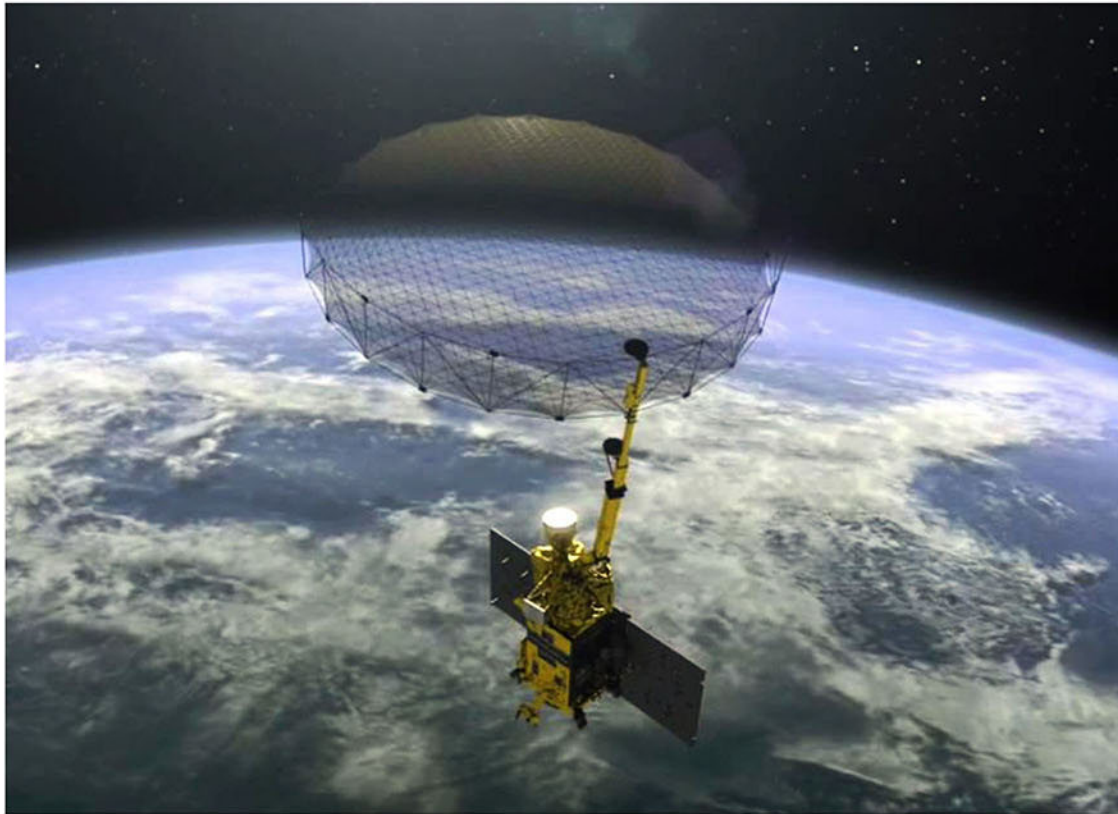




Soil Moisture Active Passive, or SMAP (launched on 31 January 2015), is an Earth satellite mission designed to measure and map Earth's soil moisture and freeze/thaw state to better understand terrestrial water, carbon and energy cycles.

SMAP monitors global soil moisture mapping with unprecedented resolution, sensitivity, area coverage, and revisit times.

The SMAP data will help characterize the relationship between soil moisture, its freeze/thaw state, and the associated environmental constraints to ecosystem processes including land-atmosphere carbon, water and energy exchange, and vegetation productivity.

Soil moisture is a key control on evaporation and transpiration at the land-atmosphere boundary. Since large amounts of energy are required to vaporize water, soil control on evaporation and transpiration also has a significant impact on the surface energy fluxes. Therefore, soil moisture variations affect the evolution of weather and climate over continental regions. Initialization of numerical weather prediction (NWP) models and seasonal climate models with correct soil moisture information enhances their prediction skill and extends their skillful lead-times.

Weather and climate forecasting

Initialization of numerical weather prediction models and seasonal climate models with accurate soil moisture information will extend forecast lead times and enhance prediction skill. Improved seasonal climate predictions will benefit climate-sensitive socioeconomic activities, including water management, agriculture, fire, flood, and drought hazards monitoring.

Drought

SMAP soil moisture information will improve the monitoring and forecasting of drought conditions, enabling new capabilities for mitigating drought impacts.

