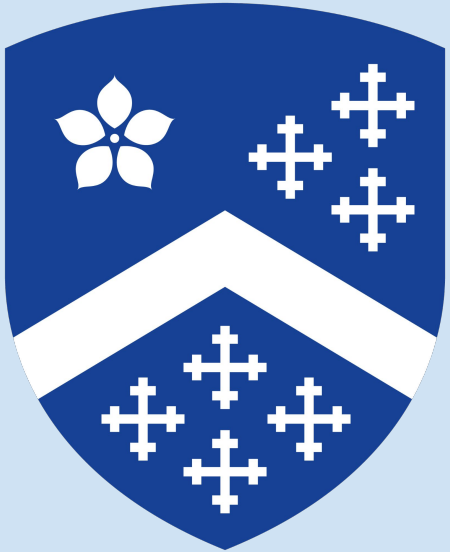
Yr8 Summer Exam



Exam revision 2022

How long is the exam?

1 Hour

What will I need to bring?

Pen, pencil and **calculator**

What will I be asked to do?

The exam will consist of theory learnt this year. You may be asked to **sketch**, work out **Mathematical calculations** and describe the steps of how to draw an object in 3D using **Onshape**.

Exam content

- **Metal theory**
  - Metals composition
  - Properties of materials
  - Forming metals - Casting/mould making
  - Joining metals - Silver soldering
  - Metalworking tools/equipment
- **Resin casting**
  - Thermoplastics/thermosets
- **Assistive technology**
  - Ergonomics/anthropometrics
- **Drawing conventions**
  - Isometric
  - Orthographic
- **Onshape (CAD) skills:**
  - Drawing basic shapes
  - Using dimension tools
  - Extruding into 3D

Name the metalworking tools

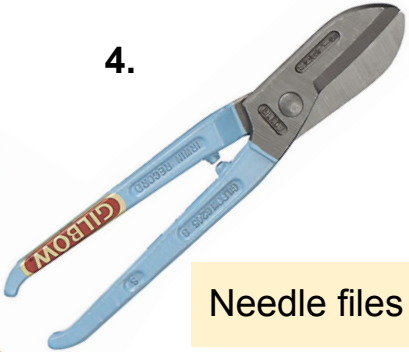
Click and drag the names to the tools

1.

2.

3.

4.



Metal file

Tinsnips

Parallel pliers

Needle files

Coping saw

Round nosed pliers

Hacksaw

5.

6.

7.

8.

Name the jewellery making tools/equipment

Click and drag the names to the tools

9.

10.

11.

12.

13.

14.

15.

16.

Wet and dry boards

Blow torch

Acid bath

Dividers

Hide Mallet

Borax dish

Brass tweezers

Centre punch

Material properties

Key terminology to learn

Tensile strength	The ability to be stretched without breaking
Malleability	The ability to be pressed, spread and hammered into shape
Hardness	Resistance to scratching, cutting and wear
Elasticity	The ability to regain the original shape after it has been deformed
Ductility	Very strong when stretched
Work Hardness	When the structure of metals change as a result of repeated hammering
Compressive strength	Very strong under pressure
Toughness	Resistance to breaking, bending or deforming
Brittleness	Will break easily without bending

Metal properties and categories

Ferrous metals		
Name	**Composition**	**Description/Properties**
Cast Iron	93% Iron, 4% Carbon	Very strong in compression but brittle
Tool Steel/high carbon steel	98.5% Iron,1.5% Carbon	Strong and very hard
Mild Steel	99% Iron, 0.15-0.3% Carbon	A ductile and malleable metal which will rust easily
Stainless Steel	66% Iron,18% Chromium, 8% Nickel, 8% Magnesium	Very resistant to wear and corrosion
Non-Ferrous metals		
Aluminium	Pure metal	Light weight
Copper	Pure metal	Ductile, malleable. excellent heat and electrical conductor
Tin	Pure metal	Ductile, malleable and resistant to corrosion. used for coating cans
Zinc	Pure metal	Extremely resistant to corrosion. Used as coating -galvanising
Alloys		
Brass	65% Copper, 35% Zinc	A hard yellow metal
Pewter	Tin, copper and antimony	Bright mirror like finish, low melt
Duralumin	95% Aluminium, 4% Copper, 1% Manganese and magnesium	As strong as steel but 30% of the weight





