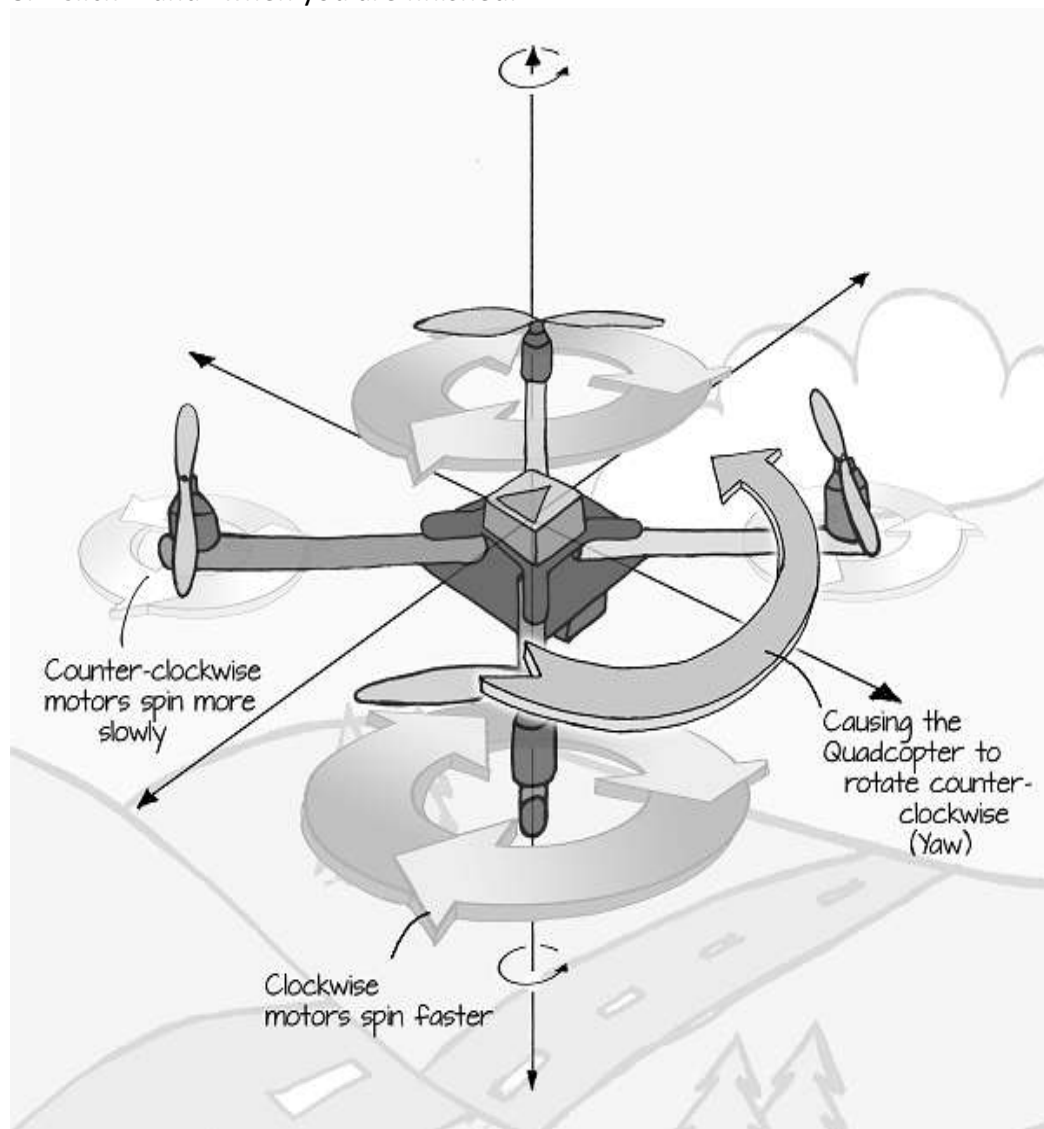


Angular Lab Stations

Station 1: Drones

1. Turn on the iPad and open the app called "Free Flight Mini"
2. Put a battery in a drone.
3. Wait for the app to find your drone.
4. Click on the name of the drone it found.
5. Click "Fly".
6. Click "Take Off"
7. Use the controls to fly the drone.
8. Click "Land" when you are finished.



