take two pieces of wood and place them together at 90 degree (see picture below). The other partner will use the drill to drill in the nail holes. The first nail hole should be measured in 1 ½" from the end. I suggest having 2 nails in each piece of wood. Measure in 1 ½" from the other end and set that hole.
- If students need, have them place all 4 pieces together so they can see where they need holes. They should talk this out.
- When ready they can make/finish all their nail holes and then nail the wood together. Again, I suggest that one partner holds the wood on its long edge and then places the other wall on top. While holding these together, the partner will nail them in, students will need 8 nails total. See picture for an example of how to hold two pieces of wood together. To note, this is just a picture of how to hold the wood.
- Repeat this until you have all 4 walls attached. You should have a square box, 4 nails on the top and 4 nails on the bottom.



Step 4:

- Next you will add the roof. You will now need to go back and measure out 2, 7.5" long pieces. Once measured cut these out using your hand saw, bench hook and glasses.
- If you would like your roof even, you will need to cut off a ½ inch from the long edge of one of the pieces of wood.
- You will see on the cover page that I did not do this. You can choose to leave it uneven if you like.

Step 5:



- Now that you have 2, long pieces, you will need to nail these together just like you did for the 4 walls of your house. You will need a partner again to do this with you.
- Next, place your wood so that you see how the roof will go together. Place the narrower piece of wood on the ground. Then place the wider piece on its side standing and rest it up to the piece on the ground, you should have them at 90 degrees.
- Next you will need to pre-set nail holes. Do this following the same procedure as you did previously. Make sure to measure in 1 ½" from each end. 2 nails in total.
- Have your partner hold your wood for you while you nail the pieces together.

Step 6:

- The house will need a back plate so that you can connect it to a house, tree, or building. As well, we will connect the walls and the roof to the back plate. With this, cut one last piece of wood that is 8" long. Once this is measured and cut place the house face down. Using 2 nails, nail the back plate to your bee house (pre-drill nail holes first), I suggest nailing the back plate to the side walls.

Step 7:

- We will now place the roof on. Make sure to put the peak of the roof in the middle of your house. You can measure the middle point using your measuring tape. Once the peak is in the middle have a partner hold the roof in place while you rotate the house onto its front, so you are looking at the back plate. You will pre-drill 2 nail holes, one on each side and then nail in the 2 nails.
- It should now be ready for straws.



Step 8:

Using cardboard based straws, fill your bee house up. You may choose to place some sticks and other natural forest products in the house so that the bees have landmarks for finding holes.



Step 9:

Your bee house is now ready to be hung. You may use a drill and screw or 2 nails to hang your house to a building or tree. Please refer to the learning resources on where to hang your house and how to care for your bees once they have settled in your home.

Good Job!!!

Learning Resources

Mason Bees are a Gardener's Best Friend

This video discussed why Mason Bee's are useful, how they live, and their life cycle. Ron is a Citizen Scientist who studies and supports Mason Bee's in communities and teaches us all about how they work and live.

https://www.youtube.com/watch?v=2nDZh-S_2kw (6:53 min)

Mason Bees and Leaf Cutter Bees

A great introductory video to Mason and Leaf Cutter bees and how they pollinate. As well, their life cycle and how they hibernate.

<https://www.youtube.com/watch?v=vf8QyIF3eoY&t=12s> (5:18 min)

How to Keep Solitary Bees

This video explains how Mason bees live optimally. Where their house should be kept and the different shapes and designs for designing a bee house. They discuss the mud that is needed for the nests, where to get bees and how to harvest and keep your bees over the winter.

https://www.youtube.com/watch?v=QGEpJ7F_ZuU (8:25 min)

Everything You Need to Know Before Keeping Mason Bees

This is a great webpage that discusses the basics about taking care of and supporting Mason Bees at your home.

<https://beebuilt.com/blogs/backyard-beekeeping-blog/everything-you-need-to-know-before-keeping-mason-bees>

Environmental and Outdoor Learning-SD71



EOL Updates!

With the return to schools this week I have been getting a flood of interest for more ideas and support material for outdoor learning ideas. Again, please remember, anything you already have prepped you can likely take 'out-of-doors'.

If you are interested in diving into some nature-based learning below are some ideas to highlight **pollinator's** this week. I have also re-attached the sampling of ideas sent out last week.

