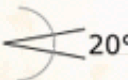
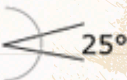
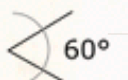
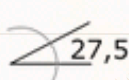
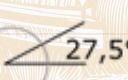
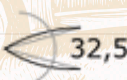
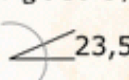


THE GROUNDED ROOTS

Blades Checklist

Common Sharpening Angles

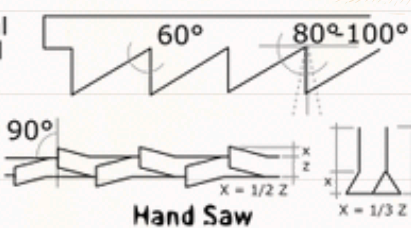
						
15° - 24° Razor Blades	20° - 30° Kitchen	20° - 30° Japanese Kitchen	30° - 40° Western Kitchen	40° - 50° Utility Knives	50° - 60° Hunting Knives	60° + Chopping/Survival
 20°	 25°		 35°	 45°	 55°	 60°
						
60° + Chisels Metal	20° - 35° Chisels Wood	25° - 30° Plane Irons	25° - 45° Splitting Axes	20° - 25° Felling Axes	≈ 30° Mower Blade (Single Bevel)	17° - 30° Hoof Knives (Single Bevel)
 60°	 27,5°	 27,5°	 32,5°	 22,5°	 30°	 23,5°

Additional Tools & Concepts

135° harder material
118° softer material



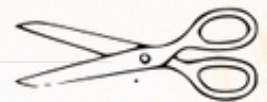
Drill Bit



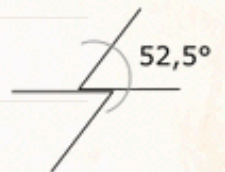
Hand Saw

Key Sharpening Concepts

↓ Angle = Sharper, ↑ Angle Stronger
Balance Sharpness & Durability



≈ 45° - 60°
Shears / Scissors



Angles are approximate and can vary based on specific use and manufacturer.

THE GROUNDED ROOTS Blades Checklist

General Instructions for Proper Edge Sharpening

Sharpening is the process of creating a clean, thin, and straight apex where two surfaces of a blade meet. The goal is to achieve an edge that is both sharp and durable for its intended use.

1. Sharpening Tools and Materials

Tool Type	Use Case	Notes
Whetstones (Water/Oil Stones)	Controlled, precise sharpening for knives, chisels, and plane irons.	Available in various grits (coarse for repair, fine for finishing). Ideal for maintaining a consistent, low temperature.
Diamond Plates	Fast stock removal and flatness correction. Excellent for general tools.	Very durable and always remain flat. Good for primary bevels.
Ceramic Rods / Honing Steels	Realignment (honing) of a slightly dull edge; not true sharpening.	Used frequently to maintain an edge between sharpenings.
Electric Grinders / Belt Sanders	Fast stock removal, reshaping badly damaged edges, or industrial sharpening (e.g., axes, lawnmower blades).	Requires extreme caution regarding heat.
Strops (Leather)	Final step (polishing) to remove the microscopic burr and refine the edge.	Uses a compound (like chromium oxide) to achieve a "razor-sharp" finish.

THE GROUNDED ROOTS Blades Checklist

2. The General Sharpening Process

The process is typically sequential, moving from a coarse abrasive to a fine one:

1. Repair (Coarse Grit $\approx 120-400$): Use a coarse stone or belt to fix chips, correct a damaged bevel, or establish a new primary angle. Grind until you can feel a burr (a tiny wire edge) forming along the entire opposite side of the cutting edge.
2. Sharpening (Medium Grit $\approx 600-1500$): Move to a medium grit stone to refine the angle and remove the deep scratches left by the coarse abrasive. Continue grinding both sides until the burr is again fully established and then reduced.
3. Refining (Fine Grit $\approx 3000-8000$): Use a fine stone to further smooth the bevel and refine the cutting edge, which prepares it for polishing.
4. Polishing / Honing (Strop / High Grit): Use a leather strop or extremely high-grit abrasive to remove the final, microscopic burr, leaving a clean, mirror-polished edge (often called a "mirror edge").