Conclusion:

How does the drone fly? (Use angular motion to describe)

How does the drone change directions?

Station 2: Sphero and Ollie Robots

1. Turn on the iPad and open the app Sphero.
2. Place an orange Sphero robot near the iPad screen when told to.
3. Click on "Drive"
4. Use the remote to control the robot.

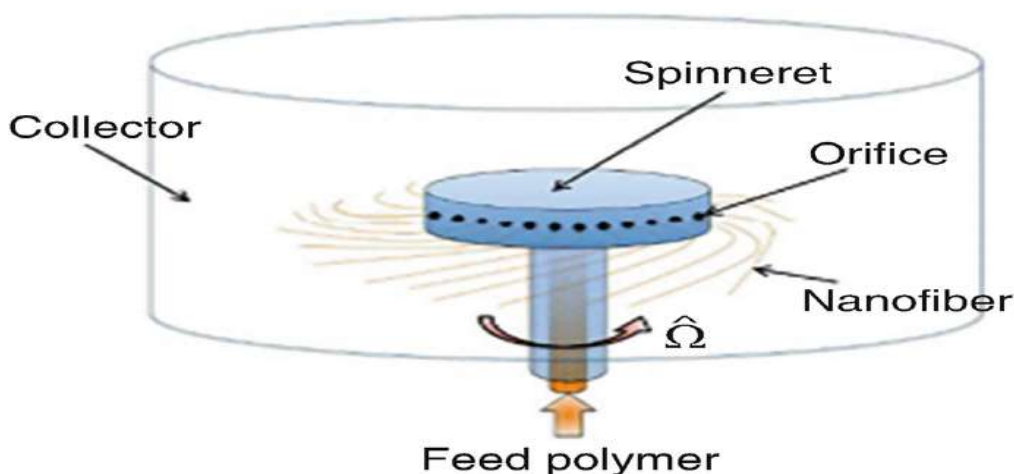
How does the robot move? You might want to hold the robot in your hand while making it move so that you can feel it as it moves. (Use angular motion to describe)

5. Using the iPad open the app "Ollie".
6. Click "Drive"
7. Touch the iPad to Ollie.
8. Use the joystick to move it.

How does the robot move? You might want to hold the robot in your hand while making it move so that you can feel it as it moves. (Use angular motion to describe)

Station 3: Cotton Candy

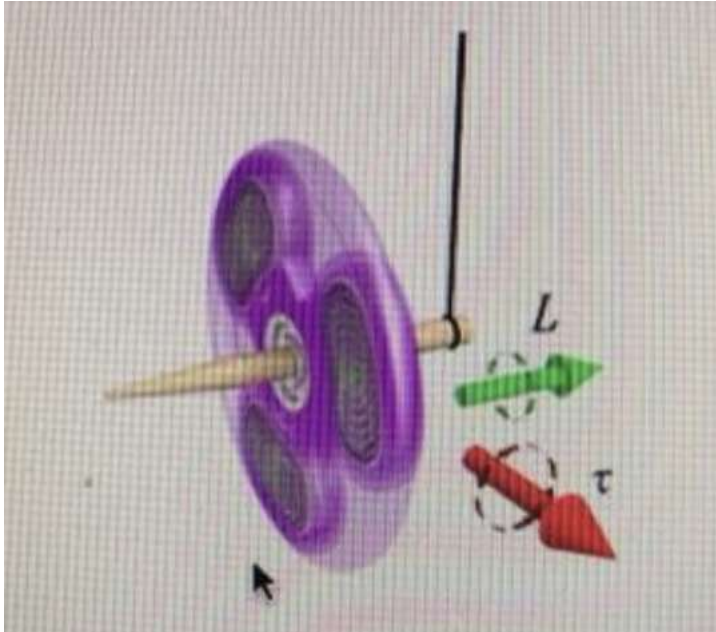
1. Make sure the cotton candy machine is turned on.
2. The heater at the bottom should be glowing and the motor spinning.
3. Put 1 spoonful of sugar into the center.
4. Wait for it to melt. Once it melts, the machine will start to push the melted sugar out tiny holes.
5. When the melted sugar hits the air, it turns from a liquid to a solid. This is the cotton candy.
6. Use the cone to move around the machine and collect the cotton candy.



