

HOMWORK 1&2

Homework 1 - Metals

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

Homework 2 - Metals

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

2 HOMEWORK 3&4

Homework 3

- 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.
- Explain what an alloy is. Name three alloys?
- What is the maximum size of twist drill that can fit in a pillar drill.
- Name the two main parts of a TWIST DRILL.
- What is the purpose of a spring divider?

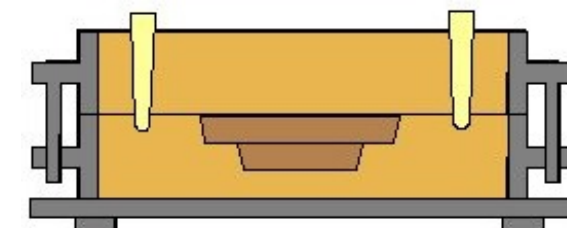
Material	Ferrous	Non-Ferrous	Alloy or Pure Metal
High Carbon Steel			
Brass			
Copper			
Duralumin			
Bronze			
Mild Steel			

(12)
(4)
(1)
(2)
(1)

Homework 4

- Forging is the process of heating and shaping metals. What device is used to support the metal whilst the shaping is being carried out?
- Which tool is used to hold the metal whilst shaping is being carried out?
- Which three tapping tools are used to make an internal screw thread and in which order are they used.
- What is the name of the tool used to hold the TAP.
- Explain briefly how an internal screw thread is cut in an Blind Hole.
- Briefly explain what is meant by the term 'Case Hardening'.
- The device shown opposite is used in the process of casting. Name four of the component parts.

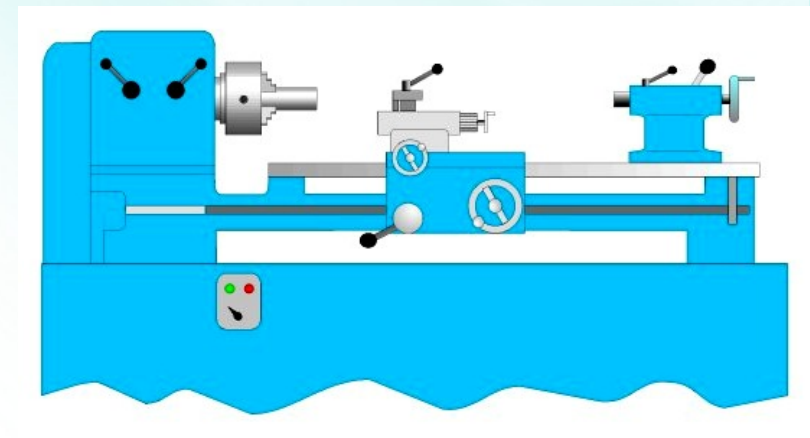
(1)
(1)
(3)
(1)
(3)
(2)



HOMWORK 5&6

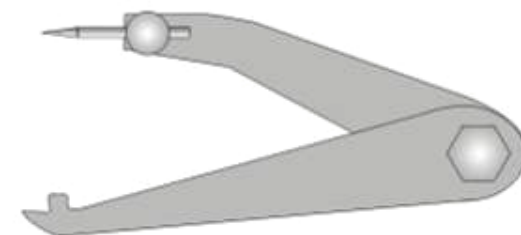
Homework 5

1. Sketch five entirely different forms in which METAL can be supplied to the school workshop. (5)
2. What is the name of the hand tool used to cut an external thread on a metal rod? (1)
3. Air holes are pushed through the sand into the space where the mould was positioned, why has this been done? (2)
4. In the sketch shown opposite, name any three component parts of the centre lathe. (3)
5. Name or sketch three types of rivet. (3)
6. Briefly explain what is meant by the term 'Heat Treatment'. (2)
7. Briefly explain what is meant by the term 'Annealing'. (2)



Homework 6

1. What are Spring Dividers used for? (1)
2. Sketch three types of rivet. (3)
3. Name the tool shown opposite and briefly describe what it is used for. (3)
4. When sand casting what is the purpose of the SPRUE PINS. (2)
5. When referring to casting, what two pieces of equipment are used to hold the sand. (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? (1)
7. Briefly explain why the RUNNER and RISER are made when sand casting. (2)
8. Name the tool shown opposite and briefly describe what it is used for. (2)



