

# Training Guide: Scroll Saw

## INTRODUCTION:

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A scroll saw is used to make fine, often decorative cuts in various materials. It can be thought of as a powered version of a coping saw. The thin blade that moves up and down very quickly as the user guides the material through it. The blade can be removed and threaded through a hole in the material to cut internal features. There are no materials restriction at the sides of the blade, only behind the blade, allowing the user to cut fairly large pieces of material.

Though less powerful than a band saw, the scroll saw is a safer alternative that can do cuts easily in wood, plastic is suited well for cuts in wood, plastic, and foam. The reciprocating blade on the scroll saw is much less damaging than a band saw blade as it would “scratch” an object rather than pull it into the cutting site. A scroll saw can safely be used by a person who is tall enough to comfortably reach the material table, and is able to physically support and control the material as it is fed through the machine. The motor provides the power to cut the material, not the operator. Though some strength is required, good technique and proper set up are the keys to using a band saw safely and effectively.

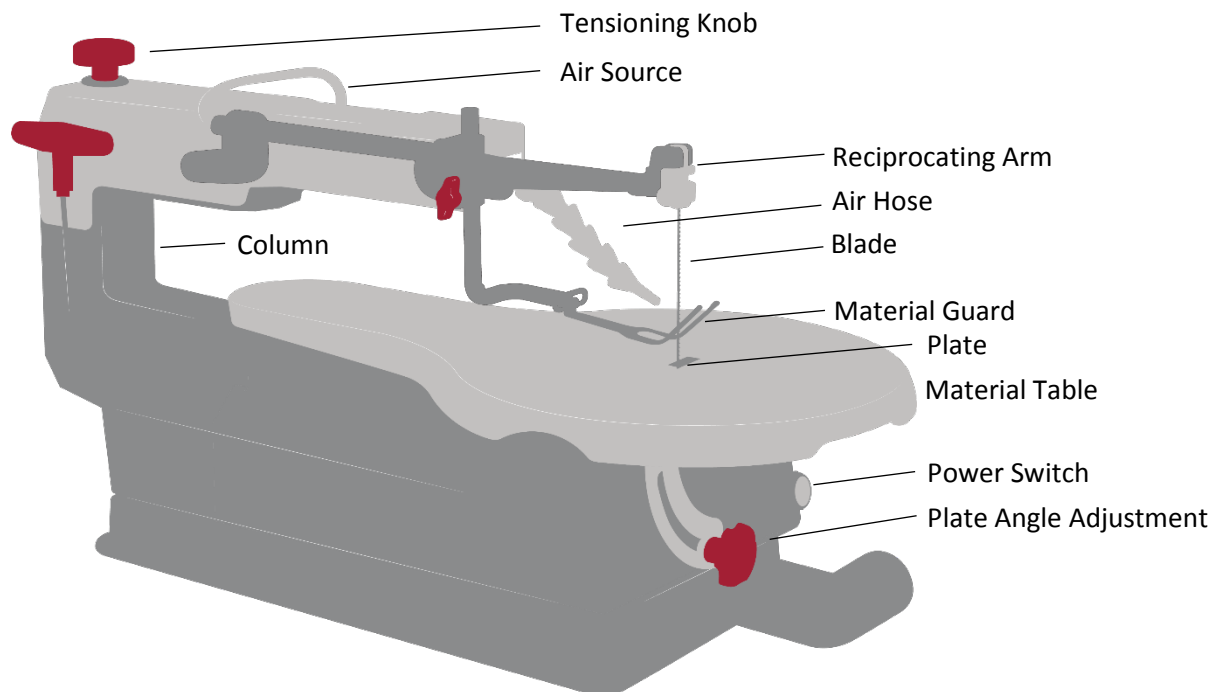
## AFTER COMPLETING THIS TRAINING, STUDENTS WILL BE ABLE TO:

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- Check that the material will fit in the machine and that the size of the blade tooth is appropriate for material
- Remove and re-install the blade for internal cuts and blade changes
- Guide workpiece through machine at proper speed
- Complete the cut taking proper safety precautions
- Remove excess material and leave workspace clean for next user