What would happen if you took off the shield while the machine was making cotton candy? Why?

Station 4: Fidget Spinners

1. Spin the fidget spinner to get it rotating.
2. Place the string onto the bar coming out of the center of the fidget spinner while it's spinning.



Conclusion:

Why does the fidget spinner stay upright while it is spinning and falls when it slows down?

Station 5: Spinning Clay

1. Put the cup with clay in it on the board.
2. Using the string, rotate the board and clay around quickly. Notice how the clay does not fall out if you move quickly.
3. Now while rotating the board and cup pass it to your partner and then to the next partner.
4. One of your teammates must be able to show me the following:
 - a. Criss cross
 - b. Rodeo
 - c. Behind your back
 - d. Under your leg
 - e. All teammates show passing from one to the next



Conclusion:

What made the clay stay in the cup? Explain in terms of Angular Motion

Station 6: Clear Spheres with BB's, Marbles, Mini Cars

1. Spin the clear spheres with the marbles and BB's. Observe which items continue to rotate the longest when you stop moving.

Which rotates the longest?

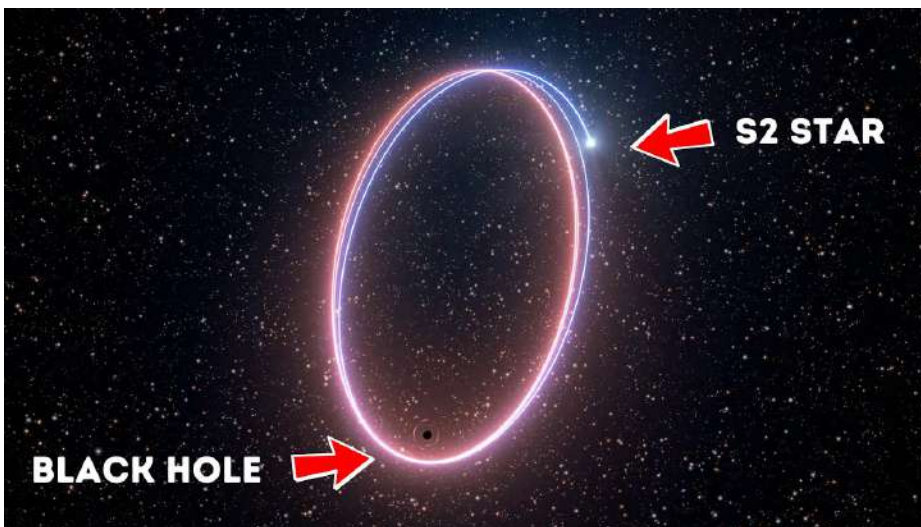
2. Turn the little mini car on by sliding the switch on the car.
3. Put the car in the clear sphere.
4. Move the sphere around until the car can drive on the walls. Observe.

Explain what happens and why.

Station 7: Large Black Hole

1. Gently push a marble so that it rotates around the large metal sphere in the middle.
2. Repeat with all the different marbles (different size and weights).

Is the path of the marbles circular or elliptical?



Station 8: Angular Motion

1. Roll a marble around the inside of the plastic piece.
2. Observe the path the marble takes once it leaves the plastic piece.
3. Which letter is correct?

