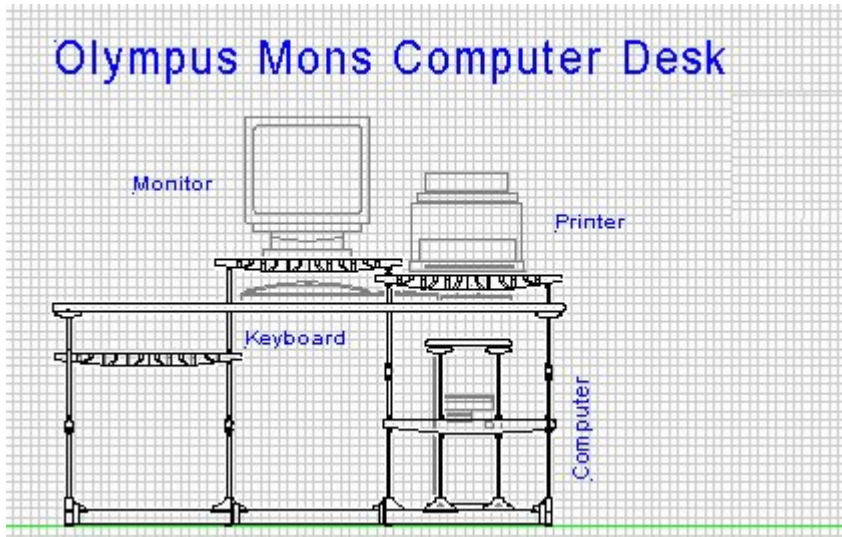


Olympus Computer Desk



Introduction

The Woodward art desks are pieces of art that are also fully functional furniture. Sometimes furniture can be art, even when form follows function.

This art desk is inspired by images of Mars both old and new, both real and imaginary. It is about volcanos and crater rims in silhouette. It is about low gravity structures floating in the thin air.

Woodware's Olympus Mons Art Computer Desk is very economical in the use of materials and therefore is low cost. The keyboard shelf is very prominent so you may wish to feature a special piece of exotic hardwood there.

This version is especially designed to build with the use of only a few tools. I can be built by a student working in an apartment.

Like all good art, it embodies many contradictions:

- The materials are rich; yet the cost of this desk is among our lowest.
- It is one of our most daring; yet requires few tools to make.
- It looks whimsical; yet it is very practical. The keyboard and monitor shelves can be set at any desired height and monitor shelf can be set low for a look-down effect.
- The keyboard shelf appears to float, yet it is stable and comfortable to use.

- ***Desk Construction***

You can make this desk by:

1. Downloading the drawing and this text.
2. Studying information and locating materials.
3. Assembling the few tools.
4. Purchasing materials locally.
5. Hand cutting and drilling the wood pieces.
6. Gluing and screwing the parts.
7. Assembling the desk.
8. Hand fitting critical parts.
9. Disassembling
10. Finishing all pieces
11. Reassembling
12. Installing the computer.

13. Discussion of Sketches

After you download the sketches, these notes will help you understand them more completely.

1. Olympus Mons Computer Desk

The front view shows the desk the base and the rods supporting the various platforms. Note the silhouette along the base. The Monitor and printer are on open frame platforms while the keyboard and mouse are on a plank shelf. There is a third platform that is not used in the sketches and a second shelf on top of the computer.

2. Olympus Mons Computer Desk, Side View, Sketch #2

This sketch shows the desk as seen from the side. Note that the monitor and printer platforms are of different heights.

There is a plank shelf on top of the computer at right angles to the keyboard shelf. This is a good place for a phone and a remote power switch.

The silhouettes continue along the side of the base.

3. Olympus Mons Computer Desk, Sketch #3, Top Views

This sketch shows the top view of the desk showing the three identical frame platforms. The center one is for the monitor and one of the two side ones are for printers or other desk top items.

The keyboard rests on a plank shelf at the front. A smaller plank is located on top of the computer and is supported by two treaded rods at the back. The computer also sits on a short plank shelf.

4. Olympus Mons Computer Desk, Shelves, Sketch #4

There are three shelf planks. The keyboard shelf is made from 1-by-12 and the top and bottom computer shelves are from 1-by-10. All the corners are rounded to a .5 inch radius.

5. Olympus Mons Computer Desk, Base Pieces, Sketch #5

All the pieces of the base are made from 1-by-2 lumber. Many of the pieces are notched to form joints. How to do this is described in the construction notes.

6. Olympus Mons Computer Desk, Platform Pieces, Sketch #6

All the pieces of the platforms are made from 1-by-2 lumber. The pieces are notched to fit together like Lincoln Logs. The narrower cross pieces are trimmed to be the same width as the diagonal piece are where the particular cross piece fits. A small mending plat is installed across the bottom to strengthen this joint.