More resources can be found on the districts EOL website:

<http://learn71.ca/environmental-outdoor-learning-eol/teacher-resources/>

What are pollinators:

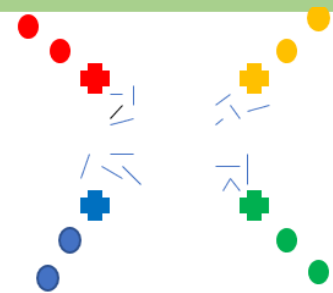
Pollinators are animals (birds and bats) or insects (beetles, wasps, moths, butterflies and bees) that distribute pollen from one flower to another as they forage, and as a result allow for the fertilization of the plants. They are a key component of global biodiversity because they play a vital role in maintaining both wild ecosystems and plants that produce food (ie fruits, nuts and seeds) that wildlife and humans rely on to survive. At least two-thirds of the world's crops depend on pollination by insects or animals

BC Pollinator ID Card: http://www.naturekidsbc.ca/wp-content/uploads/2018/04/Life-in-the-Flowers-Card-Final_-Web.pdf

Pollinator Active Game:

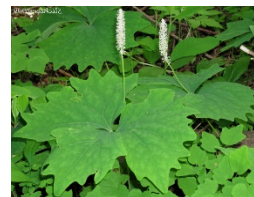
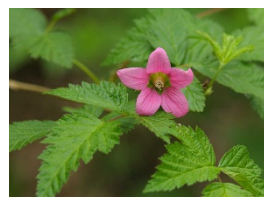
Same orientation as 4 corners:

- Equal number of students in each corner make a line up
- One runner at a time from each corner
- Each corner has a pile of the same coloured objects = food (balls, painted rocks , popsicle sticks, bean bags etc).
- **Object** is to try to collect as much food as possible from other groups in a determined amount of time (your choice).
- **Reflection:** Who has the most food? Who has the most variety? Why? What was your strategy? Would pollinators have the same strategy?
- Add in new rules
 - Can not repeat a colour pick-up twice in a row, must visit other colours before returning.
 - Whoever gets the most variety of colours wins.
 - Add someone in the middle to tag (use a pool noodle for 2m distancing) the runners. If tagged must drop food and sit at the end of your line up. The tagger represents a predator, invasive species or pesticide (you choose).



Spring flower find:

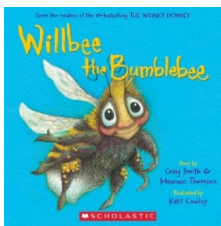
see attached printable for flower find scavenger hunt



Sit Spot / Quiet Activity:

- Deer Ears for humming pollinators. Try to listen for the quiet sounds.
- Count or tally how many different kinds of flowers you can see from your spot. How many of each?
- Write a letter to a pollinator:
 - 1: Inquiry question: "what do we know about pollinators?"
 - 2: Do we know kinds of pollinators?
 - 3: **Experiential question:** Do you have any experience with one of those groups?
 - 4: **Think – pair – share:** Turn to a partner and tell them about your experience
 - 5: **Validate Experiences:** All have different experiences. Some not so great ones! Stings happen once in a while, they are part of life, we can try to avoid them. How might we avoid stings?
 - 6: **Pollinators are our friends:** Bees don't want to sting us, they die when they do! Pollinators are very important because they help the plants. We as humans need the plants. They are beautiful and they give us our food!
 - 7: **Letter prompt:** ask them to think about pollinators, and if they could write a letter and tell them how they feel about them, what would you say?

Book:



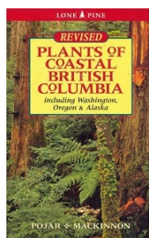
Read aloud -- *outside*.

Supporting App.



iNaturalist -- Approved district app. -- please make sure students have parental consent if they are going to make an account. Otherwise you can utilize the missions to challenge students to find flora and fauna of interest.

Book resource:



Plants of Coastal British Columbia, Pojar - MacKinnon







Best plant ID book around. Lists location and descriptions including the traditional Indigenous use of the plant.

INED resource:

Located on the District INED website

https://indigenouseducation.comoxvalleyschools.ca/apps/pages/index.jsp?uREC_ID=1064875&type=d&pREC_ID=1357948

Flower Find

 <p><input type="checkbox"/> Salal</p>	 <p><input type="checkbox"/> Buttercup</p>	 <p><input type="checkbox"/> Salmonberry</p>
 <p><input type="checkbox"/> Thimbleberry</p>	 <p><input type="checkbox"/> Baldhip Rose</p>	 <p><input type="checkbox"/> Vanilla Leaf</p>
<p>Your flower find:</p> <div data-bbox="212 1184 583 1541" style="border: 1px solid blue; height: 170px; width: 228px;"></div> <p>Observation:</p>	<p>Your flower find:</p> <div data-bbox="623 1184 987 1541" style="border: 1px solid blue; height: 170px; width: 224px;"></div> <p>Observation:</p>	<p>Your flower find:</p> <div data-bbox="1045 1184 1409 1541" style="border: 1px solid blue; height: 170px; width: 224px;"></div> <p>Observation:</p>