

Grade 9-12

Distance Learning Module 1: Week of: March 30 - April 3

Science: Honors Physics - *Modified from Unit 8 - Electricity and Circuits final portion*

Targeted Goals from Stage 1: Desired Results

Content Knowledge:

- ☐ *Ohms Law, Power, Component Symbols, Resistivity dependence*
- ☐ Students will understand basic *circuits* and the requirements needed in order to have current. Students will be able to draw circuit diagrams using appropriate circuit *symbols* for power sources (i.e. batteries), resistors, ammeters and voltmeters.
- ☐ Students will understand the role of *voltmeters* and *ammeters* and *know how to use them to measure current and voltage*
- ☐ Students will understand that *voltage* is NOT energy but is related to energy. Students will understand the role of a voltage source in a circuit.
- ☐ Students will understand basic *circuits* and the requirements needed in order to have current.
- ☐ Students will understand the relationship between *voltage* and *current* and the role *resistance* plays in a circuit.

Vocabulary:

- ☐ *Current, voltage, resistance, charge, ohm, watt, coulomb, potential, Electro-motive Force*

Skills:

- ☐ Students will be able to draw circuit diagrams using appropriate circuit *symbols* for power sources (i.e. batteries), resistors, ammeters and voltmeters.
- ☐ Given a graph of *Voltage* vs. *Current*, students should be able to determine the *resistance* of a circuit.
- ☐ Students will be able to use *Ohm's Law* to determine voltage, current and/or resistance.
- ☐ Given a *series, parallel* or *combination* circuit, students will be able to determine the *equivalent resistance* of the circuit. Students will also be able to determine the *voltage* across and *current* through each resistor in the circuit.
- ☐ Students will be able to determine the rate at which energy is used (i.e. *Power*) by electrical devices in simple circuits. Students will understand how *power* relates to voltage, current and resistance.
- ☐ Students will know that a *kw-hr* is a unit of *energy* NOT *power*. From this, they should be able to determine the *cost* to operate the circuit.
- ☐ solving for current and voltage for specific circuit elements in complex circuits

Expectation:

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
<p>Monday:</p> <p><i>Students are encouraged to meet online during Zoom session which will review circuits. Elsewise, they are to continue working on their UTexas Review</i></p>	<p><i>Crash Course Physics Videos:</i></p> <ul style="list-style-type: none">● <u>Electric Current</u>● <u>Circuits</u> <p><i>Flipping Physics Videos:</i></p> <ul style="list-style-type: none">● <u>Intro to Current</u> <p><i>Khan Academy Physics Videos:</i></p> <ul style="list-style-type: none">● <u>Circuits Unit Specifically</u> <p><i>The Physics Classroom tutorials</i></p> <ul style="list-style-type: none">● <u>Circuits</u> <p><i>Students are encouraged to review past notes and in class work, as these assignments are from what we had just finished prior to the disruption of school.</i></p>	<p><i>Greater than 75 % earned on University of Texas on-line Homework and Assessment (accounts required)</i></p> <p>Quest Learning</p> <p><i>Participation in Zoom classroom learning as available and needed</i></p>
<p>Tuesday:</p> <p><i>Students are encouraged to meet online during Zoom session which will review circuits. Elsewise, they are to continue working on their UTexas Review</i></p>	<p><i>Crash Course Physics Videos:</i></p> <ul style="list-style-type: none">● <u>Electric Current</u>● <u>Circuits</u> <p><i>Flipping Physics Videos:</i></p> <ul style="list-style-type: none">● <u>Intro to Current</u>	<p><i>Participation in Zoom classroom learning as available and needed</i></p>

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
	<p><i>Khan Academy Physics Videos:</i></p> <ul style="list-style-type: none"> ● <u>Circuits Unit Specifically</u> <p><i>The Physics Classroom tutorials</i></p> <ul style="list-style-type: none"> ● <u>Circuits</u> <p><i>Students are encouraged to review past notes and in class work, as these assignments are from what we had just finished prior to the disruption of school.</i></p>	
Wednesday:	<p><i>Crash Course Physics Videos:</i></p> <ul style="list-style-type: none"> ● <u>Electric Current</u> ● <u>Circuits</u> <p><i>Flipping Physics Videos:</i></p> <ul style="list-style-type: none"> ● <u>Intro to Current</u> <p><i>Khan Academy Physics Videos:</i></p> <ul style="list-style-type: none"> ● <u>Circuits Unit Specifically</u> <p><i>The Physics Classroom tutorials</i></p> <ul style="list-style-type: none"> ● <u>Circuits</u> <p><i>Students are encouraged to review past notes and in class work, as these assignments are</i></p>	<p><i>Participation in Zoom classroom learning as available and needed</i></p>

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
	<i>from what we had just finished prior to the disruption of school.</i>	
<p>Thursday:</p> <p><i>Having completed all UTexas problems at this point, students should be moving onto the Construction Circuit Kit lab</i></p> <p><i>(I will be posting this on the google classrooms for my students, but it should be able to be converted to word document hopefully not painfully - Sarah)</i></p>	<p><i>PhET Colorado Lab</i></p> <p><i>Construction Circuit Kit</i></p> <p><i>UTexas</i></p>	<p><i>Earning 75% or higher on second UTexas assignment of this week</i></p> <p><i>Participation in Zoom classroom learning as available and needed</i></p>
<p>Friday:</p> <p><i>As above - this is a multipart online lab</i></p>	<p><i>PhET Colorado Lab</i></p> <p><i>Construction Circuit Kit</i></p> <p><i>UTexas</i></p>	<p><i>Participation in Zoom classroom learning as available and needed</i></p>

Week criteria for success (attach student checklists or rubrics):

- ☐ *Greater than 75 % on Assigned UTexas Assessments, 80% or higher on CCK lab*

Supportive resources and tutorials for the week (plans for re-teaching):

- ☐ *Textbook; Finals site resources (Powerpoints, worksheets with answer keys, pdf notes); Khan Academy; Crash Physics videos; PHeT simulators from University of Colorado; Flipping Physics videos; Interactions with teacher using Zoom.*