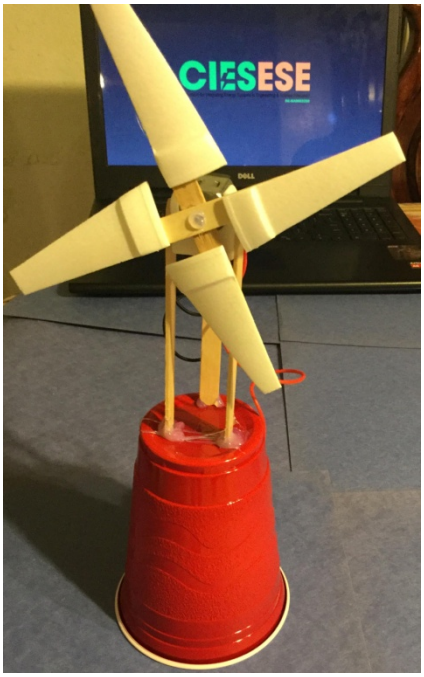
Consortium for Integrating Energy Systems in Engineering & Science Education
DE-NA0003330

DC Motor-Powered Fan

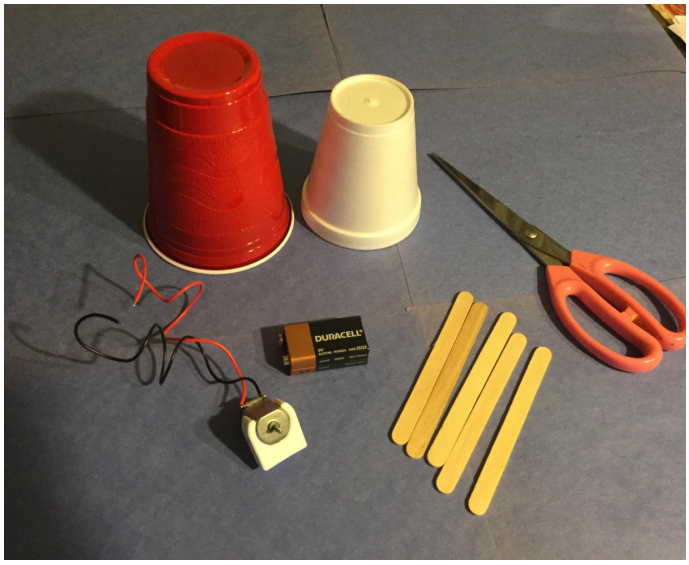
Grade (All Levels)



Individually, you will use your knowledge and understanding about energy and learn how to apply it in order to calculate the energy into the system and the power output. You will also learn about the importance of efficiency.

Follow the instructions provided.
Remember to be creative and have fun! ☺

Final Product



Materials Needed

For more information, please visit the website: http://engineering.utep.edu/ciesese

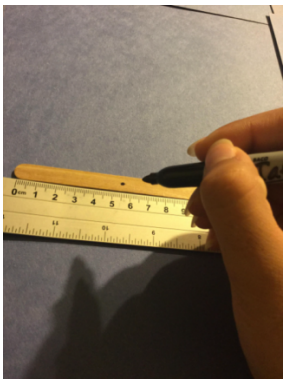
CIESESE
Consortium for Integrating Energy Systems in Engineering & Science Education
DE-NA0003330

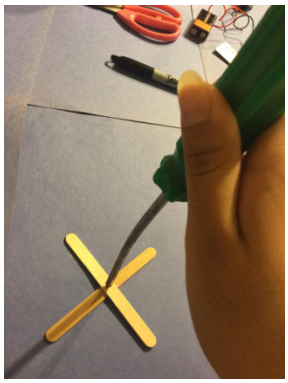
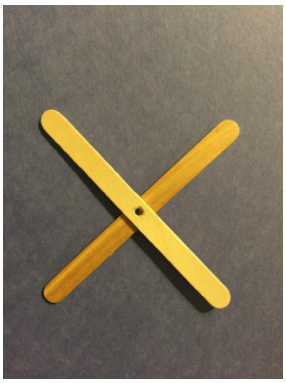
Materials Needed for Project:

Quantity	Item	Item Label	Included Yes/No
1	Small Styrofoam Cup	A	Yes
1	Large Plastic Cup	B	Yes
6	Popsicle Sticks	C	Yes
1	DC Motor	D	Yes
1	9V Battery	E	Yes
1	Hot Glue Gun	F	Yes
1	Paper Tape	G	Yes
3	Glue Sticks	H	Yes
1	Pencil	I	Yes
1	Scissors	J	Yes

