LESSON GUIDE

Rotating and mirroring artwork

Use an asymmetric arrow to see the difference between turning artwork and flipping it.

Software practice

No laser is needed. Supplied native files have no machine profile and operation Output is off. Their saved settings are not a material recipe.



Illustrations derived from the supplied vector and transforms. Watch the arrowhead and the notch.

1. Open **arrow-start.lzrproj** and select the arrow outline. Notice the notch on its top edge.

2. Try a curved rotation handle just outside a selection corner. Undo with **Cmd + Z** on Mac or **Ctrl + Z** on Windows/Linux.

3. Enter **90** in the degrees field in Properties and apply with Enter or Return. The arrow points down. Enter **0** to restore the starting direction.

4. Click **Flip Horizontal**: it points left, with the notch still on top. Undo, then use **Flip Vertical**: it points right, with the notch underneath.

Clear the selection and compare the final demonstration with **arrow-complete.lzrproj**.

INDEPENDENT PRACTICE

Independent practice

Reopen **arrow-start.lzrproj**. Enter **90 degrees**, apply it, then click **Flip Horizontal**. Do both actions in that order.

Which direction should the arrowhead point?

Where should the notch be?

☐ Start from the original arrow, not the already-flipped demonstration answer.

☐ Inspect the outline after clearing the selection.

☐ Save your own copy and compare with arrow-practice-check.lzrproj.

Check geometry, not just the angle

A flip is a mirror transformation. The degrees field alone does not tell you whether the artwork is mirrored.

EXPLAINED ANSWER

Explained answer



Practice answer, illustrated from the supplied native vector and transform.

Arrowhead down, notch on the left
That is the result of the 90-degree turn followed by Flip Horizontal. The notch makes the mirror visible.

The footprint changes orientation
The starter occupies 70 × 40 mm. A quarter-turn occupies 40 × 70 mm. Turning it does not stretch the underlying arrow.

arrow-start.lzrproj
One unlocked, right-pointing notched vector. Use for the demonstration and your attempt.

arrow-complete.lzrproj
Demonstration answer after Flip Vertical. Points right with the notch below.

arrow-practice-check.lzrproj
Independent answer after 90 degrees and Flip Horizontal. Points down with the notch left.

If the result differs, return to the starter and apply the two actions again. A symmetrical shape can hide a flip, so use the notch to check this arrow.

Matches the demonstrated Beam Bench 0.2.37 interface. Panel layout may differ in later versions.