Floods and landslides

Hydrologic forecast systems calibrated and initialized with high-resolution soil moisture fields will lead to improved flood forecasts and will provide essential information on the potential for landslides.

Agricultural productivity

Soil moisture observations from SMAP will lead to improvements in crop yield forecasts and will enhance the capabilities of crop water stress decision support systems for agricultural productivity

Human health

Improved seasonal soil moisture forecasts will directly benefit famine early warning systems. Benefits will also be realized through improved predictions of heat stress and virus spread rates, and improved disaster preparation and response.

National Security

Information on surface soil moisture and freeze/thaw is critical to ground trafficability and mobility. Weather models also need maps of the soil moisture and freeze/thaw variables to initialize forecasts for low-level fog, aviation density altitude, and dust generation.

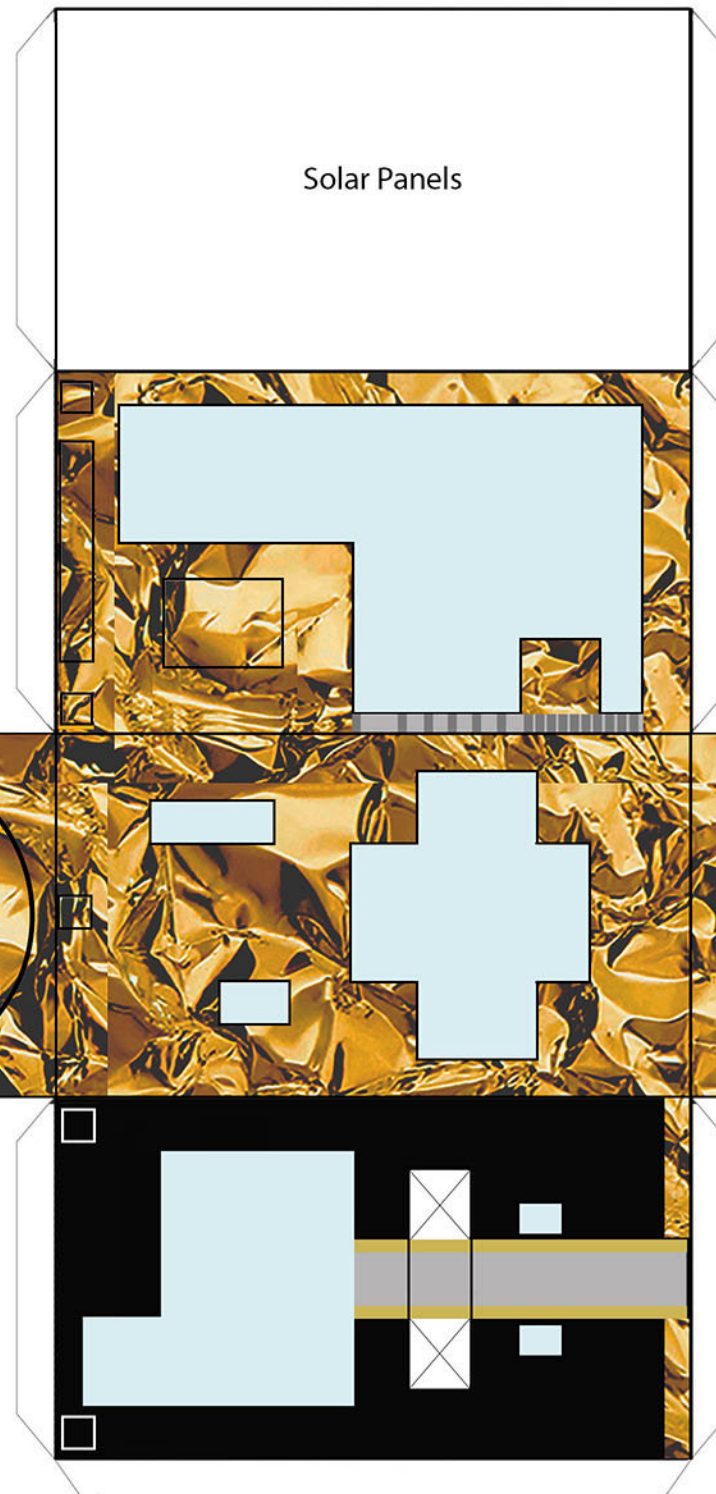
SMAP - Soil Moisture Active/Passive

By Glenn Alvord - 2015

Cut out the light blue areas on the spacecraft bus.

