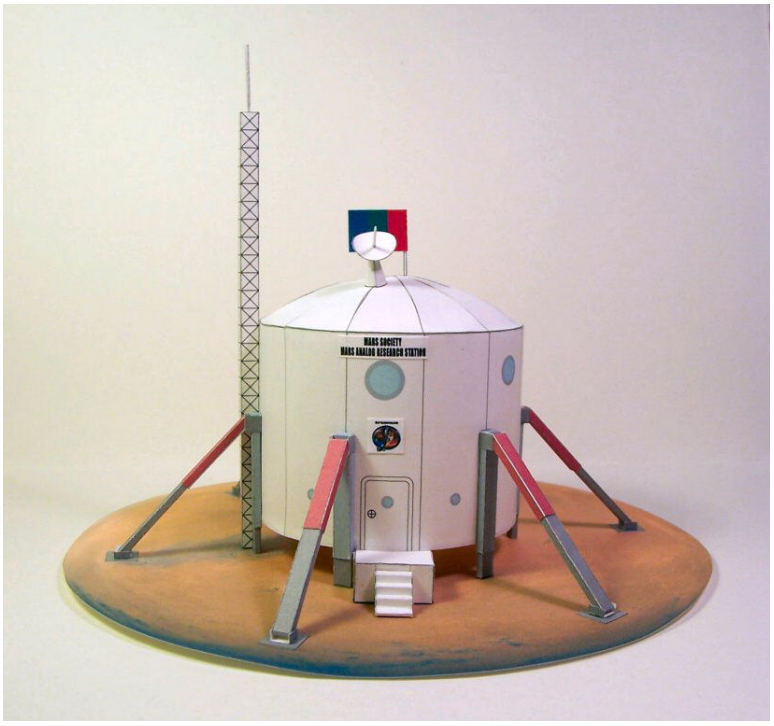
MARS SOCIETY
MARS ANALOG RESEARCH STATION



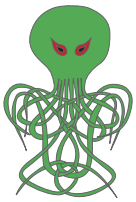
Based on the design of experimental habitats built and maintained by the Mars Society, this model represents elements common to those habitats, rather than any single habitat.

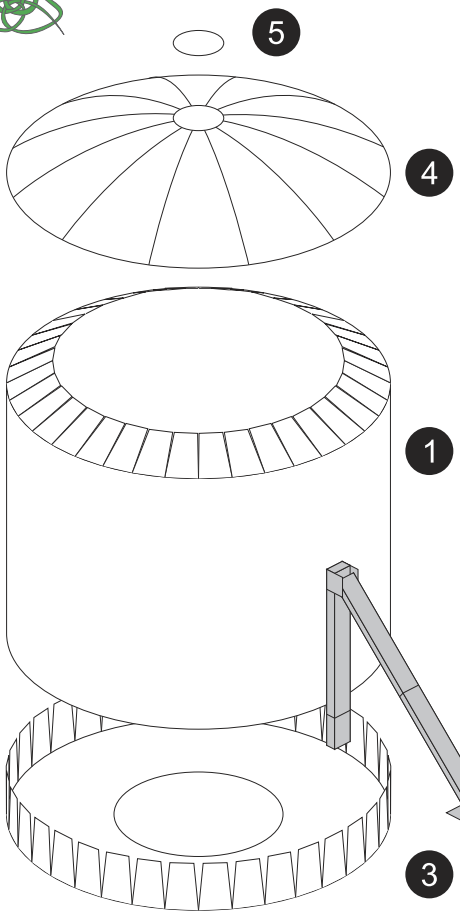
The model is designed at approximately 1/110 scale, and will stand roughly three inches (76 mm) tall when complete.