7. Olympus Mons Computer Desk, Small Pieces, Sketch #7

This drawing shows the small pieces like the volcano silhouettes, the wooden nuts, and the pieces of cove molding. It also shows the long cloud pieces that brace the sides.

8. Olympus Mons Computer Desk, Drilling Aid, Sketch #8

The holes for the treaded rods must be drilled straight. This is done most easily with a drill press but if you do not have access to one you can do a good job with a long 5/16 inch drill bit, a make-it-yourself wooden drilling jig, and electric drill. Also shown is a handmade bottoming tap.

14. Materials

This art desk is made of hardwood dimensional lumber and steal treaded rods. The parts are assembled with glue, wood screws, and finishing nails.

The cost estimate below is for Popular and finished with multiple stain colors.

1. Wood

Boards:

- 70 ft -- Clear wood, .75 by 1.50 inches, \$.45/ft -- \$31.50
- 5 ft -- Clear Wood, .75 by 11.5 inches, \$3.60/ft -- \$18.00
- 5 ft -- Clear Wood, .75 by 9.5 inches, \$2.82/ft -- \$14.00

Wood Subtotal: \$63.50

2. Hardware

Fittings

- 12 -- Threaded Rods, steel, 3/8 inch @ \$1.40 -- \$17.00
- 50 -- Nuts, 3/8 -- \$ 2.50
- 50 -- Flat Washers, 5/16 -- \$ 1.50
- 3 -- Mending plates, .5 by 2.5 inches -- \$ 2.00
- 8 -- Plastic Feet -- \$ 5.00

Fasteners

- 1 box -- Brads, .75 inch -- \$ 1.00
- 1 box -- #4 finishing nails -- \$ 1.50
- 12 -- #8 by 1.25 inch flat head screws -- \$ 1.50
- 12 -- #6 by .75 flat head screws -- \$ 1.50
- 8 oz. -- Woodworker's Glue -- \$ 3.80

Hardware Subtotal: \$37.30

3. Finish:

4. 3 qt. -- Stain -- \$ 18.00
5. 1 qt. -- Shellac -- \$ 6.00
6. 1 pt. -- Shellac thinner -- \$ 4.00
7. 1 qt. -- Polyurethane, satin finish -- \$ 10.00
8. 2 qt. -- Paint thinner -- \$ 3.00

Finish Subtotal: \$41.00

• Omissions and Contingencies (~12%)

(Tax, sand paper, etc.) \$28.70

- **Estimate Total Cost \$170.00**

This is only an estimate (made in the March 1998). The price may vary in your area. Getting a good price on the wood is critical to keeping the price down.

- **Tools**

This desk was designed to be build using only a few hand tools that an art student might have, purchase at reasonable cost, or borrow. These tools are all useful for general around-the-house fix-up and can fit in a tool box.

1. Electric Drill, 3/8 chuck
2. Long shift drill, 3/16 inch -- \$5.50 new
3. Screw Mate bit for #8 screws -- \$6.20 new
4. Drill and Tape, 3/8 inch -- \$7.50 new
5. Bits, 1/8 inch twist, 11/16 in. paddle
6. Miter Box and hand saw -- under \$20.00 new
7. Wood Chisel, 1/2 in.
8. Tri-Square
9. Screw drivers
10. Coping Saw or jig saw
11. Hammer and small nail set
12. Hack Saw
13. File

You will also need sand paper, paint brushes. etc. It would be nice to have a block plane and a four-in-hand rasp.

- **Fabrication Notes**

This is your desk and you can build it to suit your likes and needs. This desk is also a personal statement so don't get in a big hurry.

- **Buying Materials**

The wood for this desk can be any wood that is straight and has, at most, a few small knots. If you choose pine or greenish popular, they will not take stain well but you can paint them instead. You can make the keyboard shelf out of a striking piece of exotic wood if you like.

The drawings are carefully designed so that all the parts can be cut from standard widths of lumber using a simple miter box and hand saw. The small parts are all made from 1-by-2 lumber.

• **Cross Platforms**

The three platforms set the size of the base so it is best to make them first. They are made from pieces of 1-by-2 lumber that you cut with notches to fit into each other. You can cut the notches by hand with a miter box and saw.

Cut all the notches and drill the holes before cutting the slopes on the bottoms of the diagonal pieces. You will have to trim most of the small cross pieces to fit the thickness of the diagonal pieces at their notch. This can be done with a saw or block plane.

