

### Lesson #1: Router Safety Packet

#### Objectives

Students will be able to...

- Identify the router's major components and safety operation.

#### Common Core Standards

LS 11-12.6  
RSIT 11-12.2  
RLST 11-12.2  
Health and Safety 6.0, 6.2, 6.3, 6.5, 6.6  
Technical Knowledge and Skills 10.0, 10.1, 10.2  
Demonstration and Application 11.1  
Cabinetmaking and Wood Products Pathway A4.1, 4.3, & A4.4  
Residential and Commercial Construction Pathway D2.1, D3.1, D3.2, D3.3

#### Materials

Router Identification and Safety Worksheet  
YouTube Video <https://www.youtube.com/watch?v=ZkerM8R8Pj8>

#### Lesson Sequence

- Complete the *Router Identification and Safety Worksheet* with students gathered around the Router. As the parts of the Router, not only discuss what their function is, but also demonstrate how they function. (20 minutes)
- Return to the classroom and have students work on the safety questions. (15-20 minutes)
- Watch the *YouTube Video* <https://www.youtube.com/watch?v=ZkerM8R8Pj8> answer any questions students may have. (8 minutes)

**Assessment**

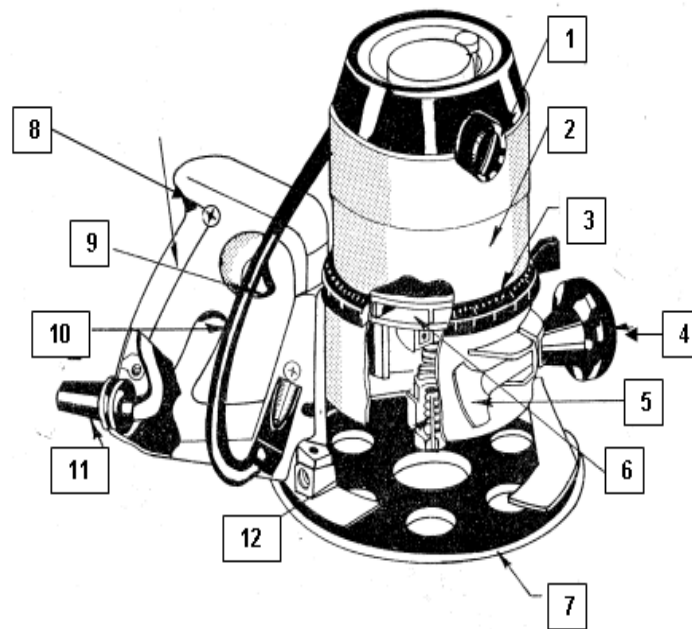
Monitor student understanding of the router components and safety through questioning. Call on random students to answer questions. Provide feedback as needed.

**Accommodations/Modifications**

- one on one support
- partner as needed
- check for understanding

## Router Identification and Safety

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



1. \_\_\_\_\_

7. \_\_\_\_\_

2. \_\_\_\_\_

8. \_\_\_\_\_

3. \_\_\_\_\_

9. \_\_\_\_\_

4. \_\_\_\_\_

10. \_\_\_\_\_

5. \_\_\_\_\_

11. \_\_\_\_\_

6. \_\_\_\_\_

12. \_\_\_\_\_

## **Part 2: Safe Operational Procedures**

### **1. Changing the router bits or cutters:**

- a. Disconnect router from power source.
- b. Select proper bit for job to be completed.
- c. Have proper router chuck and collet tools available for loosening and tightening chuck.
- d. Loosen locking handle and remove the router base.
- e. Check manufacturer's procedure for changing bits, in particular, for method of holding motor or chuck to properly tighten bit.
- f. Insert router bit at least ½" into chuck. Tighten securely. Turn router by hand to make sure the bit clears the router base. Replace router base.
- g. Release motor locking device before connecting router to power source.