2 HOMEWORK 7&8

Homework 7

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



(2)

(2)

(2)

(2)

(3)

(3)

(2)

(2)

Homework 8

1. Briefly explain the process "BRAZING".
2. Briefly explain the process "ELECTRIC WELDING".
3. What mixture of metals (ALLOY) results in SOLDER.
4. What mixture of metals (ALLOY) results in "BRAZING SPELTER".
5. Name the type of tool shown opposite.
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?
6. Metals are usually classified as Ferrous and Non-ferrous. Explain what is meant by each of these terms.
7. Briefly explain the process "PARTING OFF".



(2)

(2)

(2)

(2)

(1)

(1)

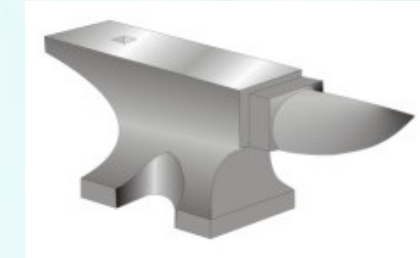
(2)

(2)

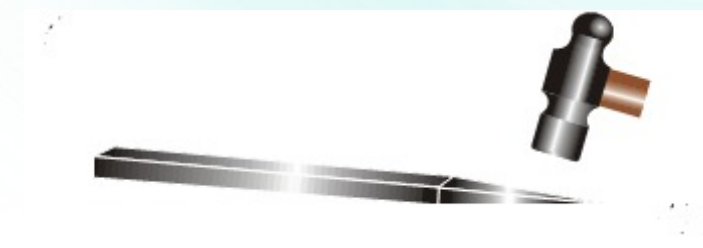
HOMWORK 9&10

Homework 9

1. Name the device shown opposite
2. Air holes are pushed through the sand into the space where the mould was positioned, why has this been done?
3. A plastic coat on metal will prevent it from rusting. Explain the four stages of applying the plastic coat to a piece of metal.
4. Name the type of hammer shown opposite.
5. When referring to metal, what properties would a metal have if it was said to be Ductile?
6. Name the process shown opposite
7. When referring to metal, what properties would a metal have if it was said to be Malleable

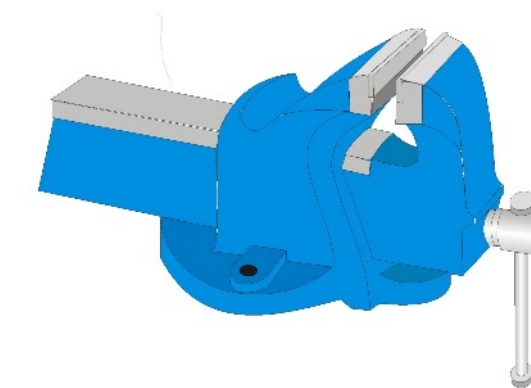
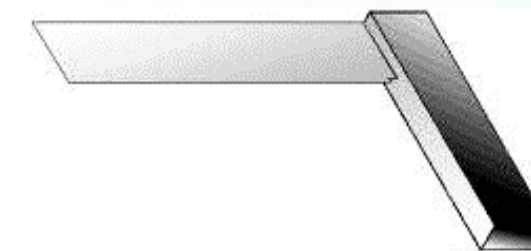


- (1)
- (1)
- (4)
- (1)
- (1)
- (1)
- (2)



Homework 10

1. Name three safety features when using the pillar drill.
2. Briefly explain the difference between the junior hacksaw and the hacksaw.
3. Name the tool shown opposite and briefly describe what it is used for.
4. Name two techniques used to file a piece of metal and state which of the two techniques is carried out first.
5. Briefly explain what an ALLOY is.
6. Name the device shown opposite.
7. Name two non-ferrous metals.
8. Briefly explain what a Blind Hole is.