Glue the matching shapes from the BACKSIDE of each side of the spacecraft bus for a 3D effect (Seen on the real spacecraft)

1



Solar Panels

If you desire a rotating top, cut out the black circle, see directions on page 4.

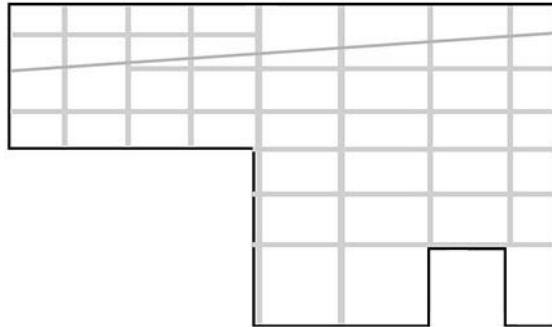
1A



Glue to thick card about 2mm.

2

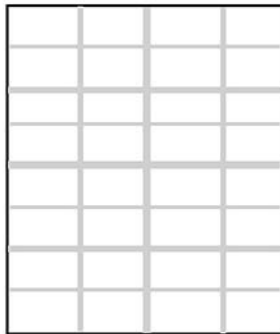
Then re-inforce the main body by gluing cardstock on the inside before folding and glueing into a box.



3



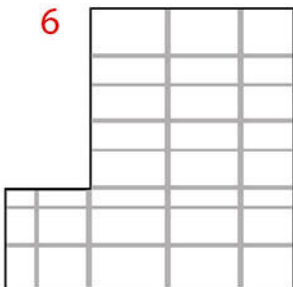
5



4



6



7



Glue one or two layers of cardstock to the top of the main body (From the inside) for strength.

SMAP - Soil Moisture Active/Passive

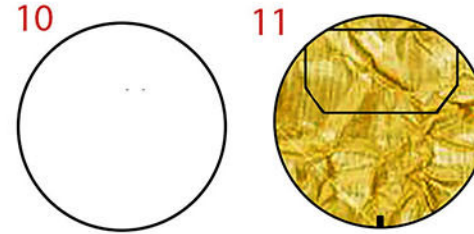
By Glenn Alvord - 2015



Color Backside black Roll to a ring



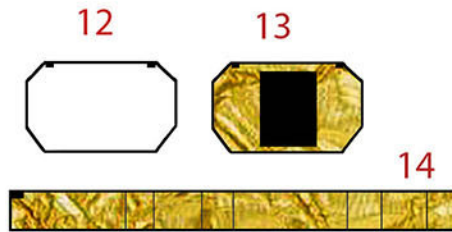
Roll to a tube



Bottom

Top

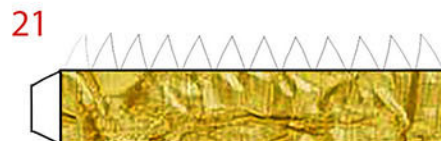
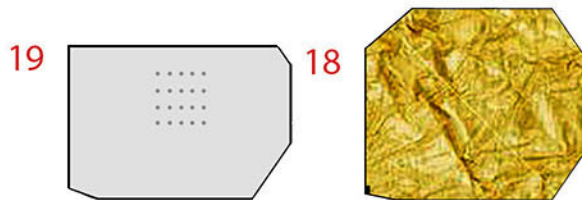
Glue these to another layer of cardstock.
If you want a rotating top, see the next page.



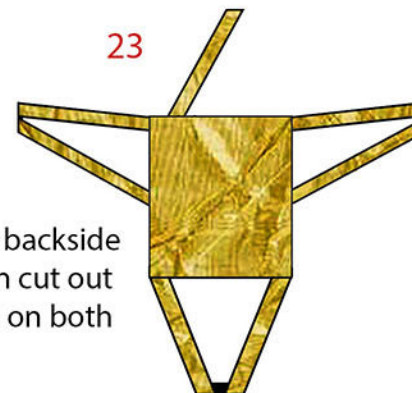
Glue 13 to the BACKSIDE of 12.

Score and glue 14 AROUND the outer edge of 12-13.

