

MAIN/GENERAL TOPIC	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW:	WHAT THE STUDENT WILL BE ABLE TO DO:	ASSESSMENTS:	WHEN STUDENT DOES IT:
ELECTRICAL ENERGY & CIRCUITS (PART 1)	ENERGY IN SYSTEMS ELECTRICAL FORCES MODELS ELECTRICAL CIRCUITS ELECTRICAL CURRENT BATTERIES IN ELECTRICAL CIRCUITS VOLTAGE & CURRENT ELECTRICAL POWER	WHAT KINDS OF EVIDENCE SHOW THAT SOMETHING HAS ENERGY?	(PART 1) SEE CONCEPTUAL SEQUENCE FOR ELECTRICAL ENERGY & CIRCUIT DESIGN (ON PHOTOCOPY) METHODS TO GENERATE STATIC ELECTRICITY IN SCIENCE, MODELING IS AN IMPORTANT TOOL FOR MAKING OBSERVATIONS A CLOSED PATH MUST EXIST FOR ENERGY TRANSFER TO OCCUR SWITCHES ARE USED IN OPEN & CLOSED CIRCUITS	DESCRIBE WHAT ENERGY TRANSFORMATIONS ARE AND WHY THEY ARE NEEDED. EXPLAIN THE DIFFERENCES AND SIMILARITIES BETWEEN STATIC ELECTRIC SYSTEMS MAKE & USE OBSERVATIONS OF DIFFERENT MODELS DRAW CIRCUIT DIAGRAMS & IDENTIFY COMPONENTS NEEDED TO BUILD A CIRCUIT COMPARE SERIES & PARALLEL CIRCUITS	PRE ASSESSMENTS CIRCUITS ASSESSMENT ANCHOR ACTIVITY MYSTERY BOX ASSESSMENT CIRCUIT DESIGN CHALLENGE	JANUARY TO MAY/JUNE
	ELECTRICAL COMPONENTS IN CIRCUITS (PART 2)	ELECTRICAL DEVICES RESISTORS IN ELECTRICAL CIRCUITS WIRES IN ELECTRICAL CIRCUITS DIODES CAPACITORS SOLAR CELLS	WHY ARE ELECTRICAL COMPONENTS PLACED IN CERTAIN LOCATIONS IN A CIRCUIT?	SERIES CIRCUIT—ONE PATH PARALLEL CIRCUIT—MULTIPLE PATHS CURRENT FLOWS IN ONE DIRECTION VOLTAGE AFFECTS BRIGHTNESS OF LIGHTBULB ELECTRICAL POWER= CURRENT X VOLTAGE DIFFERENT APPLIANCES USE DIFFERENT ENERGY AT DIFFERENT RATES SHARING KNOWLEDGE IS AN IMPORTANT ASPECT OF SCIENTIFIC RESEARCH	USE VOLTMETERS & AMMETERS DETERMINE THE RELATIONSHIP BETWEEN NUMBER OF BATTERIES IN A CIRCUIT & THE CURRENT THROUGH A LIGHTBULB THE EFFECT OF WATER PRESSURE ON RATE OF WATER FLOW & HOW THAT RELATES TO CURRENT IN AN ELECTRICAL CIRCUIT	
	ELECTRICAL SYSTEMS (PART 3)	SYSTEMS FEEDBACK SYSTEMS ELECTRICAL CONTROL SYSTEM	WHAT IS THE DIFFERENCE BETWEEN OPEN-LOOP & CLOSED-LOOP SYSTEMS AND WHY IS IT IMPORTANT?	(PART 2) ELECTRICAL DEVICES ARE MADE USING MANY COMPONENTS RESISTORS TRANSFORM ELECTRICAL ENERGY INTO HEAT RESISTANCE=VOLTAGE ACROSS A DEVICE/CURRENT THROUGH A DEVICE	COLLECT DATA ON HOW MUCH ELECTRICAL ENERGY HOUSEHOLD APPLIANCES USE IDENTIFY ELECTRICAL COMPONENTS COMMON TO MANY ELECTRICAL CIRCUITS OBSERVE & DESCRIBE	

			<p>DIODES ALLOW CURRENT TO FLOW THROUGH THEM IN ONE DIRECTION</p> <p>CAPACITORS STORE ELECTRICAL ENERGY</p> <p>SOLAR CELLS CONVERT LIGHT ENERGY INTO ELECTRICAL ENERGY & CAN POWER CIRCUITS</p> <hr/> <p>(PART 3) “A SYSTEM IS A GROUP OF INTERRELATED COMPONENTS DESIGNED TO ACHIEVE A DESIRED GOAL”</p> <p>USE FEEDBACK TO MONITOR OR CONTROL A SYSTEM</p> <p>TECHNOLOGY DESIGNS APPLY SCIENTIFIC PRINCIPLES</p>	<p>ENERGY TRANSFERS IN RESISTORS</p> <p>DESIGN A CIRCUIT TO CONTROL THE BRIGHTNESS OF A LIGHTBULB</p> <p>INVESTIGATE THE RESISTANCE OF NICHROME WIRES</p> <p>DISCOVER HOW A CAPACITOR FUNCTIONS IN A CIRCUIT</p> <p>INVESTIGATE CURRENT & VOLTAGE IN SOLAR CELL CIRCUITS</p> <p>DETERMINE CHARACTERISTICS COMMON TO ALL SYSTEMS</p> <p>DISTINGUISH BETWEEN OPEN-LOOP & CLOSED-LOOP SYSTEMS</p> <p>USE A BIMETALLIC STRIP AS A SENSOR IN A CIRCUIT</p>		
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COURSE: Science
Grade Level: Grade 8

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CUMULATIVE REVIEW	PREPARATION FOR NYS PRACTICAL & WRITTEN EXAM	HOW HAVE 4 YEARS OF SCIENCE CLASSES PREPARED STUDENTS TO BE SUCCESSFUL ON THE NYS ASSESSMENTS?	SCIENCE TOPICS FROM 5-8 GRADES: SEE INTERMEDIATE LEVEL SCIENCE CORE CURRICULUM GRADES 5-8 WWW.NYSED.GOV	REVIEW SCIENCE TOPICS FROM 5-8 TH GRADES	NYS PRACTICAL & WRITTEN EXAM	JUNE