

St Paul's Academy

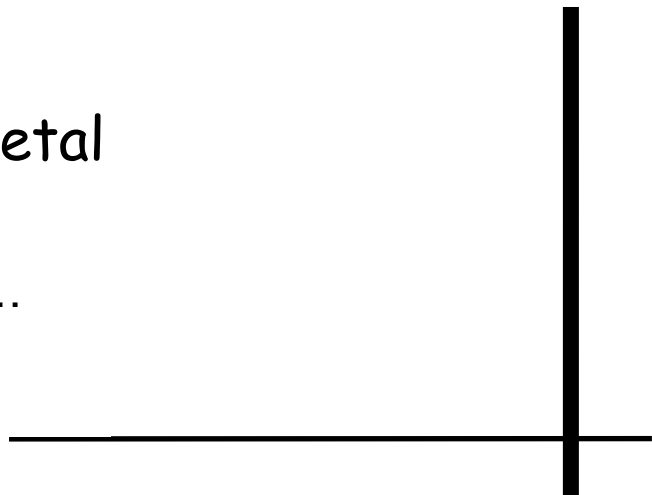
CDT Department

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Knowledge & Understanding  
Worksheets  
in  
Working with Metal

Name.....



## CDT Department — Worksheet 1

1. List or sketch five entirely different forms in which METAL can be supplied to the school workshop. (Page 2) (5)
2. Metals are usually classified as Ferrous and Non-ferrous. Explain what is meant by each of these terms. (Page2) (4)
3. Name three safety features when using the pillar drill. (Page 9) (3)
4. What metal is used in the manufacture of a twist drill? (Page9) (1)
5. What is the purpose of using a countersink drill? (Page 9) (2)
6. What is the purpose of the centre punch? (Page4) (2)
7. In woodwork a try square is used to check wood for squareness, what tool is used to check metal? (Page 4) (1)
8. Explain briefly how an internal screw thread is cut in an internal hole. (Page11) (4)

**Total Marks 22**

## CDT Department – Worksheet 2

1. When marking sizes etc. on wood a pencil is used, what tool is used to mark metal? (Page4) (1)
2. There are two methods of filing a piece of metal/plastic name each. (Page 7) (2)
3. What is the name of the tool used to hold the **TAP**. (Page 10)(1)
4. Briefly explain what is meant by the term '**Tempering**'. (Page 19)(2)
5. Briefly explain what is meant by the term '**Annealing**'. (Page 18)(2)
6. Briefly explain what is meant by the term '**Heat Treatment**'. (Page 18)(2)
7. Metals are usually classified as Ferrous and Non-ferrous. Explain what is meant by each of these terms. (Page 2)(4)
8. Callipers are used for testing the sizes of various articles, explain the difference between an **inside calliper** and an **outside calliper**. (Page 5)(2)

**Total Marks 16**

### CDT Department – Worksheet 3

1. In the following table indicate with the means of a **TICK** whether the material listed is a ferrous metal or a non-ferrous metal.

In the third column write down whether the metal is an alloy or a pure metal.

Material	Ferrous	Non-Ferrous	Alloy or Pure Metal
High Carbon Steel			
Brass			
Copper			
Duralumin			
Bronze			
Mild Steel			

(Page 2) (12)

2. Explain what an alloy is. Name three alloys? (Page 2) (4)

3. What is the maximum size of twist drill that can fit in a pillar drill. (Page 9) (1)

4. Name the two main parts of a TWIST DRILL. (Page 9) (2)

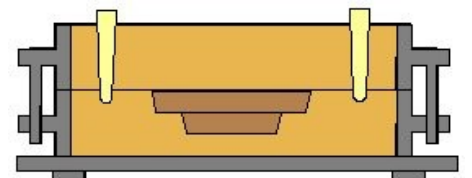
5. What is the purpose of a spring divider? (Page 5) (1)

