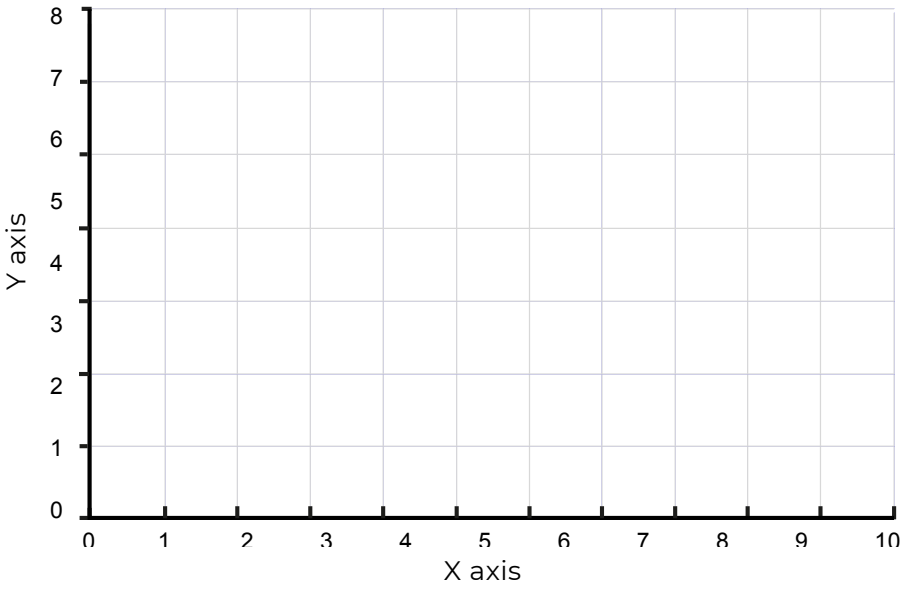
Activity sheet 5

Interpret this G-code to draw a shape:

```
G90
G21
M03  S1000
G00 X1   Y4
G01   Z-5    F100
G01   X2   Y2  F100
G01   X7   Y2
G01   X8   Y4
G01  Z5
G00  X2  Y5
G01  Z-5  F100
G01  X2  Y7
G01  X4  Y7
G01  X4  Y5
G01  X2  Y5
G01  Z5
G00  X5  Y5
G01 Z-5
G01 X5  Y7
G01 X7  Y7
G01 X7  Y5
G01 X5  Y5
G01 Z5
M05
M02
```



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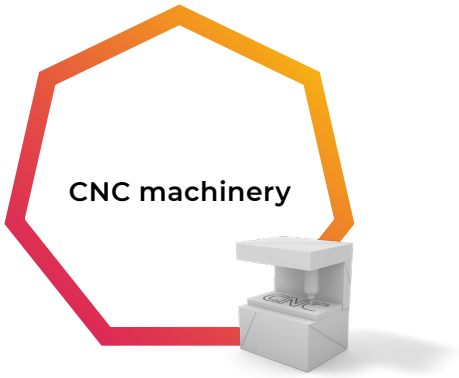
G-code reference sheet



List of G-code instructions used in the activities:

G-code	Action
O	Program number, eg O123.
%	Start of G-code.
G90/G91	Set coordinate system as absolute (G90) or relative (G91).
G20/G21	Set units as inches (G20) or millimetres (G21).
S	Tool rotation speed in RPM, eg S1000 = 1000 RPM.
F	Tool feed rate through material in units per minute, eg in G91 F400 = 400 mm per minute.
M03/M05	Turns tool motor on (M03) or off (M05).
G00	Fast move to a coordinate, eg G00 X50 Y50. The tool must be raised out of the material.
G01	Moves the tool head in a straight line, eg G01 X50 Y50, or in/out of the material, eg G01 Z-1.
G02	Clockwise circular cut to an end coordinate (eg X, Y) around a pivot point (eg I, J) that is defined relative to the start point of the action. Eg G02 X100 Y100 I50 Z50.
G03	As above, but anticlockwise.
G28	Return to home position. The tool must be raised out of the material.
X, Y, Z	Coordinates in a 3D system. X and Y coordinates describe the flat work surface. Z describes movement into, (eg –1) or out of (eg +1) the work surface (Z=0).

Activity sheet 6

Suggest some advantages of using each type of five-axis machine.

Table/Table

Head/Head or Table/Head

List some broad advantages of multi-axis CNC machining.