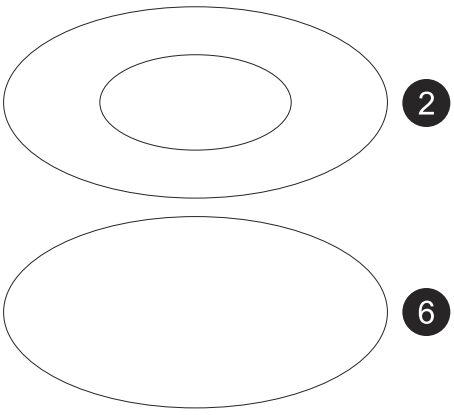
Building the model may be a bit challenging for beginners, but should present no difficulties to more experienced builders.

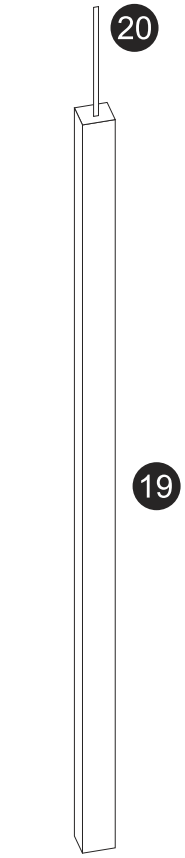
The model parts sheets should be printed on index card stock of about 90 lbs basis weight (165 gsm), or roughly 8 caliper. Proper fit will not be reliable with heavier stock.

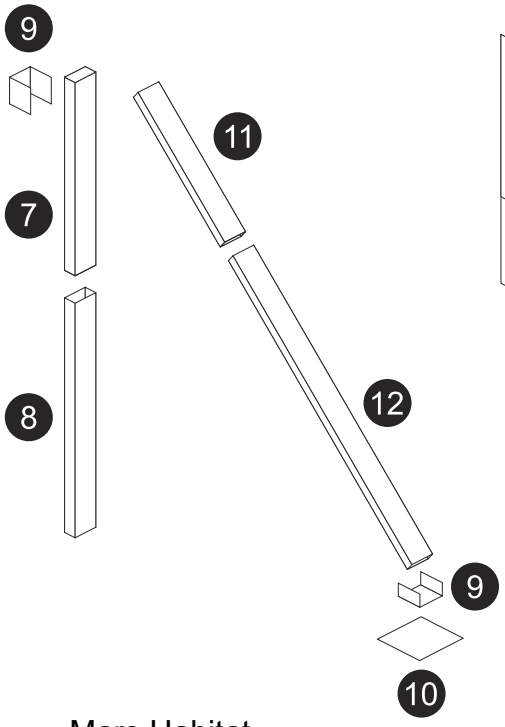
Common white PVA glue is recommended.

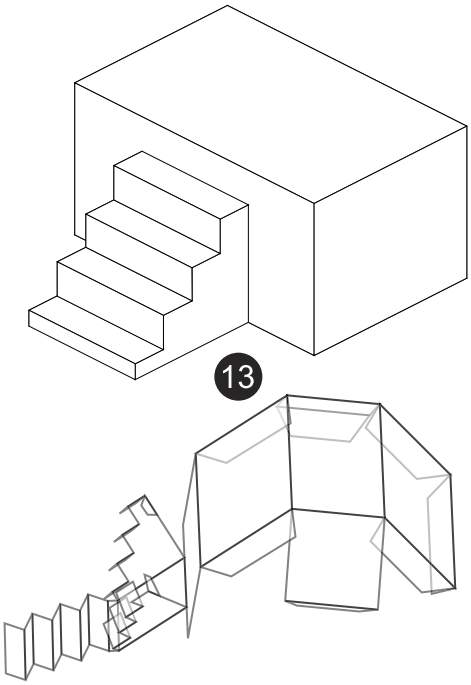


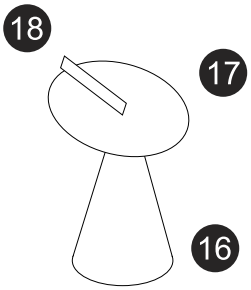


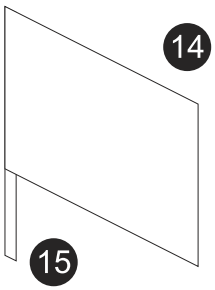




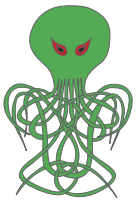








Mars Habitat



Please refer to the diagrams on page two and the photo on page one for reference.