## HOW TO USE:

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1. Draw intended cut on material or secure a template.
2. For your material, confirm that the saw has
  - a. An appropriate blade width and tooth size for chosen material. The blade tension is set appropriately.
  - b. Enough height to pass the material under the guard.
  - c. Enough room on the back side of the blade for the material to exit the machine.
3. For internal cuts,
  - a. Make a hole somewhere inside the cut area.
  - b. Loosen the tension on the blade so it can be easily removed. Note how many times you rotated the tensioning knob so you can restore it to its previous position.
  - c. Remove the blade from the arm, pass it through the hole, and reattach it to the machine
  - d. Check that the blade tension is set appropriately.
4. Check that you have secured clothing, jewelry, hair, etc. that will get close to the machine.
5. If the scroll saw has an air hose, aim it at the cutting point to blow away sawdust as it is created at the cut site.
6. Turn on machine.
7. Hold part firmly against the table and gently feed material through the blade letting the machine do the cutting. Keep hands at a safe distance from the blade.
8. Turn off blade and remove material. For internal cuts, remove blade and reinstall in machine.
9. Clean up dust and scraps with dust pan or vacuum.

## SAFETY GUIDELINES FOR OPERATING A SCROLL SAW:

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- Wear eye protection
- Never wear gloves near the blade.
- Wear a dust mask when operating for long periods of time or working with harmful materials
- Support the material so it doesn't fall off table when finished with cut

## PRACTICE APPLICATIONS FOR STUDENTS:

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- Straight cut
- Curved cut
- Blade removal and replacement
- Internal cut

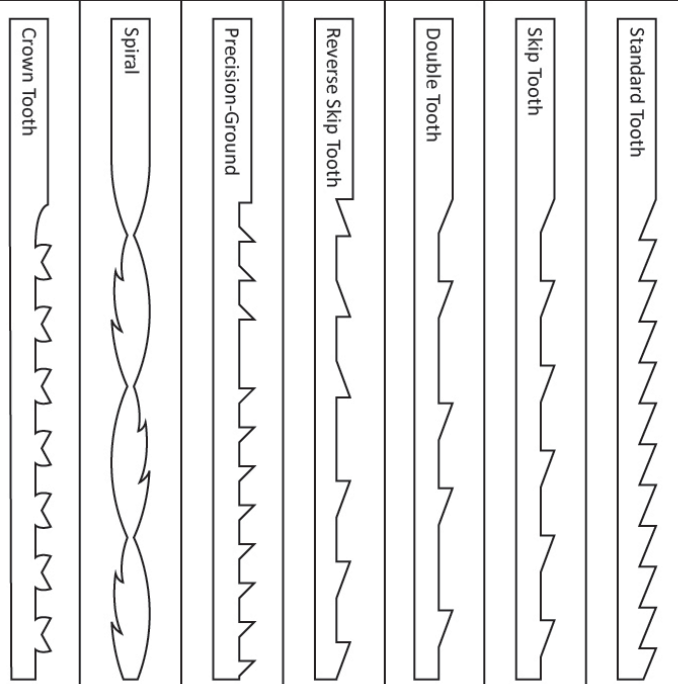
# Scroll Saw Blade Guide

There are many factors to consider when choosing a scroll saw blade, but the most important are the **pitch** (number of teeth per inch, indicated as TPI), the **tooth shape**, and the **cutting material**.

Many blades are versatile and can be used with a variety of materials, however it's important to use caution with certain combinations.

- Should Not Use
- Use with Caution
- Can Use

## Types of Blades



## Materials

Hard Wood, Plywood	<8 TPI			<12 TPI	<14 TPI	<12 TPI	big tooth
Soft Wood, Low Density (Foam)	<6 TPI		>12 TPI	>12 TPI	12-36 TPI		big tooth
Particle Board	<8 TPI		<10 TPI	<12 TPI	<12 TPI	<15 TPI	
Plastics			<3/4" thick		12-22 TPI	11-20 TPI	
Thin Sheet (Felt, Paper, Veneer)	>16 TPI			>24 TPI	>32 TPI	>20 TPI	
Soft Metals (Aluminum)			>12 TPI		>16 TPI	>16 TPI	small tooth

## Tips for Choosing the Proper Blade

### Pitch

- During operation there should be at least 3 teeth in the workpiece at any given time, and no more than 24; 6-12 is ideal

### Higher Pitch

- Thinner materials
- Slower cut
- Smoother, finer finish

### Lower Pitch

- Thicker materials
- Quicker cut
- Rougher finish

### Tooth Shape

- The spaces between the teeth on blade types like skip tooth and crown tooth are to release excess material
- Standard tooth come in two types: wood/metal
- A spiral blade allows the material to be cut in 360°

### Other Tips

- Slow down and let the blade do the cutting