Laser Cut Lantern

🕐 **APPROXIMATE TIME: 4 1-HOUR CLASSES**

💼 **TOOLS & MATERIALS**

MATERIAL LIST

External wooden lantern:

- ⅛" Baltic birch plywood (approx. 24" x 5")
- Tracing paper

Internal lamp:

- Electric LED candle or make an LED circuit

TOOL LIST

External wooden lantern:

- Illustrator or any other vector program
- Laser cutter
- 220 grit sandpaper
- Glue stick
- Clear polyurethane finish
- Paintbrush

PROCEDURE

External wooden lantern:

1   TEACHER – Enter the six lantern shapes and proper dimensions into Illustrator or other vector software for students to use. Lock the layer so they cannot modify the pieces. Alternately, the pieces can be carefully cut with a scroll saw if no vector program or laser cutter is available.

2   STUDENTS – Choose images from the internet for the four sides of your lantern and arrange them onto the side pieces in your vector program. Use the "trace" function so the laser will cut the outline of each shape.

3   Load the laser cutter with your ⅛" plywood and run the program to cut the pieces.

4   Use 220 grit sandpaper to sand off the burn residue, then apply a clear polyurethane to all sides.

5   Cut 5 pieces of tracing paper to back your cutouts – one for each of the four sides and one for the top circle cutout. Use a gluestick to glue the tracing paper to the inside faces of your plywood pieces.

6   Place an LED into the lantern, or if you chose to make the LED circuit, attach the circuit board holder to the inside of the lantern using tiny screws or a glue-gun.

7   Assemble the 6 plywood pieces into the lantern shape as shown in the photograph.

Internal lamp:

1   Remove one side of the lantern and place an electronic LED candle into the bottom.

🚧 EXTENSION CHALLENGES

1   Increase the dimensions of the lantern to accommodate a wireless speaker for a multi-sensory product.

2   Design centerpieces to decorate a fancy dinner event for a friend or family member

3   Make a string of party lights by making several tiny versions of the lantern and hanging them up.

4   Drawing from your physics or robotics courses, design your own LED circuit with a coin battery and a switch for your lantern.