

Tips for USFIRST teams in the Machine Shop:

1. When in the Machine Shop, wear safety glasses regardless of if there is a machine operating or not. Everyone, including those simply walking through the shop, should wear glasses.
2. Wear appropriate clothing. Sweatshirts, necklaces, large bracelets, certain wristwatches, jackets, and loose long sleeved shirts pose the possibility for becoming entangled with power tools and should not be worn. It does not matter if you are “only going to work with the hand tools”, chances are that you might get called over to a power tool to lend a hand and forget to remove bulky clothing items.
3. Tie back hair. If the drawstring on a hooded sweatshirt poses a danger, so does long hair.
4. Never use a tool for a purpose it was not intended for. Though it might seem quicker to use a drill bit to mill a 1/16in thick piece of lexan, don't. By doing something as this, you put stresses on the tool that it was not intended to take and risk injuring yourself and those around you.
5. The piece is never more important than the person. Again, the example of a drill press can be used. Suppose a piece comes loose in the vice, is sucked up and begins to spin. Under no circumstances attempt to grab the piece, instead shut off the tool and wait for it to come to a complete stop before touching the piece.
6. Never operate a tool while overly fatigued. Though it may seem attractive to work late and make a finishing push, you will reach a point of diminishing returns and will begin to make mistakes with the piece and with concern to safety. One of the leading causes of injury in the shop is working while tired.
7. “Eyes off, Hands off”. If a friend calls for you to come examine some facet of their work, do not leave your machine running unattended for any period of time. Millwork is a prime example of this in that some pieces require extended amounts of time to complete. If your coach calls for you, even just for advice that you can give without leaving your workstation, back your milling bit away from the piece (usually raising it vertically, so as to not lose your place in the work) if possible, and then shut the machine off before giving them your attention. Your tools are valuable but potentially dangerous items and deserve your respect.
8. Always check a machine you plan to work on. Check to make sure that all parts of the machine are set correctly for what you are doing, and never take a teammates word for it. If you are working on a piece, it is your responsibility to keep your work area safe. Check for loosened belts, bolts or any other aspects of the machine that may cause it to operate as you want it. Check to make sure that it has been properly cared for, lubricated and cleaned, and if not, clean it beforehand. Always clean your workstation after using it
9. Absolutely no horseplay in the shop. Relaxation and playing around has it's place, and that is most definitely not in the shop. It poses to serve no contribution to the construction of the robot and only to make the work area less safe.
10. If it doesn't feel safe, it probably isn't. The key to working in a machine shop is that you must be comfortable working in the shop. You also need to be familiar with the behavior of the individual tools. If a machine tool does something “new

- and unusual”, that is usually not a good sign. In shops, it is always better to err on the side of safety. In short, it pays to be paranoid.
11. Relax. Tension and uncertainty around a tool usually raises the chance that you will incur an injury while using it. If you do not feel comfortable using a tool, ask for help. Being comfortable around a tool is key and paramount to working well in the shop.
 12. Wear those safety glasses.

*Include general practices such as measuring accuracy and assembly past this line

1. Do not remove pieces from a vice, clamp or chuck without permission from those working on it. Respect the work that your teammates are doing; it serves only to later irritate them and cause the team to lose time re-aligning pieces. While there are some cases when it will cause no harm to remove the piece, it is a good general rule to follow
2. Never leave your piece that you are working on in a chuck, vice or clamp unless you plan to return to it in a reasonable amount of time. Respect that others will want to use the tools, and if a piece can be removed without jeopardizing the quality of the final project, remove it.
3. Store your pieces in a location so that it can easily be found by others
4. Do not work on a piece if you do not know the plans for the piece or have not been asked to do so.
5. Respect your crew captains.