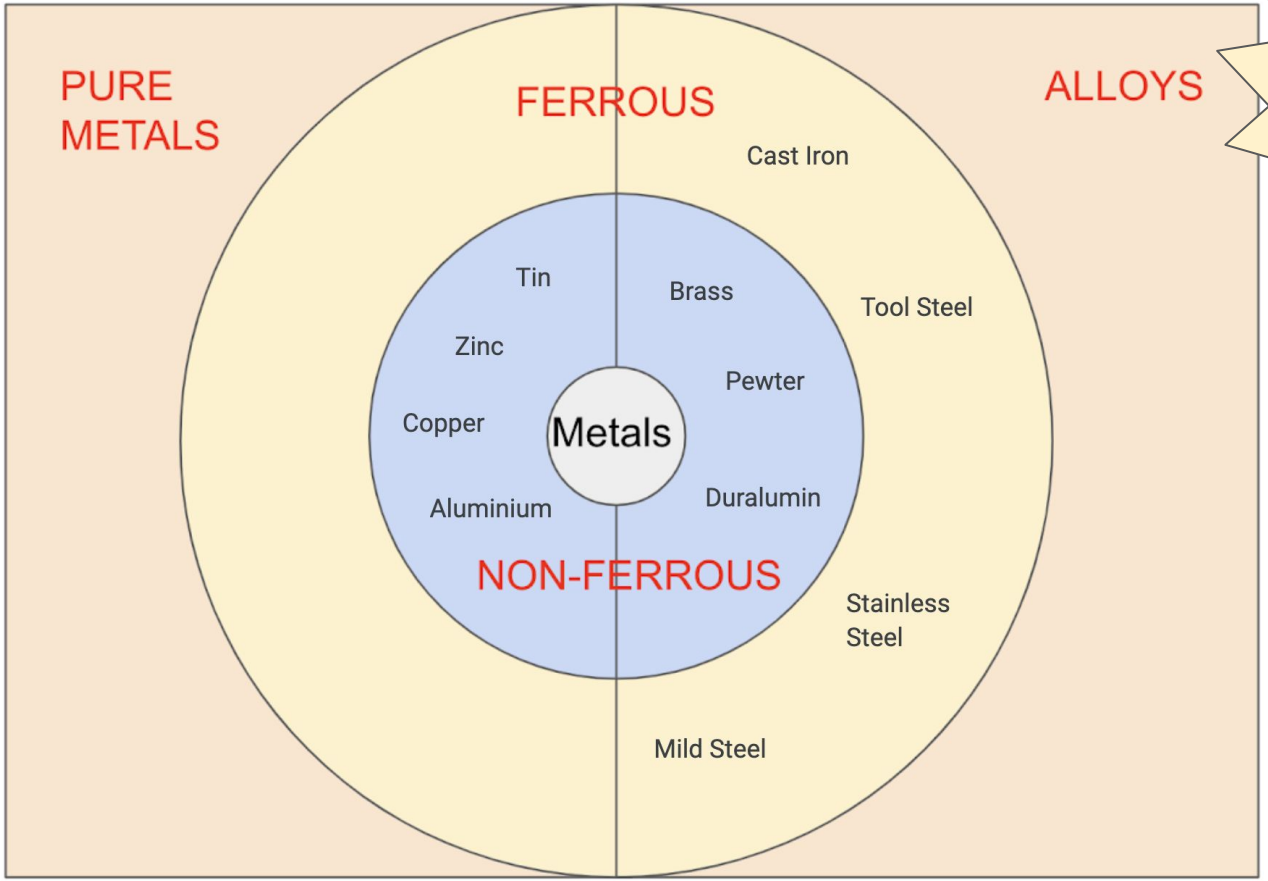






Learn the composition and describe these metals

Metal categories



Learn to categorise these metals

Visit the Metals Jamboard

Now test your knowledge!

Use the tab at the top and complete
The 3 slides

Try this Kahoot