1. Tools and equipment

Vice

Ball peen hammer

Anvil

Tap and die

Centre punch

File

Lathe

Pop rivet gun

Centre bit

Pillar drill

Drill bit

Laser cutter

2. Motions

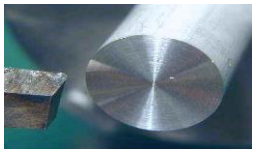
Keyword	Definition	Example
Linear	Moves in one direction	Bike, car, train
Oscillating	Swings back and forth	Pendulum, swing
Reciprocal	Repetitive back and forth linear motion	Sewing machine needle
Rotating	Moves in a circular motion	Car wheels, pedals

3. Keywords

Keyword	Definition	Example
CAD	Computer aided design	2D design
CAM	Computer aided manufacture	Laser cutter
Chamfer	a symmetrical sloping surface at an edge or corner	Using die
Rivets	A permanent way of joining metal	Snap or pop
Brazing	Joining two metals with heat and filler rod	Bug legs
Flux	To prevent oxidation in the brazing joint	N/A

Creating a screw thread with a die. Dies come in M sizes

Facing off on the lathe using a facing tool



How can I remember this information?

1. Get someone to quiz you
2. Write out 5 questions using this sheet and then answer them next day to see if you can remember them
3. Cover the keyword and guess the picture or definition

5. Classification of metals

Ferrous

- Contain iron
- Magnetic (most)
- Rust

Wrought iron, pig iron, mild steel, stainless steels

Non ferrous

- Do NOT contain iron
- Are NOT magnetic
- Do NOT rust

Copper, tin, silver, gold, aluminium, bronze, nickel

Alloys

- Mixture of more than one element
- Combining 2 metal improves properties

Solder, Pewter, Brass

6. What's in an alloy?

Name	What is it made from?	
Solder	Tin and lead	Circuitry
Pewter	Tin , copper and antimony	Decorative items
Brass	Copper and zinc	Door handles
Bronze	Copper, tin and other elements	Coins
Stainless steels	Iron, chromium, Carbon, Silicon and Manganese.	Cutlery, sinks
All steels contain carbon. The more carbon added, the stronger the steel.		

7. Materials

Material	Properties	Uses
Mild steel (low carbon)	Ductile, tough, malleable, high tensile strength	Nut and bolts, general engineering
Plywood	High strength to weight ratio, dense, impact resistant	Furniture, construction
Acrylic	Lightweight, malleable, impact resistant, brittle	Signage, menu holders

8. Further study questions

1. Describe the process of brazing
2. What other heat methods can be used to join metals? How are they different?
3. How does a wood lathe differ from a metal lathe?
4. Give an example where a manufacturer might chose a metal alloy rather than a pure metal?