

Part B: Potential Energy in an Electric Field

Click the “restart button” in the lower right. Locate the box in the upper right of the screen and click the following:

VOLTAGE (leave ELECTRIC FIELD, VALUES, and GRID unchecked)

Place one positive charge on the screen. The brightness of the colored area around the charge represents the amount of potential energy of the charge. Observe the area around the charge.

Add a negative charge onto the screen. Move the charges around until the color for both charges is the brightest. In your science notebook, record the distance between the charges.

Remove the negative charge.

Repeat Step 8 with a positive charge.

5IJOLBCPVUways to increase the potential energy of an electric charge in an electric field.

Complete Student Sheet 1, and revise how you imagine an electric field.

ANALYSIS

Why was this exploration of electric charges presented as a computer model?

What were the strengths and limitations of the computer model for showing an electric field?

Imagine an electric field surrounding a stationary positive charge. If a negative charge was put somewhere in the field and released, which way would it move?

Imagine a negative charge and positive charge together in the same space. How can the space be electrically neutral with two charges in it?

What might cause the potential energy between two charges to increase? Use evidence from this activity to explain how it can be increased for

B like charges.

C opposite charges.