

Lesson 1: Sharpening and Reconditioning a Twist Drill, Lawn Mower Blade, and Chain Saw Chain

**Sharpening a Lawn Mower Blade**

**Objective:** Students will observe how to sharpen a lawn mower blade.

**Directions:** Use a file or portable grinder to sharpen a lawn mower blade.

**Materials and Equipment:**

Portable grinder with appropriate grinding wheel or  
Appropriate flat file(s)  
Safety goggles, face shield, or other approved face and eye protection\*  
Gloves, for removing and installing the blade and any filing procedures  
Any other protective clothing recommended by instructor  
Tool gauge with the correct angle for the sharpened blade  
Socket wrench and socket  
Bench vise  
Blade balancer or a thin edge for checking the balance of the blade  
Lawn mower with a blade that needs sharpening

\* Everyone participating in or observing the demonstration should wear appropriate protective eyewear and any other protective clothing as needed.

Note: Lawn mower blades can be sharpened using a file or a portable grinder. General information for using these tools is given below. The instructor should supplement these steps with more detailed information about the tools he or she uses for this activity as needed. Students should have demonstrated the ability to safely and correctly use these tools before proceeding with the activity.

**Procedure:**

1. Wear appropriate safety equipment.
2. Demonstrate the correct procedure for preparing to sharpen the lawn mower blade.
  - a. Consult the owner's manual for the correct angle for sharpening the blade or any other relevant information. A typical angle for a properly sharpened lawn mower blade is 45 degrees.
  - b. Inspect equipment, materials, and work area to ensure safe and correct operation.

3. Disconnect the spark plug wire and secure it away from the spark plug. Disconnect an electric mower from its power source.
4. Demonstrate the proper procedure for removing the mower blade, including the following steps and any others as needed.
  - a. Tip the mower on its side, with the crankcase down.
  - b. Secure the mower so that it will not fall over while it is being worked on.
  - c. Use a socket wrench and socket to remove the blade.
5. Demonstrate the correct procedure for sharpening the mower blade.
  - a. Secure the blade in the vise.
  - b. Use the grinder or file to remove any nicks in the blade.
    1. When using a file, apply pressure on the forward stroke and lift the file for the return stroke.
    2. When using a grinder, be careful not to overheat the metal.
    3. When using a file or grinder, be careful to remove metal evenly from both sides of the blade to avoid throwing it out of balance.
  - c. Use the sharpening tool to restore the flat side of each end of the blade.
  - d. Restore the cutting edge of each end of the blade.
  - e. Use the tool gauge to check the angle of each end of the blade.
  - f. Use the blade balancer or a thin edge to check the balance of the blade.
  - g. If needed, reclamp the blade and carefully file or grind the heavy side of the blade until it is in balance.
6. When the blade is balanced and the cutting edges have the correct angle, reinstall the blade.
7. Set the mower back down in the cutting position and reattach the spark plug wire.
8. Perform cleanup procedures.
9. Assign the student version of AS 3 to be performed by the students.