



## BEAUDESERT STATE HIGH SCHOOL

### ENGINEERING WORK BOOK

#### Hammer

Time allowed – 4 weeks

#### Procedure for making hammer

This is a self design project. Students are to design a hammer which is balanced and ergonomically viable. They are to use the centre lathe to turn the handle which must be fixed to the head by means of a sufficiently robust thread for the purpose. The head of the hammer is also to be turned and may include milling work if it is desired. The material to be used is bright mild steel. This may be painted or “blued” after assembly as desired. If students want to braze or weld the head to the handle for extra strength they may do so after consultation with the teacher.

Students are to submit a detailed drawing of their proposed design to the teacher for gaining approval for making.

#### Competencies covered

#### **Unit 1.1F.1 Undertake interactive workplace communication.**

**Element – 1.1F.1 Communicate information about tasks, processes, events, or skills.**

Criteria		Met
1.1F 1.1	An appropriate choice of communication techniques are used.	
1.1F 1.2	Multiple operations involving several topics are communicated.	
1.1F 1.3	Listening is done without continuous interruptions of the speaker.	
1.1F 1.4	Questions are asked to gain extra information	
1.1F 1.5	Correct sources of information are identified	
1.1F 1.6	Information is selected and sequenced appropriately	

1.1F 1.7	Verbal reporting and written reporting done where required	
1.1F 1.8	Communication is demonstrated in unfamiliar situations	

**Element - 1.1F.2 Take part in group discussion to achieve appropriate work outcomes.**

1.1F 2.1	Responses sought and provided from others in the group	
1.1F 2.2	Constructive contributions are made towards the production processes involved.	
1.1F 2.3	Goals and aims are communicated.	

**Element - 1.1F 3 Represent the views of the group to others.**

1.1F 3.1	Views and opinions of others are understood and reflected accurately.	
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**Unit 1.2F Apply principles of occupational health and safety (OH&S) in work.**

**Element – 1.2F.1 Follow safe work practices**

1.2F 1.1	Work is carried out safely to school standards and legislative requirements.	
1.2F 1.2	Housekeeping is undertaken to school standards.	
1.2F 1.3	Responsibilities and duties of students are understood and demonstrated.	
1.2F 1.4	Personal protective equipment is worn and stored to school standards.	
1.2F 1.5	All equipment and safety devices are used to legislative requirements and school standards.	
1.2F 1.6	Safety signs are identified and followed as per instruction.	
1.2F 1.7	All manual handling is carried out to legal requirements and school standards.	
1.2F 1.8	Emergency equipment identified and used as appropriate.	

**Element – 1.2F.2 Report workplace hazards**

1.2F 2.1	Workplace hazards identified and reported to teacher.	
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**Element – 1.2F.3 Follow emergency procedures**

1.2F 3.1	Identifies the means of contacting appropriate personnel in the event of an accident	
1.2F 3.2	Emergency and evacuation procedure understood and carried out.	
1.2F 3.3	School evacuation procedures followed	

**Unit 1.3F Apply quality procedures**

**Element - 1.3F.1 Take responsibility for own quality**

1.3F 1.1	Concept of supplying product or service to meet customer needs or requirements understood and applied.	
1.3F 1.2	Accepts the “right first time” concept as a personal responsibility	

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**Element – 1.3F.2 Apply standard procedures of workplace quality to own job**

1.3F	2.1	Quality system procedures followed.	
1.3F	2.2	Conformance to specifications ensured.	

**Unit 1.4F Plan to undertake a routine task****Element – 1.4F.1 Identify task requirements**

1.4F	1.1	Instructions for procedures are obtained, understood and if necessary, clarified.	
1.4F	1.2	Relevant specifications for task outcomes are obtained, understood, and if necessary, clarified.	
1.4F	1.3	Task outcomes are identified	
1.4F	1.4	Task requirements, such as completion time and quality measures are identified.	

**Element – 1.4F.2 Plan steps required to complete task**

1.4F	2.1	Based on specifications and instructions provided, the individual steps or activities required to undertake the task are understood, and if necessary, clarified.	
1.4F	2.2	Sequence of activities required to be completed are identified in plan.	
1.4F	2.3	Planned steps and outcome are checked to ensure conformity with instructions and relevant specifications.	

**Element – 1.4F.3 Review plan**

1.4F	3.1	Outcomes are identified and compared with (planned) objectives, task instructions, specifications, and task requirements.	
1.4F	3.2	If necessary, plan is revised, to better meet objectives and task requirements.	

**Unit 2.5C11 Measure with graduated devices****Element – 2.5C11.1 Use graduated devices to check dimensions or variables**

2.5C11	1.1	Selects appropriate device or equipment to achieve required outcome.	
2.5C11	1.2	The correct and appropriate measurement technique used.	
2.5C11	1.3	Measures accurately to the finest graduation of the instrument.	

**Element – 2.5C11.2 Maintain graduated devices**

2.5C11	2.1	Routine care and storage of devices undertaken to manufacturers specification or standard operating procedure.	
2.5C11	2.2	Checks and maintains routine adjustments to devices e.g. zeroing.	

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## **Unit 7.32A Use workshop machines for basic operations**

### **Element – 7.32A.1 Determine job requirements**

7.32A	1.1	Job requirements interpreted.	
7.32A	1.2	Appropriate machine selected to meet requirements.	

### **Element – 7.32A.2 Set up machine**

7.32A	2.1	Tools are selected where appropriate.	
7.32A	2.2	Cutting tools are sharpened as required.	
7.32A	2.3	Tools are correctly installed using standard operating procedures.	
7.32A	2.4	Appropriate guards are set and adjusted as required.	

### **Element – 7.32A.3 Operate machine**

7.32A	3.1	Material to be machined is positioned and secured.	
7.32A	3.2	Machine is operated appropriately to suit job and material requirements.	

### **Element – 7.32A.4 Check finished component**

7.32A	4.1	Machined component checked against requirements and predetermined finish.	
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## **Machinery and equipment used**

Cold cutting saw, centre lathe, pedestal grinder, HSS tool bit and straight or right hand tool holder, centre drill, live centre, stock and die, metal work vice.

## **Record keeping**

All criteria which have been successfully met by each student, must be recorded on the students **Engineering Competencies Student Booklet** as soon as possible, but no less often than at the end of each semester.