



Learning Guide 12: Static Electricity and Voltage

BIG IDEA: Electricity is the flow of electrons.

Fundamental Knowledge (I know)

- ☐ The basics of electricity and static charge, with relation to atomic particles
- ☐ The common vocabulary used when discussing static electricity (insulator, conductor, charging by conduction, grounding, ...)
- ☐ The applications of the laws of static charge
- ☐ How electric current results from separation of charge and the movement of electrons

Curricular Competencies (I can)

	Proficiency Scale Teacher and Student self assessment (Circle one)	Evidence (How do you know?)
I Can... Analyze cause-and-effect relationships (Use Ohm's Law to explore the relationship between Voltage Current and Resistance)	Emerging (EMG) Initial Understanding Developing (DEV) Partial/Near Complete Understanding Proficient (PRF) Complete Understanding Extending (EXT) Sophisticated Understanding	
I Can... Construct, analyze and interpret models and/or diagrams (Circuit Diagrams for Simple Circuits)	Emerging (EMG) Initial Understanding Developing (DEV) Partial/Near Complete Understanding Proficient (PRF) Complete Understanding Extending (EXT) Sophisticated Understanding	

Instructions To help guide your learning, make your way through the activities in Option 1, Option 2, or Option 3. You may “mix and match” between the different Option columns.

TOPIC	OPTION 1	OPTION 2	OPTION 3
Static Electricity	A. Find websites/videos about the following topics: • The Laws of Static Charge • Positive/Negative Charges in the Atom • Insulators and Conductors • Generating Static Charge Complete the “ Static Electricity Worksheet ” found on the website or science kiosk.	A. Read Chapter 7 of the BC Science 9 textbook. Take notes as needed. Answer the following questions: Page 257: #1, 2, 4-9, 13-15 Page 266-7: #3, 7, 9, 10, 14	Choose your own adventure! Pick up a planning sheet from the Science Kiosk. Create a plan! Make sure you read through the first page of this LG, as you will need to design ways to learn/ practice and show your understanding of the topic(s) and skill(s)
	B. Complete the virtual PhET activity: Exploring Static Charges Pick up the worksheet from the Science Kiosk or download it from the THSS Science Website Balloons and Static Electricity: https://phet.colorado.edu/sims/html/balloons-and-static-electricity/latest/balloons-and-static-electricity_en.html (Search “PhET simulation balloons and static electricity”) John Travoltage: https://phet.colorado.edu/sims/html/john-travoltage/latest/john-travoltage_en.html (Search “PhET simulation john travoltage”)		
Voltage/ Electrical Potential Difference	C. Find websites/videos about the Voltage and electrical potential difference. Make notes. Complete the “ Voltage and Electrical Potential Energy Worksheet ” found on the website or science kiosk.	C. Read section 8.1 (p. 270-275) of the BC Science 9 textbook and make notes . Complete the “ Voltage and Electrical Potential Energy Worksheet ” found on the website or science kiosk.	You will need to have a teacher approve your plan before beginning the LG.
Penny Battery Lab	D. READ the lab procedure for “ Activity 8-1 Battery from a Penny ”. Write out safety precautions and create a hypothesis <u>BEFORE THE LAB STARTS</u> on the guided worksheet found on the website or in the science kiosk. Complete the lab by booking a time in the science kiosk and build your penny battery!		
Self Assessment	Reflect on the Fundamental Knowledge and Curricular Competencies.		
Interview or Quiz	See your teacher for an interview or to have a quiz slip signed for the test center.		

Resources can be found at www.THSSscience.com or the Science Kiosk

User: **THSS**

Password: **science**