The frames are assembled with glue, brads, and a mending plate. There is a trick to using finishing nails without the risk of splitting small parts. It is covered in *Construction Hint* on our Web site. Cut the head from one of the brads and chuck it into the drill. Use as a bit to drill pilot holes for the brads that are about 75% the length of the brads. Be careful not to mark the wood with the tip of the drill chuck.

The bottom of the diagonal cross is strengthened with a 2.5 inch mending plate. You can let this into the piece by assembling the two diagonals, screwing the plate in place, scribing around the plate with a sharp knife, removing the plate, removing the wood with a chisel, and reinstalling the plate. This makes work look much more finished.

• **Drilling Straight Pilot Holes**

You will need to drill a lot of straight holes. This is best done with a drill press. Check to see if you can get access to one. They are sometimes available in art studios or drama scenery shops. If you cannot get access to one, then you will need to build the drilling aid show in Sketch #8.

The drilling aid is made from a 12 inch piece of 1-by-4 or a similar piece of plywood, two 3.5 inch 1-by-2 blocks, two 6 in. pieces of .75 in. 1/4 round molding, and two 4.5 in. 'C' clamps. You will also need a 5/16 in. diameter long stemmed drill about 12 inches long, an awl, and a square.

Draw a strong line down the middle of the base board for reference. Screw and glue one small block across one end at exactly 90 degrees to your line. Screw the two pieces of 1/4 round molding so they they meet exactly along the line. Do not glue them at first as you may need to adjust the height.

Take a test piece of scrap 1-by and mark a center point for a hole on one edge. Make a good, deep starting hole with the awl. Clamp the piece in the drill aid square against the back base piece and with the center point exactly over the line. Use the second block and the 'C' clamps.

Chuck the long bit and lubricate its sides and the 1/4 round with a bit of old candle or other paraffin wax. Lay the long shaft of the drill in the groove and drill the guide hole. You may want to keep the shaft in the groove by pressing on it with a bit of waxed wood.

Drill all the way through the scrap if you can and look to see how close to the center your are when you brake out. Also look at the start of the hole and see if it is centered on the wood. If it is not, you may need to adjust the height of the 1/4 round blocks.

Practice drilling several pieces of scrap before you take on your good wood.

• **Finishing the Holes**

There will be a number of different treatments needed for the holes:

1. Let-in Washers -- Any hole that has a nut associated with it will need a flat space for a washer around the hole. Never run nuts directly up against wood. You will want to buy the smallest flat washers that will fit your threaded rods (probably 5/16 in. washers just fitting on a 3/8 in. rod). You will need a paddle drill bit the same size as the washer outside diameter (perhaps 5/8 in. or 11/16 in.). Drill down only the thickness of the washers using the pilot hole as a guide. Be sure the resulting flat is perpendicular to the hole.
2. Drill for the Tap -- Drill the holes to be tapped with the drill that you purchased with the tap.
3. Clearance Holes -- The clouds and the platforms simply need flat washer flats and to be drilled out for the rods (3/8 in.). You can stop the center platform holes just before breaking out if you like.

• **Base Pieces**

Cut the base pieces of 1-by-2 to the lengths shown in Sketch #5. Pan in on the drawings and look at the base joints. The two pairs of side pieces are identical except for the notch for the cross piece to support the back of the computer. Lay the pieces out on the floor and see how the platforms fit above them.

Notch out the base pieces with your saw and miter box and remove the waste with a chisel.

• **Assemble the Base**

Lay the finished pieces out on the floor and check the match for the platforms again. Assemble the base with glue and finishing nails. Drill pilot holes for the nails just like you did the brads. You can place only one nail near the floor in the joints that have tapped holes.

• **Silhouettes**

Cut the silhouettes out of 1-by-2 stock. You can make them into all sorts of shapes to suit yourself. If the new shape are tall, make them in pieces and slip the upper parts over the rod.

Fourteen of them are really half silhouettes that fit at corners. Some of these need to be notched and some of the complete units need notches for half units. Again make these to suit yourself.

Attach the silhouettes to the base board with glue and brads. Again be sure to drill pilot holes for the brads.

You can add pieces of cove molding to the corners to strengthen the joints. The top of these pieces can be shaped to match your silhouettes. Attach the molding with brads and glue.

Do not drill for the tapped holes until the glue is completely dry.

• **Tapping**

One end of each rod can be threaded directly into the wood and the design also uses six wooden nuts under the shelves. Drill out the pilot holes with the drill bit purchased with the tap (close to 5/16 in.). You want the hole to be a little deeper than the tap length but you usually do not need to brake out the bottom. Clamp the piece between two pieces of scrap wood to prevent breakage and tap the wood. Use a 1/4 turn forward then back motion. No lubricant is needed. Tap as deeply as you can but do not twist the tap too strongly.

