

Course: Metal Fabrication
Unit #1: Safety

Year of Implementation: 2023-2024

Curriculum Team Members :Jim Scott - jscott@lrhsd.org; Matt Emmett - memmett@lrhsd.org

Stage One - Desired Results

Link(s) to New Jersey Student Learning Standards for this course:

<https://www.state.nj.us/education/cccs/2020/>

https://www.nj.gov/education/standards/clicks/Docs/2014_9.3_21LifeAndCareers.pdf

https://www.nj.gov/education/standards/ela/Docs/2016NJSLS-ELA_Companion9-10.pdf

https://www.nj.gov/education/standards/ela/Docs/2016NJSLS-ELA_Companion11-12.pdf

- **Unit Standards:**

- **21st Century Life & Career Standards**

- 9.3.12.ED.4 - Evaluate and manage risks to safety, health and the environment in education and training settings.
- 9.3.MN.3 - Comply with federal, state and local regulations to ensure worker safety and health and environmental work practices.
- 9.3.MN-HSE.1 - Demonstrate the safe use of manufacturing equipment.
- 9.3.12.AC-CST.9 Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
- 9.3.MN-PRO.2 Manage safe and healthy production working conditions and environmental risks
- 9.3.MN-PPD.3 Monitor, promote and maintain a safe and productive workplace using techniques and solutions that ensure safe production of products.

- **English Companion Standards**

- RI.9-10.7. Analyze various perspectives as presented in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
- *WHST.9-10.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences*

- ***NJ Statutes:*** NJ State law mandates the inclusion of the following topics in lesson design and instruction as aligned to elementary and secondary curriculum.

Amistad Law: N.J.S.A. 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.

Holocaust Law: N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

LGBT and Disabilities Law: N.J.S.A. 18A:35-4.35 A board of education shall include instruction on the political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum of middle school and high school students as part of the district's implementation of the New Jersey Student Learning Standards (N.J.S.A. 18A:35-4.36) A board of education shall have policies and procedures in place pertaining to the selection of instructional materials to implement the requirements of N.J.S.A. 18A:35-4.35.

Diversity and Inclusion (N.J.S.A. 18A:35-4.36a) A board of education shall incorporate instruction on diversity and inclusion in an appropriate place in the curriculum of students in grades kindergarten through 12 as part of the district's implementation of the New Jersey Student Learning Standards.

Asian American and Pacific Islanders (AAPI) P.L.2021, c.410 Ensures that the contributions, history, and heritage of Asian Americans and Pacific Islanders (AAPI) are included in the New Jersey Student Learning Standards (NJSL) for Social Studies in kindergarten through Grade 12 (P.L.2021, c.416)

For additional information, see

NJ Amistad Curriculum: <http://www.njamistadcurriculum.net/>

Diversity and Inclusion: <https://www.nj.gov/education/standards/dei/index.shtml>

- (Sample Activities/ Lessons): <https://www.nj.gov/education/standards/dei/samples/index.shtml>

Asian American and Pacific Islanders:

- [Asian American and Pacific Islander Heritage and History in the U.S.](#)

A Teacher's Guide from EDSITEment offering a collection of lessons and resources for K-12 social studies, literature and arts classrooms that center around the experiences, achievements and perspectives of Asian Americans and Pacific Islanders across U.S. history.

Transfer Goal: Students will be able to independently use their learning to recognize hazards within a metal working facility in order to operate tools and machines safely and effectively.

As aligned with LRHSD Long Term Learning Goal(s):

- Acquire, integrate, and apply design processes and essential technical skills to solve problems, create products, and improve the quality of life for our local and global community.

Enduring Understandings

Students will understand that. . .

EU 1

the implementation of proper safety procedures will minimize potential hazards.

EU 2

Essential Questions

EU 1

- Why is safety important?
- How does behavior affect safety?
- How does the maintenance of tools and machines impact safety?
- How does classroom environment influence safety?
- How can a hazardous situation in the classroom be safely resolved?

EU 2

<p>each tool and piece of equipment has a specific set of operations.</p>	<ul style="list-style-type: none"> ● How does the condition of tools and machines impact safety? ● Why does the sequence of operations for each tool or piece of equipment matter? ● What are the critical factors to consider when selecting a tool that is best suited for a given job?
<p><u>Knowledge</u> Students will know . . .</p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> ● proper classroom expectations (attire, behavior, procedures, etc.). (9.3.12.ED.4) ● the proper form, function, and safe application of hand tools and power tools. (9.3.MN-HSE.1) <p><i>EU 2</i></p> <ul style="list-style-type: none"> ● the use for the correct tool for the correct operation (9.3.12.AC-CST.9) ● the proper sequence of operations for safe and effective use of hand and power tools. (9.3.12.AC-CST.5) ● to inspect tool condition and setups prior to working with it to ensure safe conditions are met.(9.3.12.AC-CST.5) 	<p><u>Skills</u> Students will be able to. . .</p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> ● demonstrate proper general lab safety. (9.3.12.ED.4) ● select the appropriate tool for a required task. (9.3.MN.3) ● identify unsafe conditions and carry out appropriate corrective measures. (9.3.MN.3) <p><i>EU 2</i></p> <ul style="list-style-type: none"> ● demonstrate the proper safety and function of hand and power tools. (9.3.12.AC-CST.9) ● select the appropriate tool for a required task. (9.3.12.AC-CST.9)
<p>Stage Two - Assessment</p>	

Stage Three - Instruction

Learning Plan: Suggested Learning Activities to Include Differentiated Instruction and Interdisciplinary Connections: Each learning activity listed must be accompanied by a learning goal of A= Acquiring basic knowledge and skills, M= Making meaning and/or a T= Transfer. The following color codes are used to notate activities that correspond with interdisciplinary connections and 21st Century Life & Career Connections (which involves Technology Literacy): Red = Interdisciplinary Connection; Purple = 21st Century Life & Career Connection

- Teacher led discussions and demonstrations on safety and hand/power tool/electricity usage. (A) (EU1)
- Teacher led discussion on identifying safe use procedures and tool maintenance. (A)(EU1,2)
- Read materials on the proper use and safe practices for handling electronics. (A) (EU1)
- Students will demonstrate proper tool usage and safety procedures (M,T EU1,2)
- Practice new skill sets on hand and power tools (M, EU1,2)
- Teacher led discussion and student application on selecting the proper tool for a given task (A,M)(EU1)
- Peer review and evaluation (M,T EU1,2)

Pacing Guide

Unit #	Title of Unit	Approximate # of teaching days
1	Safety	30
2	CAD/CAM	40
3	Machining	70
4	Molding/Forming	40

Instructional Materials

- *Fully equipped metal shop*

Accommodations

Special Education: The curriculum will be modified as per the Individualized Education Plan (IEP). Students will be accommodated based on specific accommodations listed in the IEP.

Students with 504 Plans: Students will be accommodated based on specific accommodations listed in the 504 Plan.

English Language Learners: Students will be accommodated based on individual need and in consultation with the ELL teacher.

Students at Risk of School Failure: Students will be accommodated based on individual need and provided various structural supports through their school.

Gifted and Talented Students: Students will be challenged to enhance their knowledge and skills through acceleration and additional independent research on the subject matter.