

Electromagnet workshop – 11/7/07 (6th grade)	Expected Time: 90 minutes
<p>Objectives:</p> <ul style="list-style-type: none"> • Students will be able to work in partners in order to cooperatively complete a review worksheet, rotating through five stations that require students to apply previously learned concepts to new situations. • Students will be able to participate in hands-on activities that include identifying and drawing parts of a circuit, experimenting with electromagnets, and making comparisons between permanent magnets and electromagnets. 	
<p>Materials:</p> <ul style="list-style-type: none"> • 5 circuits, set up around the classroom • Compass • Paperclips • Review workshop sheets • Chalkboard 	
<p>Launch: (7-10 minutes) *Tell students that today, we are going to participate in a review workshop in order to refresh our memories on what we have been learning and prepare for the test next week. Give students a brief overview of where the stations are and what they are expected to do. Remind students that this is an activity that if they work hard and put effort into the stations, they will find much similar things on the test. If they finish early, there is a challenge station on the back of the page. *Students will work on this activity in partners, so when they have a partner, they should come and see the teacher to get their worksheets and be directed to a station to begin. Make sure that students get both papers.</p> <p>Investigate: (30-40 minutes) <i>Allow students time to work through the review activities, circulating the room to observe, ask and answer any questions students may have, and make sure that students are completing the activities.</i></p> <p>Station 1: Investigate how electromagnets work: Students should use the circuit provided to decide when an electromagnet is functional – when the circuit is open or closed – by attempting to pick up paperclips with the coil. Students will also write a sentence about the difference between magnets and electromagnets.</p> <p>Station 2: Investigate the poles of an electromagnet: Students will use the circuit provided to conduct an experiment about changing the poles of an electromagnet, and draw a diagram of their experiment in the box (with labels).</p> <p>Station 3: Compare magnets and electromagnets: Students should read the sentences and choose two statements that are true for both magnets and electromagnets, as well as write one sentence about a difference between the two.</p> <p>Station 4: Strength of circuits: Students will use 3 provided circuits to observe differences between the circuits, as well as conduct a short experiment to decide which circuits are the strongest and make a conclusion about how to make a circuit stronger (increase the coil turns or increase the number of batteries)</p> <p>Station 5: Compare 2 different experiments: Students will be able to look at a graphic and write down what must remain the same if we change different variables in a circuit, as well as infer which circuit will be the stronger of the two.</p> <p>Challenge: Word search: Students will first read through a list of definitions and choose the correct vocabulary words, then look for those words in the puzzle. If students finish this activity, they may also read the information on their vocabulary handouts and complete the activities.</p> <p>Review: (15-20 minutes) *When students have finished at least the 5 regular stations, come back together as a class and check the answers. Use the chalk board, and split students into 4 or 5 teams by tables. For some of the questions, give students a set amount of time to come up to the board and write their answer; students need to rotate through who is coming up the board each time. Answer any questions that students may have and check for understanding throughout the answer check. *Remind students of the upcoming test – if they understand this information, the test should be understandable, as well.</p>	
<p>Assessment:</p> <ul style="list-style-type: none"> • Circulate the room during the workshop, checking that students are actively participating and working through the activities, as well as cooperating with their partner. • Observe and listen to students’ answers during the review activity; students should be asking questions if there is an area they are unclear on, and actively providing answers to the worksheet. 	
<p>Lesson Success</p> <p style="text-align: center;">_____ Excellent _____ Good _____ Fair _____ Flop</p>	