

Lesson #1: Jigsaw Identification and Safety

Objectives

Students will be able to...

- Identify the components on a jigsaw.
- Demonstrate the safe operation of jigsaw.

Common Core Standards

RSIT 11-12.2
RLST 11-12.3
Demonstration and Application 11.1
Health and Safety 6.0
Technical Knowledge and Skills 10.0
Cabinetmaking and Wood Products Pathway A4.1, 4.3, 4.4
Residential and Commercial Construction Pathway D2.1, D3.1

Materials

Jigsaw Identification and Safety Worksheet
YouTube Video <https://www.youtube.com/watch?v=6DuLVRLnSd8>

Lesson Sequence

- Complete the *Jigsaw Identification and Safety Worksheet* with students gathered around the jigsaw. As the parts of the jigsaw, not only discuss what their function is, but also demonstrate how they function. (20 minutes)
- Come back into the classroom and watch the *YouTube video* <https://www.youtube.com/watch?v=6DuLVRLnSd8> answer any questions students may have (15 minutes).
- Have students complete the safety questions in the *Jigsaw Identification and Safety Worksheet*. (15-20 minutes)

Assessment

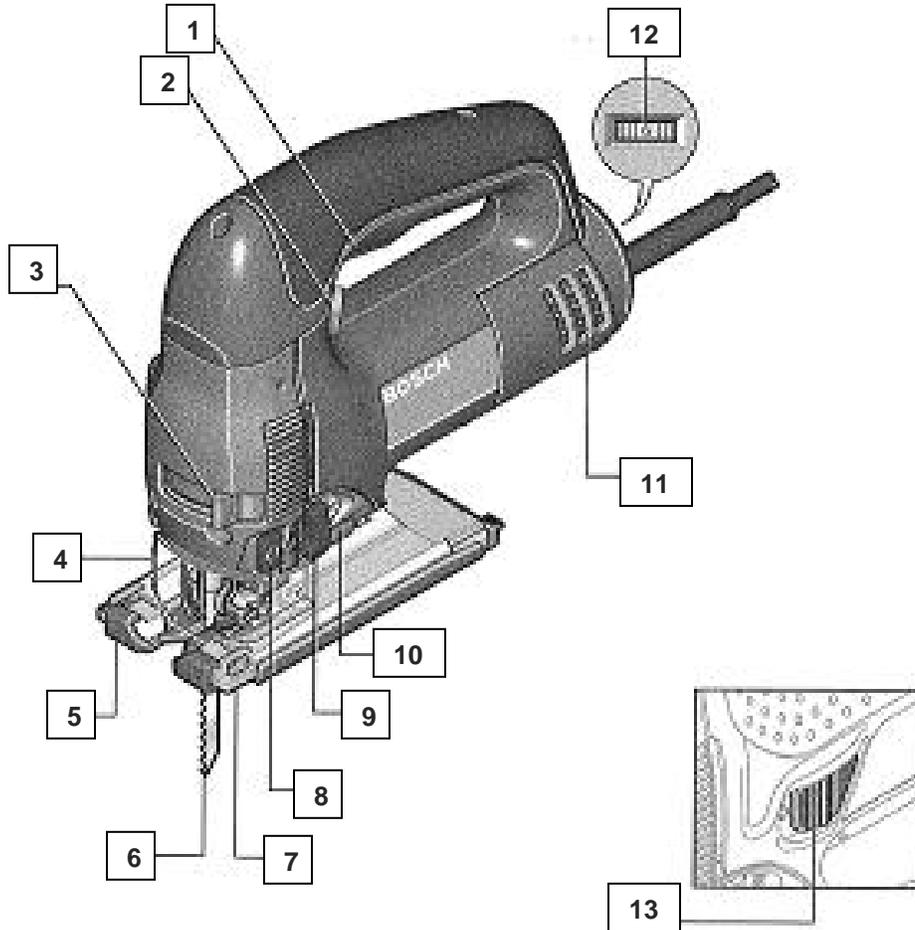
Monitor student understanding through questioning. Call on random students to answer questions. Roam around the classroom to monitor student safety answers.

Accommodations/Modifications

One on One Support
Check for Understanding
Partner Students Up as Needed
Extra Time as Needed

Jigsaw Identification and Safety Worksheet

Part 1: Identify the numbered parts on the saw illustrated below.



- | | | | |
|----|-------|-----|-------|
| 1. | _____ | 8. | _____ |
| 2. | _____ | 9. | _____ |
| 3. | _____ | 10. | _____ |
| 4. | _____ | 11. | _____ |
| 5. | _____ | 12. | _____ |
| 6. | _____ | 13. | _____ |
| 7. | _____ | | |

Part 2: Safe Operational Procedures

1. Replacing the jig saw blade

- a. Many blades are available for use in the jigsaw. Be sure the blade is the correct type for the work. Blade types are woodcutting, metal-cutting, and knife blades; there are also many blades available within each type. Follow manufacturer's blade recommendations for each.
- b. Note: Two (2) teeth or more should be in contact with the cutting surface at a time.
- c. Be sure the blade has the correct shank. One blade shank will not fit all brands of saws or even all models of saws within one brand.
- d. To remove blade, loosen blade screw and pull blade from slot. Turn screw back in several turns to prevent loss.
- e. To place a blade in the saw, loosen blade screw and insert blade shank until seated or hole in shank is aligned with blade screw. Teeth must be facing forward and pointing upward, then tighten screw firmly.
- f. Make no adjustments on saw while it is plugged into power source.

