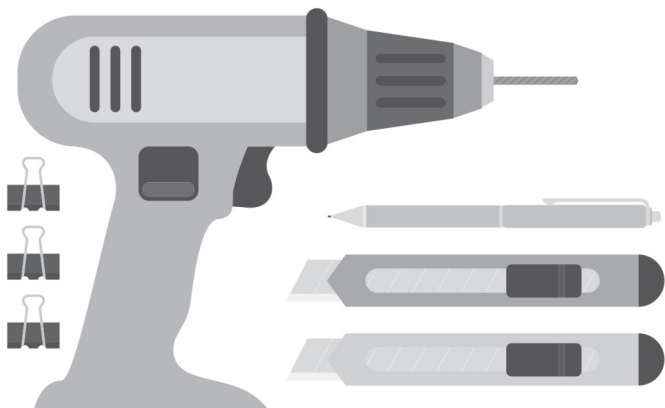



**SKILLS
EXPLORATION
DAYS**




**Skills Canada
Alberta**



**2020
TEACHER GUIDE**





Skills Canada Alberta (SCA) believes that connecting with youth in junior high serves to support students at a pivotal point in their education journey. [Skills Exploration Days](#) was created to meet this opportunity, bringing the unique and energetic spirit SCA is known for to junior high students across Alberta. This career exploration experience is designed to complement and support Alberta Education's [Career and Technology Foundations \(CTF\)](#) Program of Studies.

WHAT IS VIRTUAL SKILLS EXPLORATION DAYS?

Virtual Skills Exploration Days is an opportunity for teachers and junior high students (grades 7-9) to participate in an authentic and meaningful skilled trade and technology career exploration experience. At Skills Exploration Days, students will work together as a teams of 4 in their school to build a prototype using career-related skills, tools and materials. Building on the Maker Day model, the goal of the day is to encourage the use of empathy through design thinking, inquiry, making, and experiential learning. Registered schools will be given a toolkit (valued at \$4,000) that includes tools, some materials, PPE and facemasks. Toolkits will be a legacy gift to help schools continue to provide students the opportunity to explore hands-on experiences that promote creativity. Pick up details are TBA. Teachers are required to watch the tool safety videos before participating. **Note: Schools are encouraged to supplement the building with tools, technology and materials already available to students at their school. Teachers must provide a variety of scrap materials to build with . See page 9 for a list of items included in the toolkit.**

Prior to Virtual Skills Exploration Days, teachers are first required to complete activities in the classroom such as: introducing and researching the *Design Challenge* (pages 5-6) and facilitating students through the *Human-Centered Design Thinking Worksheet* (page 7). It is highly recommended that the teacher(s) who facilitate the classroom activities also attend Skills Exploration Days.

The purpose of Skills Exploration Days is to:

Inspire junior high students to identify inherent skills and interests

Connect skills and interests of students to trade and technology careers through interactive, hands-on experiences that promote creativity, empathy and exploration

Promote trade and technology careers as a valuable and rewarding career choice

VIRTUAL DATES

November 24 or November 25, 2020 9:30am - 2:30pm

ONLINE REGISTRATION

Online registration is **September 30, 2020 at 8:30 AM**. The fee is \$200 per school. Up to 25 schools can participate each day and teachers can register 20 students. Request additional spots by making a waitlist request through the registration portal (it will be up to each teacher to determine which students will be participating). Waitlist granting/drop deadline is on **October 7, 2020**, after this date schools will be invoiced 50% of the total amount. Once a school has picked up their Toolkit, the school is invoiced for the full amount. Register early to avoid disappointment! Registration and additional student spot requests are rewarded on a first-come first-serve basis.

Your school must be registered with Skills Canada Alberta in order to be able to participate.

◆ Registering as a Skills School is free of charge. Visit www.skillsalberta.com/become-skills-school, then “Click Here to Register as a Skills School”. Once registered, a username and password will be emailed to you.

Login to the www.skillsalberta.com registration portal using your username and password by selecting the “**Login**” link that is found in the top navigation bar.

