Electric Field Hockey Post-Game Analysis

1. Which direction do electric field lines point for positive charges?

Away from the charge

2. Which direction do electric field lines point for negative charges?

Towards the charge.

3. What do the direction and strength of the field lines indicate for the (positively charged) "puck?"

they indicate the direction and intensity of the force on the puck, and therefore the acceleration

4. Did the (positively charged) puck always move in the same direction as the field lines it was passing over?

NO!!! That just indicates acceleration: it can be going in one direction and accelerating in another.

5. What happened (or would happen) if you changed the charge of the puck from positive to negative?

The direction of its acceleration would change to the opposite of the positive puck's.

6. What happened when you increased the mass of the puck?

Was more difficult to move—slower acceleration. F=ma

7. How did the distance between the puck and the particles affect the motion of the puck?

The closer they get, the more it accelerated—significantly. It's an inverse square law!

8. List two or three cool things you got the puck to do. Why did each one happen?

Slingshot around—this is due to spherically symmetric field lines. The electric force was the centripetal force.

Oscillate—got stuck near a particle of opposite charge and just bounced back and forth

9. The field lines on the program are evenly spaced, with darker shades of grey indicating a stronger field. This is a very clear way of presenting this information. However, it is not what we will normally use. Why do you think that is?

It's too difficult to draw with a pen or pencil.