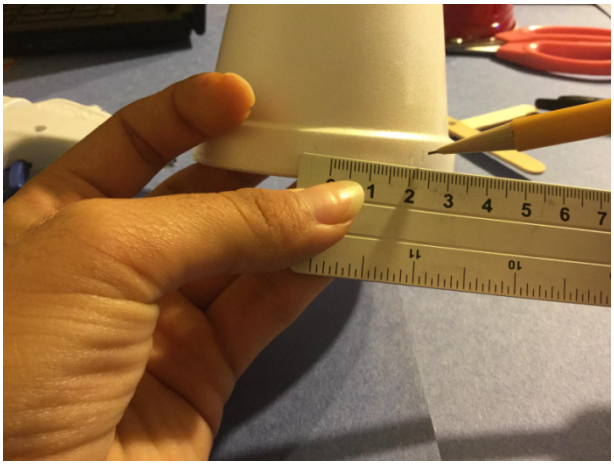
Procedure:

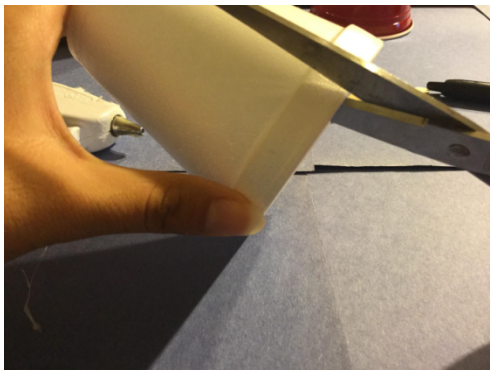
1. Get two popsicle sticks and place them into a cross shape. Try to pick a stick that is evenly shaped. Glue the two sticks together with a hot glue gun. Make a hole in the center of the cross that the two sticks make.

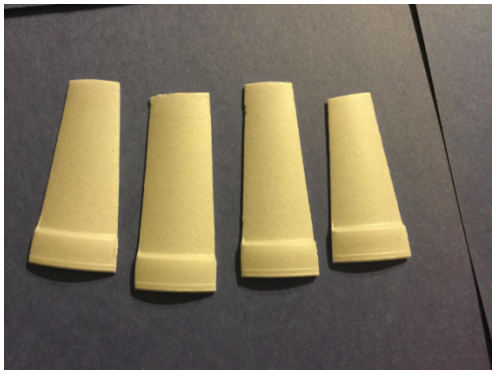


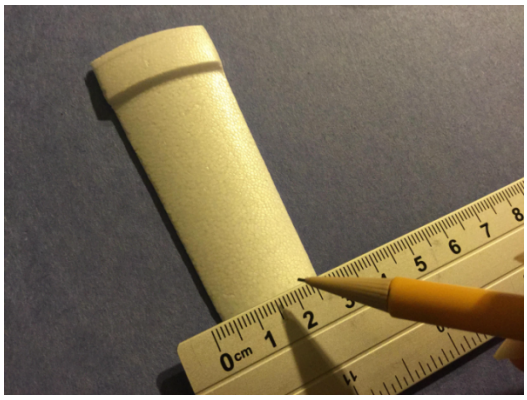



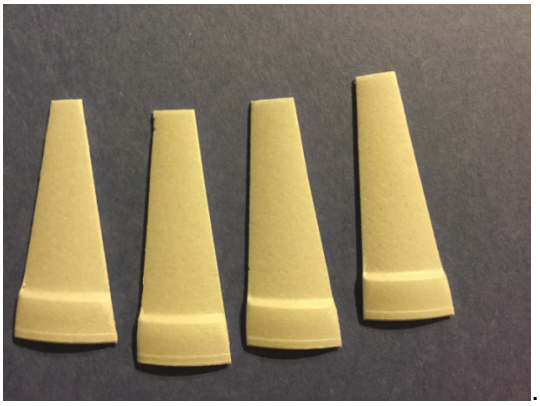
2. The styrofoam cup will be cut to make the fan blades. Mark a 3 cm line on the bottom of the styrofoam cup. At the top of the cup, mark a line 1 cm in length. Draw lines connecting both ends of the marked lines. Then use scissors and cut along the lines, cut out the whole piece. You will need 4 blades. Please make sure that the size of the blades are equal.



