Journey Middle School

217 Celtic Drive,

Science of Technology

Mr. Kaleb Hood

Teacher Contact Information	Email: kdhood@madisoncity.k12.al.us
Classroom Digital Platforms	Schoology Link: https://madisoncity.schoology.com/home
Textbook Information	Curriculum is through myPLTW.org
Course Description	9 Weeks Course In Science of Technology (ST) students explore how science impacts the technology of yesterday, today, and the future. Students apply the concepts of physics, chemistry, and nanotechnology to STEM activities and projects, including making ice cream, cleaning up an oil spill, and discovering the properties of nanomaterials.
Course Prerequisites	none
Course Objectives	By the end of this course, Will have a basic understanding of Applied Chemistry, Nanotechnology, and Applied Physics. Students will be learning based on a Project Based Learning Platform such as learning about Applied Chemistry through making ice cream and creating an Oil Spill simulation. In Applied Physics students will be learning about and creating their own simple machines.
Course Goals	By the time the course is finished, students will be able to: ● Show they have a basic understanding of Applied Chemistry, Nanotechnology, and Applied Physics ● Describe how Nanotechnologies are discovered and created ● Relate Engineering Careers to the projects they will be creating in this class
Instructional Delivery Plan, Course Outline, and Culminating Project	**Lesson 1: Applied Chemistry** Chemical engineering is the profession that combines chemistry and engineering concepts to help solve problems related to world hunger, pollution of our environment, creating new materials, or meeting demands for energy. Chemical Engineers are instrumental in the production of virtually all pharmaceuticals as well as life-saving devices such as the artificial kidney or angioplasty catheters. They are working on ways to recycle plastics, reduce pollution, and develop new sources of environmentally clean energy. Chemical engineers have the background knowledge of chemistry coupled with an understanding of chemical processing that allows them to tackle most any chemical problem, from waste minimization, to environmental remediation, to pollution prevention, to cleanup of stack gases, to purification of drinking water. Most major chemical companies hire chemical engineers to fill their technical positions in environmental engineering. In this unit students will explore the chemistry behind

	making ice cream, creating adhesives, and cleaning up an oil spill. **Lesson 2: Nanotechnology** Nanotechnology is a multidisciplinary field of discovery. Scientists and engineers working in physics, chemistry, biology, information technology, metrology, and other fields are contributing to today's research breakthroughs. The worldwide workforce necessary to support the field of nanotechnology is estimated at 2 million by 2015. In this lesson students will be introduced to the many facets of nanotechnology, and they will explore nanomaterials and their application. **Lesson 3: Applied Physics** Throughout the ages humans have sought to make life easier through innovation and invention. At the beginning of civilization, hand tools were used exclusively. These hand tools consisted of one or more of the six simple machines: lever, wheel and axle, pulley, screw, wedge, and inclined plane. Modern machines that are run by electricity have many of their moving parts based on these simple machines. This lesson will provide students with an understanding of machines and how they are used to create motion. This understanding will prepare students to analyze and improve the mechanisms society uses today
Course Outline	Unit 1: What is Engineering Unit 2: Applied Chemistry Unit 3: Nanotechnology Unit 4: Applied Physics **This is subject to change.*
Credentials	None
CTSO Integration (JMS 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 CSIM include but are not limited to: Lab Safety Posters, Coding Challenges, Career Prep, Cyber Security, Essays on Technology, Challenging Tech Issues
Embedded Numeracy Anchor Assignment (Unit 4: Applied Physics)	MA19.6.25 - Graph polygons in the coordinate plane given coordinates of the vertices to solve real-world and mathematical problems. MA19.8.23 Use coordinates to describe the effect of transformations (dilations, translations, rotations, and reflections) on two- dimensional figures.
Embedded Literacy Anchor Assignment (Unit 1: What is Engineering?)	ELA21.6.7 - 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. ELA21.7.7b - Write informative or explanatory texts with an organized structure and a formal style to examine ideas or processes effectively while developing the topic and utilizing appropriate transitions, precise vocabulary, and credible information or data when relevant.

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	1. Be Punctual ● Be in your assigned seat and working on assigned bell work when the bell rings ● Tardy students will sign the tardy sheet 2. Be Prepared ● Bring a charged computer, science notebook & required materials to class each day. ● Have pencils sharpened and begin bell work ● Assigned homework and project will be due on assigned dates 3. Be Polite ● Treat each person with respect and dignity ● Use materials for their intended purpose and put them away when you are finished. Students who waste or abuse materials will replace them. 4. Be Responsible ● Follow directions the first time they are given ● You are responsible for completing any assignments missed when you are absent. Daily assignments will be posted on Schoology 5. Be Persistent and Positive ● Be willing to explore new topics with a good attitude and work through challenging assignments. ● Work cooperatively in small groups and whole class activities 6. Be Safe ● Keep your hands and feet to yourself ● Follow all safety rules when working in the lab.
Progressive Discipline ***(LMS Policy)***	Step 1: Verbal warning Step 2: Student/teacher conference Step 3: Parent contact/conference Step 4: Detention and a parent contact Step 5: Office referral
Grading Policy ***(MCS Policy)***	60% = Assessments (Tests, Essays, Projects) 40% = Daily Grades (Quizzes, Homework, Classwork, and Participation)
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). Many times, missed quizzes and tests can

	be made up during school
Technology	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.
Accommodations	Requests for accommodations for this course or any school event are welcomed from students and parents.
Materials & Supplies	Class Fee: $10 Spiral Notebook
Homework	If a student is unable to complete an in-class assignment, the student will complete the assignment at home. Occasionally, students may have small homework assignments. All such assignments will be due the next school day.
Parent & Student Signatures	Student Acknowledgement form link: https://forms.gle/Q5ZQsbLDmqia6Dyp6 Parent Acknowledgement form link: https://forms.gle/qv53quB7zmaebCoD6