- (3)
- (2)
- (2)
- (3)
- (2)
- (2)
- (2)
- (2)

2 HOMEWORK 11 & 12

Homework 11

- List three entirely different forms in which plastic can be supplied to the school workshop. **(3)**
- Plastics are usually classified as thermoplastics and thermosetting plastics. Explain what is meant by each of these terms. **(3)**
- In the table shown below indicate with a Tick which of the plastics listed are thermo or thermosetting. Also state their possible uses in everyday products. **(4)**

	Material	Thermoplastic	Thermosetting Plastic	Possible Use
	Acrylic			
	Epoxy Resin			
	Polystyrene			
	Phenolic Resin			
	PVC			

- What substance is the main source of Man-made Plastics? **(10)**
- Briefly describe the process of BLOW MOULDING. **(2)**
- Sketch a Junior hacksaw. **(4)**

Homework 12

- Write a brief description of acrylic and state its commonly used trade name. **(2)**
- Name two accessories which can be used when forming bends, folds and more complex shapes in acrylic. **(3)**
- Name three tools used to cut acrylic. **(1)**
- Name a type of plastic which when mixed with a catalyst is used to glue two pieces of material together. **(2)**
- Sketch a Coping Saw. **(4)**
- Briefly explain the process of EXTRUSION. **(4)**
- Briefly explain the process of PRESS FORMING **(4)**

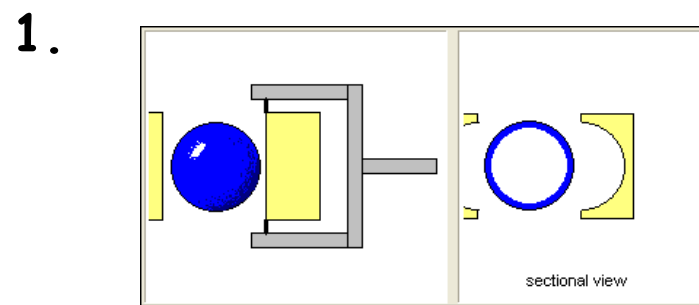
HOMWORK 13&14

Homework 13

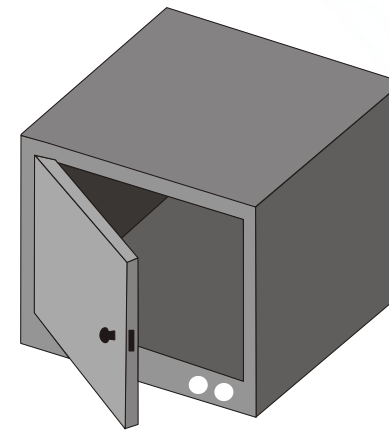
1. State two safety precautions which *MUST* be observed during the heating of acrylic in an oven or on a strip heater. (2) **(2)**
2. What two safety precautions should be observed when cutting and sanding plastics. (2) **(2)**
3. Sketch the three forms in which acrylic is supplied to the school workshop (3) **(3)**
4. Give a brief description of how a dish would be *VACUUM FORMED*. (4) **(4)**
5. When acrylic sheet is supplied to schools or industry, it is usually coated with white paper or a PVC film. What is the reason for this covering and explain briefly how a 100mm diameter circle could be marked out on a piece of acrylic sheet? (3) **(4)**
6. Explain the difference between thermoplastics and thermosetting plastics. (4) **(3)**
7. List three thermoplastics and three thermosetting plastics. (3) **(4)**
8. Briefly explain all the stages in the process *INJECTION MOULDING*. (4) **(4)**

Homework 14

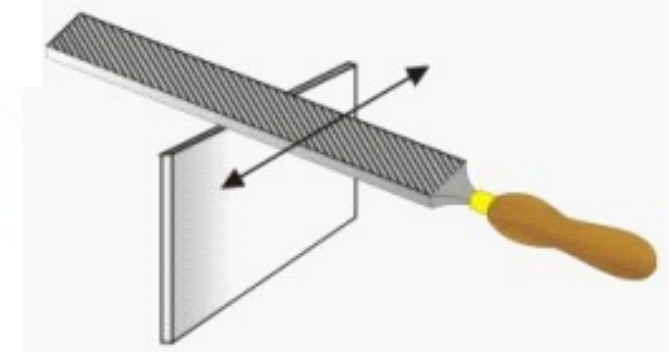
Name either the tools, equipment or processes shown below.



