

## Overview

In this learning activity, students will be introduced to the identification and use of basic and specialty hand tools, portable cordless power tools and stationary power tools, while using design thinking skills to measure and construct a birdhouse.

## NB Curricular Connections

### 6-8 Middle Block Learning Area

#### Technology:

- *Strand: Practical Skills - Big Idea: Safety – Skill Descriptor: Identify and practise safe work habits*
- *Strand: Practical Skills - Big Idea: Tool Use – Skill Descriptor: Identify and use basic and specialty hand tools; identify and use portable, cordless power tools; identify and use stationary power tools; measure materials using a variety of measuring tool; select and use materials, adhesives and finishes related to specific projects*
- *Strand: Design Thinking Skills - Big Idea: Problem Solving – Skill Descriptor: Plan, execute and present a project with given parameters and with assistance*

#### Mathematics:

- *Strand: Shape and Space - Big Idea: 2-D Shapes and 3-D Objects – Skill Descriptor: Draw and label 3-D objects composed of right rectangular prisms with and without technology; Draw and label top, front, and side views of 3-D objects using isometric dot paper*

Important Note: The curricular connections have been selected at the grade 8 level but adjustments to the complexity one wishes to pursue at grade 6 and 7 can be made (ie: only cordless power tools)

## What You'll Need

- Cordless Drill or Drill Press
- Cordless Circular Saw, Mitre Saw or Hand Saw
- Cordless Palm Sander or Sandpaper (with block)
- Hammer
- Measuring Tape
- Square
- $\frac{3}{4}$ " x 5.5" x 40" softwood (Pine preferred)
- $\frac{1}{4}$ " x 3" Dowel
- Nails
- Wood Glue
- Safety Glasses

## Instruction

Please see the attached “Bird House Plans” PDF’s on how to cut and construct.

### *Pre-Assessment/Engagement Questions*

- Discuss with students steps they take to ensure they use a piece of equipment safely. Ask students to provide examples of safety equipment they use bike or ski helmets, safety glasses, steel toe boots, safety vests, etc.
- Discuss types of woodworking activities that students have been involved in previously and the tools and equipment that they are familiar with.
- Ask students to discuss with partners something that they have made/assembled prior to today, asking to identify what was included in the package, or what they had to do prior to getting to work on the project.
- Discuss what skills are required to build a birdhouse.
- What style of birdhouse do you commonly see in this area? What types of birds do you see using each style of house? What types of birds do you commonly see in the area in which you live? Choose two different types of birds and look up the style of bird house they use? What is the diameter of the hole required for their house?
- Discuss what materials are used to create a birdhouse.
- Create a quick sketch and plan of the style of birdhouse(s).

### *Teacher Considerations*

- Students may choose to work independently or together on one birdhouse.
- Students can properly identify all key parts of each portable & stationary tool and describe their function. Teacher will identify the various pieces of equipment used in this project and their function while students are surrounding the equipment. Teachers may refer to the resources linked for background information.
- Students must learn about the tools they will be using and how to use them safely. There are many portable & stationary tools required during this project. Each tool has many parts that must be utilized for safe and responsible use of the equipment. Students may need assistance using each tool until they are comfortable with tool setup and function.
- Have students work in small groups to review each piece of equipment and the steps required for safe and responsible use.
- Students require a thorough understanding of the Personal Protective Equipment necessary to operate each piece of equipment safely. Discuss and answers questions related to the use of standard safety equipment such as safety glasses and hearing protection. Students also need to be reminded that it will be necessary to have long hair pulled back into a ponytail, no loose clothing is to be worn, and everyone must have closed-toed shoes, before using any equipment or working with materials.

- Accurate measurement and cutting will result in a better finish product. Remind students to take their time and ask for support as required. If they are unsure about any piece of equipment, please ask for assistance.

## Support Links

[Build a Birdhouse for Shop Class - YouTube](#)

[How to Setup a Bandsaw: Woodworking for Beginners #4 - YouTube](#)

[How to Setup and Use the Drill Press - Woodworking for Beginners #5 - YouTube](#)

[Using a Sliding Mitre Saw: Woodworking for Beginners #9 - YouTube](#)

[Sanding Techniques – Woodworking for Beginners #13 - YouTube](#)

[Sanding by Hand - YouTube](#)

## Extension Ideas

Wabanaki Connections: Create a field guide about our local birds. Include indigenous names used by the First Nations. Research the significance of various bird feathers and their purpose/use in First Nations Communities and History.

## Reflection Activity

Please see the attached PDF for several choices on how you and your learners can reflect upon this activity.