Begin by cutting out the base sheet on page six. Glue the base sheet to a piece of flat, rigid, heavy cardboard or foamcore, and trim it to suit your preference. You will need this ready when you get to the legs.

The remainder of the parts are assembled approximately in the order in which they are numbered. Score parts where indicated by red lines and according to the step-by-step instructions below.

Shell:

1. Score the tabs at the top of part 1 and cut it out. Roll part 1 around a cylindrical object to pre-form it, then align the long tab with the other end of the part and glue it to the inside. Apply pressure to the joint until it sets firmly.

Bottom:

2. Cut the center out of parts 2 and 3. Score the tabs around part 3, then glue part 2 onto part 3, aligning the small tick marks and centering evenly. Apply pressure to the assembly until the glue sets.

Top:

3. Carefully score only the tabs in the center of part 4, then cut the part out, being mindful of all the tabs between the twelve gores. Gently curl each of the gores to pre-form them, then glue each gore to the tabs of the adjacent gore, being careful to align the edges and maintain a slight curvature. The part will form itself into a shallow dome. Gently bend the center tabs down until they are all in the same plane.

4. Cut out part 5 and glue it to the center tabs of part 4.

Bottom and Shell:

5. Return to parts 2 and 3 and fold all the tabs on part 3 away from part 2. Put the assembly inside the bottom of part 1 and in a little way. Apply glue to the inside of the bottom of part 1; place the bottom edge of part 1 on a flat surface; reach down into part 1 and push the part 2/3 assembly down flat all around, then press all the tabs against the glue-coated inside of part 1. Allow the assembly to set for a few minutes.

Shell and Top:

6. Bend all the tabs on the top edge of part 1 inward to about 30 degrees from horizontal. Align the seam of part 4 with the seam of part 1 and glue one tab at a time of part 1 to the inside of part 4. Reach in through the holes in parts 2 and 3 to apply pressure to the tabs. When you're finished with this, cut out part 6 and glue it to the bottom to close the hole.

Inner Legs:

7. Score and cut out one each of parts 7, 8, and 9. Form and glue part 7 into a rectangular tube with one closed end. Form part 8 into a rectangular tube. Bend the two outer sections of part 9 away from the printed side to form a "U" shape with the unprinted surfaces on the inside. Slip part 8 inside part 7 until it stops against the closed end. This is a snug fit; if necessary, split the end of part 8 before fitting it into part 7. Glue part 9 around part 7 at the closed end as shown in the diagram. Repeat for five more parts 7, 8, and 9.

Outer Legs:

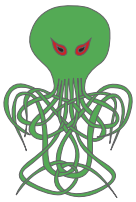
8. Score and cut out one each of parts 9, 11, and 12. Bend the two outer sections of part 9 away from the printed side to form a "U" shape with the unprinted surfaces on the inside. Form and glue part 11 into a rectangular tube with one closed end. Form part 12 into a rectangular tube. Slip part 12 inside part 11 until it stops against the closed end. This is a snug fit; if necessary, split the end of part 12 before fitting it into part 11.

Shell and Inner Legs:

9. Glue one Inner Leg assembly to the Shell (part 1) in one of the six indicated locations. Skip one location, and glue another Inner Leg assembly into place. Skip the next location, and glue a third Inner Leg assembly into place. While the glue dries for a few minutes, glue the six parts 10 to the squares on the base sheet. Glue a part 9 to the center of each part 10 as shown in the diagram.

10. Carefully align the bottoms of the three attached Inner Leg assemblies to the small rectangles on the base sheet. Glue the three remaining Inner Leg assemblies to the three remaining locations on the Shell and the base sheet.

11. Glue the six Outer Legs into the parts 9 in six locations; the top edges of parts 11 should be flush with the top ends of the parts 7.



