Name
TA

Science 9
2022-2023

Learning Guide 7: 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.

<table>
<tr><th>TOPIC</th><th>OPTION 1</th><th>OPTION 2</th><th>OPTION 3</th></tr>
<tr><td rowspan="2">Static Electricity</td><td>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.</td><td>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</td><td rowspan="4">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)

You will need to have a teacher approve your plan before beginning the LG.</td></tr>
<tr><td colspan="2">B. <u>Complete the virtual PhET activity: Exploring Static Charges</u>
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")</td></tr>
<tr><td>Voltage/ Electrical Potential Difference</td><td>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.</td><td>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.</td></tr>
<tr><td>Penny Battery Lab</td><td colspan="2">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!</td></tr>
<tr><td>Self Assessment</td><td colspan="3">Reflect on the Fundamental Knowledge and Curricular Competencies.</td></tr>
<tr><td>Interview or Quiz</td><td colspan="3">See you teacher for an interview or to have a quiz slip signed for the test center.</td></tr>
</table>

Resources can be found at www.THSSscience.com or the Science Kiosk
*User: **THSS***
*Password: **science***