

SUN SPOT ACTIVITY

by Peggy Walker

Materials Needed:

1- black construction paper
1-brown construction paper
1-orange construction paper
1-yellow construction paper
Ruler

Scissors
Elmer's glue or glue sticks
Core rolls from toilet paper
Stapler and staples



Take the black construction paper and leave that alone – it will be the umbra.



Take a pencil and draw an "X" from corner to corner on the brown paper.



With a ruler draw a 1 / 2 inch border around the edge.



Draw it on all four sides.



Cut along the first diagonal line from corner to corner.



Cut the other direction making 4 triangle pieces. Keep those pieces in order.



Take one triangle and cut from the center point to the edge but DO NOT CUT THROUGH pencil line.



Cut the narrow stripes all the way across the triangle.



Cut the last three triangles in the same way.



The first layer of convection currents should look like this.



Take the black sheet and run a small bead of glue around the edge



Carefully match the outside edge and place the brown on the black sheet.



Continue to carefully set all the brown triangles on the black.



Press down all around the edges so the glue adheres to the sheets.



Now follow all the directions for the brown sheet—to the orange sheet.



The completed orange layer.



Run a line of glue around the edge of the brow and black sheets.



Carefully match the outside edges to the brown and black sheets.



Carefully place all the rest of the orange triangles to match the outside edge of the brown and black sheets.



Draw granules on the yellow sheet.



Make 6 granules on this page. See page 3 for better detail.



Cut in on one line only on the yellow sheet and cut into the center.



Continue to cut along on the other lines without cutting through the paper.



Leave some space at the edge.



Finish the granules.



Your yellow surface should look like this with only one cut through on the edge.



Run a bead of glue around the edge of the orange paper and lay down the yellow sheet on top.



Smooth along the outer glued edges making sure the edges are lined up to the orange sheet.



Take the stapler and staple all the way around the edge to secure the sunspot.



Taking the paper core, form the yellow granules around it to form a nice curve.



You can make it tighter with your fingers if you wish.



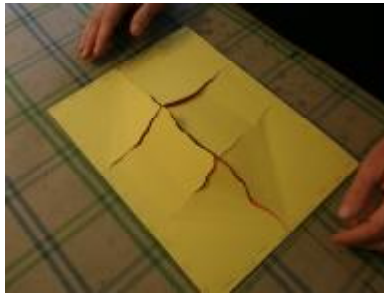
With the pencil, roll the orange and brown currents around the pencil.



Work with the currents to bend over the yellow and you shall see the black umbra underneath.



If you bend it, it will open wider and be more dramatic.



To store, place all the brown, then orange currents under the yellow.

Discussion Points:

All convection currents are tucked under the surface until the next solar cycle. Talk about how long sunspots last and how they are numbered.

Use four balls to show the size of sunspots. Some can be as small as one Earth across or up to four Earth's across. Place a couple of balls in the middle on the black paper.

Take pipe cleaners and bend them in an arch shape and now place it inside the umbra. Now you can talk about the electromagnetic loops and currents that cause these sunspots are due to the uneven rotation of the Sun.

Make a Sun out of fabric or taped sheets of yellow poster board for a Sun with a diameter of about 10 feet across.

Once all the sunspots are done, place them on the large sun in pairs since sunspots do appear in pairs.

When you put all the sunspots on the Sun, you are demonstrating Solar Maximum, and historically the greatest number was about 300 at one time.

Remove half of the sunspots and now you are showing Solar Minimum.