

# Unit 1: Manufacturing Technology Laboratory and Personal Safety

Content Area: **Industrial Technology**  
Course(s): **Manufacturing Technology I**  
Time Period: **1 marking period**  
Length: **1 Week**  
Status: **Published**

## Unit Overview

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Students will be able to identify possible safety hazards and proper safety attire when working in the Manufacturing Lab.

## Transfer

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Students will be able to independently use their learning to...

Apply these skills to work related activities when they leave High School and join the work force when they graduate or become of work age to avoid injury.

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For more information, read the following article by Grant Wiggins.

[http://www.authenticeducation.org/ae\\_bigideas/article.lasso?artid=60](http://www.authenticeducation.org/ae_bigideas/article.lasso?artid=60)

## Meaning

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Students will be able to explain the importance of practicing safe work habits.

Students will be able to summarize the general safety practices observed in manufacturing.

Students will be able to list common safety equipment and protective clothing used in the manufacturing lab.

Students will be able to apply safe work habits when operating machinery.

Students will be able to recognize and avoid unsafe work practices.

## **Understandings**

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Students will understand that...

Their actions and knowledge will affect the possibility of injury they may sustain if they don't follow the safety rules for the Manufacturing Lab.

## **Essential Questions**

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Students will keep considering...

What would happen if there was no state and school safety requirements?

Why must the students assume responsibility for their safety?

Why must the students wear safety eye protection at all times in the shop, what could happen?

How could the way you dress possibly cause an accident or injury?

Why is it important to receive training on tools and machinery before operating them?

## **Application of Knowledge and Skill**

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Students will know that safety rules must be followed when beginning work on their projects in the Manufacturing Lab.

Students will wear Safety Glasses or Safety Goggles at all times when working on their projects in the shop.

Students will be able to operate safety apparatus like the eyewash, chemical shower, fire blanket, fire extinguisher and first aid kit location in the event of an emergency in the shop.

Students will be able to locate and operate lab power safety shutoff buttons in the Man. tech Lab in the event of an emergency while they're working on projects.

Students will dress appropriately when working in the lab when working on projects or using machinery or equipment.

### **Students will know...**

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Students will know...

Students will know that safety rules must be followed when beginning work in the Manufacturing Lab.

Students will wear Safety Glasses or Safety Goggles at all times when working in the shop.

Students will be able to operate safety apparatus like the eyewash, chemical shower, fire blanket, fire extinguisher and first aid kit location.

Students will be able to locate and operate lab power safety shutoff buttons in the Man. tech Lab.

Students will dress appropriately when working in the lab.

### **Students will be skilled at...**

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Students will be skilled at...

Recognizing the potential for an accident to occur if they do not follow safety rules and any hazards that exist.

### **Academic Vocabulary**

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Adequate Ventilation

approved eye protection

chips

compressed air

electrocution

hand tools

machine guards

metal safety container

metal lab safety equipment

## **Learning Goal 1**

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Explain the importance of practicing safe work habits and summarize the general safety practices.

- Explain the importance of practicing safe work habits and summarize the general safety practices.

MANU.9-12.9.4.12.M.33	Demonstrate knowledge of personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.
MANU.9-12.9.4.12.M.34	Demonstrate knowledge of employee rights and responsibilities and employers' obligations to maintain workplace safety and health.
MANU.9-12.9.4.12.M.35	Identify emergency procedures that are necessary to provide aid in workplace accidents.
MANU.9-12.9.4.12.M.37	Explain health, safety, and environmental management systems in organizations and their importance to organizational performance and regulatory compliance.
MANU.9-12.9.4.12.M.39	Maintain safe and healthful working conditions and environments to ensure employee safety.
MANU.9-12.9.4.12.M.40	Understand employee rights and responsibilities and employers obligations concerning occupational safety and health.
MANU.9-12.9.4.12.M.41	Assess types and sources of workplace hazards common to manufacturing business environments in order to maintain safe working conditions.
MANU.9-12.9.4.12.M.42	Demonstrate understanding of how to control workplace hazards in manufacturing business environments in order to maintain safe working conditions.
MANU.9-12.9.4.12.M.43	Summarize safety, health, and environmental management systems to convey an understanding of how manufacturing businesses comply with governmental policies and procedures.

## **Target 1**

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Explain the importance of practicing safe work habits and summarize the general safety practices.

- Explain the importance of practicing safe work habits and summarize the general safety practices.

## **Target 2**

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Tour and safety lesson on all safety apparatus and its function in the Manufacturing Laboratory.

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## Learning Goal 2

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List common safety work habits when operating machinery and common safety equipment and protective clothing used in the Lab. Recognize and avoid unsafe work practices.

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CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
CAEP.9.2.12.C.7	Examine the professional, legal, and ethical responsibilities for both employers and employees in the global workplace.
MANU.9-12.9.4.12.M.33	Demonstrate knowledge of personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.
MANU.9-12.9.4.12.M.34	Demonstrate knowledge of employee rights and responsibilities and employers' obligations to maintain workplace safety and health.
MANU.9-12.9.4.12.M.35	Identify emergency procedures that are necessary to provide aid in workplace accidents.
MANU.9-12.9.4.12.M.36	Identify response techniques to create a disaster and/or emergency response plan.
MANU.9-12.9.4.12.M.38	Evaluate organizational policies and procedures that contribute to continuous improvement in performance and compliance.
MANU.9-12.9.4.12.M.39	Maintain safe and healthful working conditions and environments to ensure employee safety.
MANU.9-12.9.4.12.M.40	Understand employee rights and responsibilities and employers obligations concerning occupational safety and health.
MANU.9-12.9.4.12.M.41	Assess types and sources of workplace hazards common to manufacturing business environments in order to maintain safe working conditions.
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## Target 1

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Students will be able to apply safe work habits when operating machines.

- Students will be able to apply safe work habits when operating machines.

## Target 2

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Students will be able to recognize and avoid unsafe work practices.

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## Summative Assessment

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Students will be able to pass a safety test on shop safety rules. Students must pass the test to work in the

## **21st Century Life and Careers**

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CAEP.9.2.12.C.1	Review career goals and determine steps necessary for attainment.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
CAEP.9.2.12.C.7	Examine the professional, legal, and ethical responsibilities for both employers and employees in the global workplace.

## **Formative Assessment and Performance Opportunities**

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Students will be observed to make sure they are following safety rules and wearing proper safety equipment by the instructor and other students.

## **Accommodations/Modifications**

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Students will help to remind other students about safety rules.

## **Unit Resources**

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Modern Metalworking Instructor's Manual by John R. Walker

Modern Metalworking Textbook by John R. Walker

Modern Metalworking Workbook by John R. Walker

## **Interdisciplinary Connections**

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MA.K-12.1	Make sense of problems and persevere in solving them.
LA.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking

measurements, or performing technical tasks; analyze the specific results based on explanations in the text.