LVUSD Middle School Robotics Lab Safety Rules

The following guidelines have been written and are enforced for the safety of all personnel working in the Robotics Lab. These rules are to be strictly adhered to at all times and by all students, staff members, and volunteers working in the robotics lab. If you have any questions regarding the safe operation of any tool or method of construction, please feel free to ask the faculty or staff member in charge.

Proper attire:

All persons working in the robotics lab shall be properly attired. You should avoid wearing loose fitting clothing or jewelry and long hair is to be tied back to avoid any chance of getting it caught in moving machinery.

*Students that come to class without proper attire will not be allowed to participate.

Protective devices:

In addition to proper attire, the work area is equipped with personal protective equipment. Proper use of such equipment is NOT optional and shall be used at all times when operating in the robotics lab.

- Safety glasses shall be worn at all times when tools are in use anywhere in the robotics lab.
- All cutting and gluing should be performed on top of protective surfaces.
- Brooms, dustpans, mops, and other cleaning supplies are some of the most important safety devices in the robotics lab. They shall be used correctly and often.

Robotics Lab Safety Rules:

- Every attempt should be made to keep your work area clean and organized. This means periodically sweeping up excessive waste and returning unnecessary tools and hardware to their proper places.
- Cell phones and computers shall only be used for robotics work. Personal use could lead to distraction and injury.
- You MUST clean up your work area and put away all of your tools and hardware at the end of each work day.
- Proper attire must be worn at all times.
- No drinks or food in the robotics lab.

- No horseplay.

- You shall walk and use a controlled speaking voice while in the robotics lab.
- No person shall work in the robotics lab alone and/or unsupervised.
- Handle sharp objects carefully. Never point a cutting tool at yourself or others.
- All cutting should be performed on top of a protective surface.
- Never touch the tip of a hot glue gun, 3D printer, or soldering iron.
- Any time that you have a problem with any tool or machine bring it to the attention of the teacher so s/he may assist you. If a machine or tool is accidentally damaged, bring it to the attention of the teacher. Please do not try to hide or cover up any damages.
- No headphones are to be worn while working in the robotics lab.
- At no time shall any student operate or attempt to operate ANY power tool until they have been trained to do so.
- Only put electrical plugs in an electrical outlet.

Proper Care of the Robotics Lab:

The robotics lab is a place where you are given the opportunity to learn and experiment with robotics. It is essential that you always do your best to keep the robotics lab clean and organized so that the lab can be used for generations to come. The following are essential rules to follow when working in the robotics lab.

- As you are working and are finished with a tool or material, please put it back in the appropriate spot right away.
- All materials and tools are for all robotics students to share. Only keep a tool or material at your desk while you are using it.
- If you are not sure where a tool or material goes, ask the teacher.
- When using materials that might make a mess, make sure to use a covering, such as cardboard or butcher paper, on the surface, to catch the mess.
- Do not leave tape on tables for extended periods of time.
- At the end of class, you are required to clean your workspace and put any tools or materials that are no longer needed in their proper place.

General Guidelines for Using Tools:

- Inspect tools before use for any defects such as frayed wires or damaged hand tools. Inform your instructor so they can remove defective tools from service and have them repaired or replaced.

- A tool is to be used only for the purpose for which it was designed.
- Never carry a tool by its cord. Avoid wrapping cords too tightly around tools for storage to prevent damage to strain reliefs.

Cutting Tools

- Dull blades are unsafe. If a tool seems dull, report it to the teacher.
- Never place a finger between the blades of any type of cutting tool. Never touch a blade to test its sharpness.
- Report any damage to tools or blades immediately so they can be properly disposed of by the teacher.
- When using exacto knives or box cutters, cut on top of an approved cutting surface, such as a cutting board or strong piece of cardboard
- When you are finished using an exacto knife, box cutter, or PVC cutter, make sure the knife has been covered, the blade has been retracted, or the cutter's safety feature is engaged.
- All cutting tools should be fully closed or pointed downwards when not in use or if you are walking with them.

Hand Tools

- Tools, including rulers, meter sticks, hammers, screwdrivers, wire strippers, etc. should only be used for their intended purpose.
- Hammers are only to be used with permission from the teacher.
- Return all tools to the proper location as soon as you are finished with them.

Heating Tools

- Hot glue guns, 3D printers and soldering irons get hot! NEVER touch the heating elements to determine their temperature. ALWAYS assume a tool is hot.
- Always use a hot glue gun over a protective surface, such as a piece of cardboard. Never let the hot glue gun leak glue onto a desk, a chair or the floor.
- Remember to unplug hot glue guns and soldering irons before leaving the work area.
- Place soldering irons in the holders when not in use.
- After using a hot glue gun, place your glue gun in the designated area for "HOT RECENTLY USED" glue guns to cool.

