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For my unit, I am teaching students about electromagnets and motors using the National Science Resources Center *Magnets and Motors Curriculum Guide*. Overall, this is a very strong curriculum. It outlines interesting and exciting hands-on investigations specifically designed so students have opportunities to notice important patterns. Students progress through these investigations in a carefully structured manner so the activities build on each other. In other words, students are not presented with new patterns before they are ready. Appropriate new ideas and terms are presented to students after they have completed related activities, and discussions take place that allow students to talk about their observations and ideas. With a curriculum that is structured in this manner, students have plenty of opportunities to compare their prior knowledge to patterns they notice, and in doing so, revise their naive conceptions.

The National Science Resources Center curriculum is supplemented with a student packet created by Bennett Woods Elementary School, which I also assessed. This packet compensates for some of the weaknesses that exist in the *Magnets and Motors Curriculum Guide*. Students receive a great deal of assistance while they are completing the investigations because they work in small groups within a supportive classroom community. The teacher is also constantly available to answer questions and provide guidance. However, this support system does not gradually fade out until students can act independently. By combining the investigations with the activities included in the student packet, students slowly learn to work with new ideas on their own. Worksheet activities from the packet also provide the teacher with ongoing assessment so necessary interventions can be planned in the event that students are not grasping new information as planned.

These curriculum materials are not without weaknesses. While the progression of investigations is appropriate, the introduction to the unit is lacking. Students are not given an opportunity to think about and discuss their prior experiences and knowledge related to the

content before they begin the investigations. At the beginning of the unit, I plan to give students a chance to talk about instances where they have seen and used electromagnets and motors. This will help students connect new knowledge with what they already know, allow them to notice patterns in their prior experiences, prepare them to notice patterns in the investigation activities, and just as importantly, come to realize that different students have different experiences and ideas about the topic.

Another major area of concern is that the planned investigations and packet materials lack real-world connections. Simply knowing how a motor or an electromagnet works is not enough. Students must understand how they are used on a daily basis so they see the relevance of what they learn and information becomes meaningful. As a teacher, I need to compensate for this area of weakness. In order to inspire students' thoughts, I will bring examples of electromagnets and motors being used into the classroom and give students opportunities to think about and discuss real-world applications of the principles they experiment with.

The last concern I have is with the fact that the teaching styles used in this unit are fairly limited. For the most part, explanations of new ideas come in the form of lectures, discussions, and reading assignments. While these are generally effective, they by no means will reach every student. I plan to supplement traditional oral and written explanations with music, movement and drawing activities in order to meet the needs of diverse learners.

While most of my class is completely unfamiliar with electricity, motors and magnetism, I do have a select few students who are very experienced in this area. Several children in my class are on the Bennett Woods Robotics Team, and one student in particular spends all of his free time toying with motors and electronics. While sharing examples of these concepts being used in the real-world, I will invite these students to bring in examples of their work with electricity, motors and magnetism. I believe my class would be especially excited to see the robot created by the Robotics Team. Overall, I plan to use these students as resources throughout this unit, as they have a great deal of information and experiences to share with their classmates.