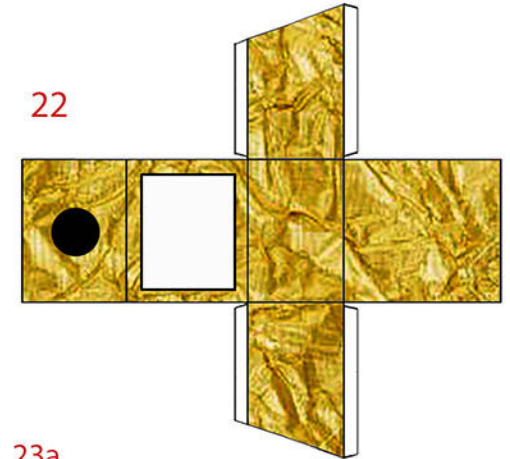
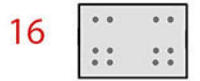
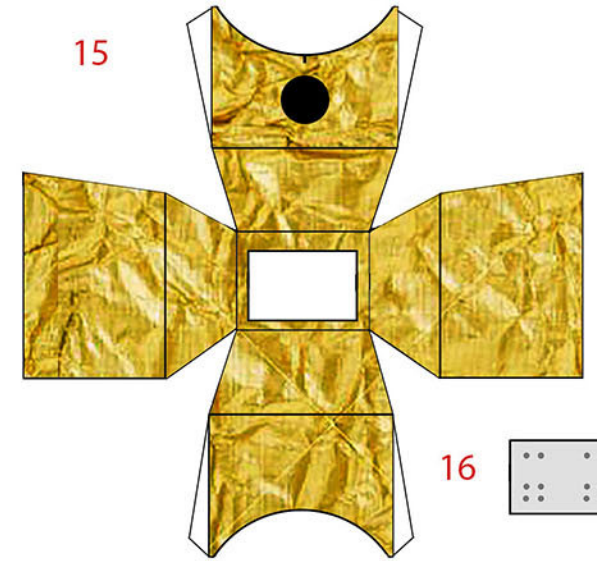
Match the two small black marks as the start point. Add extra cardstock and glue inside the assembly to support the two long receiver boom arms. Then glue over the graphic on part 11.

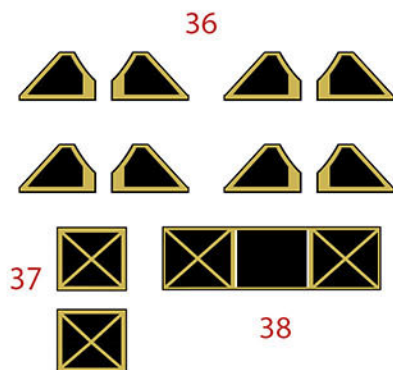
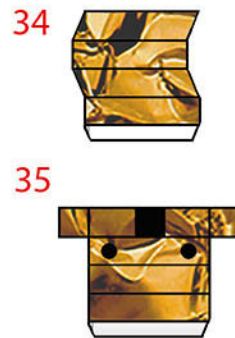
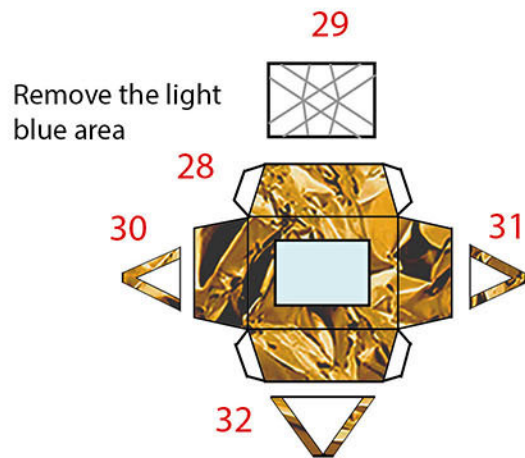


