Dyersburg High School
Career and Technical Education
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STEM II: APPLICATIONS

Grade Course Pacing Guide First Semester				
	1st Quarter	**TN Standards**	**Lesson Focus**	**Additional Notes**
	Week 1-2	Accurately read and interpret safety rules, including but not limited to rules published by the National Science Teachers Association (NSTA), rules pertaining to electrical safety, Occupational Safety and Health Administration (OSHA) guidelines, and state and national code requirements. Be able to distinguish between the rules and explain why certain rules apply. (TN Reading 3, 4, 6)	Lab & Field Safety	Identify proper lab & field safety procedures in regards to OSHA guidelines.
	Week 3-4	Identify and explain the intended use of safety equipment available in the classroom. For example, demonstrate how to properly inspect, use, and maintain safe operating procedures with tools and equipment. Incorporate safety procedures and complete safety test with 100 percent accuracy. (TN Reading 3, 4)	Lab & Field Equipment	Demonstrate proper use and care of lab & field equipment and tools
	Week 5-6	Research an engineering career and present in an informative paper, oral presentation, or other format his/her designs and explain how they influenced technology in his/her field. (TN Reading 1, 2, 3, 8, 9; TN Writing 2)	Engineer career research and presentation	In collaboration with librarians' lesson, research a chosen engineering career and present an oral presentation
	Week 7-9	**(Scientist)** Engage in scientific inquiry by brainstorming for questions to understand how a certain phenomenon in the natural world works, to understand why a phenomenon occurs, or to determine the validity of a theory. (TN Reading 4, 5, 9) **(Engineer)** Ask clear, relevant questions that lead to defining a design problem. For	Scientist vs. Engineer	Identify the role of scientist or engineer for chosen focus project

		example, questions should be testable and explore the requirements of a problem solution, but not define the methodology to solve the problem. (TN Reading 4, 5, 9)		
	End of 1st Quarter			
	Fall Break			
	2nd Quarter	**TN Standards**	**Lesson Focus**	**Additional Notes**
	Week 1-2	**(Scientist)** Develop an original proposal as would a natural or social scientist that will guide the scientific inquiry and follow responsible ethical practices. For example, the proposal should outline the reason for the research interest, hypothesis, methodology, data analysis, importance of study, and deliverables. (TN Reading 3, 4, 7, 9; TN Writing 1, 7) **(Engineer)** Develop a design brief that will guide a design process and follow responsible ethical practices. For example, the design brief should outline a problem definition, design statement, criteria, constraints, and deliverables. (TN Reading 3, 4, 7, 9; TN Writing 1, 7)	Class focus project that improves the school or community	Brainstorming and narrow to 1 idea based on class consensus
	End of 2nd Quarter			
	End of 1st Semester	**Semester Exam**		
	Winter Break			

Grade Course Pacing Guide Second Semester

	3rd Quarter	**TN Standards**	**Lesson Focus**	**Additional Notes**
	Week 1-9	**(Scientist)** Compare and contrast the data results from multiple iterations of a scientific investigation. For	Testing and review data	Conduct several investigations and multiple design solutions to come to the best possible conclusion for

		example, consider how well each explanation is supported by evidence, prior research, and scientific knowledge. (TN Reading 3, 7, 9; TN Writing 1) **(Engineer)** Compare and contrast the data results from testing multiple design solutions. For example, consider how well each design solution meets the design criteria and constraints. (TN Reading 3, 7, 9; TN Writing 1)		implementation
	End of 3rd Quarter			
	4th Quarter	**TN Standards**	**Lesson Focus**	**Additional Notes**
	Week 1-9	**(Scientist)** Develop a technical report to communicate and defend a scientific explanation and justify its merit and validity with scientific information. Consider the ethical implications of the findings. The report can include tables, diagrams, graphs, procedures, and methodology. For example, conduct a STEM forum, present scientific research, and provide evidence to support arguments for or against scientific solutions. (TN Reading 4, 7, 9; TN Writing 1, 5, 6, 7, 8, 9)	Develop a professional presentation and begin process of approval and implementation	Grants, private funding, and documentations Present final project to appropriate audience for implementation

		(Engineer) Develop a design document to communicate the final design solution and how well it meets the design criteria and constraints. For example, the design document can include charts, graphs, calculations, engineering drawings, as well as information regarding marketing, distribution, and sales. For example, conduct a STEM forum, present engineering design briefs, and provide evidence to support arguments for or against design solutions. (TN Reading 4, 7, 9; TN Writing 1, 5, 6, 7, 8, 9)		
	End of 4th Quarter			
	End of 2nd Semester	**Semester Exam**		