**Total Marks 20**

## CDT Department — Worksheet 4

1. Forging is the process of heating and shaping metals. What device is used to support the metal whilst the shaping is being carried out? (Page 18)(1)
2. Which tool is used to hold the metal whilst shaping is being carried out? (Page 20)(1)
3. Which three tapping tools are used to make an internal screw thread and in which order are they used. (Page 10)(3)
4. What is the name of the tool used to hold the **TAP**. (Page 10)(1)
5. Explain briefly how an internal screw thread is cut in an **Blind Hole**. (Page 13)(3)
6. Briefly explain what is meant by the term '**Case Hardening**'. (Page 19)(2)

7. The device shown opposite is used in the process of casting. Name four of the component parts.



1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

(Page 29)(4)

**Total Marks 15**

## CDT Department — Worksheet 5

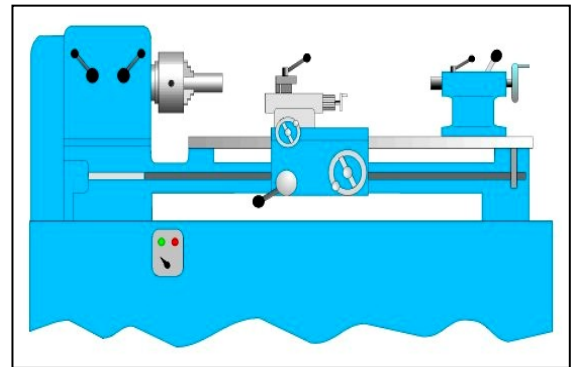
1. Sketch five entirely different forms in which METAL can be supplied to the school workshop. (Page 3) (5)

2. What is the name of the hand tool used to cut an external thread on a metal rod? (Page 14) (1)

3. Air holes are pushed through the sand into the space where the mould was positioned, why has this been done? (Page 30)(2)

4. In the sketch shown opposite, name any three component parts of the centre lathe.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



(Page 24)(3)

5. Name or sketch three types of rivet. (Page 15)(3)

6. Briefly explain what is meant by the term '**Heat Treatment**'. (Page 18)(2)

7. Briefly explain what is meant by the term '**Annealing**'. (Page 18)(2)

**Total Marks 18**

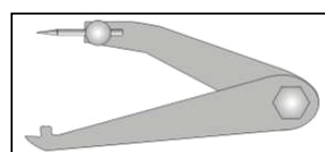
## CDT Department — Worksheet 6

1. What are Spring Dividers used for? (Page 5)(1)
2. Sketch three types of rivet. (Page 15)(3)
3. Name the tool shown opposite and briefly describe what it is used for. (Page 5)(3)



4. When sand casting what is the purpose of the **SPRUE PINS**. (Page 29)(2)
5. When referring to casting, what two pieces of equipment are used to hold the sand. (Page 29)(2)
6. The purpose of sand casting is to create a shape in metal, what is the name of the piece of equipment used to push the shape into the sand before casting takes place? (Page 29)(1)
7. Briefly explain why the **RUNNER** and **RISER** are made when sand casting. (Page 30)(2)


8. Name the tool shown opposite and briefly describe what it is used for.



(Page 5) (3)

**Total Marks 17**

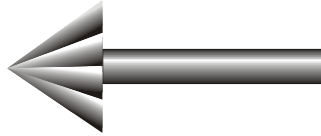
## CDT Department — Worksheet 7

1. Briefly explain the process "TAPER TURNING". (Page26)(2)  
Use a sketch if required.
2. Briefly explain the process "PARALLEL TURNING". (Page 26)(2)  
Use a sketch if required.
3. Briefly explain the process "FACING OFF". (Page 25)(2)  
Use a sketch if required.
4. Briefly explain the process "PARTING OFF". (Page 26)(2)  
Use a sketch if required.
5. List or sketch three file sections.  (Page 6) (3)
6. Name the tools shown opposite. (Page 17)(3)  
Briefly describe their purpose.
7. Briefly explain what the process "KNURLING" is. (Page 27)(2)
8. Name two metal lathe cutting tools used to cut metal. (Page 27)(2)

