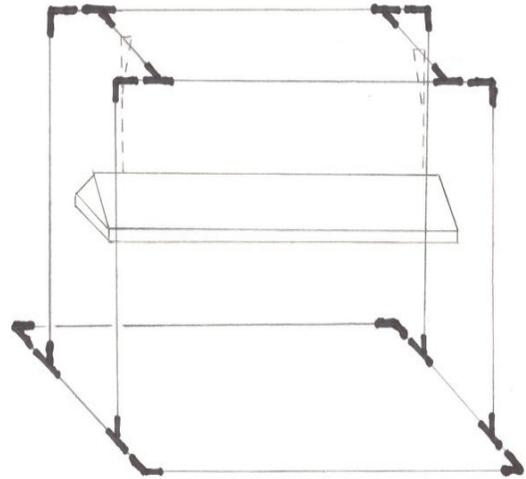


## Grow-Light Stand Plans

Starting seeds indoors is a fun and affordable way to extend the growing season. A grow-light stand helps ensure that your seedlings have the light they need for optimal development. In this table top plan, you will use one warm fluorescent bulb and one cool fluorescent bulb that will supply plants with the quality of light needed. Expensive “grow light” bulbs are not necessary. See our Fact Sheet on Starting Seeds Indoors for more information on materials and maintenance for young plants.

Please read the instructions completely before beginning the project. Observe safety precautions while using tools, especially around children. It is helpful to purchase all pipe lengths, elbows and tees from the same PVC manufacturer in order to ensure a proper fit. Before hammering, lay out your assemblies; it is very hard to adjust once pieces are securely in place. It is advisable to measure twice before cutting. For best results, use a miter box or table saw rather than a hacksaw, which can create uneven cuts. This plan can be easily adapted to make it shorter for one grow light or lengthen the sides to add more grow lights. Casters may also be added to make the unit more portable. The following stand is based on a design by Thea and Bob Fry of Katonah, NY and is also available online at:

<http://www.gardening.cornell.edu/factsheets/growlite/construc.html>



Materials	Tools	Supplies
4 PVC pipes 3/4" diameter x 10'	Saw, miter box or PVC cutter	48-inch shop light
8 PVC elbows 3/4" 90-degree	Measuring tape	2, 40 watt, 48" fluorescent bulbs: 1 cool & 1 warm
8 PVC tees 3/4" tees	Rubber mallet (optional)	Extension cord, 25' outdoor, 16 gauge, 3-prong
	Block of wood	Chain, 5' #12 single steel jack chain
		4 S-hooks
		Timer

### Before you start:

Before making any connection, make sure that the pipe and fitting are correctly positioned. (See diagrams.) Insert the pipe into the fitting as far as you can by hand. The fitting has an internal ridge. The end of the pipe should touch this ridge. Hit the fitting with a block of wood until the pipe is snug against the ridge. Several blows with some force will probably be necessary.

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**Cut the pipe:**

Most types of saws will make the cuts. A miter box is helpful to make straight cuts.

From one 10' pipe length saw two 49" pieces and two 8" pieces.

From a second 10' pipe length saw three 36" pieces.

From the third 10' pipe length saw one 36" piece, two 8" pieces and eight short pieces.

**To determine the length of the short pieces:** Measure the depth a pipe will enter an elbow from the edge of the elbow to its internal ridge. (This depth varies depending on the manufacturer of the fitting.) Measure the similar internal depth in a Tee. Add the two depths together and subtract 1/8". This will be the length of the eight short pieces to be cut.

From the fourth 10' pipe length two other pieces will be cut after their lengths are determined.

**Assemble the base:**

Connect one 90° elbow to a 49" pipe. Connect another elbow to other end of the pipe in the same direction as the first elbow. Connect elbows to other 49" pipe in the same manner.



Position a Tee in the proper direction. Insert a short piece of pipe between them and force the fittings together. Connect three other Tees in the appropriate directions.

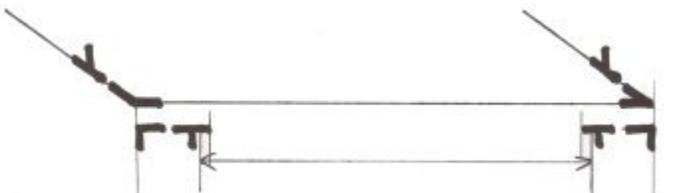


Connect two 8" pipes (one fitting at a time) between the Tees on each side of the base.

