

Mrs. M. James

Room 107

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Design and Modeling

Students will use the Design Process to create and annotate designs that can be communicated across the world, using industry accepted rules. Students will use a Decision Matrix to evaluate design success, and create Design Briefs to propose their designs. Sketching, dimensioning, measuring, mechanical dissection, CAD designs, and 3D printing are a few ways these STEM activities will be completed.

Project Lead The Way (PLTW)

<http://www.pltwohio.org/>

<https://www.pltw.org/>

“LEADERSHIP. INNOVATION. CONTINUOUS IMPROVEMENT.”

Skills and Methods:

Collaboration, Research, Problem-Based Activities and Projects with Real-World Solutions

Learn more about why and how STEM, and becoming a “Maker,” is a valuable currency in global innovation:

More STEM/ Maker Movement Resources:

- <http://www.ed.gov/stem>
- <http://www.nasa.gov/offices/education/about/index.html>
- <http://makered.org/>

Curricular Connections:

English Language Arts- reading, reflection, vocabulary, technical writing, communication

Math- geometry, measuring, calculations, 2D/ 3D design

Science- inquiry, innovation, investigation, prototyping, testing

Technology- Google Apps, 123D Design (CAD), Internet citizenship

Social Studies- research, social impact, historical influence

Arts- creativity, mixed media, photography, fabrication

Materials:

- PENCILS (only)- NO MECHANICAL
- ERASERS (Pencil top and/or large gum)
- 1” BINDER with clear pocket on the front. Extension and STEM binders may be shared.
- LOOSE LEAF NOTEBOOK PAPER
- AGENDA (School-provided)
- Sharpie(s)

STEM Design and Modeling/ Automation and Robotics

Goals:

- Investigate and use the Design Process to solve problems.
- Explore engineering careers connected to the STEM fields.
- Utilize the PLTW web site to complete class activities and quizzes.
- Participate as a valuable member of a team to achieve goals.
- Connect the relationship between engineers and characteristics needed to be successful in STEM fields.
- Construct and evaluate mechanical characteristics, including calculating input/ output, and speed/ torque relationships
- Design on 123D Design and Geogebra
- Sketch isometric and multi-view shapes with dimensions
- Use multiple tools to take measurements, convert, and communicate details of design

Grades:

- Weekly participation grade -
 - prepared with class materials and work
 - In seat when bell rings
 - Productive group/ partner contribution
 - Behavior/ respect for classroom success by respecting the teacher and fellow students, their time, materials, and the environment
 - Achieving goals through activities, projects, quizzes, and assessments
- Grades will be entered and updated in Progress Book as they are completed.
- Late assignments will be accepted if clear progress is made utilizing class time.
- Due Dates in Progress Book are goals, and are fluid depending on class and individual progress.
- Projects will consist of online research, creating presentations, evaluating the Design Process, 123D Design CAD drawing, Geogebra design, sketching, measuring, evaluating design elements, and proposing design solutions, as well as group/ partner responsibilities
- Homework consists of work you may not have finished in class, and studying for quizzes and assessments.

Downloads: Download to student device/ parent/ guardian devices- ALL FREE!!

- Remind <https://www.remind.com/> or on ios or android app store
- QR code reader
 - Available on itunes or Google Play- any free app will work
- Kahoot
 - <https://kahoot.it/#/>
 - Available on itunes or Google Play
- Google Drive/ Apps- Available on itunes or Google Play

Please sign and return the attached information sheet.

7th Grade STEM - Project Lead the Way- Design and Modeling 2017/2018

Student Signature and Printed Name: _____

Parent/ Guardian Signature: _____

Printed Parent/ Guardian Name: _____

Parent/ Guardian Email/ Phone #: _____

Feel free to email this information, or fill it out and snap a picture and email it to mjames@huron-city.k12.oh.us by Friday, August 25, 2017. ***This is worth 5 points.***

Please use the space below to note any questions about class, or any information you would like to share regarding your student engineer.