Porches:

12. Score both parts 13 where indicated by the red lines. Carefully cut through the parts where indicated by the blue lines. Cut the parts out of the sheet, and prefold all the scored lines; refer to the diagram on page 2 to guide you. The result should be a rectangular box with the stepped section attached; again, refer to the diagram. Once the correct shape is achieved, glue the parts at all the tabs. These porches fit just under the Shell of the model below the two airlock doors, and snug against the Inner Leg adjacent to each airlock. Glue the Porches into place at the Inner Legs and underside of the Shell.

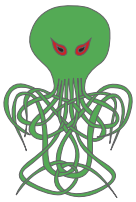
Options:

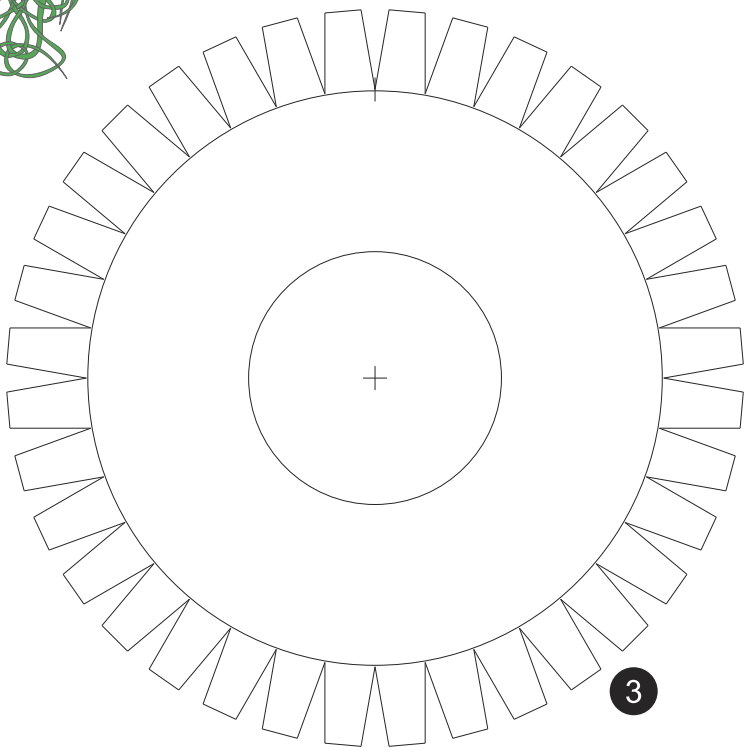
The remaining three assemblies may be used to represent either the MDRS or FMARS habitats.

13. Score parts 14 and 15 and cut them out. Fold part 15 over onto itself and glue it together. Fold part 14 around part 15 and glue it together. This flag glues to the edge of part 5 above the main airlock for the FMARS habitat only.

14. Score parts 19 and 20 and cut them out. Fold part 19 into a long box and glue along the long tab. Glue the end flaps down and together, with the flap with the small circle on the outside. Fold part 20 over onto itself and glue it together. Glue one end of part 20 to the small circle on the end of part 19. This antenna mast glues to the second Inner Leg to the right of the main airlock for the FMARS habitat only.

15. Score part 18; cut out parts 16, 17, and 18. Fold part 18 over onto itself and glue it together. Roll part 16 into a cone and glue it at the tab. Curve part 17 slightly around its short axis with the small circle on the inside of the curve, then glue the center of the outside of the part to the top of the cone at a 30-45 degree angle from vertical. Glue the end of part 18 to the small circle at the middle of the inside of part 17 so that it just perpendicular to part 17. This dish antenna glues to part 4 just a bit away from part 5 and directly over the main airlock for the MDRS habitat only.





