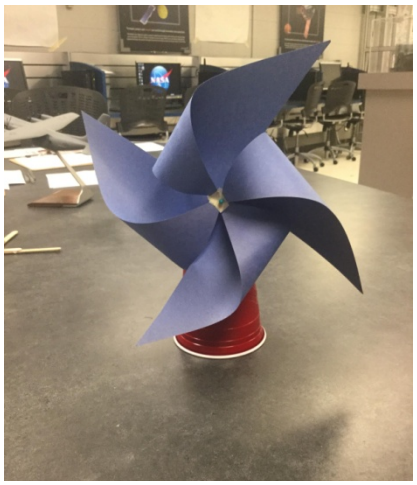
CIESESE
Consortium for Integrating Energy Systems in Engineering & Science Education
DE-NA0003330

Paper & Plastic Cup Windmill

Grades (K-3)



Final Product

Follow the steps below, they are meant to guide you through the process. Remember to have fun! ☺

Materials:

Quantity	Item	Item Label	Included Yes/No
1	Construction Paper	A	Yes
1	Ruler	B	Yes
1	Scissors	C	Yes
1	Liquid Glue	D	Yes
1	Pin	E	Yes
1	Eraser	F	Yes
1	Wooden rod	G	Yes
1	Plastic Cup	H	Yes
1	Pencil	I	Yes
1	Paper Tape	J	Yes
4	Markers	K	Yes

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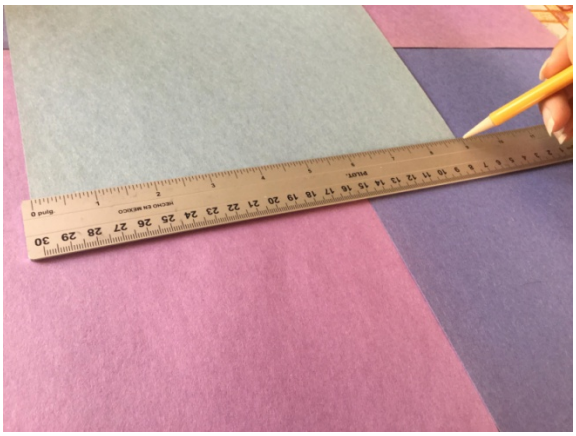
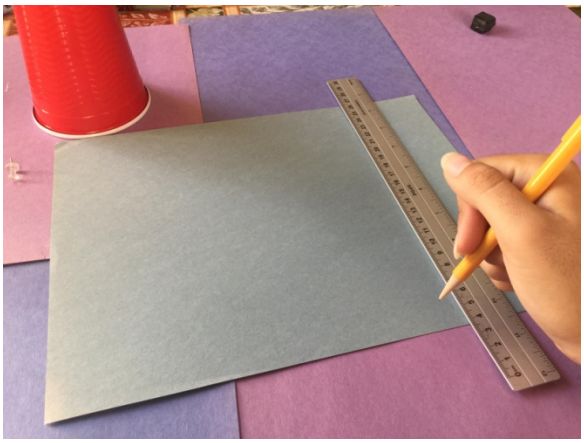
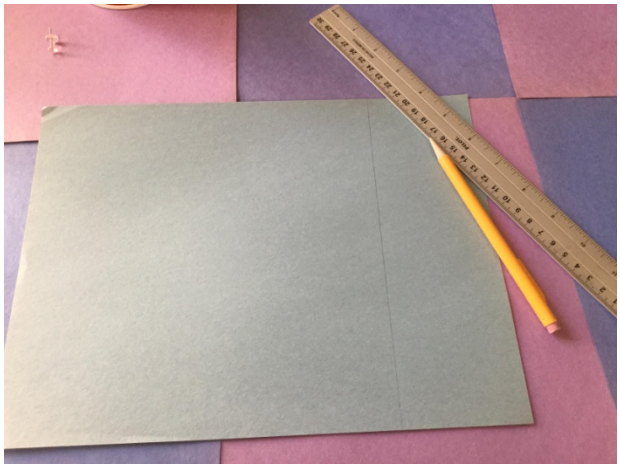
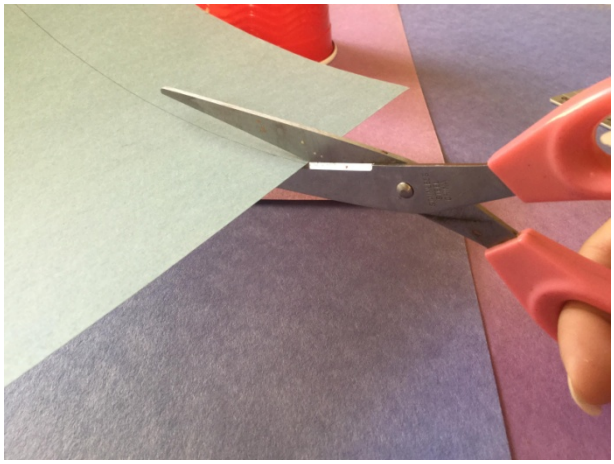
Materials Needed