Color Back black

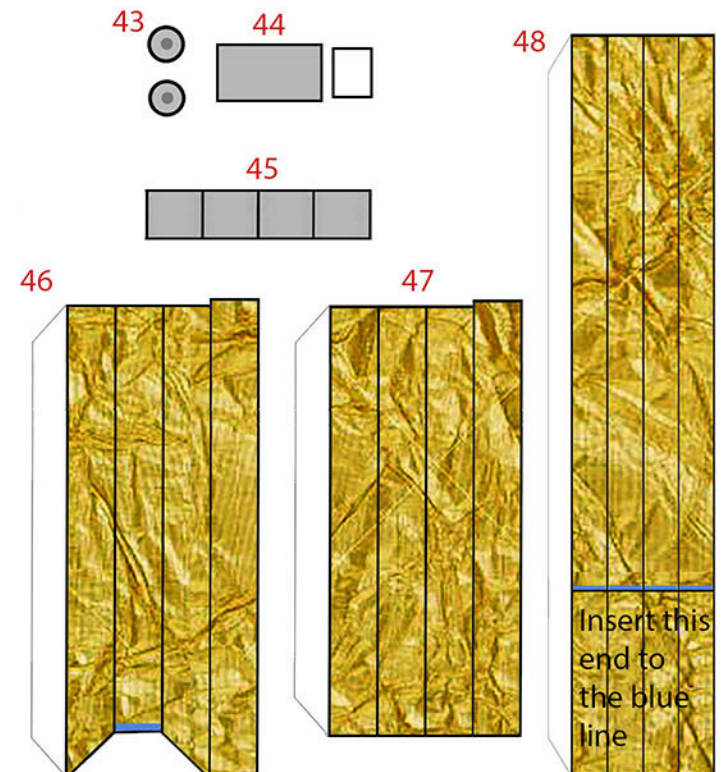
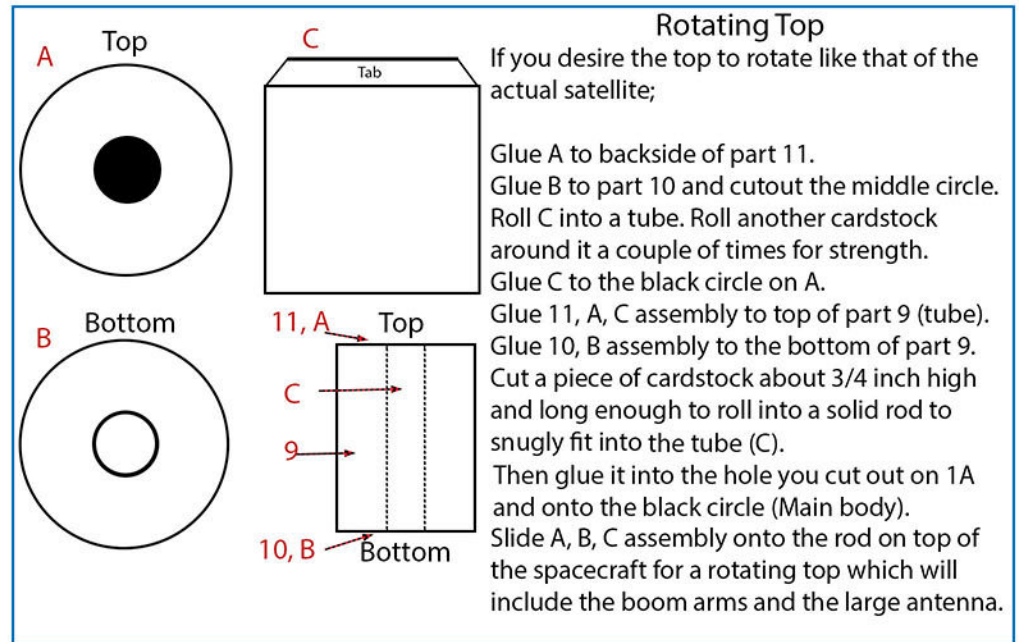
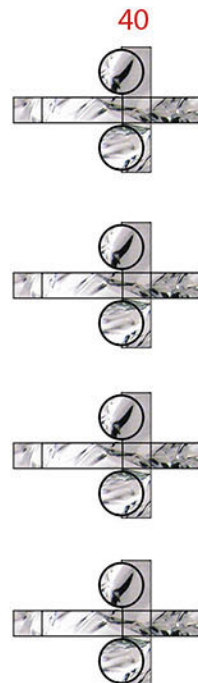


Glue 23 to backside of 23a then cut out for texture on both sides.