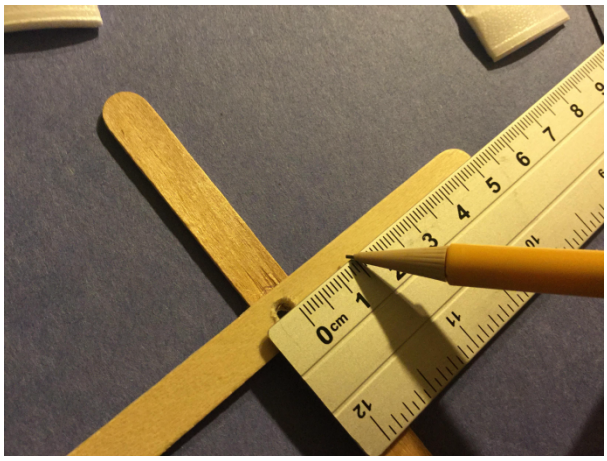
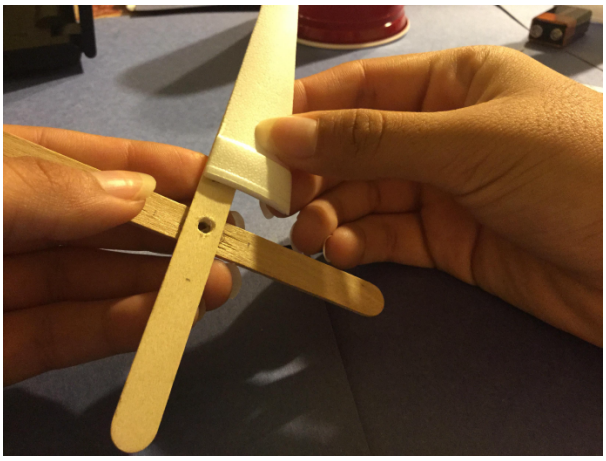
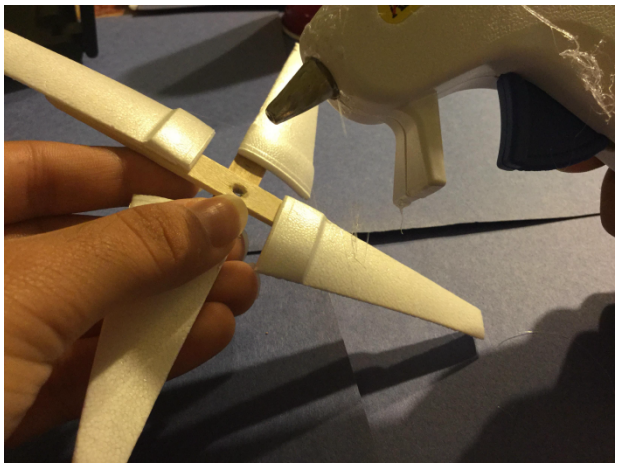
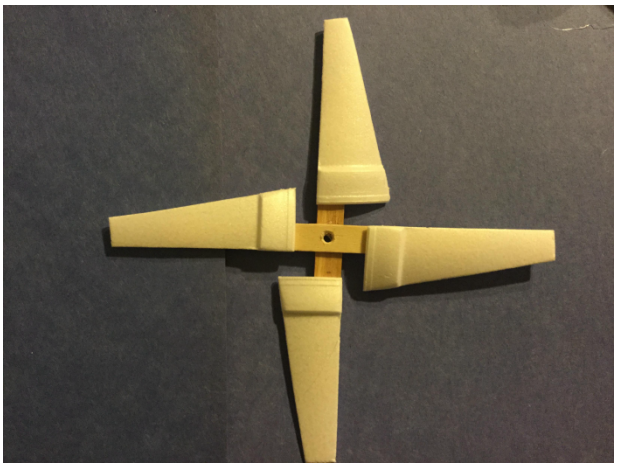