## Acknowledgements

An extensive “Build a Birdhouse” four-part lesson plan was created as part of the new NB Curriculum Framework as a resource bundle, from which this lesson was derived. To access the complete lesson plan kit, please visit:

[Resources – NB Curriculum Framework \(nbed.ca\)](#)

Birdhouse Plan 2 is from Career Connections Project Book 1 courtesy of the Carpenter Millwright College of NB

# Bird House Plan



## Measure and Cut Materials to the following sizes:

- Front - 14 cm x 20cm x 2cm
- Sides (2) – 14 cm x 20cm x 2cm
- Roof – 14cm x 21cm x 2cm
- Back – 14cm x 28cm x 2cm • Bottom – 14cm x 10cm x 2cm
- ¼” Dowel – 6cm

## Tools Required:

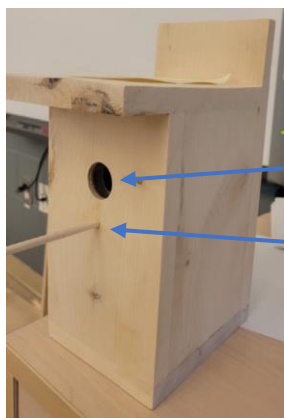
- Drill Press, Mitre Saw, Band Saw, Drill Press/Cordless Drill, Hammer, Nails, Wood Glue

## Safety:

- Safety Glasses
- Hearing Protection

## Procedure:

- Measure and cut softwood to appropriate dimensions as listed above. Clearly label each piece by name and dimension IN PENCIL!
- Drill Holes in FRONT piece of wood:
  1. Drill ¼” hole 10 cm up from the bottom, all the way through the wood. A ¼” dowel will be inserted for the birds to perch on.
  2. Drill a 1-1/8” hole for the bird entrance to the house 14cm up from the bottom.



Drill 1-1/8” hole

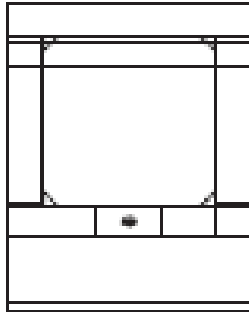
Drill ¼” hole

Source: Photo Taken by Scott Parks

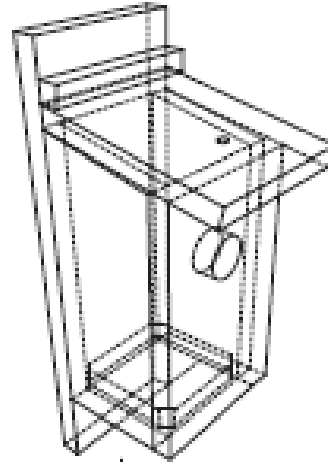
**Final Assembly:** Assemble pieces into the appropriate orientation. Glue And Nail to assemble birdhouse.

# Bird House Plan 2

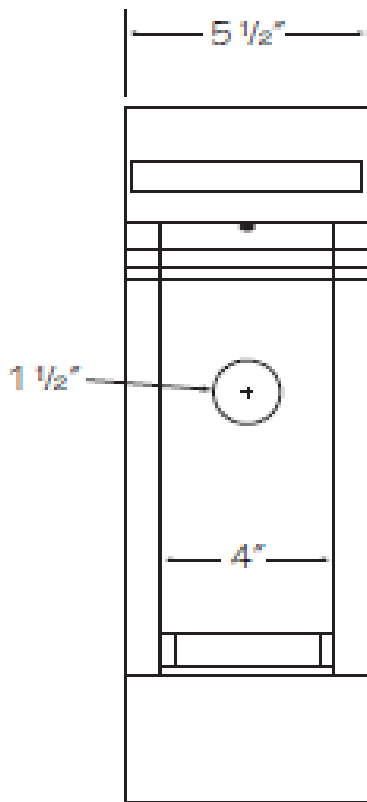
Bird House



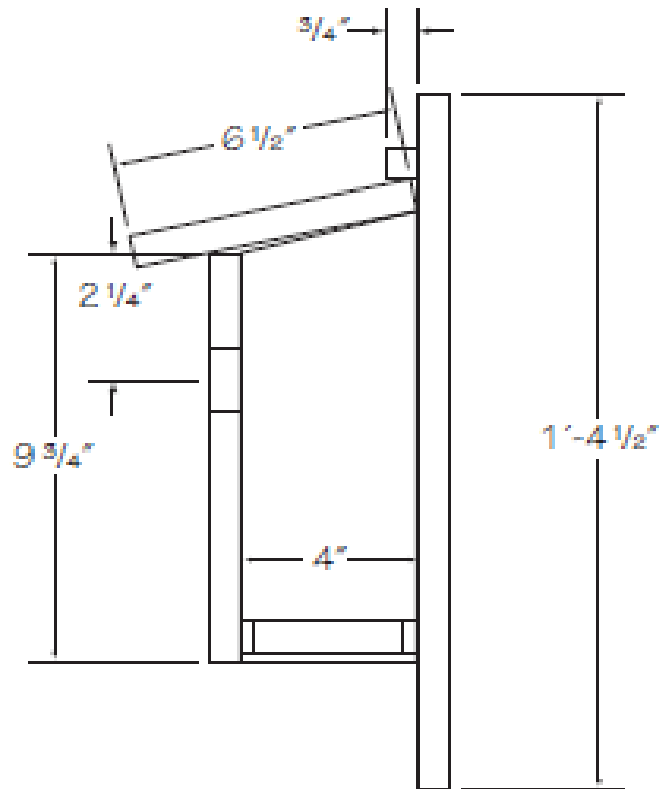
Bottom view



Three-dimensional or Isometric view



Front view



Side view