Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hovercraft (Newton’s first law and net forces) Lab

To use the hovercraft

1. inflate a balloon with the balloon pump (the moisture from your breathe will cause error).
2. While one person holds the balloon the other person needs to wrap the end of the balloon around the “dish soap lid” in the down position
3. Pull the “dish soap lid” up and place the hovercraft on a flat smooth surface (a cleared away spot of the ground or a lab bench.
4. You will need to reinflate the balloon each time

Hovercrafts are about the closest we can get to a frictionless surface on Earth. For all of the lab ignore friction (If your puck slows down rapidly it is because you are going uphill, so switch to a different spot!)

1. Start your hovercraft by giving it a flick. Describe its motion (including direction, acceleration, and velocity)-you don’t need numbers (increasing decreasing staying constant)

Draw a free body diagram of all the forces affecting the hovercraft (draw 2 one during the flick the other after the flick)

1. Move your hovercraft by blowing through a straw at it constantly in a straight line. Describe its motion.

Draw a free body diagram of all the forces affecting the hovercraft

1. Have your partner push the hovercraft towards you and stop it by blowing through the straw. Describe its motion

Draw a free body diagram of all the forces affecting the hovercraft. Does the hovercraft have a velocity in the direction of force coming from the straw?

1. Have your partner push the hovercraft toward you and gently flick in perpendicular to the direction it was going. Draw the path the hovercraft took.

Did your flick stop the hovercraft’s forward motion?

1. Have your partner push the hovercraft toward you and gently flick it in a manner that it turns 90o.

Draw the direction you had to flick the hovercraft.

Explain why you had to flick the hovercraft in this direction.