



# METAL ABRASIVE TOOLS

VERSION 3.1



AUTODESK  
PIER 9

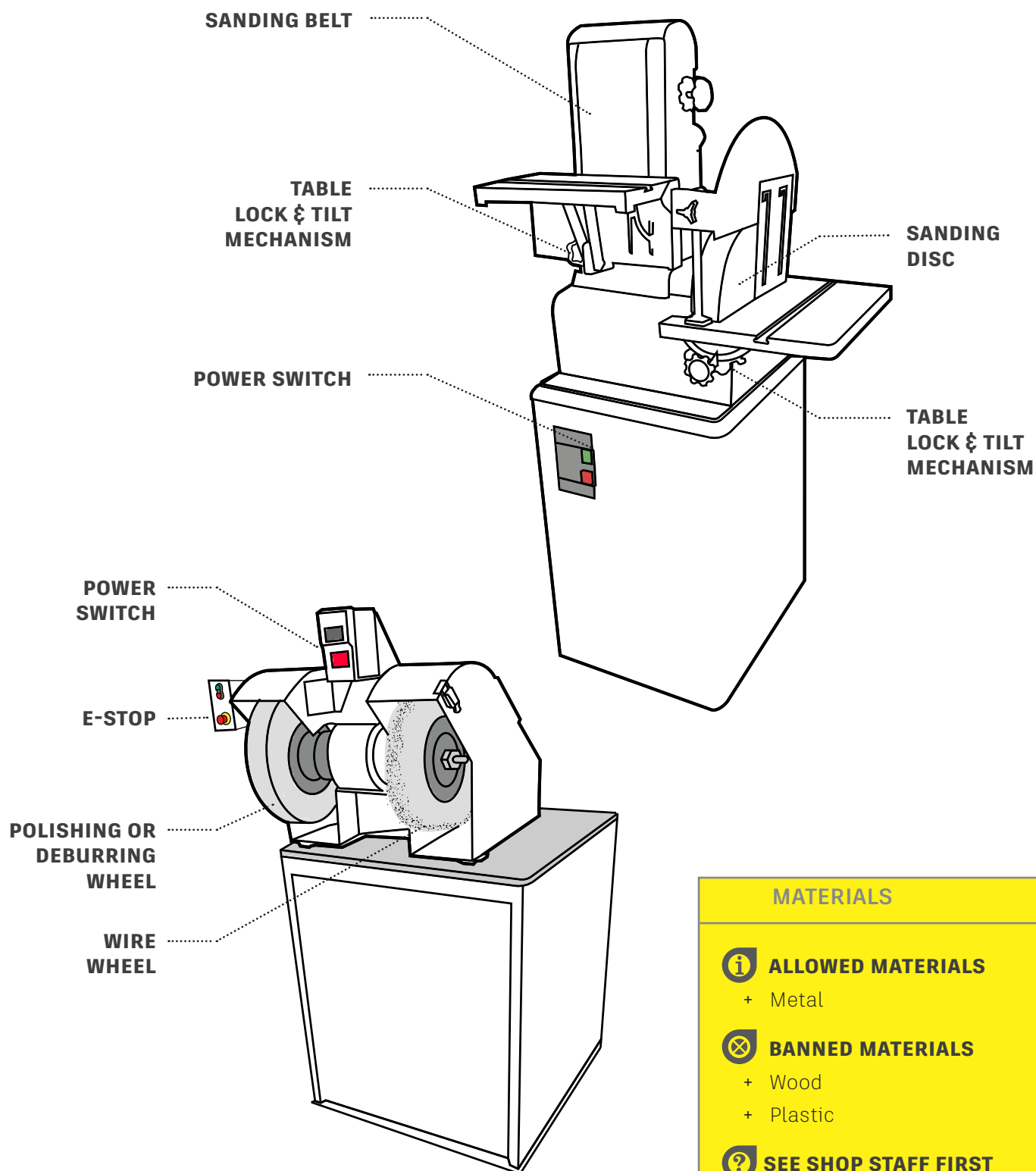
# METAL ABRASIVE TOOLS

MACHINE  
OPERATION

VERSION 3.1

ABRASIVE MACHINES SMOOTH AND SHAPE YOUR WORKPIECE.