### **2. Cutting a rabbit, dado, or molding**

- a. Select proper cutter for the job. It must be sharp. Replace plastic window over cutter area if router has a plastic window cover.
- b. Clamp work securely and make all adjustments before starting the router.
- c. Lock the cutter in the router and adjust the base to the desired height using depth adjustment gage.
- d. Lock depth adjustment.
- e. If cutting a groove, a fence guide is required. Insert fence adjustment bars into router base and tighten lock screws.
- f. Place the router base on the work with the cutter clear of the wood before turning on the power.
- g. Adjust fence guide.
- h. Hold router firmly when turning on the motor to resist starting torque. A well-balanced stance is important to help maintain full control.
- i. Make a practice cut on a piece of scrap lumber.
- j. Hold the router with both hands, using the handles provided.
- k. When making a cut along a straight edge, move left to right. Cut end grain first, then edge grain to avoid chipping of ends.
- l. When making circular cuts, move counterclockwise around the circle.
- m. Use steady, slow, even feed. Don't overload the motor.
- n. Cut only clean lumber, free of paint, varnish, and nails. Keep in mind the cutting of plywood dulls the cutter because of the glue in the plywood.
- o. Make sure the fence gage is tight against the edge.
- p. When the cut is completed, turn off the motor. Do not lift the router from the work until the motor has stopped.
- q. Between cuts lay the router on its side on a table in a position where it will not roll.

- r. Remove the cutter from router after the job is completed and return it to its proper storage place.
- s. Special precaution should be used in operating this power tool. The cutter bit travels between 20,000 and 30,000 RPM and cannot have a guard or it would not function.

### **Part 3: General Safety Practices**

1. Wear eye protection and remove loose clothing when operating this machine.
2. Do not operate router without permission from the instructor.
3. Use only sharp cutter for the job to be done.
4. Double check all adjustments to be certain they are tight. Replace plastic window (if one is provided).
5. Be sure the router is disconnected from power source when changing cutters.
6. Never start the router when the cutter is in contact with the material.
7. Be sure the router is properly grounded electrically. Note location of cord to avoid cutting it. New models may be double insulated; therefore, the cord will not have the three-prong grounded type electrical plug.
8. Do not talk to anyone while operating this router.
9. Check to see if the switch is off before inserting the plug into the outlet.
10. Work area must be free of obstructions such as scrap boards.

### **Part 4: Completion Questions**

1. The router is a dangerous power tool because the cutter bit travels at \_\_\_\_\_ RPM and the bit is not \_\_\_\_\_.
2. The router bit is held in a \_\_\_\_\_ type chuck.
3. The variety of router cuts is obtained from the great assortment of \_\_\_\_\_ available.
4. The bit should be inserted at least \_\_\_\_\_ into the chuck.

## **BUILDING INDUSTRY TECHNOLOGY ACADEMY: YEAR ONE CURRICULUM**

---

5. The commonly used freehand cuts are the \_\_\_\_\_ and \_\_\_\_\_ cuts.
6. The cutter will be dulled when cutting \_\_\_\_\_ because of the glue.
7. A router should be left lying on its \_\_\_\_\_ between cuts.
8. A \_\_\_\_\_ cutter bit should not be used.
9. Be sure switch is \_\_\_\_\_ before inserting the plug into an outlet.
10. In making long straight edge cuts, the direction of travel should be from \_\_\_\_\_ to \_\_\_\_\_.

**Router Identification and Safety – Answer Key**

**Part 1:**

1. Brushes
2. Aluminum housing
3. Micro depth adjustment
4. Guide knob
5. Locking handle
6. Motor cooling fan
7. Sub-base
8. D-handle
9. Insulated trigger switch
10. Motor safety disconnect
11. Cord strain reliever
12. Collet type chuck

**Part 4:**

1. 20,000 to 30,000; protected by a guard
2. Collet
3. Bits
4. ½ inch
5. Groove
6. Plywood
7. Side
8. Dull
9. Off
10. Left to right