- If you burn yourself, immediately run the affected area under cool water and ask for teacher assistance.

Power Tools

- Power tools shall not be used without teacher permission and training.
- Follow all manufacturers' instructions for handling and adjusting.
- Always make sure that all tools are turned off and/or unplugged before leaving the machine or changing parts. NEVER leave a live tool unattended.

Materials

- All class materials have a specific purpose. Only use materials for each materials' intended purpose.
- Do not throw materials.
- Rubber bands are only used for projects. They should not be flung around the classroom.

Communication:

No safety concern is unimportant. All students working in the robotics lab are encouraged to bring any perceived safety concern to the teacher in charge. Contributing to the health and safety of all students is everyone's responsibility.

IF YOU DON'T KNOW HOW TO DO SOMETHING – STOP and ASK.

First Aid:

- A First Aid kit and eyewash station are maintained in/near the robotics lab. These may be accessed as needed to render first aid.

- This kit is intended for First Aid ONLY. Any incidents requiring first aid are to be reported IMMEDIATELY to the teacher.

1. Use Appropriate Protective Devices

- Wear safety glasses when cutting or working with fast moving parts.
  - Use hair ties to hold back long hair.

- Dress appropriately! Wear close-toed shoes to protect your feet. Avoid baggy/flowing clothing or dangly jewelry/headphones that could get caught on robotics equipment.
    - Use a safety ruler to protect your fingers when using box cutters.
- Always cut, glue, or paint on top of the appropriate protective mat to protect your work surface. - If a tool has a safety latch or switch, make sure the safety is engaged when it is not in use.
- Cover electronic parts in blue painters tape before hot gluing them into your robot. Blue tape is easily removed and prevents damage to electronics when removing the glue.

2. Handle Cutting Tools Carefully

- All sharp objects should be fully closed, capped, or retracted when not in use.
    - When walking through the room make sure cutting tools are pointing downward.
    - Never point sharp objects at yourself or others.
    - Never cut wooden or metallic objects without prior teacher approval.
    - Select the appropriate cutting tool for the job.
        - Box cutters should only be used to make straight cuts.
        - Do not try to cut cardboard with decorative scissors
        - Do not use box cutters to cut something that could easily be cut with scissors.
        - If you do NOT have training to use a restricted tool, it is NOT the appropriate tool.

3. Use hand tools for their intended purpose.

- Rulers/Protractors should only be used for measurements or drawing/cutting guides.
    - Wire strippers and wire cutters should only be used on wires.
        - Do not attempt to cut anything else with these tools.
    - Use pliers to grab small objects or separate small parts.
        - Be gentle! Do not crush items with pliers.
- Screwdrivers should only be used on screws. - Point downward when carrying
    - Do not use screw drivers to poke holes
    - Heavy duty punch should only be used to punch holes in cardboard and wood.

4. Be Careful When Using Electronics

- Never put anything in an electrical outlet except for a plug.
  - Do not plug in items that have damaged or frayed wires.
  - Never pull on wires and do not carry electronics by their wires.
  - Do not use electrical devices near water.
  - Do not cause a short circuit.

■ Short circuits occur if you have a circuit without appropriate levels of resistance provided by output devices like LEDs. They often occur when a conductive material, like metal, comes in contact with a circuit. In the case of a short circuit, you may see a spark or wires/batteries may become hot and catch fire. If a device feels unusually warm, turn it off and alert Mrs. Servin. Do NOT store batteries near conductive materials.

5. No food, drinks, or strongly scented items (perfume/deodorant/lotion) in the lab.

- Some students are sensitive to these items because of food allergies or respiratory illnesses. ○ These items can also cause damage to sensitive electronic equipment or attract pests.

6. Move Appropriately in the Lab (No Horseplay)

- Always walk in the lab. Do not run, dance, or 'parkour' through the room.
  - Channel your inner sloth, move slowly and deliberately when using tools.
  - Always look where you are going before you move. Do not turn or back up suddenly.
  - Keep your hands to yourself. Do not play pranks or touch other students during class.
- Give students plenty of space or calmly ask to get by if you are walking behind someone that is using a hot glue gun or box cutter. Do not startle students while they are using tools.