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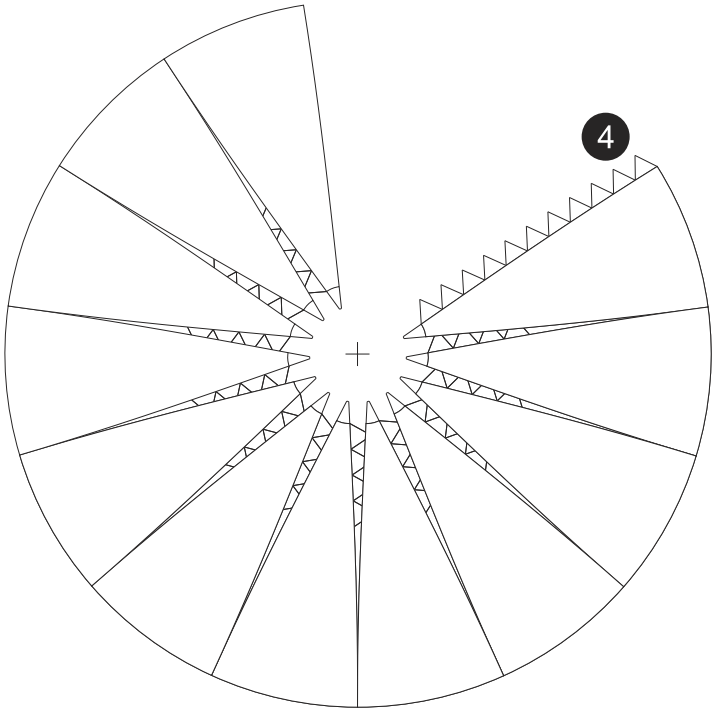

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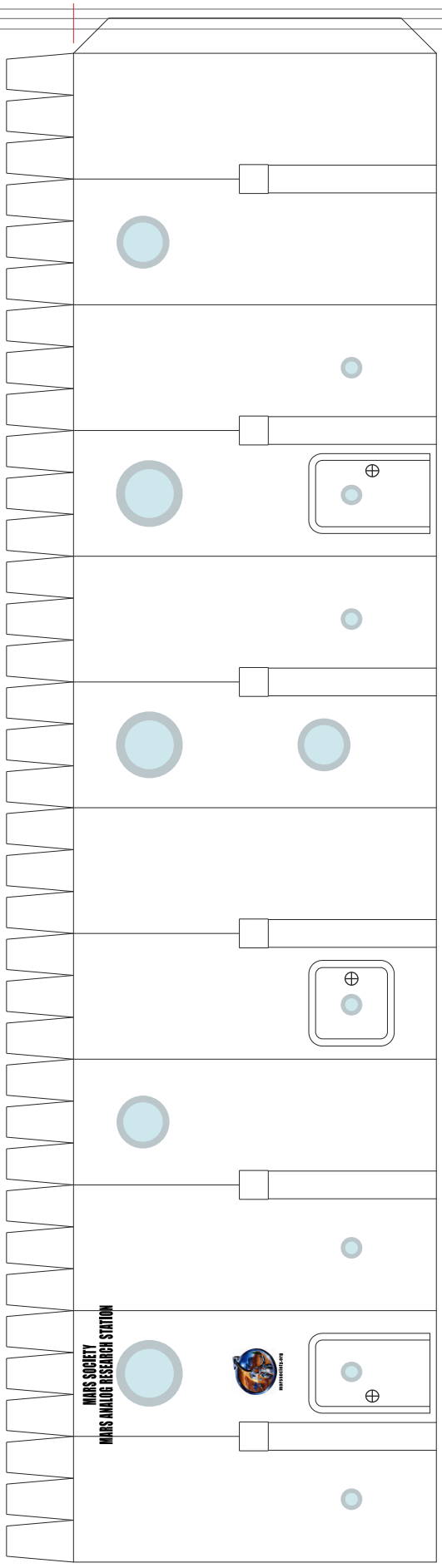
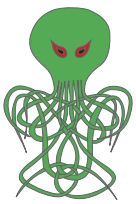


Mars Habitat



11

7

8

12

6

2

10

9

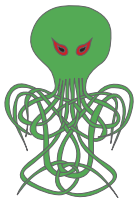
7.50 inches [19.05 cm]