**Total Marks 18**



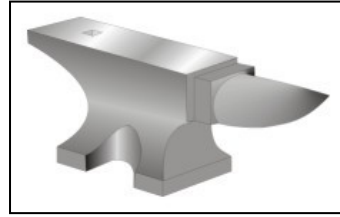
## CDT Department – Worksheet 8

1. Briefly explain the process "**BRAZING**". (Page 22)(2)
  2. Briefly explain the process "**ELECTRIC WELDING**". (Page 22)(2)
  3. What mixture of metals (**ALLOY**) results in **SOLDER**. (Page 22)(2)
  4. What mixture of metals (**ALLOY**) results in "**BRAZING SPELTER**". (Page 22)(2)
- 
5. Name the type of tool shown opposite. (Page 9)(1)
  6. The purpose of sand casting is to create a shape in metal, what is the name of the piece of equipment used to push the shape into the sand before casting takes place? (Page 29)(1)
  6. Metals are usually classified as **Ferrous** and **Non-ferrous**. Explain what is meant by each of these terms. (Page 2)(2)
  7. Briefly explain the process "**PARTING OFF**". (Page 26)(2)

**Total Marks 14**

## CDT Department – Worksheet 9

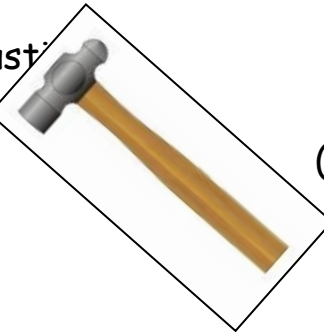
1. Name the device shown opposite.



(Page 18)(1)

2. When sand casting, air holes are pushed through the sand into the space where the mould was positioned, why has this been done? (Page 30)(1)

3. A plastic coat on metal will prevent it from rusting.  
Explain the four stages of applying the plastic to a piece of metal.



(Page 23)(4)

4. Name the type of hammer shown opposite.

(Page 8)(1)



5. When referring to metal, what properties would a metal have if it was said to be **Ductile**? (Page 20)(2)

6. Name the process shown opposite.

(Page 21)(1)

7. When referring to metal, what properties would a metal have if it was said to be **Malleable**? (Page 20)(2)

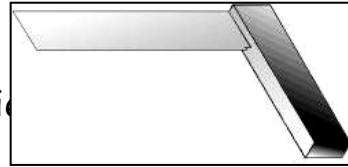
**Total Marks 13**

## CDT Department — Worksheet 10

1. Name three safety features when using the pillar drill. (Page 9)(3)

2. Briefly explain the difference between the junior hacksaw and the hacksaw. (Page 7)(2)

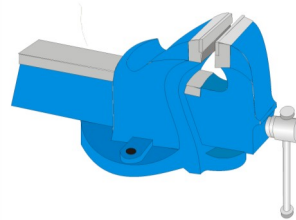
3. Name the tool shown opposite and briefly explain how it is used for.



(Page 4)(2)

4. Name two techniques used to file a piece of metal and state which of the two techniques is carried out first. (3) (Page 7)

5. Briefly explain what an **ALLOY** is.



(Page 2)(2)

6. Name the device shown opposite.

(Page 32)(2)

7. Name two non-ferrous metals.

(Page 2)(2)

8. Briefly explain what a **Blind Hole** is.

(Page 13)(2)

**Total Marks 18**

## CDT Department – Worksheet 11

1. List or sketch five entirely different forms in which METAL can be supplied to the school workshop. (Page 2) (5)
2. What is the name of the tool used to hold the **TAP**. (Page 10)(1)
3. Explain what an alloy is. Name three alloys? (Page 2) (4)
4. Which three tapping tools are used to make an internal screw thread and in which order are they used. (Page 10)(3)
5. What is the name of the hand tool used to cut an external thread on a metal rod? (Page 14)(1)
6. The purpose of sand casting is to create a shape in metal, what is the name of the piece of equipment used to push the shape into the sand before casting takes place? (Page 29)(1)
7. Briefly explain the process "PARALLEL TURNING". Use a sketch if required. (Page 26)(2)
8. Briefly explain the process "**PARTING OFF**". (Page 26)(2)

**Total Marks 19**