The normal tap does not tread all the way to the bottom of the hole. Because of this you can twist the rods in too tightly and break the wood. You can help this situation by making a bottoming tap as shown in Sketch #8. It is a 3/8 in. bolt or piece of threaded rod with two nuts lock together on it. You file three slots in the end to make teeth. This can be easily done with a small triangular or bastard file. The filed groove is not symmetrical. One edge is sharp to make the teeth the other is more sloped. Run this tap into the holes after you have done all you can with the real tap. Use the same motion as before then clean out the saw dust.

The tapped part of the silhouettes should run all the way into the base boards at least .75 inch.

• **Clouds**

Cut out and drill the cloud braces exactly like the diagonals of the platforms. Check the measurements with the base before drilling the holes. Make flat washer flats around both the top and bottom of the holes.

• **Install the Rods**

Place the base on the floor and screw the twelve rods into the base. You can put a little wax on them if you like. Tape paper flags on the top of the rods so you do not poke yourself with them.

Thread on nuts and flat washers. Place the clouds on the rods and adjust them to the height you want. Put on more flat washers and nuts.

Do not trim the length of the rods until you have trail assembled the desk.

- **Platforms**

Place nuts and flat washers on the rods and place the platforms in place. Add more flat washers and nuts.

- **Keyboard Shelf**

The shelves are simply flat boards with the edges and corners rounded off. The best wood in the desk should go into the keyboard shelf. The worst can be the shelf under the computer.

The selves are attached to the the rods with wooden nuts you make. The nuts can be in the shape of small clouds as shown, or perhaps space ships, or satellites. They have a tapped through hole and two screw holes. The screw holes are drilled with the #8 Screw Mate and should be on the circumference of a circle with the tapped hole in the center.

The nuts allow some adjustment for leveling the shelves. You can take out the screws, give the nut a half turn, and put the screws back.

- **Computer Shelf**

The shelf under the computer is simply screwed to the base (no glue).

The top computer shelf sits on top of the computer and is supported at the back by two rods with wooden nuts. You may want to put some felt feet on the underside of this shelf. The length of these rods is completely dependent on the height of the computer. With some computers, one rod cut in two will be long enough. These rods make a handy place to tie wrap cables.

- **Rod Height**

Try all the parts at various heights. Take your time. Try siting you computer equipment on the desk and standing back to take a look.

The exercise *Air Typing* from our Web sight can help you find a good height for the keyboard and monitor.

When you really like it. Mark the lengths of the rods with a file.

- **Disassembly**

Take off the shelves and platforms. Remove the rods and mark them with paper and tape. Hacksaw off the rods and file the ends. Drill pilot holes for the eight feet.

Sand all parts. Move power sanders very slowly so that they erase their own swirl marks. Round off all edges. You are ready for finishing.

- **Finishing**

You may finish your desk any way you like. We recommend:

- Color Scheme

This is the art part. Look at the pictures of Mars on the Web. Choose colors of stain and paint suggested by the pictures. The rocks vary from red brown to muddy black. The sky can be very light blue but is pink after dust storms and can be purple at sunset. The clouds can be white but may be pink if they are dust.

- **Recommended Finishing**

We would like to recommend the following finishing steps:

- Hardwood -- sand, stain, prime with 5-to-1 thinned shellac, two coats of satin finish polyurethane, light sanding between coats.
- Underside of shelves -- No finish.
- Treaded Rods -- These may be rapped with brass or aluminum wire.

- **Staining**

Try different stains on scrap pieces of wood. If you do not like the resulting colors you may want to paint instead. Don't be afraid to put one can aside and go buy another. Above all take you time.

Stain can be applied with a cloth.

- **Spit Coat**

A spit coat made of one part 3-pound shellac to five parts shellac thinner makes a good wood sealer and primer. Here its use is important in getting the paint to stick.

• **Completion**

All that is left is to reassemble the desk, and install the computer cables.

1. Reassembly

Be sure to print your name, the date, and who the desk was for on the underside of a shelf. Draw pencil guide lines and print with an indelible marker.

2. Cabling

Detailed cabling instructions and plans for a remote power switch are given in our Web page under *Freebies*. Make up a good number of cable tie mounts and be ready with mounting screws and tie wraps. The remote power switch is optional but is really needed with this desk.

Place each piece of the computer in the desk one at a time. Route and connect the cables. Dress the cables neatly up to the rods using tie wraps. Do not pull the tie wraps too tightly. The cable should be able to slide back-and-forth a little. Trim off all the tie wrap ends.

You may need an extension cable for the keyboard and a cable tie mount under the keyboard shelf where the cable comes out of the keyboard. Route the mouse cable over the edge to a second mount and secure them together down a rod.