



# ADST Project

Bug Hotels are a great ADST project for students in grades 3.

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](mailto:Dawn.Anderson@sd71.bc.ca) or [Steve.Claassen@sd71.bc.ca](mailto:Steve.Claassen@sd71.bc.ca)

### **Jr. ADST (Applied Design Skills and Technology)**

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*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.*

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For this project you will need the following items:

- |                   |                     |
|-------------------|---------------------|
| 1. Hammer         | 6. Hand Saw         |
| 2. F Clamp        | 7. 1 ½ Inch Nails   |
| 3. Measuring Tape | 8. Sandpaper        |
| 4. Safety Glasses | 9. 1" x 4 x 2' wood |
| 5. Speed square   | 10. Bench Hook      |



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

**\*\*We have altered the dimensions of this project. The measurements are all correct, however, your box will be square shaped now and will look different from some pictures. \*\***

### **STEP 1:**

The first thing we need to do is take our 1 x 4 x 2 piece of wood and measure out 12 inches. Then take our speed square and draw a straight line across the wood.



### **STEP 2:**

Students will now lay down their bench hook and if needed, clamp their wood to the table (and bench hook). Then they will cut their piece of wood at the 6-inch mark. Once they have this cut, they will use their first cut to measure out the next three 6-inch cuts. We do this instead of using a measuring tape so that if there was a small error in measuring that the four pieces are the exact same size.

### **STEP 3:**

For this step, we want to make sure that the students know what pieces need to be connected where. So, we have the students lay out their pieces of wood in the design in which they are going to nail it together. We do this so that students can visually see what they are going to do.

### **STEP 4:**

Next, we will work with a partner and join the wood. With a partner, one person will hold the wood and the other will pre-drill a nail hole where the nail needs to go. We do this so that the wood doesn't split. The student who's project it is will get to use the drill and nail. Then they can switch. Make sure that the drilled hole is in at least  $\frac{1}{4}$  to  $\frac{1}{2}$  of an inch in from the end of the wood.

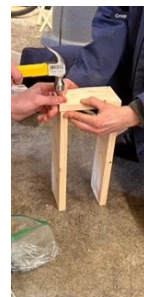
Hold the ends together and drill down and out and then immediately place the nail in the nail hole. Holding the nail, tap, tap, tap the nail. Remove your hand and nail the nail in the rest of the way. Students will need to repeat this step on the other end.



#### **STEP 5:**

Next, they will add their second 6-inch piece of wood. This one will be easier to nail on as the structure will now have two legs to stand on.

They will drill and nail in these two nails.



#### **STEP 6:**

Students will now repeat the drilling and nailing for the last 6-inch piece of wood. This will make the bottom piece of the bug hotel.

The bug hotel is now ready for the next phase of design!

Your hotel will be a square.



## Bug Hotel Curricular Connections

### Curriculum

Subject	Big Idea
Science	Living things are diverse, can be grouped, and interact in their ecosystems.
English Language Arts	Using language in creative and playful ways helps us understand how language works.
ADST	Technologies are tools that extend human capabilities.

### Resources

LRC: Here are just a couple of great resources and books to pair up with this build project.

<a href="#">Invitation to play: create colourful bugs and creatures</a> Call #KT 372.1 INV
<a href="#">Invitation to play: individual bug set</a> Call # KT 372.1 INV
<a href="#">Fascinating Insects : non-fiction</a> Call # KT 372.4 FAS
<a href="#">Explore the world of insects and bugs</a> Call # KT 595.7 INS

### Ideas for stuffing:

- Dead wood. Dead wood is an increasingly rare habitat and is essential for the larvae of wood-boring beetles. It also supports many fungi, which help to break down the woody material. Crevices under the bark hold centipedes and woodlice.
- Hollow stems. Hollow stems, such as old bamboo canes, or holes drilled into blocks of wood, make good nesting sites for solitary bees.
- Stones and tiles. Amphibians need a frost-free place to spend the winter. Provide stones and tiles in the centre of your habitat to give amphibians the cool, damp conditions they need.
- Straw and hay. These provide many opportunities for invertebrates to burrow in and find safe hibernation sites.

- Dry Leaves. Dry leaves offer homes for a variety of invertebrates by mimicking the litter on the forest floor.
- Loose bark. Beetles, centipedes, spiders and woodlice all lurk beneath decaying wood and bark.
- Corrugated cardboard. Roll up a piece of corrugated cardboard and put it in a waterproof cylinder to create a home for lacewings.
- Dry sticks. Dry sticks are perfect for ladybirds to hibernate in.
- Nectar-producing plants. Plant some nectar-rich flowers in and around your new bug mansion to provide food for butterflies and bees.

<https://www.wildlifetrusts.org/actions/how-build-bug-mansion>