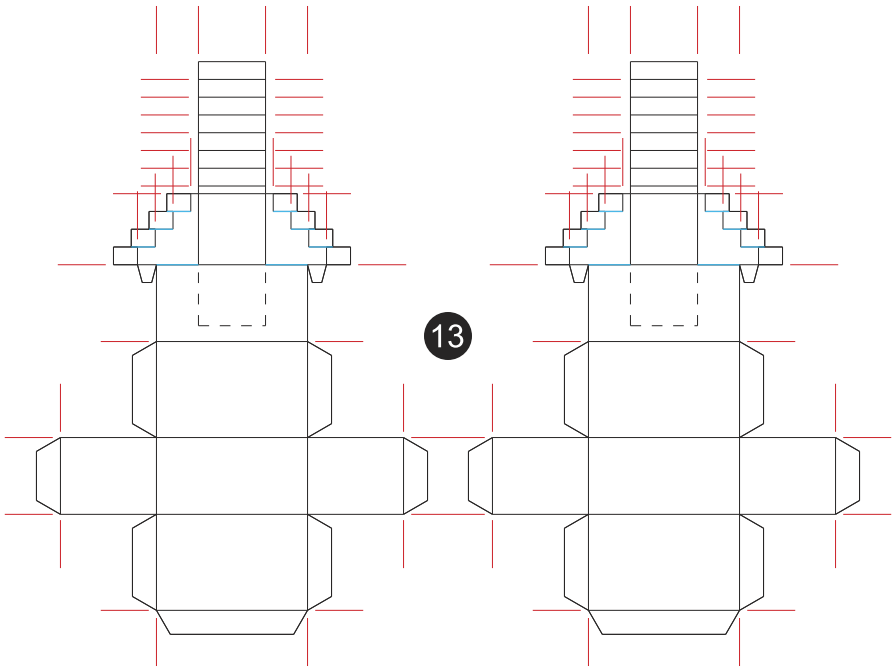
10.00 inches [25.40 cm]