7. Maintain Appropriate Lab Volume

- Always use a quiet, controlled speaking voice in the lab and keep your ears open!
  - Channel your inner cricket; your voice should only stand out if no one else in class is talking.
  - It should be quiet enough for Mrs. Servin to hear someone yell for help if there is an emergency.

- If Mrs. Servin requests your attention or announcements come through the loudspeaker, you should immediately stop talking and listen in case there is important safety information.

8. Keep the Lab Clean & Return Items ASAP

- Return items as soon as you are done using them.
    - Do not hoard items on your desk, take only what you need when you are prepared to use it.
    - Keep your work area organized.
        - Injuries may occur if a hot glue gun or cutting tool is covered by the clutter on your desk.
        - Sensitive equipment may get damaged if you don't see it on your table. Often students will accidentally cut wires that are underneath the cardboard they are trying to cut.
    - Keep walkways clear at all times.
        - Chairs should be pushed in when not in use to prevent tripping.
        - Backpacks must remain outside (or under tables on rainy days) to prevent tripping.
        - Dropped items should be picked up immediately. This prevents students slipping on items or stepping on equipment and breaking it.

9. Handle Heating Tools Carefully.

- Always assume heating tools are hot even if they are unplugged or turned off.
    - It takes time for tools to cool down and someone else may have used the tool recently.
    - Never touch the metal tip of a hot glue gun, soldering iron, or 3D printer nozzle.
    - If you burn yourself, immediately run your hand under cold water and inform Mrs. Servin-West.
    - Only use hot glue guns on thicker materials like cardboard or wood.
    - Never hot glue thin materials like paper or conductive materials like metal.
    - Unplug heating tools when not in use and never leave heating tools unattended.
- When storing heating tools, neatly wrap up the cord and place them in the "hot recently used" area. Make sure that insulated cable is not in direct contact with the metal heating element.

10. Report Accidents/Hazards Immediately!

- If someone gets hurt or something breaks, tell the teacher or another adult as soon as possible.
- Tell Mrs. Servin-West if you think a tool is damaged, dull, or not working the way it is supposed to. She will repair or replace the item as needed to prevent future accidents.
- I appreciate honesty and you will not get in trouble for unintentionally causing an accident; however, you will get in trouble if you hide an injury or broken item and I find out about it later.

Robotics Lab Safety Expectations

Name:_____ Period:__

Directions: Read and annotate the following information then add this page to your lab folder for future reference.

1. **Use Appropriate Protective Devices**
    - Wear **safety glasses** when cutting or working with fast moving parts.
    - Use **hair ties** to hold back long hair.
    - **Dress appropriately!** Wear close-toed shoes to protect your feet. Avoid baggy/flowing clothing or dangly jewelry/headphones that could get caught on robotics equipment.
    - Use a **safety ruler** to protect your fingers when using box cutters.
    - Always cut, glue, or paint on top of the appropriate **protective mat** to protect your work surface.
    - If a tool has a **safety latch or switch**, make sure the safety is engaged when it is not in use.
    - Cover electronic parts in **blue painters tape** before hot gluing them into your robot. Blue tape is easily removed and prevents damage to electronics when removing the glue.

2. **Handle Cutting Tools Carefully**
    - All sharp objects should be fully closed, capped, or retracted when not in use.
    - When walking through the room make sure cutting tools are pointing downward.
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    - Select the appropriate cutting tool for the job.
        - Box cutters should only be used to make straight cuts.
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3. **Use hand tools for their intended purpose.**
    - **Rulers/Protractors** should only be used for measurements or drawing/cutting guides.
    - **Wire strippers** and **wire cutters** should only be used on wires.
        - Do not attempt to cut anything else with these tools.
    - Use **pliers** to grab small objects or separate small parts.
        - Be gentle! Do not crush items with pliers.
    - **Screwdrivers** should only be used on screws.
        - Point downward when carrying
        - Do not use screw drivers to poke holes
    - **Heavy duty punch** should only be used to punch holes in cardboard and wood.

4. **Be Careful When Using Electronics**
    - Never put anything in an electrical outlet except for a plug.
    - Do not plug in items that have damaged or frayed wires.
    - Never pull on wires and do not carry electronics by their wires.
    - Do not use electrical devices near water.
    - Do not cause a short circuit.
        - Short circuits occur if you have a circuit without appropriate levels of resistance provided by output devices like LEDs. They often occur when a conductive material, like metal, comes in contact with a circuit. In the case of a short circuit, you may see a spark or wires/batteries may become hot and catch fire. If a device feels unusually warm, turn it off and alert Mrs. Servin. Do NOT store batteries near conductive materials.

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