

# Electric Levels 4 & 5

## Lamp Construction

### What's it all About?

With this project, you can begin using your own creativity. The instructions provided here will help you refurbish an old lamp or construct a lamp from scratch that matches an interest or hobby of yours. First, survey your room or home for a location that needs some additional lighting or a decorative piece, as that will determine the type and size of the lamp and bulb required.

### Keys to Remember

- Bulb size should match the intended use. Task light for a desk, for example, should be bright and possibly be a 3-way bulb. A decorative piece generally uses a small bulb and is only for aesthetics.
- The base of the lamp should also fit the intended use. The height, weight, and diameter should be considered for a stable lamp and to provide light in the desired position.
- The shade is very important as well. First, it guards against direct glare from the bulb. Then it reflects the light in the desired direction, down for task lighting, and up for general lighting. It accomplishes this by the differing top and bottom diameters of the shade and the white inner lining.

### For the Project

- Note Attached - explaining intended use, possibly with pictures
- Planning and Research
- Material list and cost
- Record Sheet
- 4-H Exhibit Skills and Knowledge Sheet

### Construction Notes

- Cord – Typically a parallel cord, type SP-2 or SPT-2 and 18/2 AWG. The cord or spool should be marked U.L. Approved (or other listed product approved). Length when finished should be minimally 8 feet long. Do not forget to consider the height of the lamp when making purchase. Cut off any pre-stripped brass tips. Matching color to make the lamp look aesthetically nice. Make note the difference of each side of the cord, one is smooth and the other is ribbed (this could become very important). Protect the cord where entering the lamp base and tubing with grommets and/or bushings.
- Plug (cap) – Can be polarized or non-polarized. Should be marked U.L. Approved (or other listed product approved). Do not use molded, quick-snap, or insulation displacement plugs. There should be 2 screws for attaching conductor. On a polarized plug the wide blade is the neutral and the narrow blade is the hot. The ribbed conductor attaches to the neutral and the smooth conductor attaches to the hot. A strain relief keeps the conductor secure beneath the screws if the cord is pulled and consist of a cord maze/clamp or underwriters knot and is required. Match color to the cord if possible.
- Socket – Should match intended use such as a single or three-way socket. Should be marked U.L. Approved (or other listed product approved). Properly wired, especially if a polarized plug is being used. Neutral/ribbed conductor attaches to the white screw (shell of socket) and the hot/smooth conductor attaches to the brass screw. Note the ears bent out at the base of the screw terminals. The conductor should land between them. Insulation should be close to the head of the screw, only

bare conductor under the screw. Strain relief, underwriters knot is required. The switch should be positioned slightly below the bottom edge of the shade. The height of the harp and shade are important for the switch position.

- Terminal Connections – Take care when stripping the wire and avoid cutting the small individual strands. You should probably practice a few times before you begin. Twist the conductors in a clockwise direction, then bend them around the screw terminals in a clockwise direction. The clockwise direction allows the conductors to be drawn tighter as the screws are tightened. If the stripped conductors are too short or too long take the connection apart and try again from the start. There are only 4 terminal connections on the project, make them look uniform and good.

## Final Notes

- All lamps are assembled in a similar manner, and the steps are the same for wiring a new lamp as for rewiring an old lamp.
- Utilizing a polarized plug makes for a safer lamp.
- Some parts are available in kits from the local Extension Offices.
- Use the 4-H Electric Lamp Judging Sheet as a guide.



Do not use molded, quick snap, insulation displacement, or live front plugs.



Use only dead front, polarized, or non-polarized plugs.



A couple of these bulbs are three-way. Can you tell? The two on the right have a second ring contact.





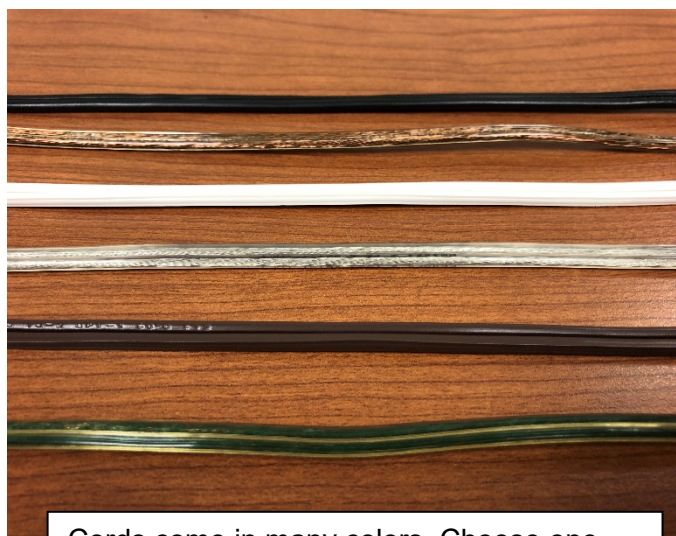
One socket is a three-way. Can you tell?



Along with a center contact point, the socket on the right has a second contact point. That is the three-way.



Looking at the end or sides of the cord, notice how one is smooth and the other is ribbed.



Cords come in many colors. Choose one that will accent your lamp.

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Threaded tubing is available in varying lengths. Then there are assorted decorative washers and nuts to secure and add height to the lamp. Use plastic bushings on the end of the tubing to protect the cord.



Different dimensions of harps are available to help position the shade to the correct height.



To prevent scratching, protect the bottom of your lamp. Use nylon legs or felt. Leave felt loose for judging.



Use bushings to protect the cord.



Shown is a desk lamp with the bottom of the shade 16" high, with a larger diameter at the bottom to deflect light down onto the work surface.