Name:_____Score:_____

Electric Field Hockey Activity

Objective: To understand how the electric force affects a given mass.

Materials: Electric Field Hockey Simulation

Procedure:

1) Go to the link on my webpage.
2) Like charges _____ and unlike charges _____. The hockey puck is positive. Drag a positive charge out of the box in the upper right hand corner. Move it closer to the hockey puck. Notice the arrow coming from the puck. This represents the force on the puck.

What happens to the size of this force, as you bring the charge closer to the puck?

3) Place the charge in the field so that it will push the puck into the goal. Click start and observe what happens. As the puck moves farther from the charge, what happens to the force on it? (You can hit reset and watch what happens again if you need to).
4) The tendency of an object to maintain its state of motion is _____. To maintain its state of motion, an object will continue to move at the same _____, in the same _____ unless acted on by an outside force. Why does the puck continue moving into the goal, even when the force on it goes down as it moves away from the charge?
5) Click "Reset". Slide the mass bar all the way to the right so that the puck has a mass of 100. Click "Start" again and watch the puck. How is the motion different than it was before?

Why?

What property of an object is most closely related to inertia?

6) What will happen to the puck if you slide the mass bar down to 1?

Test your prediction and describe what happens.

7) Place a negative charge somewhere between the puck and the goal to make a goal. Where did you need to place it?

Why does the puck keep moving even though as it passes the charge the force on it is in the other direction?

When the net force on an object is in the same direction as its motion, it _____.

When the net force on an object is in the opposite direction of its motion, it _____.

8) Clear the field. Place a positive charge between the puck and the goal at a height even with the top of the goal. Click the trace button. Now use two other charges to score a goal. When you have done it, click "Reset" and raise your hand so the teacher can watch. ___.

9) Now click Difficulty 1. Use as many charges as you need to in order to score a goal. Again, when you have done it, click "Reset" and have the teacher watch. ___.

10) Now try Difficulty 1 using only two positive charges. ___.

Extra Credit: Difficulty 2, ***between the barriers***, no more than 8 charges (can be less). ___.

Extra Credit: Difficulty 3. ___.