1. Place the construction paper horizontally and measure 9 inches with a ruler in both directions. Cut the paper to be a 9 x 9 inch square.

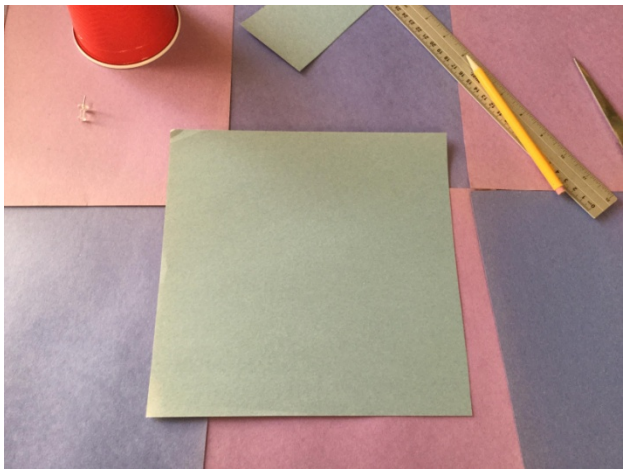
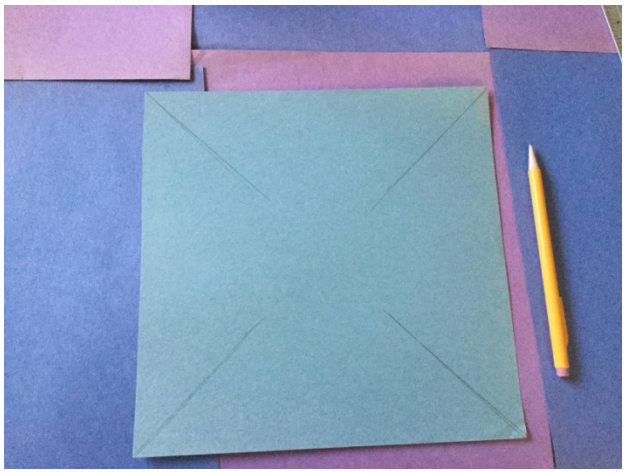
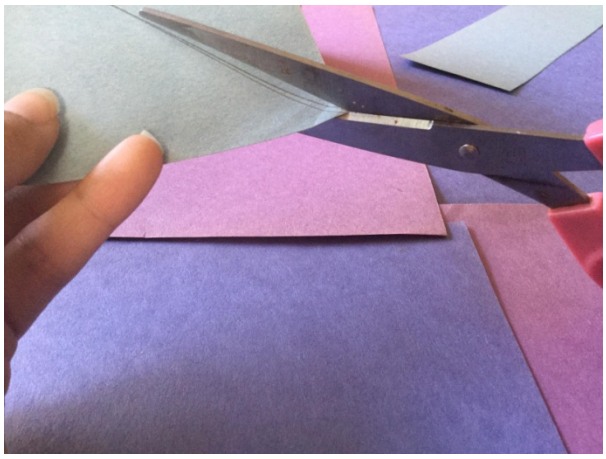
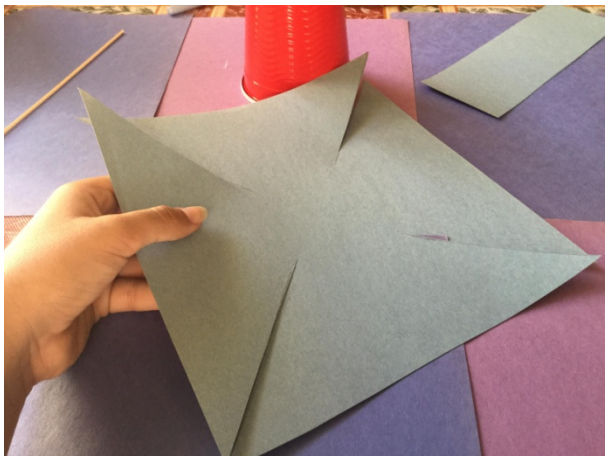




