Stuart Batty's 7-Fundamental Set Up Rules

These rules help eliminate the variables that can make woodturning very difficult.

1. Wood grain: Direction

Side grain: Peel cut
End grain: Slicing cut – We actually slice side grain to expose end grain
Mixed grain: Mixture of side & end grain around circumference: Slicing/Peel cut with 40/40 grind

Only straight side grain = side grain. Angled grain, knots, etc. = end grain.
Only side grain can be peeled. It is impossible to peel end grain – this is a catch or worse still.
Mixed grain and end grain requires slicing techniques to prevent tear out using a 40° edge angle.
Figured grain (quilted/fiddleback) on platers = side grain with small percentage of end grain & requires 50-60° bottom bowl gouge edge angle.

2. Chucking: Locate accurately then secure

This phrase applies to between centers, and all forms of chucking from jaws through to vacuum chucking, screw chucks and faceplates.

3. Sharpening:

Sharp Edge: If in doubt, sharpen
Edge Angle: 40° for slicing techniques
Edge Shape: Vertical wings or angled back wings but always straight for push cut
Size of Blade: Bowl vs spindle gouges. Select the correct size for the desired cut
Tool Length: Short for spindle, long for bowls

4. Tool Rest: Height, Distance Angle

Height: Needs to match the tool size to allow the start and completion of the cut on center
Angle: The angle at which you set the tool rest determines where you can cut your desired shape
Distance: Close enough not to lose any leverage, far enough away you can start the cut with support on the substrate not the bevel.

5. Lathe Speed: Fast but safe

Fast enough to cut efficiently. The speed for the outside diameter of the workpiece should never exceed 40 mph. This is the max speed for wood in perfect condition, no cracks or defects that can make the piece explode. If the piece is imbalanced or has defects, the speed must be reduced accordingly. Turning requires a reasonable speed to achieve consistent clean cuts. Excess speed makes woodturning very dangerous. Stay within safe limits. The workpiece must also be securely and safely chucked.

6. Stance: Feet position

There are 3 feet positions: **See drawing**
Hips are mainly parallel to the lathe; this works for the vast majority of cuts for my style of turning (both spindle & bowl). Don't stand in a position that will prevent the gouge from forming the desired shape. For curved cuts, the handle does not touch the body. For straight cuts, the handle should be in contact with the body for the entire cut.

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7. Technique: Blade/Tool Control

Right Hand Control (Handle and blade control)

a. Push = Shape

The tool must be pushed to create the desired shape. Even though the workpiece rotates on a lathe, it is in a static position. Pushing the tool creates the travel the edge needs to form shapes.

b. Lift = Edge position

Lifting or lowering the handle is a critical part of positioning the edge to optimize the cut.

c. Twist = Matching grain

Twisting the handle allows the cutting edge to match the grain, especially for curved cuts.

d. Swing = Curves

Push cut requires the tool to swing to create curved shapes and keep the bevel in contact with the surface.

Straight cuts: Push, Lift & Twist. The handle should be in contact with the body for the entire cut. If you swing the handle, the cut will become curved.

Curved cuts: Push, Lift, Twist & Swing. The handle should ***NOT*** be in contact with the body during curved cuts. Depending on the direction the curve, the handle can be touching your body at the start of a cut and swing away or it can start away from the body and swing towards it.

Left Hand Assistance (Hand at the front of the tool)

a. Adding weight to the front of the blade

It is essential to add more mass close to the front of the tool to ensure its stability during the cut. The right hand is too far back to be able to do this.

b. Positioning the edge to start cut

The blade always needs to be accurately positioned to start every cut. The right hand is too far away from the front for accurate positioning.

c. Preventing blade from skidding on entry

When gouges are entering the workpiece at a sharp angle, it will want to skid sideways. To prevent the edge skidding, it's important to use the left hand correctly as well as selecting the correct gouge shape (angle wings), handle height (almost parallel to floor) and flute position (almost closed).

d. Braking at the end of a cut

The left-hand acts like a brake to cancel the right hand's pushing pressure, this prevents the gouge lunging forward at the end of certain cuts (e.g., at the bottom or the rim of a bowl).