GUIDED PRACTICE

Class: 1520L ,#02 Basic Circuits
Date assigned:
Date due:
Time estimate to complete this assignment: 30 min

Overview/Introduction

- The lesson is about basic parallel and series circuits
- Basic parallel and series circuits are building block to understanding/creating complex circuity

Learning Objectives

Basic objectives

- How to use a Digital Multi Meter (DMM) to measure current and voltage
- identify if a DMM is setup properly to measure voltage or current from a drawing (circuit diagram)
- Identify a parallel and series circuit

Advanced objectives

- Setup parallel and series circuit connections
- Utilize a Digital Multi Meter (DMM) to measure current and voltage
- Experiment and observer the relationship between current and voltage for a parallel and series circuit
- Communicate the relationship between current and voltage for a parallel and series circuit.

Preparatory Activities and Resources:

1. Watch the following videos prior to class meet meeting
    - DMM voltage measure (5:44 min)
        - https://www.youtube.com/watch?v=_jjIDdWwgms
    - DMM current measure (5:20 min)
        - https://www.youtube.com/watch?v=P660hTqkGiY
    - Parallel and Series concept (8:04 min)
        - https://www.youtube.com/watch?v=x2EuYqj_0Uk
2. Read the following prior to class meeting
    - Lab 2 Basic Circuit in Lab Manual and be prepared to respond to a short quiz based on the videos and reading
3. **Optional:** The following is an electronic sandbox where you can apply your newly acquired knowledge.
    - Circuit Construction Kit: DC
        - https://phet.colorado.edu/sims/html/circuit-construction-kit-dc/latest/circuit-construction-kit-dc_en.html

Flipped IN-CLASS Lesson Plan

Topic or concept: Basic parallel and series circuits Total time: 2:50

Basic objectives for preparatory work:	Advanced objectives for classwork & after class work:
• view a video on how to use a Digital Multi Meter (DMM) to measure current and voltage • identify if a DMM is setup properly to measure voltage or current from a drawing (circuit diagram) • Identify a parallel and series circuit • Pre-read lab 2 Basic Circuits from lab manual	• Setup parallel and series circuit connections • Utilize a Digital Multi Meter (DMM) to measure current and voltage • Experiment and observer the relationship between current and voltage for a parallel and series circuit • Communicate the relationship between current and voltage for a parallel and series circuit.

	Time planned	Activity and rationale	Resources needed
Beginning of class period	10 min	Reminders, announcements, return previous quizzes or lab reports Course agenda for today	
Quiz	20 min	Quiz on the basic objectives of the preparatory work	Copy of quiz

	Time planned	Activity and rationale	Resources needed
Middle of period- mini lecture	20 mins	Go over answers to the quiz Discussion of guided practice Extended on new ideas: ohms law to understand the relationship between voltage, current and resistance Introduce to Kirchhoff's laws	Blackboard and chalk
Middle of period (use if needed)	1:30 hrs	*Example:* Work in pairs to following the directions for Lab 2 Basic Circuits	Physics 1520L Lab Manual Paper
Discussion	20 min	Discussion of the results: In series circuit how does current through elements compare? In series circuit how does voltage across elements relate? In parallel circuit how does current through elements relate? In parallel circuit how does voltage across elements compare?	Blackboard and chalk Or Excel spreadsheet
Reminders and deadlines	10 min	Description of the after-class assignment, lab reports, and deadlines, etc. Descriptions and reminders for the pre-class assignments for next lab	

Flipped AFTER CLASS Work Plan Template

Advanced learning objective	Activity and rationale	Instructions to students
Present lab results in a formal way	Write a formal lab report for this lab	Include the following sections in the lab write up • Purpose/Objective • Procedure • Data • Data Analysis • Conclusion