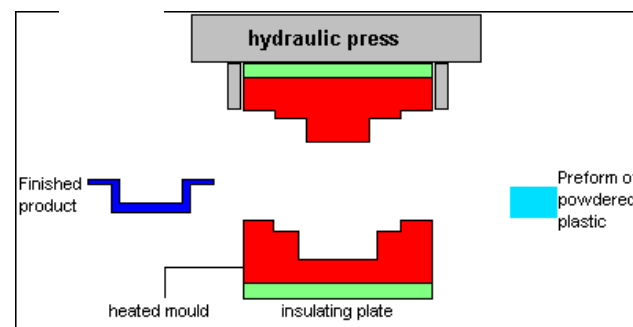
2.



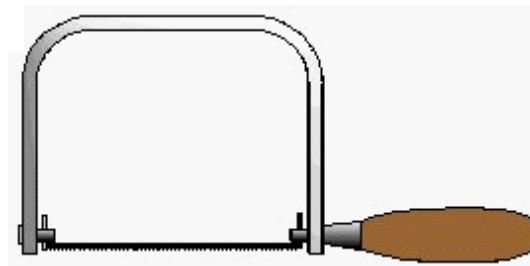
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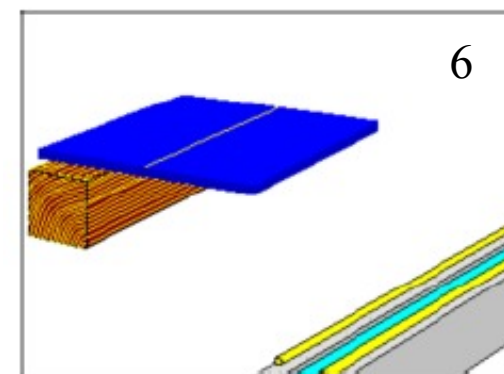
4.



5.



6.



7.



2 HOMEWORK 15&16

Homework 15

1. Explain what is meant by the term Plastic Memory. **(2)**
3. State a suitable polish for acrylic **(1)**
4. List three thermo and three thermosetting plastics. **(3)**
5. Explain the difference between thermoplastics and thermosetting plastics. **(4)**
6. The five stages used to finish the edge of a piece of acrylic are listed below in the wrong order. Using the corresponding letters write down the correct order. **(5)**

Correct Order

- | | | |
|---|--------------------------|-------|
| A | Use acrylic polish. | ----- |
| B | Cross file. | ----- |
| C | Draw file the edges. | ----- |
| D | Use wet and dry paper. | ----- |
| E | Buff with a clean cloth. | ----- |

7. List two everyday products which could have been vacuum formed. **(2)**
 8. State two safety precautions which **MUST** be observed during the heating of acrylic in an oven or on a strip heater. **(2)**
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Homework 16

1. Briefly explain the meaning of the term "Grain" when referring to timber **(2)**
2. Wood is classified into two groups name each. **(2)**
3. Name two types of hardwood. **(2)**
4. Name two types of softwood. **(2)**
5. Timber is supplied to the school workshops in different sized sections, sketch two types of section supplied to the workshop. **(2)**
6. Safety is of major importance in any workshop, list four safety rules which must be observed when working in the workshop. **(4)**
7. When referring to timber what is meant by the term finishing? **(2)**

HOMWORK 17, 18&19

Homework 17

1. Name two types of finish which could be used on wood. **(2)**
2. Timber joints are used to join two pieces of timber together; name two factors which would determine what type of joint should be made. **(2)**
3. Sketch a Butt joint. **(3)**
4. Sketch a Dowelled joint. **(3)**
5. Why are very wide boards in softwood and hardwood very rare? **(2)**
6. In your answer to question number five how has this problem been overcome? **(2)**
7. Briefly explain how the man-made board Plywood is constructed. **(2)**

Homework 18

1. Sketch a Through Housing joint. **(3)**
2. Sketch a Stopped Housing joint. **(3)**
3. Briefly explain how Blockboard is constructed. **(2)**
4. Briefly explain how Chipboard is constructed. **(2)**
5. What is the most commonly used glue found in the school workshop and state how excess glue should be removed? **(2)**
6. Briefly explain the purpose of the cross pein hammer. **(1)**
7. Saw teeth are usually SET, briefly explain what is meant by this term and the reason for setting the teeth. **(3)**
8. What is the purpose of a hole saw? **(1)**

Homework 19.