- ◆ Login to the registration portal and select the “Skills Exploration Days” tab.
- ◆ Once registration opens, click on the green “Add New” and select the number of spots you would like. These spots will be added under “Registered Participants”. If a spot is not available or if you would like to request additional spots, click “Add New” in the Waitlist Request section. Waitlist granting will take place on October 7, 2020.
- ◆ You are required to provide each student’s name, their parent/guardian’s name and e-mail. An online consent form is sent directly to the parent/guardian’s e-mail. All consent forms must be completed by **November 4, 2020**.

GET STARTED IN THE CLASSROOM!

Follow these steps to ensure all in-classroom activities are completed prior to attending Skills Exploration Days

Step 1: [Visit the Skills Exploration Days Website](#) - Watch the Skills Exploration Days video to see what a day of exploration looks like, learn the 5 steps of the Design Thinking Process and why design thinking is important to build a meaningful prototype. All videos, presentations and worksheets will be available on this website.

Step 2: [Read the 2020 Teacher Guide](#) - Helpful information such as dates, online registration instructions, schedule of the day, sample floor plan and a list of tools, technology and materials available to build with.

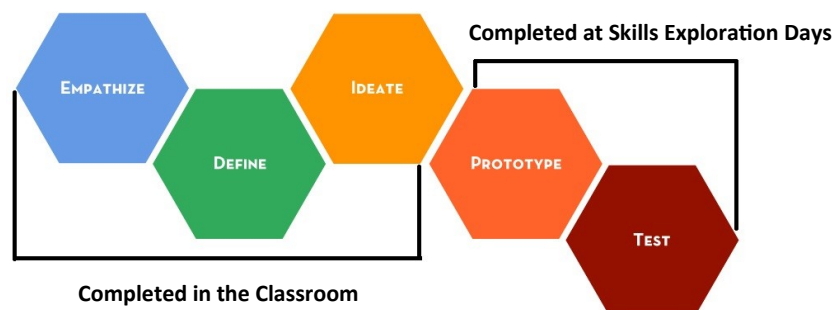
Step 3: [Watch the Teacher Video](#) - A step by step how-to video to help teachers facilitate the design thinking activity and worksheet in the classroom while using the corresponding Teacher PowerPoint.

Step 4: [MANDATORY: Watch the Tool Safety Videos](#) - Quick videos demonstrating how to safely use the tools included in the toolkits that will be supplied by Skills Canada Alberta to the registered schools.

Step 5: [Use the Teacher Presentation](#) - A plug and play presentation for teachers to easily facilitate and complete the in-classroom Human-Centered Design Thinking worksheet. The presentation makes completing the worksheet a breeze by giving students visual prompts to follow and with the help of timers, you can stay on time and finish in approximately 60-90 minutes. *There is also a Facilitator's Guide to the Design Thinking Process on page 36-40 of the Teacher Toolkit - Taking Making Into The Classroom Toolkit.*

Step 6: [Research the Design Challenge "Chindogu: Designing for the fun of it"](#) - A design challenge is an engaging topic that encourages students to focus on empathy and human-centered concerns. It is important to take time to research and understand the concepts and vocabulary terms embedded in the challenge. The more background knowledge the students gain, the more successful they will be during the in-classroom activity which will result in a very creative and meaningful prototype.

Step 7: [Facilitate the Human-Centered Design Thinking Worksheet](#) - Students must understand that they will **not** be designing a prototype for themselves. They must put themselves into the shoes of their partner to gain empathy and design a prototype to meet the needs of their partner. Using the Teacher Presentation, teachers will facilitate the design thinking process as students work in partners to complete the Human-Centered Design Thinking worksheet. Students will sketch their million dollar design in the Final Prototype Sketch section. This final prototype sketch **must** be brought to Skills Exploration Days as it will be the blueprint to build the prototype.



BONUS: [Taking Making into Classrooms: A Toolkit Fostering Curiosity and Imagination in Alberta Classrooms](#) - Provides background information on the maker movement, design thinking, makerspaces and assessment tools all while making connections and references to the Alberta CTF Program of Studies. For participation in Skills Exploration Days, please take note of Sections 1-6. See Section 12 for 31 sample design challenges teachers can use in their classroom today!