2. Adjustment of the jig saw

- a. Some jigsaws have a base, which may be raised and lowered to vary the amount of exposed blade. The blade must project through the work when the blade is at the highest point of its stroke. Disconnect saw from power source before making any adjustments.
- b. To adjust the amount of exposed blade, loosen the vertical adjustment locking screw and raise or lower base to the required height; tighten locking screw firmly.
- c. Many jigsaws have bases that may be tilted for beveled cuts. These saws characteristically have an arc divided in 5, 10, or 15-degree increments located to the front or rear of the aluminum housing.
 1. For beveled cuts, loosen the bevel locking screw; tilt the base until the desired angle is indicated on the arc, tighten the bevel locking screw, and check the arc and pointer to be sure the correct angle is still indicated.
 2. For perpendicular or 90o cuts, the pointer must indicate 0 degrees of angle on the arc.

3. Operating the jig saw

- a. Secure the material to be cut using a bench vise or clamp to workbench or sawhorses leaving both hands free to operate the saw.
- b. The line of cut must be free from obstructions above and below the work.
- c. Be sure proper blade for the job is locked securely in blade holder, teeth forward and pointed up.
- d. Be certain switch is in "off" position before connecting to power source.

- e. The saw handle is grasped in the right hand and the guide knob in the left.
- f. If the saw has different operating speeds, determine the proper speed before beginning the saw cut.
- g. To start an outside cut, place the toe of the saw base on the edge of the material, start the motor, and move the blade into the work. Push forward and downward with the right hand and guide the saw with the left hand.
- h. Use constant, firm pressure on the saw to maintain a uniform forward movement. Do not overload the saw because it will result in an overheated motor, overheated blade, or blade breakage.
- i. Do not attempt to cut curves so sharp that the blade will be twisted. Use narrow-bodied blades for curves and wide-bodied blades for straight cuts.
- j. When making pocket or internal cuts, (1) drill a starting opening in the waste stock to begin the cut or (2) make a plunge cut by resting the toe of the base firmly on the work with the blade raised off the work, turn on the motor, and then lower the blade slowly into the work. Note: The plunge cut method is not recommended for materials over ½" in thickness.
- k. For long cuts, the switch may be locked in the "on" position by turning the saw on and depressing the switch lock with the right thumb. To release the lock, pull up on the off-on switch. (This applies only to saws with a switch lock.)
- l. To prevent binding or breakage of the blade, support the cut-off material until the cut has been completed.
- m. When the cut has been completed, turn off the motor and set the saw down after the motor has stopped completely.
- n. If the saw is to be removed from the cut prior to reaching the edge of the work, turn off the motor and wait until it has completely stopped before removing saw from cut.
- o. When finished using the jig saw, disconnect saw from power source and return saw to the storage chest. Depending on storage method, it may be recommended to remove the saw blade before storing the saw.

Part 3: General Safety Practices

- 1. Never operate jigsaw without safety glasses or goggles.
- 2. Do not operate saw without instructor's permission.
- 3. Clamp work securely to prevent movement or excessive vibration.
- 4. Have plenty of shadow-free light on the work.
- 5. Check blade for proper size, sharpness, and tightness in blade holder. Do not use dull, bent, or cracked blades.

6. After making certain the switch is in the "off" position, connect power cord to power source. Saw must be properly grounded to prevent injury to user.
7. Maintain a well-balanced position on both feet. Do not shift position of feet while sawing.
8. Grip handles firmly with the right hand and control turning movements with left hand on the guide knob.
9. Place toe of base firmly on work before turning on motor.
10. Do not set saw down or remove blade from an unfinished cut until the motor is stopped.
- a. 11. When finishing a cut, support the cut-off section if it may bind the blade. Bound blades may break, throwing metal pieces some distance.
11. Always disconnect from power source when inspecting parts, making adjustments, and removing or installing blades.

Part 4: Completion Questions

1. The vertical adjustment locking screw is used to adjust the amount of _____ exposed.
2. An angle of _____ degrees should be indicated on the arc for cuts perpendicular to the surface of the material.
3. The _____ hand should be used to grasp the _____ to guide the saw.
4. The types of blades are the _____, _____, and _____.
5. The amount of blade exposed below the base should be enough to project below the lower surface of the work at the _____ point of the saw blade stroke.
6. The _____ _____ holds the blade in place on the saw.
7. The _____ hand should be placed on the _____ and used to exert a constant forward and downward pressure on the saw.
8. When the blade is properly installed, the teeth must point _____ and _____.
9. When starting an outside cut, the _____ of the saw should be resting on the material before turning on the motor.
10. A type of internal cut called the _____ cut is started by resting the _____ of base firmly on the work with the blade raised above the work.

Jigsaw Identification and Safety Worksheet – *Answer Key*

Part 1:

1. Trigger switch
2. Lock-on button
3. Blade ejector lever
4. Dust shroud
5. Non-marring overshoe
6. Blade
7. Foot plate
8. Precision control button
9. Blade orbit selector lever
10. Dust blower lever
11. Intake ventilation openings
12. Variable speed control dial
13. Slide on-off switch

Part 4:

1. Blade
2. 0
3. Right; left
4. Woodcutting, metal-cutting, and knife blade
5. Highest
6. Blade screw
7. Right; handle
8. Up; forward
9. Toe
10. Plunge; toe