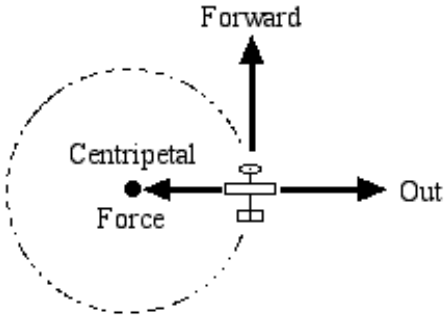
Name _____ Class Period _____

Background Information about Inertia and Centripetal Force: According to Newton's 1st law, inertia, a plane at rest will remain at rest until a force acts on it. A plane with 1000 turns on the rubber motor will create the thrust necessary to accelerate it forward. Once the plane is in motion, it will stay in motion in a straight line until a force (like drag, gravity or the string) acts on it. If the pylon string breaks, the inertia of the plane would cause it to fly forward.

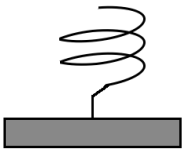
Centripetal force pulls the plane toward the center of the curved path. The pylon string applies the centripetal force and counteracts the inertia and velocity of the plane. The centripetal force causes the plane to change direction and fly in a circular path.

Directions: In this activity, you will work with a *JETSTREAM* and a pylon helix. You will predict the direction the plane will fly once centripetal force no longer acts on it.

1) In what direction will the plane fly once centripetal force no longer acts? Circle your answer.



2) Wind the rubber motor of your *JETSTREAM* 1000 times.



3) Hook one end of the pylon string to the wing. Hook the other end of the string to the pylon helix.

4) In what direction did your plane fly once centripetal force stopped acting on the plane?

5) Rotate the pylon helix so that its end points in a new direction before the next flight.

6) Repeat the procedure.

Note: The string attached to the wing may cause the plane to turn and the plane may not fly perfectly straight.