Stanford d.School also provides design thinking resources to teachers such as:

[An Introduction to Design Thinking Process, A Crash Course In Design Thinking, A Facilitator's Guide](#)

A DAY OF VIRTUAL SKILLS EXPLORATION

Time	Event
Day Before	Please ensure the building space, Learn-A-Skill stations, tools and materials are safely set up. Refer to page 8 for a sample floor plan.
9:15 AM	Please log onto the Virtual Skills Exploration Days link
9:30 AM	Welcome Announcements & Safety Video
10:30 AM-12:00 PM	<p>Build Prototype</p> <p><i>The Learn-A-Skill stations will allow students to explore their interests and passions as they learn about various career possibilities and occupational areas.</i> Students will visit a variety of hands-on stations for the opportunity to learn career-related skills and knowledge when working with a variety of tools used by tradespeople. Most importantly, with assistance from their teachers, students will learn how to use tools, technology, and materials safely. Careers such as Electrical Installation, Fashion Technology, Graphic Design, Painting & Decorating, Plumbing, Sheet Metal, and Woods (Carpentry/Cabinet Making) are represented via the Learn-A-Skill Stations.</p> <p>Students must wear fully covered shoes and long pants. Long hair should be tied back.</p> <p><i>Students will have 2.5 hours to adapt to changes, create a product, and solve problems in response to the challenge.</i> Using their final prototype sketch (created in the classroom), students will have the opportunity to build their prototype using the skills and knowledge acquired at the Learn-A-Skill stations. Along with using the tools and materials at the stations, students can also use the Pantry (fun crafting items).</p> <p><i>The Reuse Centre will encourage students to demonstrate environmental stewardship associated with occupational areas.</i> During the building process, students visit the Reuse Centre where they will be challenged to recycle, reuse, and become aware of environmentally-friendly materials.</p> <p>Showcase your skills! Throughout the day, feel free to share your building progress! Use the hashtag #ABisSkilled</p> <p>Teachers are required to be present and onsite all day. Teachers must be engaged and active with their students but are encouraged to allow students to independently construct their prototype. Teachers are responsible for ensuring students are on-task and demonstrating safe behaviors.</p>
12:00-12:30 PM	Lunch Break Please have students bring a bagged lunch.
12:30-1:30 PM	<p>Finish Building Prototype & Create a Title Page</p> <p>Schools are encouraged to have Graphic Design computers available so students can create and print the prototype title page on Photoshop (or a similar software). Students can use markers and paper if computers are not available.</p>
1:30 PM	<p>Clean up & Display Prototype</p> <p>Students will clean up their workspaces and make their thinking visible by displaying the original prototype sketch, the prototype title page, and their completed prototype neatly on a table for others to see.</p>
1:40 PM	<p>Gallery Tour</p> <p>Communication is key during the Gallery Tour as students visit other displays. Take turns and have one student “stay home” with the group’s prototype to answer any questions other students may have.</p>
2:15 PM	<p>Reflection & Evaluation</p> <p>Finally, <i>all students will appraise their skills and knowledge used to respond to the challenge</i> by completing a Student Reflection and Evaluation form. Teachers are also required to complete the Teacher Evaluation Form. Please have computers or devices available.</p>
2:30 PM	Closing Remarks /Depart

SKILLS EXPLORATION DAYS DESIGN CHALLENGE

Chindogu: Designing for the fun of it

Look for printed student copies in your toolkit!

Overview

We often think of design as the creation of an object for a specific function and we implement the design thinking process to help us focus on how the design will solve real life problems. Chindogu is a fun twist on the typical design process. Established in the 1990's, chindogu is a Japanese word that means unusual tool. The inventor of the term, Kenji Kawakami actually thinks a better translation for the word chindogu is "weird tool." There are 3 basic rules for creating chindogu objects: they must be "make-able" (although they actually don't have to serve any real or needed purpose), be open access and cannot be patented, and be humorous (but this is not their entire purpose or function). In other words, they are an actual tool and not a joke or trick.

Design Rational

People are encouraged to make chindogu for the sheer pleasure of designing a tangible item. Kenji Kawakami suggests that making chindogu helps us to: improve our divergent thinking and creativity, improve our craft abilities and artist skills, and revel in creativity without the pressure of making something functional or commercial.

