Unit Information	
Unit Title	Unit 3 AC/DC Circuits 2
Unit Dates	Projected start and end dates Weeks 10-13
State Standards Covered	SC State Standard M.1.G.10-17
Unit Learning Target	SWBAT: Build and analyze different types of circuits—series, parallel, and combination—while applying principles like Ohm's Law and Kirchhoff's Voltage Law to calculate electrical values. Measure resistance in various circuits and compare calculated results with actual measurements.

Overview

Unit summary

This unit introduces the fundamentals of electricity including what it is, how it is created, basic circuits, Ohm's law and Kirchhoff's law and how it is applied to circuit analysis.

Skills for the teacher to teach

- Measure voltage, current and resistance with a digital multimeter
- Calculate voltage, current and resistance using Ohm's law and Kirchhoff's laws
- Identify electrical symbols and read electrical diagrams
- Identify electrical components
- Construct electrical circuits

Task for students to complete

- Lab setup
- Trainer operation
- Wiring circuits
- Measuring voltage, current and resistance
- Completing manual procedures and questions

Assessment students will complete / Product they will produce

Festo Lab procedures and questions

Planning

What resources/materials/supplies will be needed, and how will they be secured?

- Festo AC/DC trainers
- Digital multimeters
- DC Circuit Fundamentals student manual copies
- binders

What business partner support (guest speaker, materials, resources) is available?

- NA

Will this unit include a certification? Is it an approved certification? Purchase plan?

- No

Monitoring and reflection

How will students know they are making progress toward the overall learning target?

Students will know they are making progress toward the learning target by:

- **Identifying** the different electrical components in a circuit and their symbols and explaining their basic function.
- **Demonstrating understanding** through class discussions, worksheets, lab exercises and short quizzes on calculating and measuring electrical values in a circuit.
- **Completing lab exercises**, where they read circuit diagrams and connect them on the AC/DC trainer.

Receiving feedback from the teacher on both written work and hands-on activities, helping them track their strengths and areas for improvement.

How will student reflect on their learning success, challenges, and take-aways?

- **Peer/Group Discussion** – Small group conversations where students share one success, one challenge, and one take-away from the chapter.

Teacher reflection notes – What may need to be modified after completing the lesson?

- **Student Understanding**
- Did students grasp the basic concepts of electricity?
- Were students able to explain the relationship between voltage, current and resistance in an electrical circuit?
- Can students read basic circuit diagrams
- Can students connect basic circuit diagrams using the AC/DC trainer.
- Can students us a DMM to measure voltage, current and resistance in a circuit.

Instructional Strategies

- Which activities (discussion, diagrams, shop orientation, group work) were most engaging or effective?
- Did the pacing of the unit allow enough time for both content and activities?
- Were there points where students struggled and needed more scaffolding or examples?

Assessment and Reflection

- Did quizzes, and discussions give an accurate picture of student progress?
- Should additional checks for understanding be built in earlier?

Classroom/Shop Management

- Was the shop orientation clear and thorough?
- Do safety expectations need to be reinforced more?

Possible Modifications for Next Time

- Adjust lesson pacing.
- Provide additional visuals or hands-on demos when introducing electrical concepts.
- Create more structured opportunities for student reflection and connection to career goals.
- Incorporate technology (videos, simulations) if students need more engagement.