1. Sketch a Through Housing joint. **(3)**
2. Sketch a Stopped Housing joint. **(3)**
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5. What is the most commonly used glue found in the school workshop and state how excess glue should be removed? **(2)**
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8. What is the purpose of a hole saw? **(1)**

2 HOMEWORK 20, 21 & 22

Homework 20

1. Name the two component parts of a Try Square. **(2)**
2. Briefly describe the purpose of a marking gauge and name two component parts. **(3)**
3. Name four types of man-made board. **(2)**
4. Sketch a Ratchet Brace giving a brief explanation of its purpose. **(3)**
5. Sketch a Claw Hammer giving a brief explanation of its purpose. **(3)**
6. Briefly explain how wood is categorised. **(3)**
7. Name a saw used for sawing awkward cuts in wood and state what is unique about this type of saw. **(2)**
8. Name two types of chisel found in the school workshop. **(2)**
9. Name the hammer used to hit chisels. **(2)**

Homework 21

1. What is the purpose of a mortise gauge? **(1)**
2. What is the most commonly used type of rasp found in the school workshop? **(2)**
3. What type of plane is used to trim end grain, mitres or interlocking grain? **(1)**
4. What is the purpose of a Sliding Bevel? **(1)**
5. State the name of the plane used to trim the bottom of housing joints to a set depth. What other name is this plane known by? **(1)**
6. A Mitre Square is used to check angles, what are these angles? **(2)**
7. State two safety precautions which should be observed whilst working in the school workshops. **(2)**
9. Which joint would be ideal for joining the top rail of a table to the leg. **(1)**

Homework 22

1. Briefly explain what MDF is and how it is constructed. **(2)**
2. Name two safety rules which must be observed in the school workshop. **(1)**
3. When referring to timber what is meant by the term finishing? Name two types of finish which could be applied to wood. **(3)**
4. Briefly explain the meaning of the term "Grain" when referring to timber. **(2)**
5. Wood is classified into two groups name each. **(2)**
6. What plane could be described as being the smaller brother of the block plane and what type of planing is it used for. **(2)**
7. Timber joints are used to join two pieces of timber together; name two factors which would determine what type of joint should be made for the construction. **(2)**

HOMWORK 23,24&25

Homework 23

1. Name two safety rules associated with the pillar drill. **(2)**
2. Briefly explain how the mortise machine cuts a square hole. **(1)**
3. What is the purpose of a face plate? **(2)**
4. Name and describe two tools used in conjunction with the wood turning lathe. **(4)**
5. State the purpose of the "G" clamp. **(1)**
6. Briefly explain what a wood turning lathe is used for. **(2)**
7. State the purpose of the Sash clamp. **(1)**
8. Name three parts of a wood turning lathe. **(3)**

Homework 24

1. Name four wood turning chisels. **(4)**
2. Briefly explain the four stages when applying a coat of varnish. **(4)**
3. Describe a method of checking whether a frame carcass is square. **(4)**
4. What is the purpose of a Fret Saw? **(1)**
5. Explain the difference between a Rip Saw and a Cross Cut Saw. **(2)**
6. Name three types of nail. **(3)**
7. What is the purpose of creating a countersink in wood? **(3)**
8. Name the tool used to make a countersink hole. **(3)**

Homework 25

1. Describe the four stages in preparing a piece of timber for turning. **(4)**
2. What is the purpose of a Revolving Centre? **(2)**
3. What is the purpose of a Dead Centre? **(2)**
4. Briefly describe the purpose of a Marking Knife. **(2)**
5. In the space below make a sketch of the type of cut made by a Rebate plane. **(2)**
6. In the space below make a sketch of the type of cut made by a Plough plane. **(2)**
7. Where would a Spoke Shave plane be used? **(1)**