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## MATERIALS

### ALLOWED MATERIALS

+ Metal

### BANNED MATERIALS

+ Wood

+ Plastic

### SEE SHOP STAFF FIRST

+ Any other materials

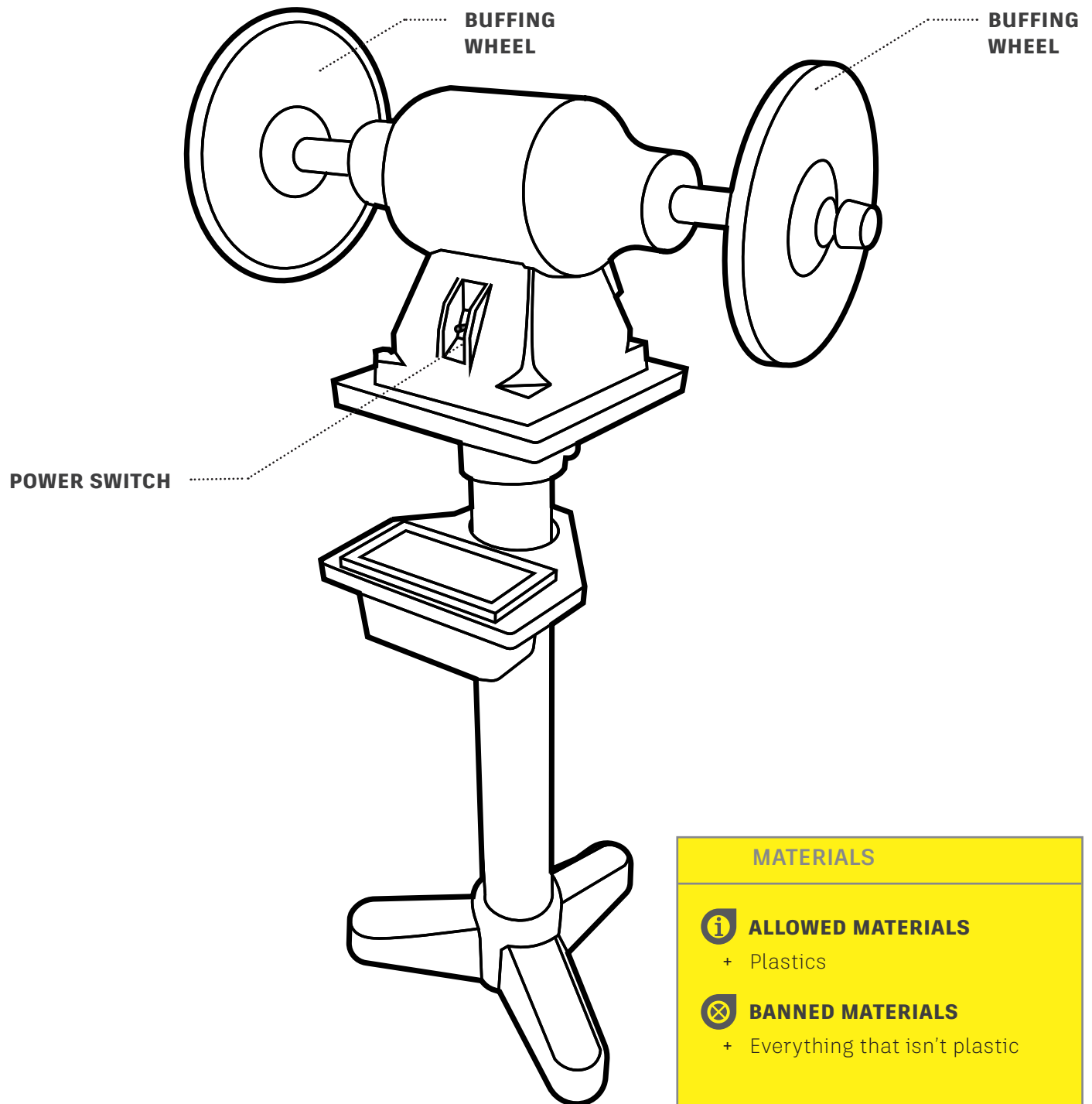
# METAL ABRASIVE TOOLS

MACHINE  
OPERATION

VERSION 3.1

ABRASIVE MACHINES SMOOTH AND SHAPE YOUR WORKPIECE.

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## MATERIALS



### ALLOWED MATERIALS

- + Plastics



### BANNED MATERIALS

- + Everything that isn't plastic

# METAL ABRASIVE TOOLS

KEEP IT SAFE

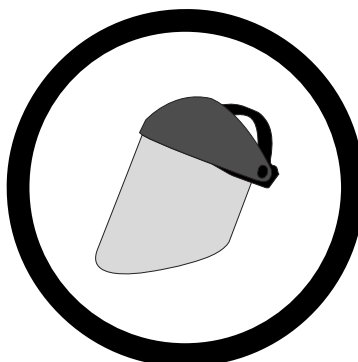
VERSION 3.1

USE PERSONAL PROTECTIVE EQUIPMENT WHEN OPERATING THE METAL ABRASIVE MACHINES.