The best way to think about chindogu is to consider two items that have seemingly absolutely no connection. For example, think about shoes and an umbrella – anything pop into your mind? You can find other examples by using the websites listed in the Suggested Resources section.

Problem Scenario

Your team has been selected to design a functional chindogu prototype that either:

1. Enhances your school's learning environment (inside or outside)
2. Assists students or teachers to help make their daily school tasks easier
3. Makes learning more fun and will provoke a smile on the face of students or teachers using it

Your chindogu prototype should be relevant to students ranging from Kindergarten to Grade 12 (you can determine which audience you would like to focus on) and can be something used by students with a variety of abilities.

Success Determinants & Parameters

For this design challenge, your prototype **must be original** (not an exact copy of something that already exists) **and as real looking as possible**. Other criteria and parameters for a successful prototype are outlined below.

Success in the classroom will be determined by:

- Quality of initial design sketch meeting the definition of a prototype and chindogu.
- Creative and appropriate use of the potential tools and materials that will be provided.
- Degree to which you have accurately and carefully developed your prototype.
- (is it to scale, is it functional, the aesthetic quality, constructed and assembled well, etc.).
- Uniqueness and usability of your prototype design sketch to ensure it adds value for the users.
- Alignment to design motto: *Make it smaller, stronger, do more, be easier to use, be cheaper.*

Success at Skills Exploration Days will be determined by:

- Appropriate and safe use of tools and materials provided on site.
- Ability and quality to integrate tools and materials from at **least 3 different Learn-A-Skill stations**.
- Quality of your final display - title of prototype, final prototype sketch, project description and team reflection.
- Self-evaluation of the design, prototype and your personal skill set.

*A **prototype** is a model that illustrates the functionality of an idea or design. It may be life sized or scaled to a model that fits in your hand. However, a prototype needs to be as real looking as possible, using the materials available.

SUGGESTED RESOURCES TO GET YOU STARTED

Chindogu:

Official Chindogu Website

www.chindogu.com

Chindogu Unuseless Japanese Inventions – *PowerPoint that includes a definition, history and visual examples*

<https://visaapplieddesign.files.wordpress.com/2012/03/visa-chindogu.pdf>

Chindogu: The Art of Un-useless Inventions – *Meet chindogu, the art and craft of inventing things that are (almost) useless but a whole lot of fun*

<https://people.howstuffworks.com/culture-traditions/cultural-traditions/chindogu-art-un-useless-inventions.htm>

Simone Giertz Ted Talk: Why you should make useless things - *In this joyful, heartfelt talk featuring demos of her wonderfully wacky creations, Simone Giertz shares her craft: making useless robots*

<https://www.youtube.com/watch?v=c0bsKc4tiuY&t>

Learning Environments:

What is Interior Architecture and Design? - *Learn how architectural concepts and design principles transform structures into amazing spaces with cool design elements*

https://youtu.be/KvQUsr19zco?list=PLAXeXQ0M-02w-NNxfeMNdDLULC2_dwbc

BA (Hons) Interior Architecture and Design – *How to take your own inspirations to produce designs*

https://youtu.be/HRxC3eUnfbI?list=PLAXeXQ0M-02w-NNxfeMNdDLULC2_dwbc

Learning Environments: An Introduction - *Lesson highlights the importance of the environment and provides an overview of what to consider when creating and maintaining developmentally appropriate learning environments*

<https://www.virtuallabschool.org/school-age/learning-environments/lesson-1>

Flexible Classrooms: Providing the Learning Environment That Kids Need – *How flexible classrooms empower student choice, increase student engagement, and improve student participation*

<https://www.youtube.com/watch?v=4cscJcRKYxA>

Innovative Learning Spaces for the Next Generation: Centerview Elementary School - *A school that emphasizes flexible and personal learning at the elementary level*

<https://www.youtube.com/watch?v=uUisTKQFDho>

Old School Supplies: 28 Items We Wish We Still Had - *A nostalgic list some of some all-time favourite school supplies*

https://www.huffingtonpost.ca/2013/08/20/old-school-supplies_n_3786292.html

17 Inventions That Could Make Going Back to School a Little Bit Easier - *Loads of inventions that parents and children can appreciate during the school year*

<https://www.smithsonianmag.com/innovation/17-inventions-that-could-make-going-back-to-school-a-little-bit-easier-180956498/?page=8>

56 Hi-Tech Back to School Supplies - *Examples of back to school technology that leave old school supplies in the dust*

<https://www.trendhunter.com/slideshow/back-to-school-technology>



HUMAN-CENTERED DESIGN THINKING ACTIVITY

Look for printed student copies in your toolkit!



