Science 10
Unit 1 – Electricity & Magnetism
Unit Outline

Topic	#	Activity	Description
Static Electricity		Demonstration of the Van de Graff Generator	The teacher will demonstrate the Van de Graff Generator which produces large static charges. Various effects of these charges will be shown.
		Demonstration with Static Charges (+ and -)	Teacher will create + and – charges and demonstrate the effects that charged objects have on each other. (Static Power Point)
		Class Notes on the Explanation of Static Electricity. This is based on pages 46-49 in the Science Probe 10 Text.	
	2	Worksheet on Static Electricity	This worksheet covers all the material from p. 42-49 in the Science Probe 10 Text and class notes on Static Electricity.
Current Electricity		Power Point and Notes on Coulombs, Voltage and Cells	
	3	Activity 3D—Voltage of Electrical Cells in Series and in Parallel	In this experiment students will connect up to 4 cells (batteries) in series and in parallel and observe the effect on the total voltage.

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Current Electricity		Class Explanation and Notes on Electric Current and Electrical Circuit Diagrams. This is based on p. 52-55 of Science Probe.	
	4	Activity 3E—Investigating Electric Current	Students will discover how the total current in a circuit is affected by connecting light bulbs in series and in parallel. Students will also practice drawing simple circuit diagrams.
		Crocodile Clip Activity on Series and Parallel Circuits (Use Power Point on Series & Parallel Circuits)	
		Class Explanation and Notes on Series and Parallel Circuits. This is based on p. 56-57 in Science Probe.	
Resistance		Class Introduction and Notes on Resistance. Use Power Point on Resistance. This is based on p. 57-59 in Science Probe.	
	5	Activity 3F—Voltage and Current for a Resistor	Students will measure and record how changes in voltage affect the current going through a resistor. They will also compare the ratio of Voltage/Current with the Resistance in Ohms.
		Short Video on Resistance	
Ohm's Law		Class Explanation of Ohm's Law and example problems (Use Power Point on Ohm's Law)	
		Notes on Resistors in Series and Parallel	
	6	Worksheet on Ohm's Law Problems	
Review and Test	7	Review Sheet on Chapter 3 Static and Current Electricity	
		Test on Chapter 3	

Magnetism		Class Explanation and Notes on Magnetic Poles, Magnetic Lines of Force, The Earth's Magnetic Field and the Causes of Magnetism. Use Power Point on Magnetic Poles and Fields	This is based on material on pages 68-71 in Science Probe Text.
Electromagnetism	9	Activities 4D&E—The Magnetic Field Around a Current Carrying Wire and a Coil	Students will use compasses to indicate the direction of magnetic lines of force around a current carrying wire and around a coil. The effects of changing the direction of the electric current will be noted.
The Right Hand Rule and Electromagnets		Class Explanation and Notes on the Right Hand Rule and Demonstration and Explanation of Electromagnets. Use Power Point on the Right Hand Rule	
Generators		Demonstration and Hands-On operation of a couple of simple generators. The operation of these will be explained.	
Alternating Current, Direct Current and Motors		The difference between Direct Current (DC) and Alternating Current (AC) will be explained. An electric motor will be demonstrated and explained. Use Power Point on Electromagnetism, Generators, Motors, ACDC	
Review and Test	10	Review Sheet on Chapter 4 Magnetism and Electricity Test on Chapter 4	

Topic	#	Activity	Description
Electrical Energy and Power		Class Explanation of Electrical Energy and Power	
	12	Worksheet on Electrical Energy and Power	This is based on material on pages 91-92 in Science Probe Text.
		Demonstration and Explanation of Electric Meters and Measuring Electrical Energy And Energy Conservation	Students will learn how to read an electric meter and calculate electrical energy used over a specified time period and how to interpret Energuide labels
Household Circuits	13	Worksheet on Household Circuits & Power Transmission	This is based on p. 98-108 and page 124-131 in Science Probe
Review and Test	14	Review Sheet on Chapter 5 Electricity in the Home	
		Test on Chapter 5	
Radiation		Power Point on Radiation (demo of Alpha and Beta Radiation) Worksheet 7-1 Effects and Applications of Radiation	Explains the different types of radiation and how to write equations using nuclear notation.
Nuclear Energy		Power Point on Nuclear Energy	Explains nuclear power plants, fission and fusion.
Review & Test		Short Review and Test on Chapter 7 – Radiation and Nuclear Energy	