THE GROUNDED ROOTS Blades Checklist

3. Key Points to Pay Attention To

A. Maintain the Correct Angle

- **Consistency is Vital:** The most critical aspect of sharpening is holding the tool at a consistent angle for the entire process. Use guides, jigs, or practice your freehand technique diligently.
- **Match the Tool:** Always reference the recommended angle for the tool's purpose (as listed in the table).

B. The Importance of the Burr

- The burr is the physical sign that you have fully reached the apex of the blade on that side. You must create and then remove the burr completely to achieve a truly sharp edge.
- The burr should be created on one side, flipped to the other, then gradually reduced and removed using lighter pressure on finer grits.

C. Heat Development (The Danger of Grinders)

- **NEVER Overheat the Blade:** The greatest risk when using high-speed electric tools (like bench grinders or belt sanders) is generating excessive heat.
- **The Threat of Temper Loss:** Steel achieves its hardness through a process called tempering. If the cutting edge heats up enough to change color (blue or straw yellow), the heat can undo the temper, making that section of the steel soft and unable to hold an edge.
- **Cooling is Mandatory:** When using power tools, you must constantly dip the blade in water to keep the temperature down. Use light pressure and short grinding passes. If the blade is too hot to comfortably hold in your hand, you are damaging the temper.

D. Safety

- **Wear Protection:** Always wear safety glasses when using power grinders, and often when using diamond plates, as microscopic particles can fly off.
- **Keep Fingers Away:** The point of sharpening is to create a razor edge. Always handle the tool with extreme care and direct the abrasive strokes away from your body.



THE GROUNDED ROOTS Blades Checklist



Razor Blades / Straight Razors

- Purpose: Primarily for shaving body hair cleanly and smoothly, often directly against the skin.
- Why the Angle (15°–24°): This is the sharpest, most delicate edge. A very low angle creates a thin, incredibly keen edge that can sever fine hairs with minimal resistance. Durability is sacrificed for ultimate sharpness and the fine, shallow cuts required for shaving.



Japanese Kitchen Knives (e.g., Gyuto, Nakiri, Santoku)

- Purpose: Designed for precise slicing, dicing, and chopping of vegetables, fish, and boneless meats. They often feature harder steel.
- Why the Angle (20°–30°): A relatively low angle provides superior sharpness for clean, effortless cuts through softer food items, preserving delicate textures. The harder steel commonly used in Japanese knives allows them to hold this finer edge for longer.

THE GROUNDED ROOTS Blades Checklist



Western Kitchen Knives (e.g., Chef's Knife, Paring, Slicing)

- Purpose: Versatile knives for general kitchen tasks, including chopping, slicing, dicing, and mincing a wide variety of ingredients, sometimes encountering bones or harder vegetables.
- Why the Angle (30°–40°): This angle offers a balanced edge – sharp enough for most food preparation but durable enough to withstand daily use and occasional tougher tasks without chipping or rolling easily. It's a good all-rounder for typical kitchen environments.



Utility Knives / Pocket Knives

- Purpose: Everyday carry knives used for a vast array of general tasks, from opening packages to cutting rope, whittling wood, or performing minor repairs.
- Why the Angle (40°–50°): These knives need a robust edge that can endure varied and often unpredictable tasks. The higher angle prioritizes durability and resistance to damage, ensuring the edge holds up against harder materials and less precise cutting motions.

THE GROUNDED ROOTS Blades Checklist



Bowie Knives

- Purpose: Traditionally a large fighting and utility knife, known for its distinctive clip point. Modern Bowie knives are often used for general outdoor utility, hunting, and self-defense.
- Why the Angle (50°–60°): Similar to general hunting knives, Bowie knives benefit from a strong, durable edge. This angle allows them to perform well in chopping, skinning, and other tough outdoor tasks where the edge might encounter bone or wood, without easily chipping or rolling.