Human-Centered Design Thinking Worksheet

1. EMPATHIZE: Design something meaningful for your partner

Have a conversation with your partner to find out what they know about the topic, make personal connections, and find out what is most important to them by asking them questions.

What do the terms "chindogu" and "learning environment" mean to you? Ask for some examples. What is your ideal learning environment? How could a chindogu be used to improve your school's learning environment, make daily school tasks easier, or make learning more fun? Ask them to: "tell me stories", "tell me why you feel that way", or follow up on points that intrigue you.

2. DEFINE: What is the problem your partner is trying to solve?

Partner's name _____

needs a way to _____

What: Pick ONE problem that is most important to your partner that you need to solve. What are they most concerned about? What are they most passionate about?

because _____

Why: Explain why this problem is important to your partner. Use facts or stories from #1 to help explain.

3. IDEATE: Brainstorm & sketch solutions to solve your partner's ideas

Sketch 4 ideas to help solve the problem

Add lots of detail. Use words and arrows to help describe your sketches.

Share your sketches, gain feedback & redesign ONE idea

Share your 4 sketches with your partner. Use their feedback to modify, redesign or create a new idea. Share this sketch with your group. Who has the best solution to the design challenge? Everyone needs to sketch the final idea on the Skills Canada Alberta "Final Prototype Sketch" worksheet.