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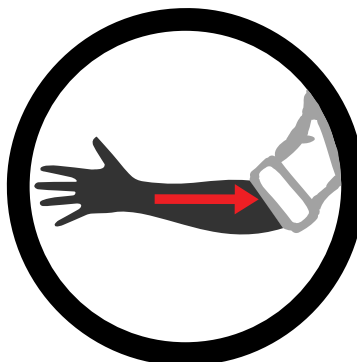
**PROTECT YOUR EYES  
FROM FLYING CHIPS  
AND DUST.**



Always wear  
a face shield  
and safety  
glasses.



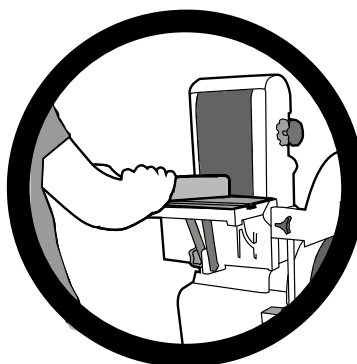
**AVOID LOOSE CLOTHING  
AND OTHER ITEMS  
THAT COULD BE CAUGHT  
IN ROTATING PARTS.**



Always wear short  
sleeves, or rolled  
sleeves, pull back  
and tuck in long hair,  
remove jewelry and  
lanyards, etc.  
Do not wear gloves.



**AVOID HAVING  
WORKPIECE PULLED  
INTO THE SANDER.**



Never sand anything  
narrower than the gap  
between the belt (or  
disc) and the table.  
Never sand anything  
that isn't rigid.  
The material must  
always stay in contact  
with the table.

# METAL ABRASIVE TOOLS

BELT & DISC USE

VERSION 3.1

DISC AND BELT SANDERS QUICKLY REMOVE MATERIAL FROM EDGES OR CORNERS OF MATERIAL.

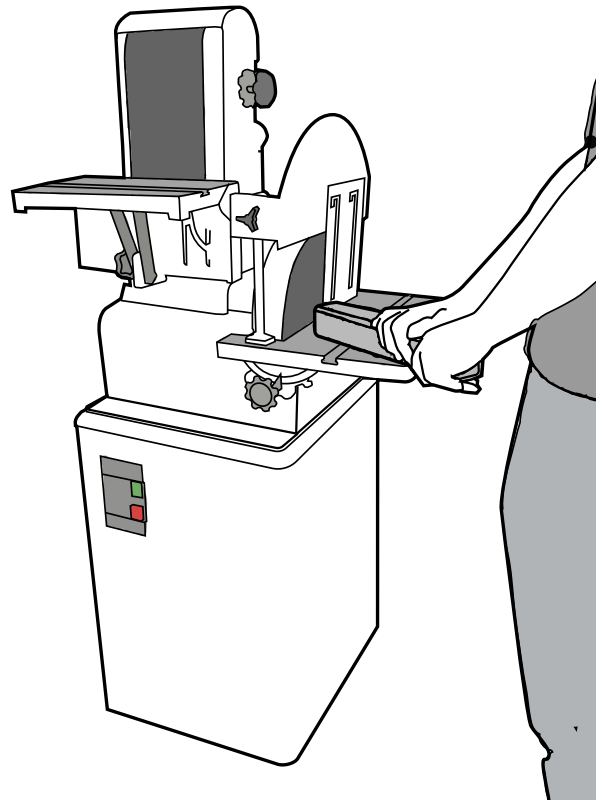
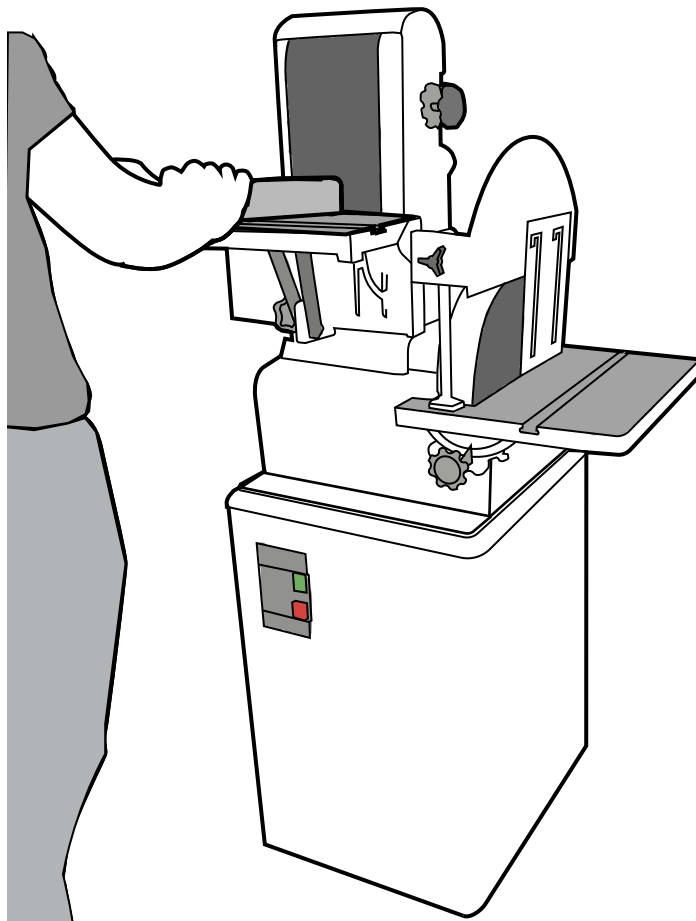
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## DISC AND BELT SANDER