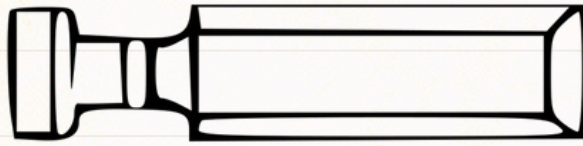


Machetes / Chopping & Survival Knives

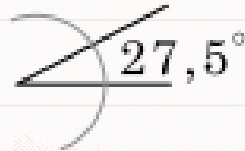
- Purpose: Heavy-duty tools designed for chopping thick vegetation, clearing brush, splitting small logs, or other survival tasks requiring significant impact.
- Why the Angle (60°+): These tools are meant for brute force. The very high angle creates a blunt, extremely durable edge that can withstand repeated heavy impacts against wood and other hard materials without fracturing or deforming. Sharpness is secondary to strength and impact resistance.

THE GROUNDED ROOTS

Blades Checklist



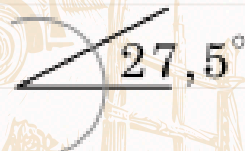
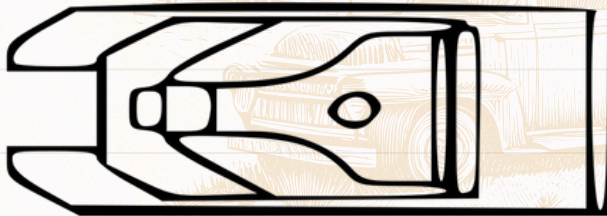
For Metal / Stone



For Wood

Chisels (Paring & General Use)

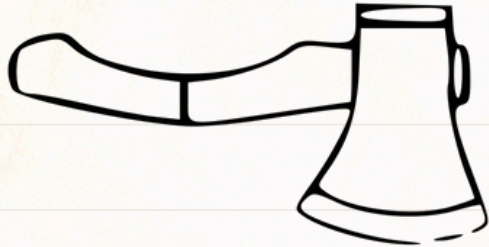
- Purpose: Woodworking tools used for shaping, jointing, and carving wood. Paring chisels are for fine, hand-pushed cuts; general use chisels are for chopping and mortising.
- Why the Angle (20°–35°):
 - Paring (20°–25°): A lower angle allows for a very sharp edge that slices easily through wood fibers with minimal effort for precise work.
 - General Use / Mortising (25°–35°): A higher angle provides more strength and durability to the edge, making it resistant to damage when chopping or leveraging wood for mortise and tenon joints.



Plane Irons

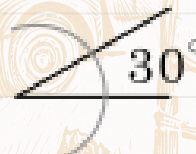
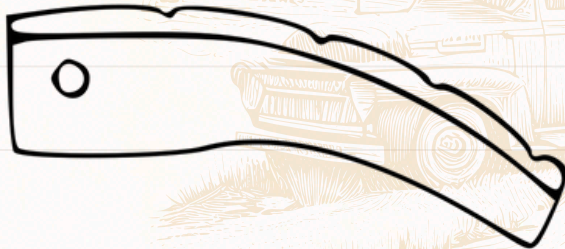
- Purpose: Blades used in hand planes to shave thin layers of wood for smoothing surfaces, truing edges, and precise stock removal.
- Why the Angle (25°–30°): This angle provides an optimal balance between sharpness (for easy cutting) and strength (to resist damage when encountering knots or varying grain). A slightly steeper angle helps prevent tear-out on difficult grain, while a micro-bevel often refines the edge further.

THE GROUNDED ROOTS Blades Checklist



Axes (Splitting & Felling)

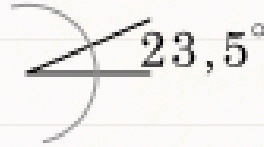
- Purpose:
 - Splitting Axes: Designed to split wood along the grain.
 - Felling Axes: Designed to cut across the grain for felling trees or limbing.
- Why the Angle (25°–45°):
 - Splitting Axes (35°–45°): A thicker, blunter wedge shape is best for splitting. The higher angle forces the wood fibers apart, efficiently splitting logs with less sticking.
 - Felling Axes (25°–35°): A sharper, thinner edge is needed to sever wood fibers cleanly when cutting across the grain. This lower angle provides better penetration and a more efficient cut.