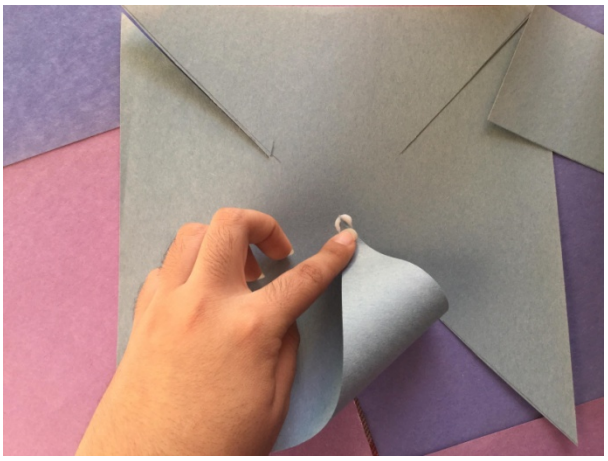




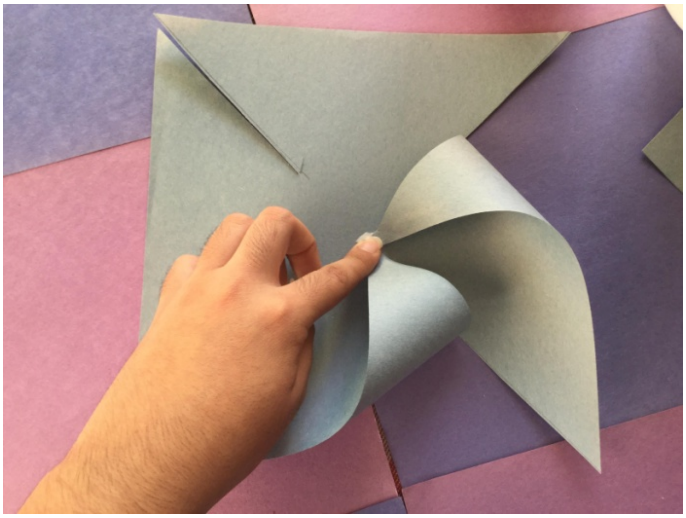
2. Measure lines diagonally out from each corner, they should form an ‘X’. Cut diagonal lines in from each corner. Cut along these lines, but not all the way, leave the center portion as a solid piece as shown in the Figure.

3. Mark a dot in every other corner of the flaps you just cut out. Mark another dot in the center of the paper. Place a drop of liquid glue in the center and on the dots you just marked.

