SECTION 8

SAFETY ISSUES

Introduction

Taking Making into Classrooms is different from opening a school shop and periodically using the equipment without paying any mind to the potential hazards. Rather, teachers who incorporate making and design thinking into their classrooms must be aware of everything from safety equipment (i.e. eye and ear protection) to tool training changes and the most appropriate materials that are available for student use.

Linking Safety, Intent to Tools and Spaces

We take a just-in-time approach to safety issues, in order to introduce the need to be safe and maintain safe work spaces in a timely and situational manner. We know that students and teachers need to work safely, and safety issues are not something that should be taught to students in order to instill a fear of working with tools. Instead, safety should be taught to students to promote a sense of empowerment and confidence in their skills. We embrace the mantra from our colleagues and friends in Women in Trades Training (WITT), “Empowerment through power tools!”

When we can use powerful tools safely, we are empowered to do more and to try more. Empowerment is a strength-based approach to learning. Empowering both teaches and students allows them to overcome the mindset that tells them they won’t succeed due to factors like age, gender, or a lack of experience.

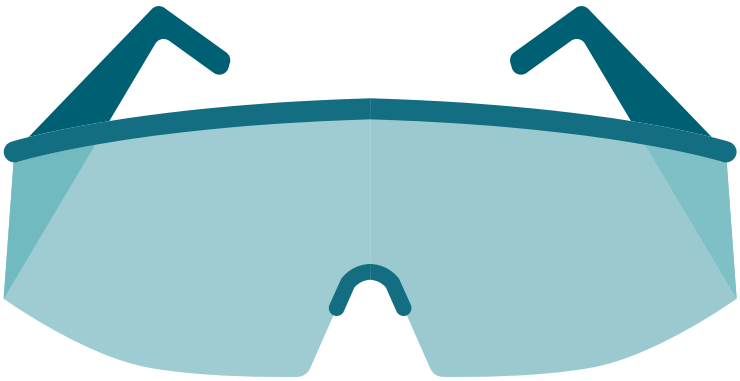

Table 8-1: Mapping Learning Intentions, Tools, and Safety

	Learning Intention	Basic Tools (See Section 9 for details)	Initial Safety Concerns
Introductory, Inexpensive, Simple	**Design and Basic Making**	Hand tools, including glue guns, rulers, knives, scissors, etc.)	Emphasis is on accurate measuring, safe cutting, and careful assembly. • Use of ruler both for measuring and as a straight edge to cut against • Safe ways to walk holding sharp objects • Safe ways to use hot elements like glue guns and hot glue • Ways to help your group members—where to stand, how to hold things, use of tools with and among other people
	Design and Simple Prototyping	Hand tools and simple power tools such as Dremel tools, electric drills, etc.	Focus is on accurate measuring, safe cutting, and careful assembly; emphasis is on the selection of the appropriate tool for the task. • See above • Use of v-blocks and clamps to hold materials prior to drilling, cutting or shaping • Use of eye and ear protection for user and those immediately around them • Use of gloves where appropriate • Use of drill bits and Dremel attachments • Use of extension cords, cables, power bars, etc.
	Design and Fabrication	Hand and power tools with option for 3D printers, CNC machines, etc.	Focus is on accurate measuring, safe cutting, and careful assembly; emphasis is on the selection of the appropriate tool for the task. • See above • See safety concerns specified by specific tool to be used • Address issues of ventilation and air quality
Advanced, Expensive, Complex	**Design, Prototyping, Circuitry and Coding**	Hand and power tools, soldering irons, circuits, breadboards, etc.	Focus is on accurate measuring, safe cutting, and careful assembly, and the selection of the appropriate tool for the task; emphasis is on the addition of functionality to the design through the inclusion of circuits and coding. • See above • Address issues of ventilation and air quality, especially when soldering

How You Might...

...Create a Safety Station

Consider ways in which you might create a safety station where students can be shown the proper way to use the available tools and materials available.

Is there expertise you can draw on—colleagues who have Red Seal certification, knowledgeable colleagues who are makers, parents, or community members who can help you to hone your skills? Do you know someone who could help with the set up and introduction of your Safety Station, etc.?

...Explore Safety Resources

Explore the safety resources that are available and ensure you have the necessary safety equipment and expertise.

- Heads Up for Safety (**http://www.bctea.org/heads-up-for-safety/**)
- Young Workers (**https://www.worksafebc.com/en/health-safety/education-training-certification/young-new-worker/student-worksafe**)
- Heads Up—Work Smart (**http://headsupab.com**)
- For Educators (**http://www.bcpsea.bc.ca/bc-teachers/workplace-safety.aspx**)

Explore the resources shared by colleagues at the **Surrey, BC MakerSpace**.