



## Building a Grow-Light Frame

### Resource Sheet

#### Materials

All PVC pipes should be 1" (this will make your grow-light frame sturdy and safe for your classroom)

- 4 – 10' long PVC pipe
- 8 – PVC Tees (all soc, not threaded)
- 8 – PVC 90° elbows (all soc and sprig)
- 4 – PVC unions
- 4 – 30" black jack chain
- 8 – S hooks
- 2 – 24" fluorescent shop light (2 lamp, 20 watt)
- 4 – 24" cool fluorescent bulbs (20 watt)
- Hacksaw
- Pliers
- Glue (Christie's Red Hot Blue Glue)

\*All of these materials are available at Home Depot.

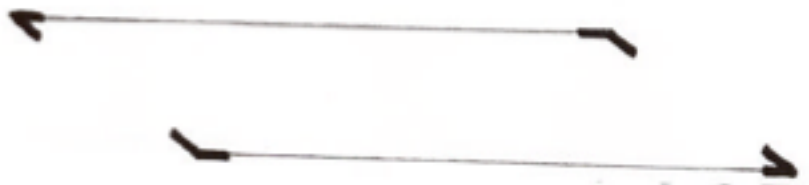
#### Instructions

1. Cut the pipe
  - a. Cut two of the 10' PVC pipes in half, so you have four 5' pieces.
  - b. From the third 10' PVC pipe length saw two 33.5" pieces and four 11" pieces. Do the same with the fourth 10' PVC pipe.
  - c. At this point you should have:
    - i. Four 5' pieces
    - ii. Four 33.5" pieces
    - iii. Eight 11" pieces

2. Assemble the first side

\*Note about assembly: The glue sets extremely quickly (15 seconds), so you do not have much time to adjust angles after the glue is put on. We recommend doing a "dry-fit" without the glue first to make sure everything fits together correctly.

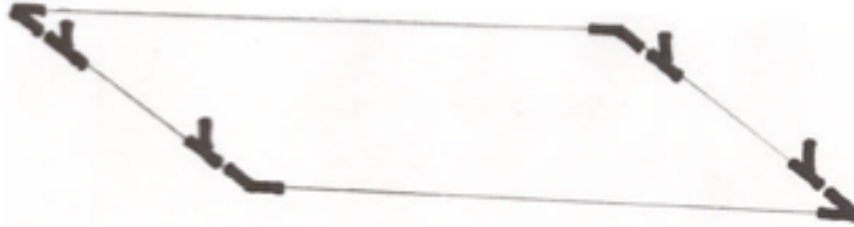
- a. Connect one 90° elbow to a 5' pipe. Make sure to lay them flat on the ground, so that the 90° elbows are flat on the ground as well. The sprig (thinner side) will fit into the Tee piece later on.
- b. Connect another elbow to other end of the pipe. Connect elbows to other 5' pipe in the same manner.



- a. Connect a Tee in the proper direction. Connect three other Tees in the appropriate directions.



- b. Connect two 33.5" pipes (one fitting at a time) between the Tees on each side.



3. Assemble the other side the same way as the first.
4. Final Assembly
  - a. Place four 11" pipes (one fitting at a time) into the Tees.
  - b. Attach your unions to each end of your 11" pipe. Make sure all of your unions are facing the same direction. That way you will be able to easily assemble and disassemble the grow-light frame.
  - c. Do the same for your other side. You can unscrew the unions during this step.
  - d. If you screw the unions back together you should have a rectangular frame.
5. Hang the shop light
  - a. Loop the chain around a top 11" pipe. Close the loop by using your pliers to open up a loop on the chain and connecting it to another link on the chain. Similarly loop the three pieces of chain around the other top 11" pipes. Attach an S hook to the end of each of the chains. Make sure to crimp the S hook closed around the chain to make sure it will not come off.
  - b. Attach the final four S hooks to the top of your shop light.
  - c. You can adjust the height of the shop lights by hooking the S hook on the light higher up on the chain.

