

“BUILDING AN ELECTROMAGNET” LAB SUMMARY ANSWERS

Analysis

- Obtain results for teams investigating the other independent variables. Additional sheets of paper may be used for more detailed responses.

	Number of Coils			
	15 coils	25 coils	35 coils	
Mean Number of Paper Clips Picked Up	1.3	4	5.6	

	Diameter of Core			
	Thin	Black	Red	
Mean Number of Paper Clips Picked Up	3	4	5.6	

	Number of Batteries (Voltage)			
	1 (1.5V)	2 (3V)	3 (4.5V)	
Mean Number of Paper Clips Picked Up	4	5.6	6.3	

- Graph your results on your own paper.
- Fill in the blanks to summarize the lab results.
 - As the number of coils increased, the number of paper clips picked up increased.
 - As the core diameter increased, the number of paper clips picked up increased.
 - As the number of batteries increased, the number of paper clips picked up increased.
- Based on the data, which variable had the greatest impact on the force of an electromagnet? Include data to support your conclusion.

Increasing the volatage had the greatest impact, because at 4.5V, the electromagnet picked up the most paperclips out of all of the tests.

- This investigation provides evidence that electrical energy can be transformed into mechanical energy. Explain how generators transform mechanical energy into electricity.

Mechanical energy is used to turn a turbine. The turbine surrounds a generator, which contains coils of wire moving through a magnetic field to create electricity.

- In addition to the chemical energy stored in batteries, what are some sources of electrical energy? Describe the transformations in energy that must take place.

Electrical energy can come from a coal/gas powered generator (chem to elec), a solar panel (EM to elec), or a windmill (mechanical to elec.).