STEM

Syllabus

Discovery Middle School
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Madison, AL 35758

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Course Description:	*Career and Technical Education (CTE) is a blend of academic, career-specific, general workplace, and life skills leading to further education and preparation for employment. Students will use cooperation, collaboration and communication to solve real or fictitious problems. They will outline the specifics of the problem, conduct design research to see what solutions are already present, draft a solution, and then build and improve their product. Once the product is complete, they will share their ideas, their plan, and their design conclusion with their classmates. While participating in the problem-based learning activities, students will also be coached on management and work/life skills such as delegating tasks, effective communication techniques, and time management to meet a deadline. After completing this course, students have organically been exposed to science and math concepts, but they also have a strong understanding of the Engineering Design approach as well as synergizing group dynamics.*
Course Digital Platforms:	Schoology: https://madisoncity.schoology.com/home Curriculum: Lessons and Projects created by instructor Parent Communication: Email via information found on PowerSchool will be used for parent contact. Please make sure all contact information is up to date in PowerSchool.
Course Objectives:	At the conclusion of this class, students will be able to work effectively in groups to solve cross-disciplinary problems, well equipped with the guidance of the Engineering Design Process.
Course Prerequisites	None
Course Goals	Upon completion of the course, students will be able to: 1. Work more effectively and efficiently in groups. 2. Manage timelines/due dates in a more consistent manner.

	3. Explain the benefits of technological advancement to our lives. 4. Understand the role that engineers play in the invention and innovation of new technologies. 5. Improve the use of soft skills to better collaborate and communicate with peers.
Credentialing	None
CTSO Integration (DMS 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 Science of Technology include but are not limited to: Problem Solving and Technical Design.
Embedded Literacy Anchor Assignment	• R1. Utilize active listening skills during discussion and conversation in pairs, small groups, or whole-class settings, following agreed-upon rules for participation. • R3. Use digital and electronic tools appropriately, safely, and ethically when researching and writing, both individually and collaboratively. • Expression: 7. Produce clear, coherent narrative, argument, and informative/explanatory writing in which the development, organization, style, and tone are relevant to task, purpose, and audience, using an appropriate command of language. • b. Write informative or explanatory texts with an organized structure and a formal style, incorporating a focused point of view, a clear purpose, credible evidence, and technical word meanings. • 29. Use academic vocabulary in writing to communicate effectively.

Embedded Numeracy Anchor Assignment	• Make sense of problems and persevere in solving them. These students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. These students consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. • Use appropriate tools strategically. Mathematically proficient students consider available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and the tools' limitations. • Attend to precision. These students try to communicate mathematical ideas and concepts precisely. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. Mathematically proficient students are careful about specifying units of measure and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, and express numerical answers with a degree of precision appropriate for the problem context. • Solve multi-step real-world and mathematical problems involving rational numbers (integers, signed fractions and decimals), converting between forms as needed. Assess the reasonableness of answers using mental computation and estimation strategies.
CTE Lab Safety Guidelines	Each student in a CTE/PLTW course will be required to complete a lab safety exam and score 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, adhesives, robotics equipment, food items (consumable and non-consumable).
Classroom Expectations:	Classroom Rules and Procedures: 1. Arrive to class on time with a growth mindset. 2. Food and drink are not allowed in STEM Lab (WATER in closed containers is permitted.) 3. Treat yourself and others with respect.

	4. Behave in a manner conducive to learning for all. 5. Keep your hands and your belongings to yourself. 6. Clean your workspace with care for school belongings and facilities. 7. Follow all rules listed in the Madison City Schools Code of Conduct and the DMS Student Handbook as well as the STEM Safety Contract. Possible Consequences: 1. Conference with the student 2. Parent contact 3. Detention 4. Parent Conference 5. Administrative Referral
Grading:	Test grades will account for 60% of the 9-weeks grade, with the remaining 40% being determined by quiz/daily grades. The grading scale is as follows: A (90-100), B (80-89), C (70-79), D (65-69), and F (below 65). As STEM is a 9-week course, there will not be a semester exam or midterm exam. Grades will be a reflection of mastery of the standards. Make sure all absences are excused as work can be made up and graded for excused absences only.
Make-up Work:	Under normal circumstances, it is expected that students will submit previously assigned work upon return to school after an excused absence. All work missed on the day(s) of excused absences must be made up within a timeframe determined by the teacher. **It is the responsibility of the student to ensure he or she makes up work following excused absences. Students will not receive credit for and will not be allowed to make up any assignments, tests, work, activities, etc., missed during unexcused absences.** (DMS 2023-2024 Student Handbook)
Late Work:	For work turned in late, the following policy will apply: • The assignment will drop one LETTER grade for each school day that passes. For example, if an assignment is turned in one school day late, the highest a student can receive is 89%; two days late, 79%, etc. 1 day late = maximum credit 89% 2 days late = maximum credit 79% 3 days late = maximum credit 69% 4 days late = maximum credit 59% 5-10 days late = maximum credit 50%

	• Half credit is always better than no credit! Until work has been made up, "Missing" (which counts as a zero) will be put in the grade book. This will be updated once work is completed and turned in.
Accommodations:	Requests for accommodations for this course or any school event are welcomed from students and parents.
Technology	Concerning laptop utilization: 1. Student laptops should not be hard-wired to the network or have print capabilities. 2. Use of discs, flash drives, jump drives, or other USB devices will not be allowed on Madison City computers. 3. Neither the teacher, nor the school is responsible for broken, stolen, or lost laptops. 4. Laptops and other electronic devices will be used at the individual discretion of the teacher. Cell phones and headphones are only permitted at the sole discretion of the instructor under specific circumstances. DMS is a phone free zone other than designated areas (such as hallway and cafeteria).
Materials and Supplies:	REQUIRED: • $10 Course Fee can be paid on DMS Webpage: https://madisoncityal.csiepay.com/Views/Payment/Pay.aspx?pageid=803500de-8604-4e51-99b3-2eb5a010c99e • MCS Issued Chromebook/device. • Paper (loose or notebook) and pencil OPTIONAL Teacher Wish Lists for Supplies and Materials: **Amazon Wishlist** (commonly used items always needed!) **TPT Classfund** (crowd-source lessons and ideas to keep classes constantly state-of-the-art and engaging).

	
Parent Communication:	1. <u>Email is the absolute best way to get in touch with me</u> regarding any issues you may have. 2. Students may choose to contact me via Schoology Message (I do respond to these as well, but it may take a bit longer.) 3. If you do wish to call and speak to me in person, I should be available during my planning (E Block: time varies depending on weekly schedule rotation) daily. If you need to speak to me before or after school, we will need to schedule a call.

9 Week Plan **Subject to Change*	
Week	**Unit **STEM Projects change every term. It depends on the materials we have available, the student interests we have, and the collective ability of students.**
1	Introduction, Rules, Procedures, Safety, Cooperative Learning
2	Introduction to STEM principles and the Engineering Design Process; Introductory STEM Project (Ask, Imagine, Plan, Create, Improve, Communicate)
3	Begin Second STEM Project (Ask, Imagine, Plan)
4	Finish Second STEM Project (Create, Improve, Communicate)
5	Begin Third STEM Project (Ask, Imagine, Plan)
6	Continue Third STEM Project (Create, Improve)
7	Finish Third STEM Project (Communicate); Begin Fourth STEM Project (Ask, Imagine, Plan)
8	Continue Fourth STEM Project (Plan, Create, Improve)
9	Finish Fourth and Final STEM Project (Improve, Communicate)