- + The tables can be tilted in order to sand at an angle.
  - ▶ See Shop Staff before making table adjustments.
- + Keep material flat on the table when working at an angle.
  - ▶ If you can't do this, use a hand-held tool to shape your work.
- + Move the material back and forth on the table, to avoid wearing the paper in one spot.

When working with small parts, they may become too hot to hold.

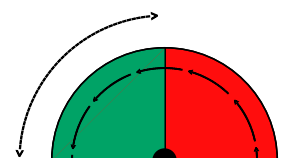
- + Use locking pliers, like VISE-GRIPS to hold the parts.
- + Occasionally dip the part in water to cool it off.
  - ▶ Prevent rust; dry any water left on the table.
- + **Never** wear gloves.



### Disc sander guards

Only sand on the portion of the disc that is moving down, towards the table.

- + Never move the guards.



**WORK IN THE  
SAFE ZONE**

# METAL ABRASIVE TOOLS

## DEBURRING & POLISHING

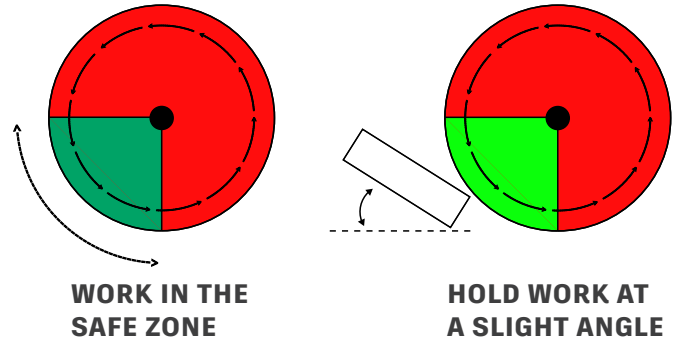
VERSION 3.1

ABRASIVE WHEELS EASE AN EDGE BY REMOVING SMALL AMOUNTS OF MATERIAL.

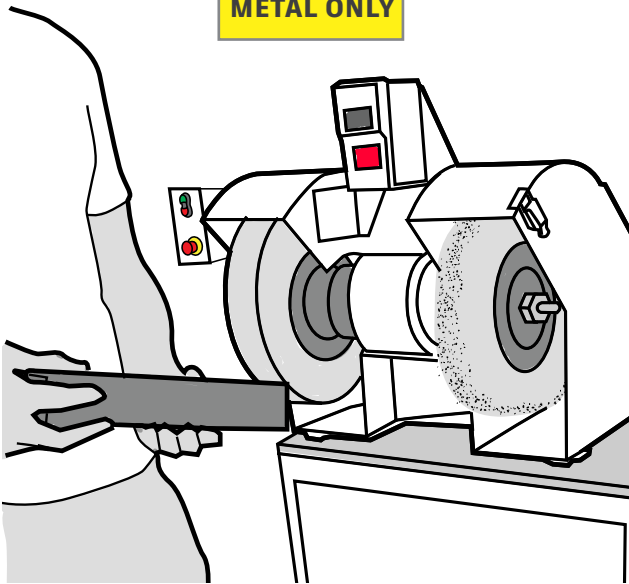
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### SAFETY FOR ABRASIVE WHEELS

- + Never wear gloves.
- + Always wear a full face shield.
- + Pieces must be held with both hands.
  - ▶ Pieces under 4 inches must be held with locking pliers, like VISE-GRIPS.
- + Only work in the safe portion of the wheel.
- + Hold material so that it is angled down.
  - ▶ Do not push material horizontally into the wheel.