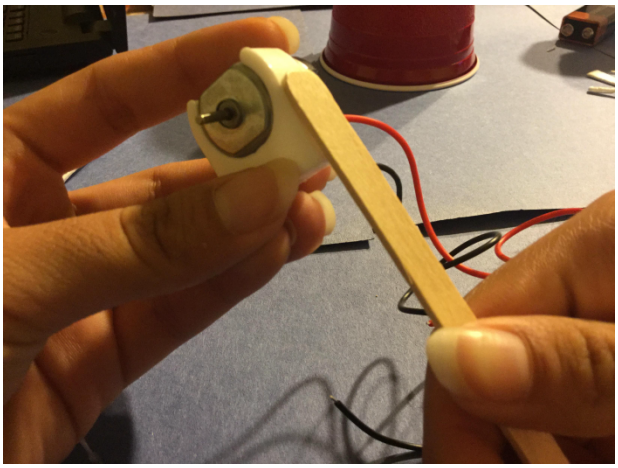
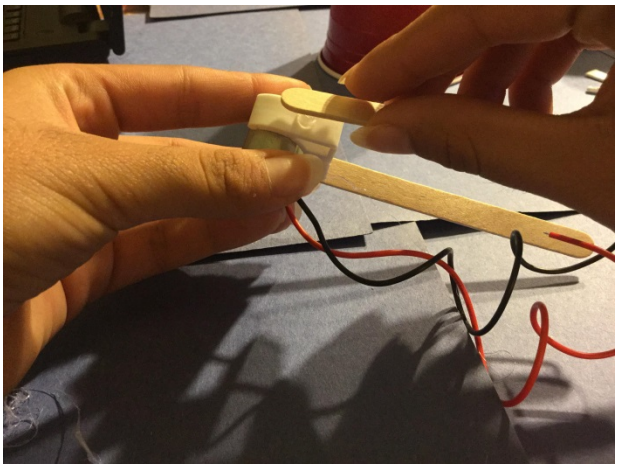
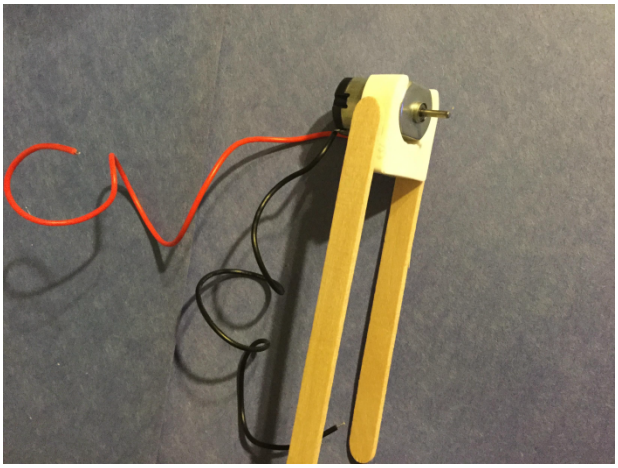




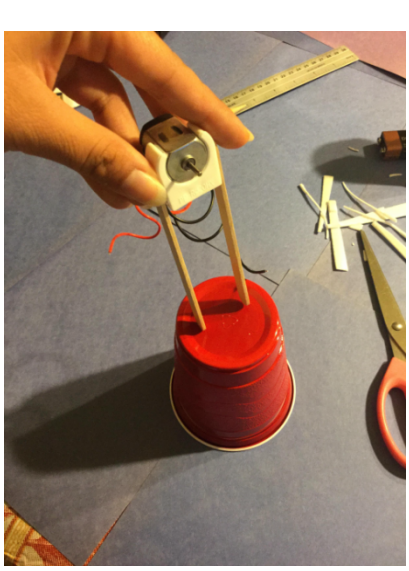
3. Paste the blades on the cross-shaped base you made. The distance between all of the 4 blades from the center should be equal. Try to keep the distance from the base of the blade to the center of the cross at least 1 cm. Use paper tape to attach the blades.

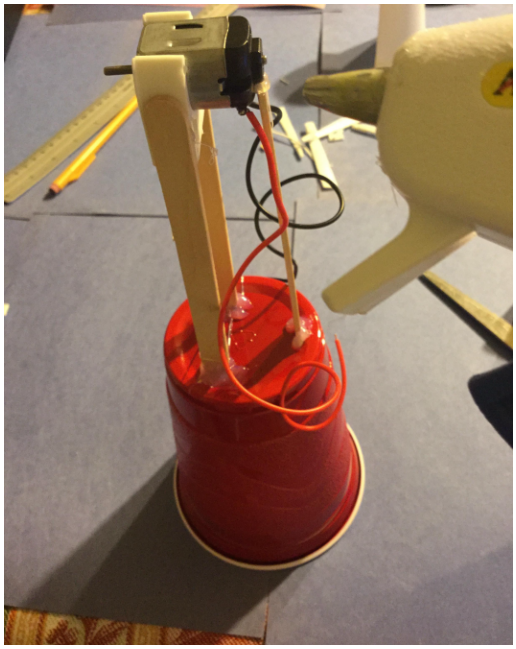
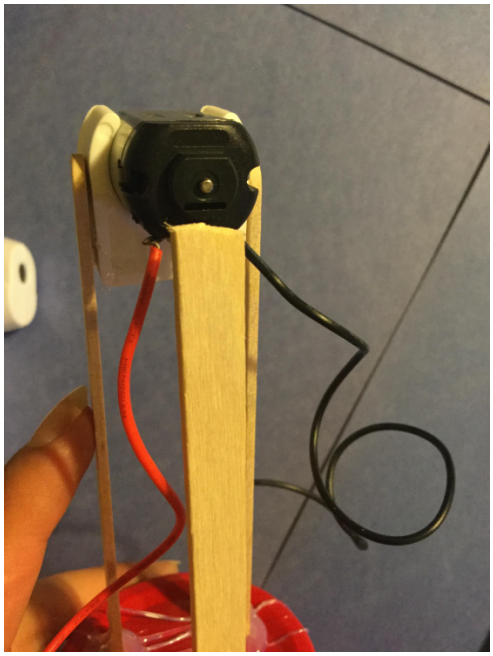
4. Horizontally glue a popsicle stick on the DC motor as in the image. On the other side, glue another popsicle stick.