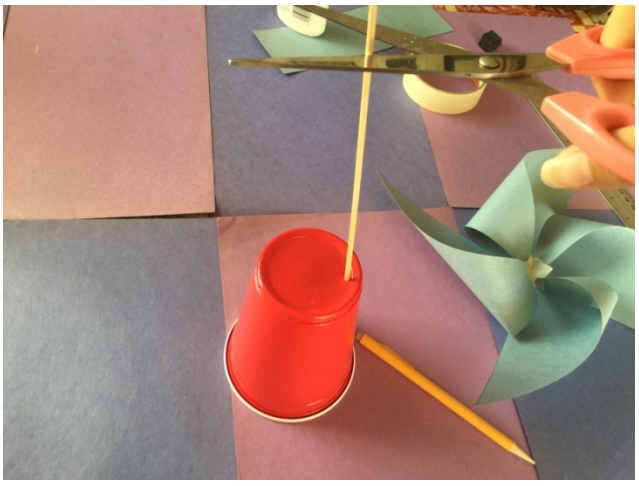


4. Fold the corners with the dots inward towards the center and hold it in place for a minute while the glue dries.

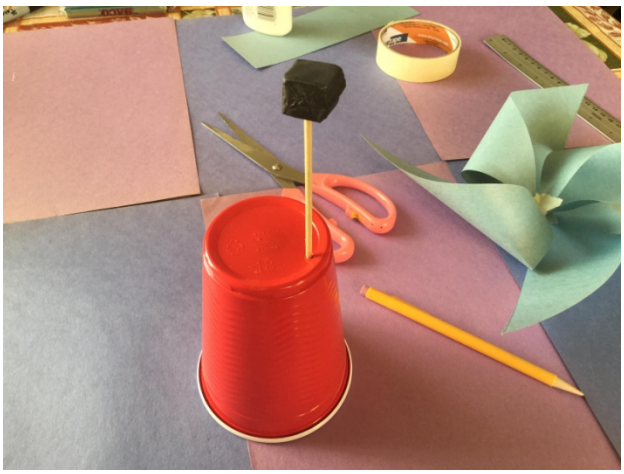


5. Your fan should look like the image below. If the glue didn't hold the corners in place, tape the corners in the center to hold it in place.

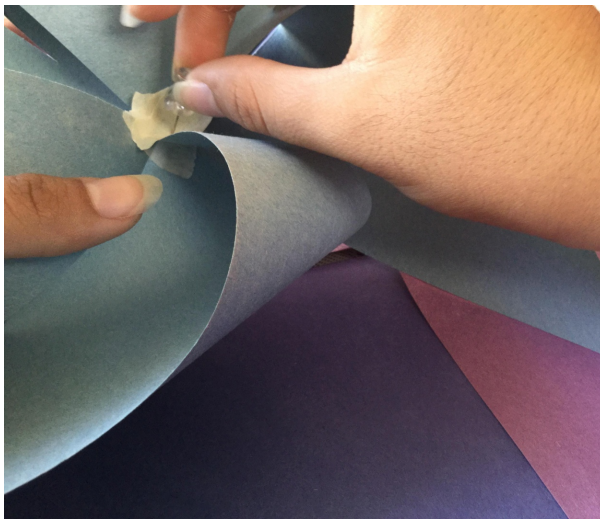
6. Using the pin, puncture a hole at the edge of the plastic cup. Make sure the wooden rod can fit perfectly in it. The length of the rod should be about 4 inches long, cut off any extra part of the stick if it is longer.



