

Display Easel Project
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DISPLAY EASEL PROJECT

by Kevin Kell

Start of the Project: 2003 March 08

End of project: 2003 March 26

Intro

Any astronomy group that does public events will find a need for display easels. These allow you to display items (posters, artwork, infosheets, etc) at a better height for passerbys to view. In the past we have been able to borrow easels for Astronomy Day from a local high school art department, but it was sometimes touch and go as to availability. So we decided to build some of our own.

This first prototype stands 5' tall with a display area of 2'x2'.

The legs fold back in half to allow for easier transport. How the folding legs hold up over time we will see.

The display area itself is 1/4" plywood painted white so that we can also do solar projection.

Benefits

to provide a lightweight compact display easel to hold foam core mounted material. Commercial easels start around \$40

Used to display indoors at meetings, mall displays, outside at daytime solar observing for posters or projection, outside at night to hold signage with optional red lighting (that's another project).

Design

We started with an 8' 1"x2" leg and cut 2' off for the cross braces. This gave us a 6' tall easel. We also had a scrap piece of 2'x2' plywood so that how the size of the display area was determined. The ledge under the display area has a trough (approx 1/2") cut through it to allow material to prop up and stay on the ledge.

Testing the height with posters showed that a 6' tall easel was too tall, so we tested and cut off 1'. This looks good.

Parts List

x3 1"x2"x8' pine \$3
x1 1"x5"x2' pine (ledge) \$1
x1 24x24" x1/4" plywood (surface) \$4
x20 small nails (plywood to 1"x2")

x12 #6x1.25" wood screws (1"x2" assembly) \$1
4 hinges 1.5" (or a little smaller.. whatever fits on the wide side of a 1"x2")
(get the set that included screws for the hinge) \$4
3 clasps (chest locking type clasps) \$3
varathane
string approx 12"
one eyehook, 1/2"
white latex paint
white sticky velcro, 4 sets \$1
one handle \$3

Supplies needed:

tape measure, tsquare, drill, jigsaw, palm sander
#120, #240 sandpaper, clamp, counter sink drill bit, small 1/16"
drill bit, paintbrush, carpenters glue,

The Assembly

1. Cut an 8' 1"x2" down to 5' and cut the remaining 3' down to 24"-.75"-.75"= 22.5" (inside mount). Repeat for the 2nd 1"x2"x8'. For the 3rd leg of the tripod, cut down the 1"x2" to 5'1"
2. Take the three legs and cut them in the middle (at 30").
3. Assemble the frame of the easel with two 1"x2"x30" sections on the outside and place the two 1"x2"x22.5" to frame the top and bottom, spaced apart so the outside measurement is 24". pilot the screw holes and countersink them. Glue and screw together so the screws are flush or below the surface level.
4. apply the 2'x2' x 1/4" plywood to the surface. Glue and nail to the frame.
5. take the ledge board and cut notches (approx .75") out so that it fits in between the outside legs. Fit it in place and draw a line across the top surface where the display plywood juts out to mark it. Now we have to cut a trough down the length of the board, approx 1/2" wide, and approx in the centre of the board from one edge to the marked line. I had a friend use a table saw. I'm not sure how else to get this done. Sand down the trough. Glue and screw (3 screws evenly spaced).
6. Attach the third back leg to the centre of the top 1"x2" with a hinge. If possible predrill (pilot hole) the screws that come with the hinges.
7. Sand down the entire easel with medium sandpaper.
8. Sand down the top surface with #240 fine sandpaper and do the edges and corners as well.

9. Apply two coats of white latex paint to the plywood display surface.
10. varathane the entire assembly, let dry, repeat.
11. On each leg sequentially, put the cut part of the leg back up against the section of leg it was cut off from, match it exactly, clamp it down and attach a hinge to join the two sections (on the outside so the side legs swing out not in) (and on the back of the back leg so it also swings back)
12. On the other side of the wood from the hinge, attach clasps with #5x3/4" screws Attach velcro so that when the legs are in the folded position, they stay in that position. Also attach a velcro set to the third back leg so that it remains locked to the back of the ledger board during storage/transport. screw in the eyehook on the backside of the display area, tie one end of the string to it, run it around the rear leg and tie it off at the eyehook. This will limit the back motion of the rear leg.
13. Done!

After the Fact

Total Time including two coats: about 6 hours.

Total cost: about \$25

Painting plywood white.. what a lot of time... the next easels will have white coated thin board instead of plywood. Also the folding legs may not last too long due to the small amount of hinge size and a lot of stress on them. So the next couple of easels will be 5' non folding. The easels are varathane coated so as to stand up better outside in potential evening/nighttime dew.

2003 March 26 added carry handle to top

2003 March 30 - glued down some of the sticky velcro as it was coming loose. As the screws holding the hinges in are not allowing the folding legs to fold completely together. On one leg I tried replacing the #6 x 1/2" screws with #5 x 1/2" screws and glue to see if they allow more folding to occur.

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