

MAKER SKILLS LIBRARY

Maker Skill: Drills

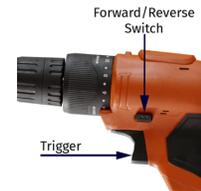
Direct makers to grab a pair of safety glasses, going over all safety rules for using drills

- Hair pulled back (if longer than shoulder length)
- No dangling items (jewelry, sweatshirt strings, etc...)
- Closed toe shoes
- Safety glasses worn at all times

Give each pair (or individual) makers a drill with a drill bit inserted (NO BATTERY). Ask makers to look closely at the drill and make observations. *What do they notice? What are the parts of the drill? What might be the purpose of each part?*

Listen to and synthesize student responses, clarify and define the following:

- **Handle** is where you hold the drill
- **Trigger** makes the drill turn on
- **Forward/Reverse buttons** switches the direction of the drill bit
- **Chuck** holds the drill bit.
- **Drill Bit** creates different size holes depending on the bit size, sharp grooves along the bit carve through the material.
- **Bit stopper** (if applicable): limits the depth of the drilled hole



Demonstrate how to use the vise/clamp to hold material:

- Use a vice or clamp to hold your wood. *It is important to use these tools rather than hands to hold material to keep yourself safe.* Show the parts of the vise (handle and direction to turn for tighten/loosen) and/or the parts of a clamp (release button + handle to tighten)
- Place the material in the vise/clamp. Note that the portion you will be drilling is protruding from the side of the vise or clamp and clear of the work table below.
 - Never drill directly into the center area of the vise unless using a bit stop to prevent drilling completely through the material. The base of the vise has metal rods and will break the drill bit if struck.
 - Use a spoil board if you are unable to clamp the material so that it is protruding from the table. Do not drill directly over a work table.

Demonstrate using the drill on scrap material:

- Position the drill 90 degrees perpendicularly to where you intend to drill. One hand holding the drill handle, the other hand on the top/back of the drill pressing down.
- Check the forward position button, then drill into the material pressing down slightly for leverage.
- After you have drilled through the material (or reached the bit stopper) stop and click in the reverse button, then engage the drill using the trigger button while lifting up slowly until the drill has exited the material.