A/B Axis: Rotational axis that is used for a rotary device. A is pivoted at the Y-Axis, and B is pivoted on the X Axis.

(Tapered) Ball Nose: Best used for 3d work

Chip load: The resulting outcome of the Feed and Speed or F&S

You don't want too small of a chip load otherwise your creating sawdust

You don't want too large of a chip load otherwise your tearing material

You want it to be in the middle.

Refer to the bits manufacturer settings for target chip load and associated feed/speed, the onefinity is capable of safely managing a chip load of .0xx

Collet: The nut that holds the bit in the router or spindle.

Always use two wrenches, and never rely on a stop button. Should be tight but don't put a lot of muscle behind it. Think of a screw you don't want to strip.

Computer Aided Drafting/Design (CAD): CAD is your design software. Photoshop is technically cad software, but in CNC context this is the software you create your tool paths in.

Examples include: Fusion 360, Atom3d, Vectric Suite (V-Carve, V-Carve Pro, Aspire), Carveco (Carveco Maker, Maker+)

Computer Aided Machining (CAM): CAM is the software used to execute the tool paths that were created in CAD.

Examples include the Buildbotics controller or Masso Controller

Controller: Controller is the hardware/software combination for controlling your machine.

Depth of Cut / DOC: The amount of material that the cutter will remove vertically (along z axis)

When dealing with DOC, it is based on the bit diameter. 2x on a 1/4" endmill is 1/2", 3x on same 1/4" endmill is 3/4 in. ect and the feed should be reduced by about 25% per step. Refer to manufactures specifications for specifics.

Endmill: A 2 or 3 tooth bit with a flat or inversed v bottom. Best used for pockets and profiles

Feed/Feedrate: The speed at which the router/spindle moves amongst the XYZ axis

Example rates include in/min and mm/min

Gantry: The mechanism that travels along the X-Axis and is the vehicle that holds your router/spindle.

G/M-Code: G-Code is the non-human readable sequence of code that allows for execution of the preprogrammed sequence of code.

It is possible to decipher it in small pieces but no one can look at a million lines of code and see what will be created without the use of a visualizer.

You should never remove the header in gcode, and if you must modify, modify up to that point.

```
T1
G17
G21
G90
G0Z20.320
G0X0.000Y0.000
S18000 M03
M8
G4 P4                    (Header ends here)
G0X-2.540Y-2.540Z2.540      (G-Code starts on this line)
G1Z-3.493F1143.0
```

```
G1X2.540F2286.0
G1Y2.540
G1X-2.540
G1Y-2.540
...
```

G-Code can vary from a dozen or so lines to millions & theoretically billions of lines.

Janka: The hardness of a wood according to the amount of pressure measured in pounds of force (kilograms-force, Newton's or kilo-Newton's) it takes to make a dimple in material with a 7/16" (11.28mm) diameter steel ball.

Regardless of the unit of measure, balsa wood is softer than pine, pine is softer than oak, and mesquite is harder than all listed.

0/O flute: A single tooth bit forming a semi circle. Best used for plastics such as HDPE and acrylic.

Pocket: Hollowing out the outline of a shape

Profile: Cutting the outline of a shape

Speed: the rate at which the router or spindle rotates the cutter head. Spindles offer greater availability than routers which are "fixed" according to numbers on dial.

Example rate = RPM (revolution per minute)

Tram: the alignment of the cutter head to the cutting surface. You want it to be as parallel as possible Effective/inexpensive way to measure is a stick affixed to the router, and spin it around. the longer the stick, the more noticeable the variation will be. avoid touching the stick and spin it by the collet

V-Bit: a bit that when looking at it forms a V. Measured as an angle form one outside cutter to the other outside cutter. Sizes range from 15 degrees to 120 degrees. The depth of the bit will travel depends on the widest side of the v-carve and the bit angle.

V-Carve (Not to be confused with software with the same name): Best used for words, shapes with sharp corners (stars).

Visualizer: a software platform that allows you to see what the resulting gcode is programmed to do. This is external of viewing the simulation in your CAD program and only shows travel, not resulting tool paths. It's great if you've modified the code to remove a previously completed section, and want to see what your modification did

Waste board: The sacrificial piece of material that is installed in the bed of your CNC. Without one, you would utilize your tabletop and if you cut through your material you will marr it up. When performing through cuts aim for no more than .05" when performing through cuts.

MDF is a common material as it soft, flat, and straight. Avoid getting wet. Will deform. Replace as needed, but if you find yourself replacing it more than once a year, you should reevaluate how deem your cutting into it, and potentially reduce that.

Work holding: The method utilized to keep the material stationary.

There are many options, tape and CA Glue, T-Track and hold downs, cam (not to be confused with the software) clamps, screws ect.

X Axis: The cross member that connects the Y-Axis's. Allows the gantry to have left/right movement

Y Axis: Every CNC has 2x Y Axis's. They are the parallel mechanism for movement. Maybe called Y1/Y2. It allows for forward and backward movement in relation to the front of the CNC

Z Axis: The mechanism that moves up and down on the gantry.