

**36 in x 6 in x 6 in box (now we suggest a 40 in x 6 in x 6 in box)**

Step 1 CAREFULLY FOLD the end flaps on one side of the box back and forth to loosen.

Fold the flaps in and use a LITTLE painters tape to hold in place. The will be the BOTTOM of the SSV.



Turn the box over and use painters tape to tape the inside of the box. You will eventually take the tape off so do not use a lot of tape.

**BE SURE THE ENDS OF THE BOX ARE PERPENDICULAR TO THE SIDES.**



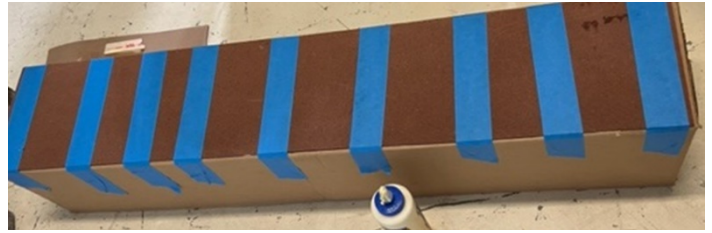
Step 2 CAREFULLY cut all four flaps on the TOP of the box along the fold line. Take your time. Ask your instructor for a tip on cutting straight along the fold line.



STEP 3 Place glue on the smooth side of the 36 in x 6 in hardboard. Be sure the glue is evenly spread and covers the entire board. Be sure all edges are covered with glue.



Step 4 Place the glue side down on the bottom of the SSV and be sure to line up the ends and sides.  
Using painters tape, secure The hardboard while the glue is drying.



Step 5 Preparing the Barlow screen.

Using another U-line 36 in box, cut the box so it is 13 1/2 inches long.  
Carefully cut the flaps off in a straight line.



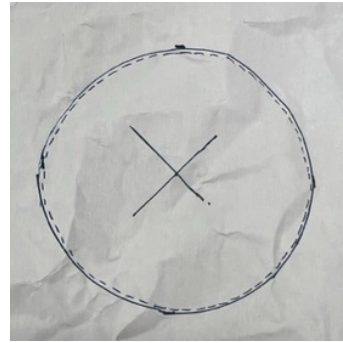
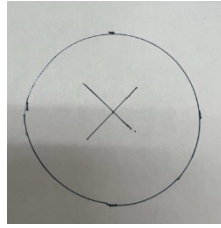
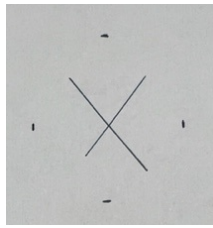
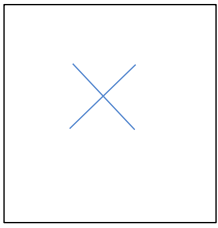
Step 6 Measure 5 15/16 inches in the middle of your rectangular piece of cardboard. Draw two vertical lines on the cardboard at these distances.



Step 7 Once the lines are drawn, score the cardboard along the lines with the x-acto knife. DO NOT cut through the cardboard. The cardboard should fold along the scored line.



Step 8 Determine the MIDDLE of your Barlow screen.



If the diameter of your Barlow is 20mm then put a mark at 10mm from the center on four sides. If the diameter of your Barlow is 28mm then put a mark at 14 mm from the center on four sides. Place the Barlow on the cardboard screen, line up the marks and the outside of your Barlow, then trace around your Barlow. With your x-acto knife, cut just INSIDE the Barlow trace you made. (dotted line) Be careful and keep your off hand away from the blade!

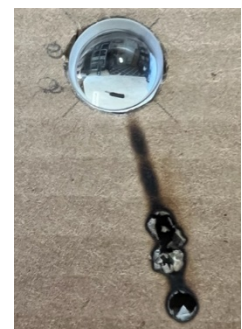
If you are using the 28 mm Barlow, then you will have to double the cardboard. Follow the same procedure as above and then line up the holes and glue the two pieces of cardboard together. The Barlow should fit very snugly so it will not come out.



Step 9 The sun's rays, when concentrated, are intense. The Barlow cardboard screen will start to burn. Using double stick tape, place aluminum foil on the entire Barlow screen. Cover the lens hole with foil. Ask your instructor the procedure to cut the foil over the Barlow hole. Add a second layer of smaller size foil near the Barlow so that NO cardboard is showing.



Step 10



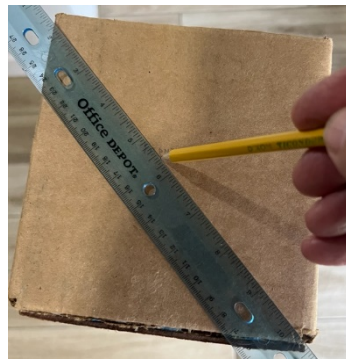
(without foil)

Be sure the Barlow screen

fits inside the box. Hopefully the flaps on each side are of equal length. Hold the screen in place with the binder clips.



Step 11 Find the middle of the front of your box where you will put the objective lenses.



Short end of box



Use the same procedure as step 8. The diameter of your objective lens is 51 mm. Make a mark at 25.5 mm from the center on the four sides. Place the lens on the box and trace the outside edge so that the line touches each mark. With your x-acto knife, cut just INSIDE the trace you made.

Step 12 Repeat Step 8 using a smaller square piece of cardboard. The square piece of cardboard will be glued on the front of the box. Line up the two holes. Since the achromat is a double lens the front end of the SSV box has to be two layers thick.



Step 13 To prepare the achromat lenses:

Crown and flint when put together produces a coated achromatic objective lens 52mm diameter with a focal length of



600mm. Place the crown (double convex) with its strongest curve against the negative side of the flint. Use a couple pieces of painters tape on the edges to hold them together. **The crown side faces the sky or the object you plan to look at.**

Using very small pieces of Magic tape (2mm x 4mm) place the tape on the edges of the lens 120 degrees apart. The tape should be on one of the lenses between the crown and flint. Use painters tape to tape the lenses together. Leave some space that does not have tape.

Step 14 Place the objective achromat lenses in the double layer hole in the front of the box. Be sure it is a snug fit. The thinner lens (crown) will face the sky (sun).



Step 15 Using double stick tape add your white screen at the end of the box.

Although it is not shown here, I would be sure the white screen covers the entire inside end of the box.



Step 16 You are ready to setup your solar viewer. You will need to use a mount. A cinder block works well. A plastic crate with a couple weights or bricks to hold down the crate can also be used.

36 in box

