



Dyersburg High School
 Career and Technical Education
 Instructor: Seth Coleman
 email: scoleman@dyersburgcityschools.org

STEM I: Foundations Pacing Guide First Semester

	1 st Quarter	TN Standards	Lesson Focus	Additional Notes
	Week 1	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)	Safety	NSTA/OSHA/Code
	Week 2	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)	Safety Equipment	Safety procedures, proper use of equipment, state required safety test
	Week 3	Explore several occupations within the STEM field (such as manufacturing, computer science/programming, aviation, forensics, health science, engineering, transportation/ distribution & logistics, actuarial science) and describe the many sources and types of information that these occupations use. Determine how various industries employ	STEM Careers	Collaboration with library to explore valid online resources for STEM career research Create a presentation for a given STEM career



Dyersburg High School
 Career and Technical Education
 Instructor: Seth Coleman
 email: scoleman@dyersburgcityschools.org

	<p>different kinds of data to meet their needs. (TN Reading 4, 6, 9)</p> <p>Investigate an assortment of skills and education required for STEM professionals. Write an informative text that identifies the typical educational and certification requirements, working environments, and career opportunities for these occupations. For example, participate in an information-gathering tour of a local organization that uses computer-aided design, and report on the roles and responsibilities of STEM professionals on staff, including the kinds of software and equipment they use. (TN Reading 2; TN Writing 2)</p>		
Week 4-9	<p>Research the terms engineering design and scientific inquiry. Compare and contrast the steps of the engineering design process to the steps of the scientific inquiry in a graphic illustration or presentation. (TN Reading 2, 7, 9; TN Writing 2, 8)</p>	Engineering Design Process	<p>Intro activity to EDP Measurement Exercises Bridge Design</p>
End of 1st Quarter			
Fall Break			
2nd Quarter	TN Standards	Lesson Focus	Additional Notes
Week 1-3	<p>Evaluate a question to determine if it is testable and can produce empirical data. Plan an investigation that outlines the steps of the design process to collect, record, analyze, and evaluate data.</p>	Physics testing	Roller Coaster Physics Testing
Week 4-5	<p>Design and develop several solution prototypes, conduct feasibility testing,</p>	Solution prototypes	Flight construction and testing



Dyersburg High School
 Career and Technical Education
 Instructor: Seth Coleman
 email: scoleman@dyersburgcityschools.org

	and use the data to justify the solution selected.		
Week 6-7	Conduct research to create a list of problems that are considered major global challenges. Choose one to analyze. Evaluate possible solutions, aligning work with the steps of the scientific method or the engineering design process. Consider possible constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. Identify trade-offs and defend decisions that were made as a result of those trade-offs.	Critical Thinking in Context	Water Filtration
Week 8-9	Given a real-world STEM scenario, identify the problem and develop meaningful questions. Differentiate between necessary and non-essential information as well as needs and wants for applying the scientific method of investigation or the engineering design process.	Critical Thinking in Context	Transportation Modeling Safe Packaging Plate Display Package
End of 2nd Quarter			
End of 1st Semester	Semester Exam		
Winter Break			
STEM I: Foundations Pacing Guide Second Semester			
3rd Quarter	TN Standards	Lesson Focus	Additional Notes
Week 1-2	Research the history of science, math, and engineering related to technology. Examine how these technologies have evolved, and evaluate their influence on present-day society, citing specific textual	STEM Exploration (History)	History of Inventions Tomorrowland (Significance)



Dyersburg High School
 Career and Technical Education
 Instructor: Seth Coleman
 email: scoleman@dyersburgcityschools.org

	evidence from news articles and scholarly journals. (TN Reading 1, 2; TN Writing 2)		
Week 3-4	Collaborate to write a fictional, yet plausible, STEM problem-based scenario. Evaluate possible solutions, aligning work with the steps of the scientific method or the engineering design process. Consider possible constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.	Critical Thinking in Context	Children's Game Design
Week 5-9	Given a real-world problem, identify several possible solutions using both the engineering design process and the scientific inquiry.	Problem Resolution Skills	Movie/Music Production
End of 3rd Quarter			
4th Quarter	TN Standards	Lesson Focus	Additional Notes
Week 1-2	Analyze solutions to a real-world problem collaboratively, to identify critical factors of the steps of the design process. Explain why these factors are critical.	Problem Resolution Skills	Hurricane Defender
Week 3-4	Identify multiple forms of data and list mechanisms for collection that are essential to solving a problem. Prepare written documentation to justify findings.	STEM Field Readiness	Project Skydive
Week 4-5	Use available data to create an original prototype/solution to a scenario.	STEM Field Readiness	Build a Better Animal Trap Catapult Design
Week 6-7	Analyze multiple aspects of a problem scenario to identify cause/effect patterns. Consider the history of a problem to identify factors such as risks and benefits.	Cause and Effect Relationships in STEM	Life in Space Space Station Build
Week 8-9	Sort and evaluate data for its significance and/or meaning in the process of solving	STEM Field Readiness	Boat Design Sailing Vessel



Dyersburg High School
Career and Technical Education
Instructor: Seth Coleman
email: scoleman@dyersburgcityschools.org

		a problem as a STEM professional would. Examine the data in ways that reveal the relationships, patterns, and trends that can be found within it. Differentiate between quantitative and qualitative data.		
	End of 4 th Quarter			
	End of 2 nd Semester	Semester Exam		