Mower Blades (Lawn)

- Purpose: To cut grass cleanly and efficiently.
- Why the Angle (≈30° single bevel): This angle is typically factory-set and designed to provide a sharp enough edge for a clean cut, which promotes healthy grass. It's also robust enough to withstand incidental contact with minor obstacles (like twigs) without significant damage and to maintain blade balance for safe operation.

THE GROUNDED ROOTS Blades Checklist



Hoof Knives

- Purpose: Used by farriers and horse owners to trim and shape a horse's hooves, removing excess horn.
- Why the Angle (17°–30° single bevel): These knives require a very sharp, thin edge on one side to precisely pare away hard horn material. A lower angle (17°–20°) is often preferred for optimal sharpness to make clean, accurate cuts, minimizing effort and risk to the horse's hoof.

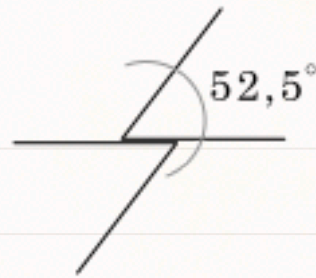
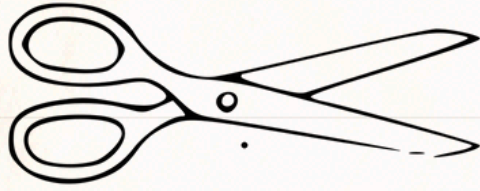


Drill Bits

- Purpose: Creating cylindrical holes in various materials. The point angle impacts how effectively the drill bit centers itself and evacuates chips.
- Why the Angle:
 - 118° (General Purpose): A common angle for general drilling in softer metals, wood, and plastics. It offers good centering and efficient chip removal.
 - 135° (Harder Materials): A wider, flatter point angle reduces "walking" on harder materials, provides better self-centering, and is stronger at the tip, reducing chipping in tougher metals or stainless steel.

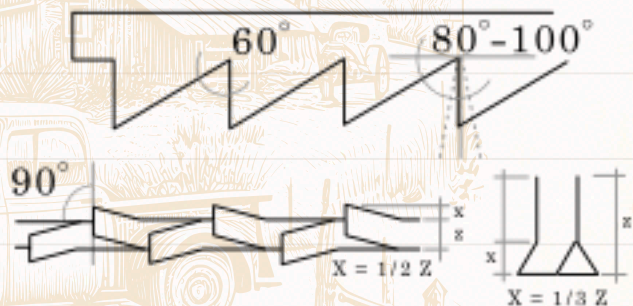
THE GROUNDED ROOTS

Blades Checklist



Scissors / Shears

- Purpose: Cutting materials by shearing action, where two blades slide past each other. Used for paper, fabric, hair, etc.
- Why the Angle (45°–60°): The precise angle varies greatly depending on the material being cut (e.g., fabric scissors versus paper scissors or heavy-duty shears). The angle is designed to create a sharp enough edge for clean cutting while providing sufficient strength to prevent the edge from deforming under the lateral pressure of the shearing action. A steeper angle provides durability for tougher materials.



Hand Saws

- Purpose: To cut wood manually, either along the grain (ripping) or across the grain (crosscutting). The geometry of the teeth is crucial.
- Why the Angles:
 - Rake Angle: The angle of the tooth face relative to the cutting direction. Positive rake ($\approx 5^\circ$ – 15°) for aggressive cutting (rip saws), negative rake ($\approx 0^\circ$ – 5°) for smoother, slower cutting (crosscut saws).
 - Fleam Angle (Bevel on the cutting edge): The angle at which the cutting edge is ground back from the saw plate. Crosscut saws typically have a significant fleam angle ($\approx 15^\circ$ – 25°) on alternating teeth to create knife-like points that sever wood fibers. Rip saws have little to no fleam, acting more like miniature chisels.
 - Bevel Angle (on top of tooth): The angle on the top of the tooth, also varying between crosscut and rip saws to achieve the desired cutting action.