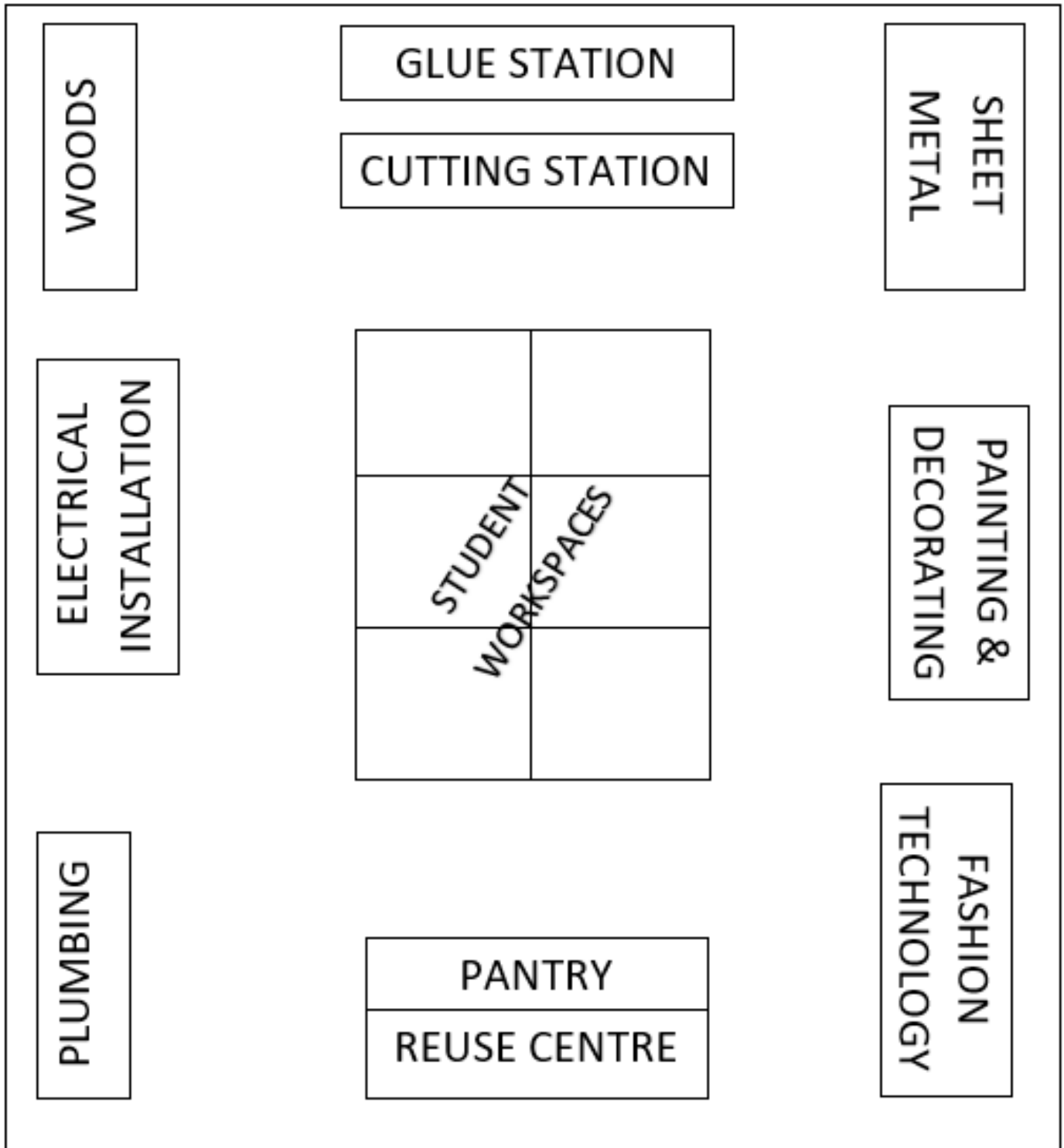
Final Prototype Sketch

Please bring this sketch to Skills Exploration Days – it will be the blueprint to help you build your prototype. Don't forget to add a title for your prototype!

SAMPLE FLOOR PLAN

Here is a sample floor plan to show all the different Learn-A-Skill Stations and the student workspaces.

Please modify to meet your needs.





LEARN-A-SKILL STATIONS

Use the chart below to place the tools and materials from the toolkit in the correct Learn-A-Skill Station.

STATIONS	TOOLS	MATERIALS	SAFETY
WOODS (Carpentry & Cabinet Making)	Corded Jig Saw Hand Saw Cordless Dremel Tool Cordless Drill Corded Orbit Sander Hammer Tape Measure Multi Bit Screwdriver Combination Square	Teachers must include scrap pieces of wood Jig Saw Blade Dremel Tool Kit Drill Bit Set & Driver Bit Set Sanding Disks Nails & Screws Clamps Wood Glue	High Adult Supervision Must Wear Safety Glasses, Ear Protection and Gloves
ELECTRICAL INSTALLATION	Linesman Plier Wire Stripper	Wire Switches & Plugs Marrettes	Low Must Wear Safety Glasses and Gloves
PLUMBING	Manual Mitre Box	Pipe Fittings	Medium Must Wear Safety Glasses and Gloves
SHEET METAL	Riveting Tool Tin Snips & Hacksaw Metal File	Sheet Metal Rivets Hacksaw Blades	Medium Must Wear Safety Glasses and Gloves
PAINTING & DECORATING	Tempura Paint Sticks	Teachers should use cardboard or plastic to protect tables	Low
FASHION TECHNOLOGY	Sewing Machine	Fabric Thread, Needles & Buttons	Low
CUTTING STATION	Utility Knife & Scissors Pull Cutter (Klever) Metal Ruler		Medium Must Wear Gloves to Prevent Cuts
GLUE STATION	Hot Glue Guns	Hot Glue Sticks	Medium Must Wear Gloves to Prevent Burns
PANTRY	N/A	Crafting Items	N/A
REUSE STATION	N/A	Teachers must include pieces of cardboard, Styrofoam, fabric	N/A
STUDENT WORKSPACES	Teachers must provide tables/chairs for students to work at		
SAFETY	First Aid Kit Foam Earplugs Safety Glasses Work Gloves	Duct Tape (secure cords to floor) Sanitizer (wipe down tools) Face Masks (social distancing) Learn-A-Skill Station Signs	