

MECHANICAL + AEROSPACE ENGINEERING

Mechanical Engineering is a subset of engineering that deals with the application of mathematics and physics to real world problems. Mechanical Engineers usually analyse, manufacture, and maintain their work using principles of energy, work, motion, statics (study of things that are not moving) to ensure that it works safely, efficiently, and reliably.

Every product that a Mechanical Engineer makes solves a critical problem in today's world, from healthcare to transportation, they are present in every field of work.

Today, you will step in the shoes of an engineer to design a Magnus Glider, a flying contraption that floats through the air using the Magnus Effect!

MAGNUS GLIDERS



Materials Needed:

1. 2 Styrofoam Cups
2. 10 inches of Tape
3. 6 or 7 Rubber Bands

Refer to the video link below the Procedure section as well as the pictures in each step to get a better visual !



Procedure:

1. Using the tape, join both of the styrofoam cups by wrapping it around the bottom of both of the cups.



2. Create a chain of rubber bands approximately 12 inches long, by putting one end of a rubber band through the center of another.



3. Wrap the chain around the center of the tape (ensuring that it is not too tight to break the cups), continue wrapping until only about 1 inch of the chain remains unwound.
4. Loop the last rubber band around your thumb, hold the contraption horizontally and get ready for liftoff!



5. To launch your Magnus Glider, you should aim for a slight upward angle while launching the glider forward like a slingshot (refer to the video). The glider should fly forward while spinning and come to a gentle stop on the ground in front of you.

Video:

https://www.youtube.com/watch?v=l1rdHsTtG_w&ab_channel=Children%27sMuseumofHouston

Going Further:

1. What do you think would happen if the cups were cut into triangles like the wings on an airplane?
2. Would the size of the cups change how far the gliders would fly? Would bigger or smaller cups go farther?

MAGNUS GLIDERS



Send us pictures and videos of your gliders at swerutgersoutreach@gmail.com! Tag @rutgersswe on Instagram if you post about them and be sure to look out for October's SWE Learn Activity!