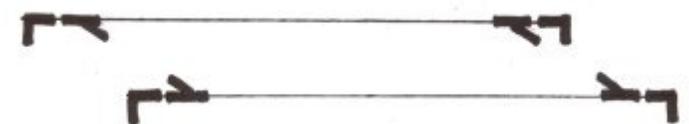


**Assemble the top:**

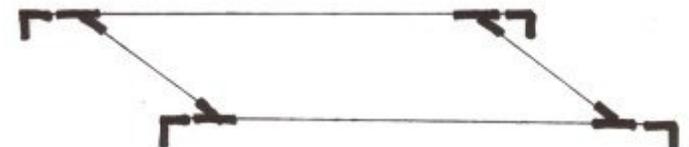
The front assembly of the top should have the same width as the front assembly of the base.



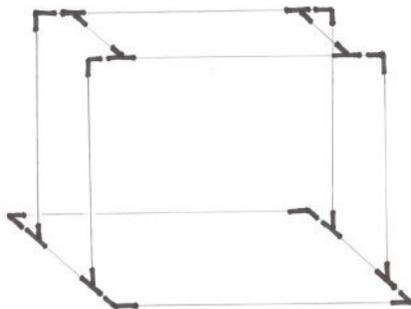
Place an elbow and a Tee touching each other along one end of the front of the base. Place another Tee and an elbow touching each other along the other end of the front of the base.



Measure the distance between the edges of the Tees and then add to this measure the depths the pipe will fit into the two Tees. (This depth varies depending on the manufacturer of the fittings.) The total is the length of each of the two pieces of pipe remaining to be cut.



Cut the two pieces. With two elbows, two Tees, two short pieces of pipe and one of the new pieces of pipe, connect the front assembly of the top. Connect the back assembly of the top with similar pipes and fittings.



### **Final assembly:**

Connect each of the four 36" pipes to the four Tees on the base. Position the top assembly onto the 36" pipes. Connect the four Tees of the top, one at a time, to the 36" pipes.

### **Hang the shop light**

Loop the chain around a top 8" pipe and close the loop by connecting the end of the chain to one of its links with an S hook. Similarly loop the other piece of chain around the other top 8" pipe. With S hooks attach the lower end of the chains to the slots on the shop light.

The distance between the top of the plants and the shop light can be adjusted by changing the lengths of the loops.

### **Double shoplight option**

If you would like to double the depth of the unit described, cut and use four 17" pieces of pipe instead of the four 8" pieces. Purchase a second 48" fluorescent shop light (2 lamp) (40 watt), one 48" cool white fluorescent bulb (40 watt), one 48" daylight (warm) fluorescent bulb (40 watt), (4) S hooks ( 1" size) and (2) 2 ½ feet of chain ( loops large enough for S hooks).

This system of using two shop lights will allow you to adjust the height of each set of lights independently and provide light to both short and tall plants within the same unit.

### **24-inch model:**

If you have limited space, you can construct a frame that will accommodate a 24" shop light. This smaller version requires only 3 10' sections of PVC pipe. Follow these initial cutting instructions:

From one 10' pipe length saw two 25" pieces and two 34" pieces.

From a second 10' pipe length saw two 34" pieces. Two other pieces will be cut from this pipe after their lengths are determined.

From the third 10' pipe length saw four 6" pieces and eight short pieces. Follow instructions above for determining the length of the short pieces.

Follow the assembly instructions above, but substitute the 25" pieces for the 49" pieces, and the 34" pieces for the 36" pieces.

### **Sources:**

Design: Thea and Bob Fry, Katonah, NY

Cornell Gardening Resources. Construction details <http://www.gardening.cornell.edu/factsheets/growlite/construc.html> Low-Cost

Grow-Light Frame Plans <http://www.gardening.cornell.edu/factsheets/growlite/index.html> 10/08/2010

Smith, Cheryl How to Make Your Own Grow Light Stand. [http://www.ehow.com/how\\_5959619\\_make-own-grow-light-stand.html](http://www.ehow.com/how_5959619_make-own-grow-light-stand.html) 2/06/2010

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