Liberty Middle School

281 Dock Murphy Drive, Madison, Alabama 35758

STEM I

Mr. Merchant

Teacher Contact Information	**Email:** Njmerchant@madisoncity.k12.al.us **Classroom Phone:** 256-430-0001 ext.
Classroom Digital Platforms	**Schoology Link:** ***Can be accessed through MCS Clever account***
Textbook Information	There is no textbook for this course. We use a variety of resources, activities, and lessons to meet STEM I Standards. You will be able to see them in Schoology.
Course Description	STEM I is a course that overviews foundational concepts of technology, how technology and society interact, the Engineering Design Process, the Designed World, and Digital Literacy. Typically, this course is hands-on, project based. Assignments will also be listed in Schoology should a student be absent for any reason.
Course Objectives	This course objectives will meet the Alabama State STEM Technologies I Standards. Page 22
Course Outline	This course will utilize some We Build It Better (WBIB) materials, but specific assignments and projects will be selected based on students interests.
Course Goals	Students will: 1. Identify and use the steps of the engineering design process. 2. Learn and use standard safety practices. 3. Describe the development of technology as a human activity that is the result of creatively meeting individual or collective needs. 4. Engage in positive, safe, legal, and ethical behaviors when using technology, including during social interactions online and when using networked devices. 5. Identify research strategies to locate information and other resources for their intellectual and/or creative pursuits. 6. Identify positive and negative ways the use of technology affects humans.
Instructional Delivery Plan, Course Outline & Culminating Project	**Career & Technology Foundations** Safety, Workplace & Employability Skills, STEM Career Exploration, Digital Literacy, TSA *Students explore safety concerns, procedures, and implement safe practices in our workspace. Students discuss and demonstrate communication, collaboration, and soft skills in the workplace through various hands-on projects; use the Occupational Outlook Handbook and other resources to explore STEM careers; use digital skills to research and participate in TSA projects/events.* **Scope of Technology** Development of Technology to Meet Human Needs, Innovation, Technological Systems. *Explain the close link between technology and creativity and how it results in innovation by exploring various inventions including the Internet.* **Technology & Society** Positive & Negative Ways Technology Affects Humans, Management of Waste, Using

	Tech. to Repair from Natural Disasters, Employer-Driven Iterative Design, & Inventions & Innovations. *Students research the 2011 Fukushima Daiichi tsunami and nuclear disaster and technology's effects on human life in the aftermath.* **Design Process** Identifying Criteria & Constraints, Using the Engineering Design Process, Developing Solutions to Problems, Process Documentation and Communication, Modeling Designs, No Perfect Design, Brainstorming, 2D and 3D Modeling. *Students practice the design process as they design various things including a machine model and video game.* **Digital Literacy** Digital Footprint and Permanence, Online Safety, Internet Research Strategies, Using Digital Resources to Collect Artifacts and Information on Real-World Issues, Addressing the Issues. *Students utilize code.org and other resources to explore digital literacy.* Culminating Project: TSA or We Build It Better Inventions & Innovations Project
Credentialing	None
CTSO Integration (LMS Career & Technical Student Organization is TSA.)	Technology Student Association, TSA, is a **career technical student organization** and a fundamental part of this course. It is a national career and technical student organization of students engaged in science, technology, engineering, and mathematics (STEM). TSA is integrated into the program which includes competitions and leadership opportunities. TSA provides students with activities during their class time and after school with our local TSA Chapter. *TSA Based Activities relevant to STEM include but are not limited to: Lab Safety Posters, Career Prep, Essays on Technology, Challenging Tech Issues, CAD Foundations, Inventions & Innovations, Problem-Solving, Technical Design, and Video Game Design.* TSA INVENTIONS & INNOVATIONS is our CTSO project for this course.
Embedded Numeracy Anchor Assignment *(WBIB - Escape from Measurement Island)*	Students are stranded on Measurement Island and the only way to escape is through metrology. Students will gain an understanding of the work of a metrologist. They will work in teams to practice using precision measurement instruments, while paying attention to cumulative error. Students will use logic to determine the sequence of Reggie's events, locate escape items, and calculate the distance between each set of points to determine a total distance. Teams must be within a tolerance level of two (2) inches in order to Escape from Measurement Island.
Embedded Literacy Anchor Assignment *(WBIB - Invent and Simplify)*	Students will work in teams and apply the product design process to invent an index card structure that will hold up a weight and meet given requirements. The teacher will test the structures. Teams should observe the different designs and discuss changes they may make to improve their own designs. Students will watch a brief video to learn about the leadership skill, "invent and simplify." Next, they will be challenged to improve and simplify their design by using fewer index cards while achieving either the same or a greater level of success.
Embedded Science Anchor Assignment *(WBIB - Going Full Circuit)*	In the World of POWERful Progress, students build on their knowledge of electrical currents, safety, and the associated components. Students begin with an activity to identify their current knowledge of building electrical circuits. Then, a hands-on demonstration with an Energy Stick introduces students to one basic component needed in an electrical circuit: a complete pathway. The next component, the power source, introduces students to multimeters and how to use these devices to test the voltage of batteries. Next, students learn about two additional elements of a circuit, the

