

# PROFESSOR TOOLEY INSTRUCTS

OUR LESSON FOR TODAY, CLASS, IS ABOUT TWO COMMON TOOLS YOU'LL FIND AROUND THE MOTOR POOL AND MACHINE SHOP: HAMMERS AND HACKSAWS.

## Hammers

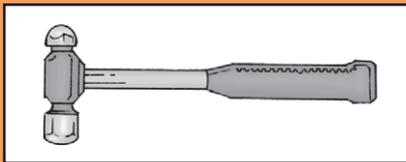
I CALL YOUR ATTENTION TO FOUR TYPES OF MAINTENANCE HAMMERS...

- Ball peen
- Soft-faced
- Dead blow
- Sledge

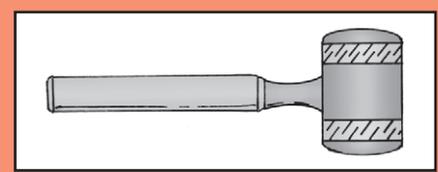
**Ball peen hammers**, also known as machinist's hammers, are used for metalwork.

The flat surface on the head is called the face. The rounded portion at the opposite end is called the peen.

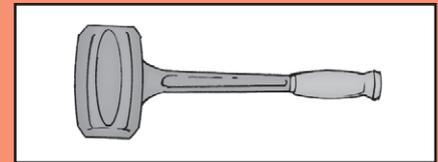
You can form thin metal by applying light, steady blows with the peen of the hammer. You use a light touch because the head can damage materials made of softer metal.



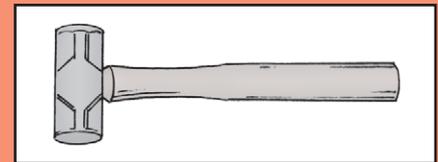
Use a **soft-faced hammer** when you want to protect the surface you're working on. Its replaceable faces are made of materials such as soft lead, plastic, wood or rubber that won't damage a metal surface.



Using a **dead blow hammer** will also protect a metal surface. Its head is filled with shot and coated in rubber. That helps give it greater striking power and reduces noise, vibration and bounce-back.

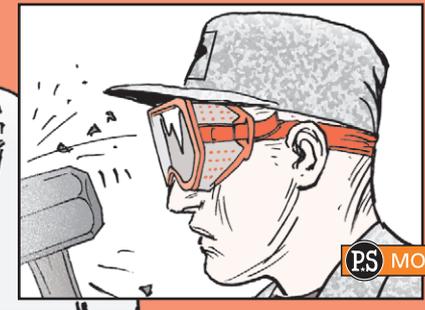
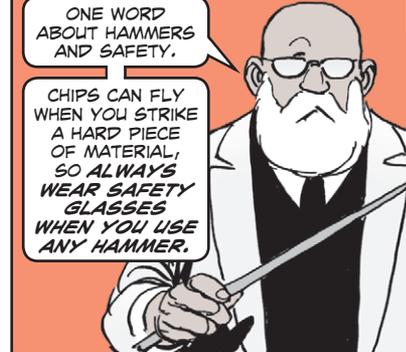


Save the **sledge hammer** for heavy-duty work. Its head is made of forged steel and may weigh from 2 to 20 pounds.



ONE WORD ABOUT HAMMERS AND SAFETY.

CHIPS CAN FLY WHEN YOU STRIKE A HARD PIECE OF MATERIAL, SO ALWAYS WEAR SAFETY GLASSES WHEN YOU USE ANY HAMMER.



NOW, CLASS, WHAT HAVE WE LEARNED ABOUT HAMMERS?

SELECT THE RIGHT HAMMER FOR THE JOB.

A BALL PEEN HAMMER IS USED FOR WORKING WITH METAL WHEN IT'S NOT IMPORTANT IF THE MATERIAL BECOMES SLIGHTLY MARRED.

A SOFT HAMMER IS USED WHEN YOU WANT TO PROTECT THE WORKING SURFACE.

A SLEDGE HAMMER IS USED ONLY FOR HEAVY-DUTY WORK.

USE IT WITH CAUTION AND ALWAYS WEAR SAFETY GLASSES.

EXCELLENT, CLASS. TRULY YOU HAVE STRUCK A BLOW FOR TOOL KNOWLEDGE THIS MORNING.

NOW BEFORE WE PROCEED, HERE'S A WORD ABOUT HAMMER ABUSE...

POUND FOR POUND, A HAMMER TAKES MORE OF A BEATING THAN ANY OTHER TOOL.

HERE ARE THE MOST COMMON ABUSES...

- Using a hammer for the wrong job
- Hitting one hammer with another
- Using broken, chipped or mushroomed hammers
- Using soft-faced hammers to drive nails
- Striking a screwdriver with a hammer to pry open boxes. (Use a hammer and chisel instead.)
- Striking chisels that are bent, chipped, cracked, broken or mushroomed

I DON'T THINK IT'LL MATTER MUCH IF I HIT THIS SCREWDRIVER WITH A HAMMER TO PRY OPEN THIS CRATE!

### Hacksaws

NOW CLASS, I WISH TO MAKE A FEW CUTTING-EDGE REMARKS...

...AHEM...

...ABOUT A SMALL BUT MIGHTY TOOL, THE HACKSAW.

A hacksaw is used to cut tubing, bolts and small metal parts. It has a handle attached to a metal frame. A saw blade fastens to both ends of the frame. You must keep the blade tight or it will break. The saw teeth should face away from the handle.

When you begin sawing, guide the blade with your thumb, but be careful not to touch the blade teeth. Pull the saw back slowly and lightly. Once you've made a cut, grip the front of the frame with one hand to guide the blade and apply pressure.

THE SAW CUTS ONLY WHEN PUSHED FORWARD, SO APPLY PRESSURE ON THE FORWARD STROKE.

LIGHTEN PRESSURE ON THE BACKWARD STROKE.

AND USE LONG, SLOW STROKES.

NEVER FORCE THE SAW; THAT CAN PULL THE TEETH.

Saw blades come in a variety of teeth sizes, known as pitch. Pitch is measured in teeth per inch (TPI). Hacksaw blades usually have 18 or 24 TPI. What's the rule of thumb for which pitch to use? Choose a blade that always has two teeth in contact with the metal. That means you use a blade with a lower pitch to cut thick metal, and one with a higher pitch to cut thin metal or tubing.

NOW, CLASS, WHAT HAVE WE LEARNED ABOUT HACKSAWS?

THEY CUT BOLTS, TUBING AND SMALL METAL PARTS.

A HACKSAW CUTS ONLY WHEN YOU PUSH IT FORWARD.

USE LONG, SLOW STROKES WHEN YOU SAW.

ALWAYS USE THE CORRECT SIZE BLADE.

EXCELLENT, CLASS! TODAY YOU ARE TRULY THE SHARPEST TOOLS IN THE SHED.

