Name……………………………….. Target Grade…………………..

Level 3 Technical Level Engineering.

Summer Home work

Unit 1

Materials Technology and science

Assessment outcome 1
Understanding the properties of materials

Contents
Assessment out come 1
Understanding the properties of materials

Mechanical Properties of Materials.

Use books or the internet to complete the table below. You need to be confident in the correct use of the terms

Property	Definition	Unit of measurement	Applications where this property is important	Name a material which have this property
Tensile strength				
Compressive strength				
Hardness				
Toughness				
Elasticity				
Plasticity				
Ductility				
Malleability				

Physical Properties of Materials.

Use books or the internet to complete the table below. You need to be confident in the correct use of the terms.

Property	Definition	Unit of measurement	An application where this property is important	Name materials which have this property
Density				
Melting point				
Thermal conductivity				
Electrical conductivity				
Thermal expansion				
Corrosion resistance				

Mechanical testing

Most people think that the most important property of steel relates to it's strength, whilst this is an important property metallurgists will also be interested in the amount of deformation which the steel can withstand in both tension and compression.

There are a range of mechanical tests which you need to research, for each of the tests;

explain how the test is carried out (use words and diagrams as necessary)

what different test results will indicate in the material

- The tensile test
- Hardness tests –The Brinell test- Vickers pyramid hardness test- Rockwell test.
- Impact tests- Izod impact test- Charpy impact test.
- Fatigue Test-Wohler test

Exam question

1 1

(a) Complete **Table 1** by entering a suitable material and the required property.
The top row has been completed for you as an example.

Table 1

Component	Material	Required property
Metal cutting tool	Tungsten carbide	Hardness
Car tyre		
Computer mouse		
The hook on a crane		

[6 marks]