Teaching Notes

4.1 Portable Power Drills, Drivers & Fasteners

Videos of demo: [Part A](https://madisoncollege.yuja.com/V/Video?v=1354886&a=245377310) (22:21)

[Part B](https://madisoncollege.yuja.com/V/Video?v=1354956&a=655956614) (12:21)

1. Hand Drills – Demo
	* Cordless: batteries, charging, 90° & offset attachment
	* Corded – sold by chuck size
	* Impact driver
	* Hammer drill
2. Tooling
	* Twist drill – demo drilling in steps to clear chips from the flutes and using a scratch awl to set a starter hole in stock
	* Bradpoint
	* Forstner bit/multi-spur bit
	* Spade bit – demo drilling from both sides to eliminate tear-out
	* *Adjustable circle cutter*  *- ID only*
	* *Plug cutter - ID only*
	* Countersink
	* Hole saw kit – demo proper setting of drive pins
	* Fuller tapered and combination bits – discuss & demo cleaning
	* Vix bits – discuss & demo cleaning
	* Center finder – demo finding the center with a bored piece overlaying a piece needing a smaller bore
3. Fasteners
	* Fastener cabinet
		+ Choosing a screw length (1/3rd: 2/3rds)
	* Apex and driver configurations (square, cross, slot) and sizes (0,1,2,3)
	* Demo finding the largest size of driver that fits in a screw to determine proper size driver
		+ Check/change bad drivers out as a group
	* Discuss driving fasteners made of non-ferrous material
4. Misc.
	* Proper method for boring screws – demo bridging; avoiding splitting
		+ Pilot hole, clearance hole, counterbore and countersink (see diagram next page)
		+ Demo measuring root diameter
	* *(Optional) Demo screw extractors and using a chuck to bite into a screw and remove it if drive is cammed out or broken off*

**Counter Bore**

**Countersink** k

**Clearance Hole**

**Pilot Hole**

