Name: Date: Class:

Building an Electromagnet Worksheet

1. Draw the battery, wire coil and magnetic field. Label the positive and negative ends of the battery, and the poles of the coil's magnetic field.

2. Describe what happens if you hold a nail or paper clip near the coil.

3. Reverse the connection of the coil. Draw the battery, coil and magnetic field. Label the positive and negative ends of the battery, and the poles of the coil's magnetic field.

4. Describe what happens if you hold a nail or paper clip near the coil.

5. How did you test the strength of your electromagnet?

6. Can your electromagnet pick up paper clips when the current is disconnected?

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7. What did you modify in building your electromagnet (number of coils or size of battery)?

8. Fill in the table below with how many paper clips your electromagnet was able to pick up.

Electromagnet	How Many Paperclips Did It Pick Up?
With 10-12 coils	
With fewer coils How many coils? _____	
With more coils How many coils? _____	
With a different battery #1 What size battery? _____	
With a different battery #2 What size battery? _____	

9. Write a sentence about how changing the number of coils or battery size affects how many paper clips the electromagnet could pick up.

10. What are some ways that engineers might be able to use electromagnets?