	load and resistors. Finally, students use a breadboard to build a circuit that successfully powers on an LED light. Through this process, students gain a greater understanding of electrical safety and how to alleviate accidents.
Classroom Expectations	1. Cell phones must be powered down and in a backpack from 8:15 am - 3:20 pm. 2. Be seated and ready for class when the bell rings. Students tardy to class will receive a detention per LMS policy. 3. Come prepared for class. Bring all necessary supplies 4. Respect your teacher, your classmates, and yourself. 5. If it's not yours, don't touch it. Keep your hands and feet to yourself. **All students must follow the Madison City Schools Code of Conduct.**
Technology & Cell Phone/Digital Device Procedures	Effective July 1, 2025, the use, operation, or possession of Wireless Communications Devices including but not limited to cellular telephones, tablet computers, laptop computers, pagers, gaming devices, smart watches, earphones or headphones in school buildings or on school grounds during the Instructional Day, is prohibited. Violation of Board policy with respect to such use, operation, or possession of Wireless Communication Devices will constitute a Class II violation. Madison City Schools has outlined an Electronic/Wireless Device Policy (Policy 6.20) on page 137 of the MCS Policy Manual. Students should bring their MCS Chromebook and charger to class each day. Teachers monitor student activity and participation; however, students are responsible for their activity on school-issued devices and using their MCS accounts.
Progressive Discipline	Liberty Middle School Classroom Management Plan: **Step 1:** Verbal warning **Step 2:** Student/teacher conference with parent notification **Step 3:** Parent contact/conference **Step 4:** Detention **Step 5:** Referral to administration for repeat Class I violations and initial Class II and Class III offenses (**Madison City Schools Code of Conduct**)
Grading Policy *(MCS Policy)*	**60%** = Assessments (Quizzes, Tests, Essays, Projects) **40%** = Daily Grades (Homework, Classwork, and Participation)
CTE Lab Safety Guidelines	Each student in a CTE course will be required to complete a lab safety exam and score a **100%** correct before being allowed to use any tools on projects. We expect students to ***responsibly and safely use the CTE equipment***. Examples of equipment used in CTE courses may include and are not limited to the following: *scissors, hot glue guns, box cutters, power tools, hand tools, measuring tools, electronic equipment, computers, medical supplies, robotics equipment, food items (consumable and non-consumable).*
Late Work Policy	Late assignments will be reviewed and considered on an individual basis. As CTE/STEM courses simulate real-world work environments and emphasizes project-based learning, timely completion of tasks is essential. However, if circumstances arise, students are responsible for communicating with the teacher emulating positive employability traits; each situation will be assessed fairly and thoughtfully.
Make-up Work/Test Policy	Students with excused absences will be allowed to make-up all work within three days of returning to school. It is the student's responsibility to ask for make-up work.

	Students can get with a classmate or ask the teacher for help. Work that is not made up will become a zero (including quizzes/tests).
Homework	***All assignments should be done in class.***
Parent & Student Acknowledgment Form	***Please sign and date the acknowledgment form.***

This syllabus is subject to change.