Storyline

Investigation One	Part One	Part Two	Part Three	Part Four
The Force	What kinds of materials do magnets stick to? What happens when you bring two or more magnets together? **Investigating Magnets and Materials** Students will use magnets to determine which items will stick or will not stick. They also discover that magnets either attract or repel.	How do magnets interact with other objects? Does an iron object have to touch a magnet to become a temporary magnet? Does magnetic force go through all materials? **Investigating More Magnetic Properties** Students observe that steel objects can become a temporary magnet when they come in contact with a magnet itself. Magnetic force acts through materials with the exception of iron.	How can we measure the force of attraction between two magnets? **Breaking the Force** Students will use a balance and washers to measure the force of attraction between two magnets. They will also investigate the force of attraction as the distance between the two magnets increase.	Can you figure out where two magnets are taped in a box without looking? **Detecting the Force of Magnetism** Students will explore sealed boxes to determine where the magnets would be located inside the box using a magnet on the outside of the box.

Investigation Two	Part One	Part Two	Part Three	Part Four
Making Connections	How can you get electricity from a source to a receiver? Where do connections need to be made? How does electricity flow through a circuit? **Lighting a Bulb** Students will use trial and error to explore simple circuits.	How can you get electricity from a source to a receiver? How is the motor circuit like a light bulb circuit? How is it different? What does a switch do in a circuit? **Making A Motor Run** Students will use a circuit to make a motor run and they will add a switch to control the flow of electricity.	Can any of the test objects complete a circuit? How much of the classroom environment is made of conductors? **Finding Insulators and Conductors** Students will build a circuit and test objects throughout the room to determine whether they are conductors or insulators.	**Investigating Mystery Circuits** Student work with mystery boards to reinforce concept of conductors and their understanding of electricity flowing through a circuit.

Investigation Three	Part One	Part Two	Part Three
Advanced Connections	Can you get two bulbs to light at the same time? Can you make two lights bright in a series circuit? **Building Series Circuits** Students will find ways to operate more than one component in a circuit. They also find that it takes two D-cells to make lights brighter.	Can you light two bulbs brightly with just one battery? How many different ways can you wire a parallel circuit? **Building Parallel Circuits** Students will build parallel circuits and find that many bulbs can operate on a single D-cell.	Which design is better for manufacturing long strings of tree lights---series or parallel? **Solve the String-of-Lights Problem** Students will use their knowledge of circuits to solve the problems customers may have when using a string of lights.

Investigation Four	Part One	Part Two	Part Three
Current Attractions	Can you make a magnet that turns on and off? **Building an Electromagnet** Students will discover that when you wrap insulated wire around a steel core and current flows through it, the steel core will become a magnet.	How does the number of winds of wire around a core affect the strength of the magnetism? **Changing Number of Winds** Students will continue with their observations of the insulated wire around the steel core. They will change the number of winds to see if it will affect the strength.	How can the strength of an electromagnet be changed? **Investigating More Electromagnets** Students propose and investigate other ways to change the strength of the electromagnet.

Investigation Five **Click It**	**Part One** Can you use your knowledge of electricity and electromagnetism to reinvent the telegraph? **Reinventing the Telegraph** Students apply their knowledge of electromagnetism and circuits to build a telegraph and send messages to each other.	**Part Two** Can you connect two telegraph systems to send messages back and forth to another group? **Sending Messages Long Distance** Students use their knowledge of the previous lesson to send messages back and forth to each others telegraphs.	**Part Three** Students ask their own questions and plan investigations or research to answer them. **Choosing Your Own Investigation** Students use their knowledge of magnets and electricity for further investigation.	