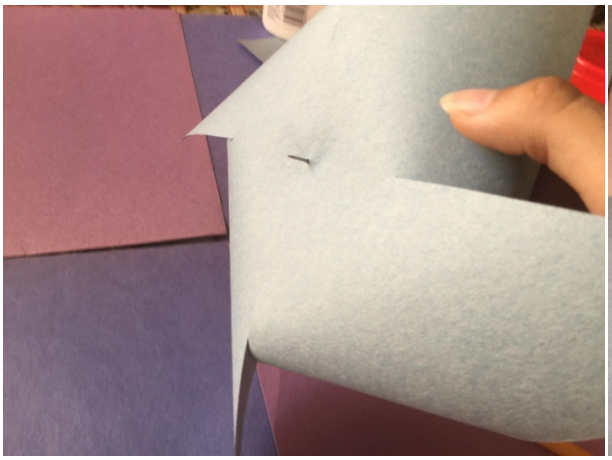
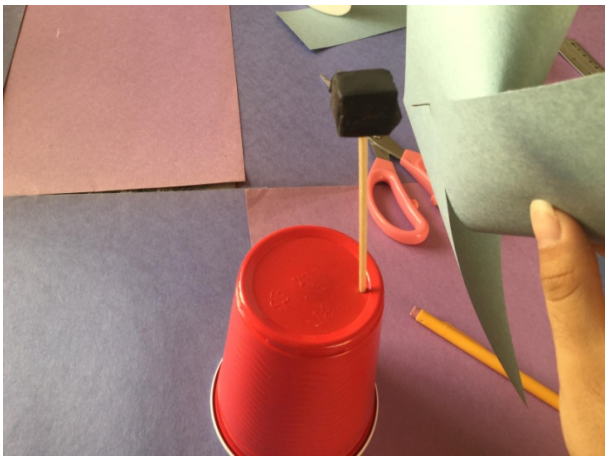
7. Stick the eraser on top of the wooden rod.

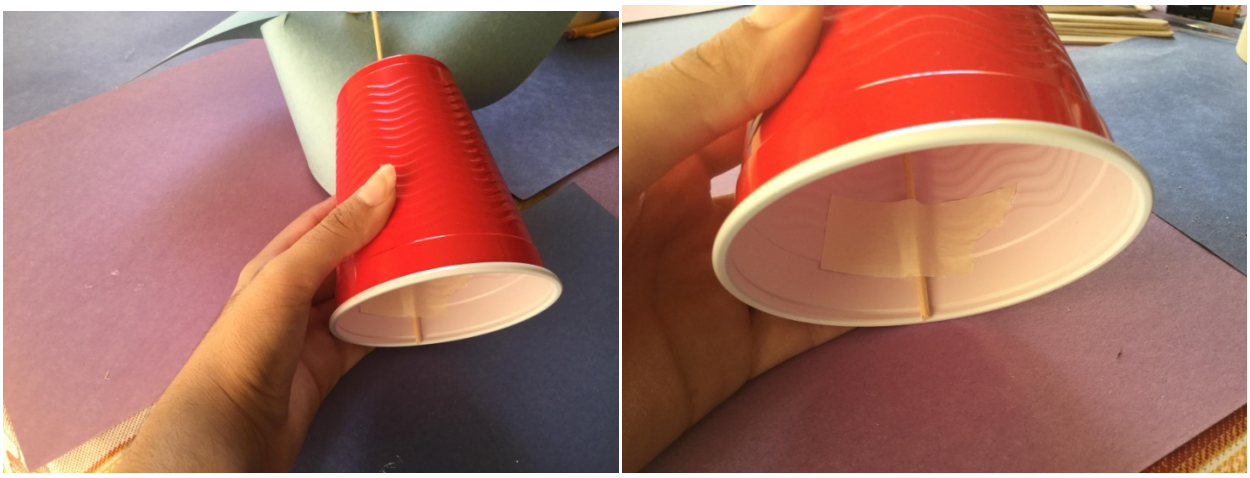
8. Insert the pin in the center of the folded corners of the fan.




9. After placing the pin inside of the fan, insert the portion of the pin that sticks out the back side of the fan. Be careful not to get poked, put this portion of the needle through the eraser in the wooden rod.

10. For more stability, tape the wooden rod to a side of the plastic cup like you see in the figure below.



11. Your windmill should be able to spin! You can also decorate it with markers.