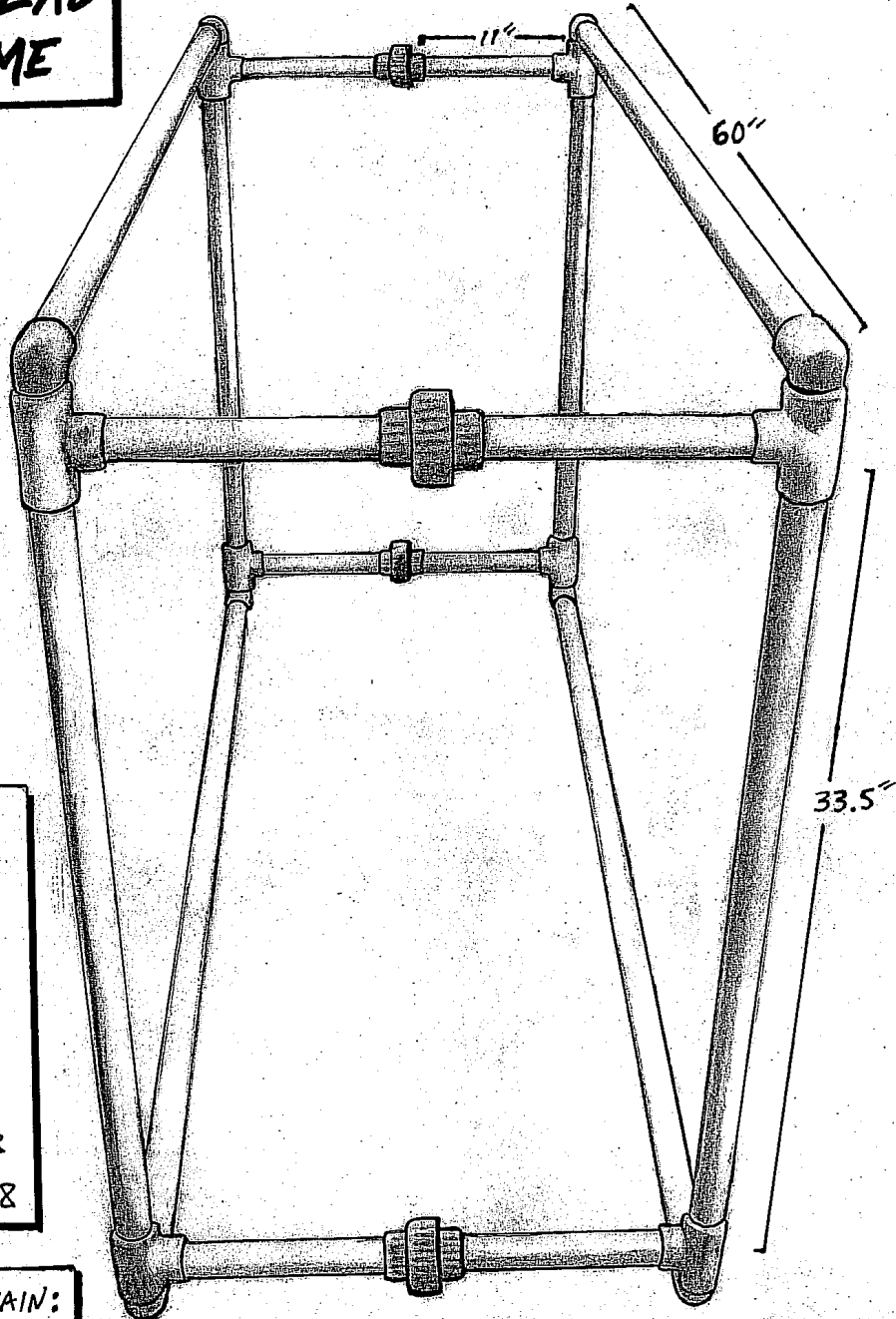
**Estimated Costs\***

10' PVC pipes x 4	\$11
PVC Tees x 8	\$5
PVC Elbows x 8	\$14
PVC Unions x 4	\$20
Glue	\$5
<b>Total</b>	<b>\$55</b>

\*as of 2011 and excluding the lights and chains

Fully Constructed Grow-Light Frame

**GRO-LAB  
FRAME**



- 1" PVC:**
- 60" x 4
  - 33.5" x 4
  - 11" x 8
  - T<sub>(SOE)</sub> x 8
  - ELBOWS x 8 (STREET)
  - UNIONS x 8 (SOE)

- BLACK CHAIN:**
- 30" x 4
  - S HOOKS x 4

\* ALL CUT DIMENSIONS

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303.292.9900 | DIRT@DUG.ORG | WWW.DUG.ORG