Unit 01: Safety

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **FY**
Status: **Published**

Standards Alignment

New Jersey Student Learning Standards

Practice 8. Obtaining, evaluating, and communicating information
Obtaining, evaluating, and communicating information in 9–12 builds on K–8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs.

Gather, read, and evaluate scientific and/or technical information from multiple authoritative sources, assessing the evidence and usefulness of each source.

Integration of Career Readiness, Life Literacies and Key Skills

9.3.12.AC	Architecture & Construction
9.3.12.AC-CST	Construction
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
12.9.3.ST	Science, technology, engineering & mathematics
12.9.3.ST.3	Describe and follow safety, health and environmental standards related to science, technology, engineering and mathematics (STEM) workplaces.
12.9.3.ST-ET	Engineering & Technology Career Pathway
12.9.3.ST-ET.3	Apply processes and concepts for the use of technological tools in STEM.
CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP3	Attend to personal health and financial well-being.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP10	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Technology / Integration of Computer Science and Design Thinking

TECH.8.2.12	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.12.C	Design: The design process is a systematic approach to solving problems.
TECH.8.2.12.C.2	Analyze a product and how it has changed or might change over time to meet human needs and wants.

Interdisciplinary Connections: NJSLS for ELA, Social Studies, Science and/or Math Section

LA.K-12.NJSLSA.W	Writing
LA.K-12.NJSLSA.W7	Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.
LA.W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Integration of Diversity, Equity and Inclusion; Climate Change; Informational and Media LiteracyNew Section

see Crosswalks

21st Century Life and Careers

Stage I: Desired Results

Transfer/Overview/Rationale

Transfer / Overview / Rationale
Unit Rationale The purpose of this unit…

Safety is the foundation on which any lab must be run.

Meaning

Essential Questions

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- **How can the proper knowledge of both personal and lab safety be beneficial in the real world?**
- **What are the steps we use to setup the machines and tools in the classroom, and how can this help us understand the setup of other machines?**
- **How do we accurately use the main parts of each machine after understanding the setup of these machines?**

Enduring Understanding/Indicators of Understanding

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- **Proper safety in the classroom can ensure that you are safe as well as the people around you.**
- **When setting up any machine we want to make sure to locate the power and make any adjustments before starting. This will assist in making sure the machines are being used safely and properly.**
- **With each machine knowing all the main parts, how to set them up and properly use them will make sure that the machine is being used properly.**

Acquisition (Student Learning Objectives)

Knowledge

Knowledge

Students will know…

- **The main parts of each machine:**
    - **Scroll Saw- Guard. table, blade, Switch/Speed Adjuster.**
    - **Table Saw -Miter gauge,Fence,Guard,Table,Blade.**
    - **Drill Press -Feed lever, Chuck, The table, Table adjuster, Drill Bits**
    - **Chop Saw - fence, blade, miter latch and scale, table, blade guard**
- **Handtools**
    - **pliers**
    - **C-clamps**
    - **Mallets**
    - **Hand saws**
    - **Cordless drills**
    - **Hammer**
- **Classroom safety guidelines and how to properly demonstrate them when designing.**

Skills

Skills

Student will be skilled at …

- **When working on design projects students will be able to asses when it is appropriate to use each machine based on their design features and what they are looking to accomplish.**
- **Identify the main parts of each machine and properly use them.**
    - **Drill press**
        - **properly secure, change, and use drill bits.**
    - **Scroll saw**
        - **Properly cut material, adjust the speed, and guard.**
    - **Table saw**
        - **properly cut material, use miter gauge and guard.**
- **Apply personal and lab safety guidelines:**
    - **Proper clothing, distances from the blade/drill, acting appropriately around the machines and peers.**
    - **Apply proper blade safety when using the exacto knives.**

Stage 3: Learning Plan

Resource and Mentor Texts

Resources and Mentor Texts

- **Tools and Machines: scroll saw, table saw, drill press, hand tools.**
- **http://www.technologystudent.com/**
- **http://boingboing.net/2014/08/25/a-beginners-guide-to-drills.html**
- **http://www.differencebetween.com/difference-between-drilling-and-vs-boring/**
- **http://www.scuc.txed.net/webpages/jmorrison/resources.cfm?subpage=42483**

Formative Assessment Strategies

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- **Breakout groups.**
- **Safety packets.**
- **Think pair share.**
- **Twitter board.**
- **Teacher directed questions and discussion.**
- **KWL chart.**

Learning Activities/Unit of Study

Learning Activities/Unit of Study

- **Demos for each piece of machinery.**
- **Discussion on safety procedures and safety guidelines.**
- **Safety tests for machines and tools covered.**
- **Safety Packet.**

SafetyPacket.docx

Modifications and/or Accommodations

Suggested Modifications (ELL, Sp. Ed, GIfted, At-risk of Failure)

English Language Learners

Native language support: The teacher provides auditory or written content to students in their native language.