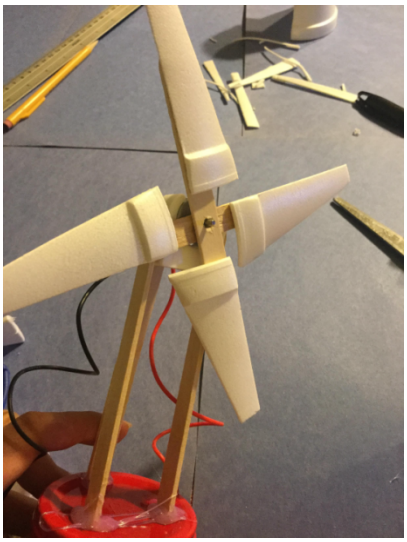
5. Glue the bottom of the two sticks at the top of the plastic cup. For more stability, glue a third popsicle stick on the back of the DC motor. Make sure to cut the upper portion of the stick so that it can be glued to the bottom of the motor's back.



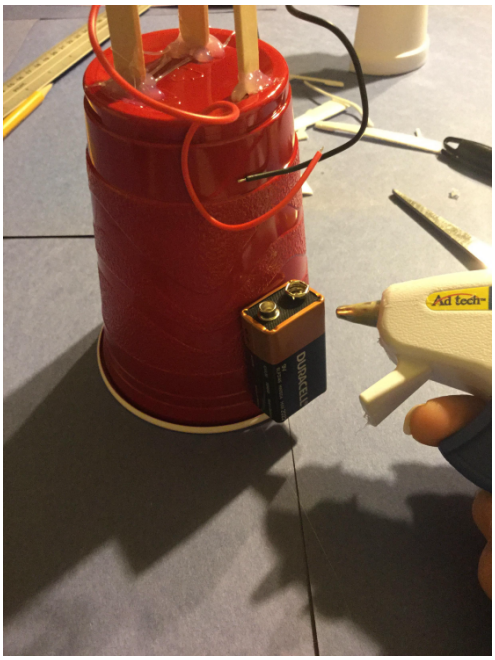
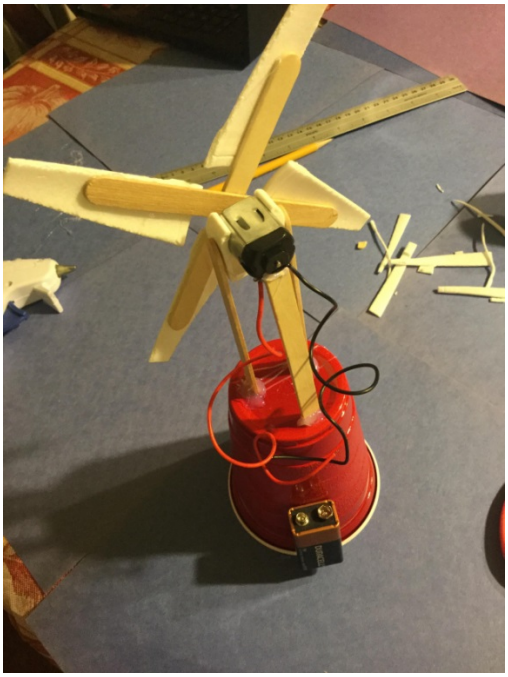


6. Attach the blades to the motor. The DC motor will be inserted into the hole on the cross-shaped base. After inserting it, secure it by hot gluing it.




7. Hot glue the 9V battery on the bottom of the cup. Make sure that the wires are long enough to reach the upper part of the battery.

8. Connect each wire with their respective connectors on the upper part of the battery. The fan should be spinning really fast now!