### METAL ONLY



### DEBURRING WHEEL (LEFT)

The deburring wheel is a soft wheel made for easing an edge; it is not for removing lots of material like a grinding wheel does. For heavy stock removal, use the disc/belt sander.

A sharp edge will destroy the deburring wheel; be aware of the contact angle between the material and wheel.

### WIRE WHEEL (RIGHT)

The wire wheel is for smoothing a rough surface, like rust or welding slag.

### BUFFING WHEEL

The buffing wheels are for putting a high polish on plastic.

- + The wheel on the right is coarse, and will remove more material; use this first.
- + The wheel on the left is finer, and will polish to a higher sheen.

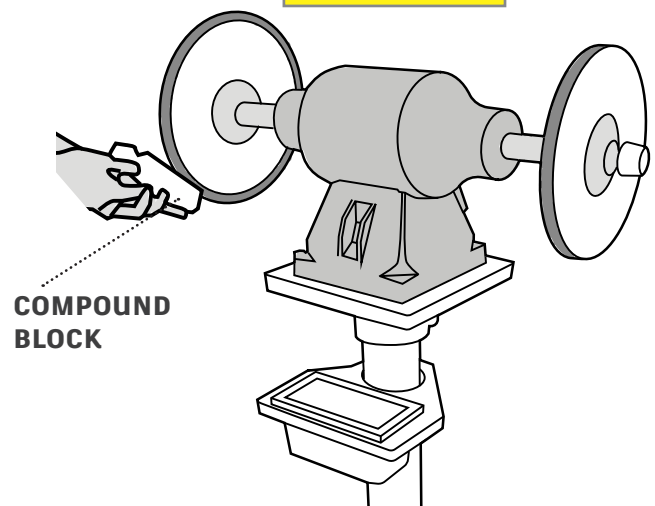
Before polishing plastic, press the *compound block* against the rotating wheel to load it with compound.

- + Do not apply compound directly to the workpiece.

**Note:** Using the polishing wheel is messy. Coveralls and a hat are recommended.

- + Roll up your sleeves.

### PLASTIC ONLY



# METAL ABRASIVE TOOLS

HANDS ON

VERSION 3.1

OPERATING THE METAL ABRASIVE MACHINES.

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## USING THE DISC & BELT SANDER

1. Turn on the power and wait for the sander to come up to speed.
2. Keep the material flat on the table.
  - ▶ If you can't do this, use a hand-held tool to shape your work.
3. Slowly push the material into the sandpaper.
  - ▶ Let the machine do the work for you; excessive force is not required.
  - ▶ Do not sand on one spot; move the workpiece back and forth on the table.
4. Stay in control of material - use two hands.
  - ▶ Small parts require locking pliers.
5. Turn off the power.

**MAKE SURE THE WORKPIECE IS THICKER THAN THE GAP BETWEEN THE PAPER AND TABLE.**

## USING THE DEBURRING OR WIRE WHEEL

1. Turn on the power and wait for the machine to come up to speed.
2. Only work in the 3:00 to 6:00 position.
3. Slowly push the material into the wheel.
4. Avoid exposing an edge to the wheel.
  - ▶ Keep work slightly pointed down.
5. Stay in control of material - use two hands.
  - ▶ Small parts require locking pliers.
6. Turn off the power.

**ALWAYS USE TWO HANDS AND STAY IN CONTROL OF THE MATERIAL.**

## USING THE POLISHING WHEEL

1. Turn on the power and wait for the machine to come up to speed.
2. Only work in the 3:00 to 6:00 position.
3. Add compound to the wheel, using the block.
4. Slowly push the material into the wheel.
5. Avoid exposing an edge to the wheel.
  - ▶ Keep material slightly pointed down.
6. Stay in control of material - use two hands.
  - ▶ Small parts require locking pliers.
7. Turn off the power.

**KEEP MATERIAL POINTED SLIGHTLY DOWN. AVOID EXPOSING EDGES TO THE WHEEL.**

## CLEANUP

1. Brush off the table and clean up the area.
2. Recycle scraps and put reusable pieces in the storage bin in the metal shop.

**WAIT FOR THE ABRASIVE MACHINES TO SPIN DOWN BEFORE WALKING AWAY.**