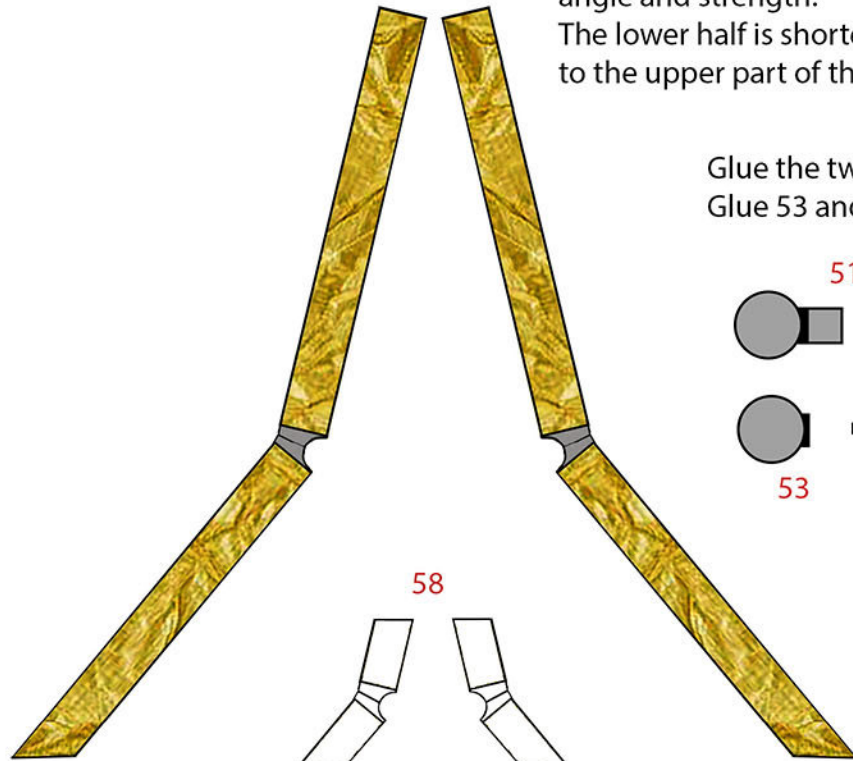


Glue each pair of 36 back-to-back, should end with 4 pieces.

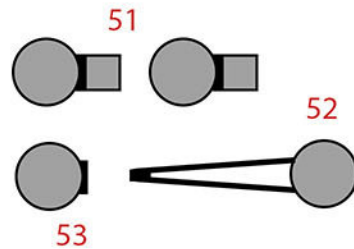


49

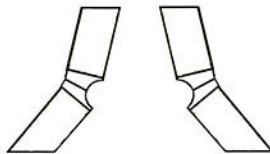
These are used to hold 46, 47 in the proper angle and strength.
The lower half is shorter than 46, so glue 46 to the upper part of the lower half.



Glue the two 51s back-to-back.
Glue 53 and 52 back-to-back.



58



Glue 58 to thick cardstock.

54



55

56

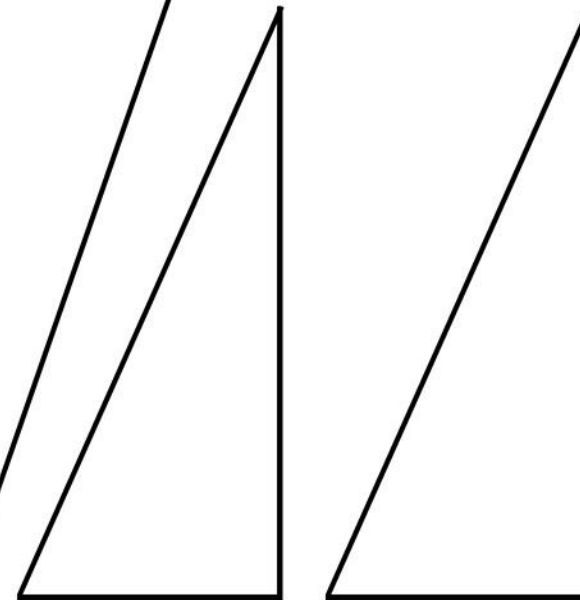
connector tabs for 54 and 55



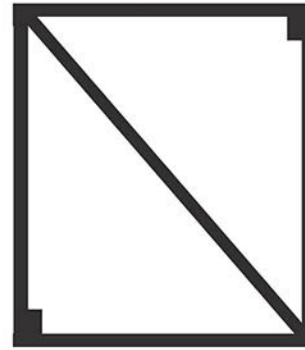
50



Model stand parts.
Roll black strip to a ring and glue to wooden piece.
Glue triangles to another cardstock and glue them close to the ring...
See pictures.



57



For more realistic model, Glue each of the 4 sections to another cardstock, but NOT THE VERTICAL BARS ON EACH END, they will be used to connect the sections together by over lapping one to another. Remove the white areas, color the backside dark brown.