Adjusted Speech: The teacher changes speech patterns to increase student comprehension. This could include facing the students, paraphrasing, clearly indicating the most important ideas, and speaking more slowly.

Visuals: The teacher uses graphics, pictures, visuals, and manipulatives. This helps ELL students better understand and comprehend the subjects at hand.

Front-Loading Vocabulary: The teacher front loads vocabulary. This means providing students with a list of important vocabulary words they will need to know for a book, lesson, etc. prior to the lesson being taught. Including pictures to go with the vocabulary words is also very beneficial for the students.

Special Education Students

Chunking: The teacher presents information in a way that makes it easy for students to understand and remember. Chunking is based on the presumption that our working memory is easily overloaded by excessive detail. The best way to deliver information is to organize it into meaningful units. Because students with special needs get overloaded easily, chunking is an effective strategy to use with them.

Checking for Understanding: It is important to constantly check for understanding, especially for students who have accommodations. Teachers want to make sure students understand the concepts being covered in a way that makes sense to them.

Extra time: The teacher provides students with special needs extra time to complete work or answer questions. It is important to give students enough time to process their thoughts.

Oral Reading: The teacher will read work orally to students. Class work such as tests and literature circles may need to be read aloud to the student.

Timers: The teacher will use timers as an instructional tool. The use of timers is beneficial for students who have trouble completing tasks. Timers can be helpful so the student is aware of how much time they have to complete an assignment.

Students with 504 Plans

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Gifted & Talented Strategies

Extensions/Enrichments: Teachers will provide gifted and talented students with extension/enrichment projects. Students will be challenged to further their understanding, to apply acquired knowledge, and/or to produce something in reference to acquired knowledge.

Modify/Change Activities: Teachers will monitor and modify activities to accommodate those students who need to be challenged further. Additional reading, problem-solving, writing, or project work is necessary for those students who are ready to move on at a rate more accelerated than their peers. In this way, G & T students are provided the same opportunity for support as special needs students.

Students at Risk of School Failure

Directions or Instructions: Make sure directions and/or instructions are given in limited numbers. Give directions/instructions verbally and in simple written format. Ask students to repeat the instructions or directions to ensure understanding occurs. Check back with the student to ensure he/she hasn't forgotten.

Peer Support: Peers can help build confidence in other students by assisting in peer learning. Many teachers use the 'ask 3 before me' approach. This is fine, however, a student at risk may have to have a specific student or two to ask. Set this up for the student so he/she knows who to ask for clarification before going to you.

Alternate or Modified Assignments: Always ask yourself, "How can I modify this assignment to ensure the students at risk are able to complete it?" Sometimes you'll simplify the task, reduce the length of the assignment or allow for a different mode of delivery. For instance, many students may hand something in, the at-risk student may jot notes and give you the information verbally. Or, it just may be that you will need to assign an alternate assignment.

Increase One to One Time: When other students are working, always touch base with your students at risk and find out if they're on track or needing some additional support. A few minutes here and there will go a long way to intervene as the need presents itself.

Contracts: It helps to have a working contract between you and your students at risk. This helps prioritize the tasks that need to be done and ensure completion happens. Each day write down what needs to be completed, as the tasks are done, provide a checkmark or happy face. The goal of using contracts is to eventually have the student come to you for completion sign-offs.

Hands On: As much as possible, think in concrete terms and provide hands-on tasks. This means a child doing math may require a calculator or counters. The child may need to tape record comprehension activities instead of writing them. A child may have to listen to a story being read instead of reading it him/herself.

Tests/Assessments: Tests can be done orally if need be. Break tests down in smaller increments by having a portion of the test in the morning, another portion after lunch and the final part the next day.

Seating: Seat students near a helping peer or with quick access to the teacher. Those with hearing or sight issues need to be close to the instruction which often means near the front.