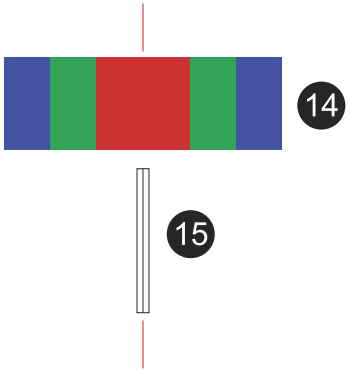
inches

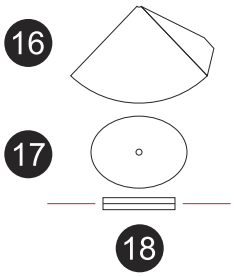
cm

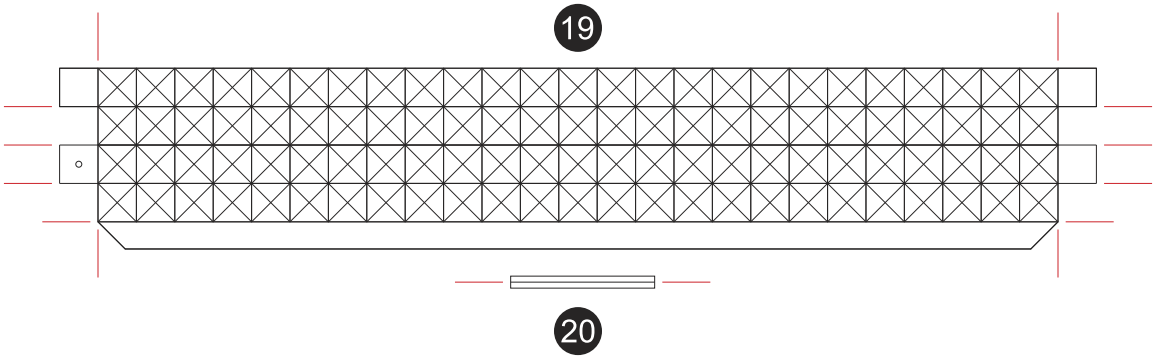
Mars Habitat







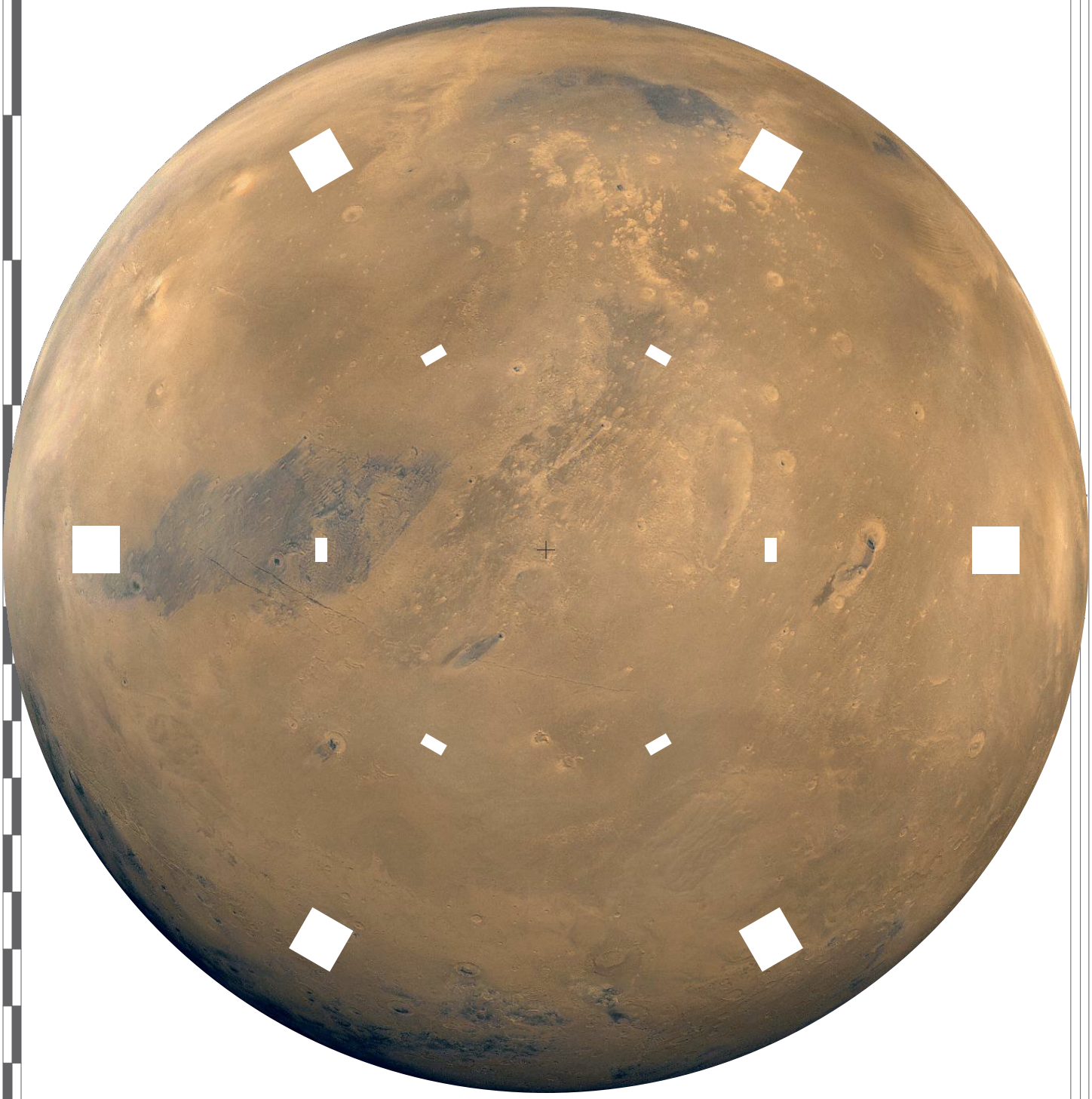




Mars Habitat

7.50 inches [19.05 cm]

inches



cm

Mars Habitat

cm

inches