

YEAR 7 HOMEWORK

How does this document work?

This document has all the homework to be completed by all yr7 students.

All homework tasks are to be completed for the next lesson after the homework is set.

The images in the document are taken from online resources each image should have a link to its origin.

All resources can be found on the Wilson's Design and Technology webpage

<http://www.wilsonsschool.sutton.sch.uk>

What are you expected to complete?

Each section gives instruction on what is to be completed.

Students can choose the way in which they answer the homework task (drawing, written, storyboard etc.)

Students can complete the homework in any media they wish (by hand, on word, PowerPoint, online) but a physical copy must be submitted during the lesson. On a USB is **not** acceptable.

How do the homework tasks work?

There are three sections: Knowledge, Application and evaluation.

In the knowledge section you need to answer at least three of the questions

In the application section you need to use one or more of the presentation methods

In the evaluation section you need to answer two or more of the questions.

This must be completed for **all** home works!

The standard of homework

All homework is to be on A4

Presented in landscape

Handwriting in black ink on pencil lines drawn with a ruler

All images are to be rendered in colour

See next page for examples of how to layout homework

PAGE LAYOUT



All pages need a boarder! Even if the homework is produced on the computer

The measurements and how to draw the boarder can be found at:

<https://www.dropbox.com/s/l2z4ni4g874h7hm/2%20Border.ppt>

An editable boarder can be found at:

<https://www.dropbox.com/s/up11wjv24lthnb5/editable%20boarder.pptx>

A printable boarder can be found at:

<https://www.dropbox.com/s/z7hy78dc9anry65/boarder%20basic.jpg>

If you are struggling to draw a boarder, use one of the above. The content of the homework is more important.

THE FRAME SAWS

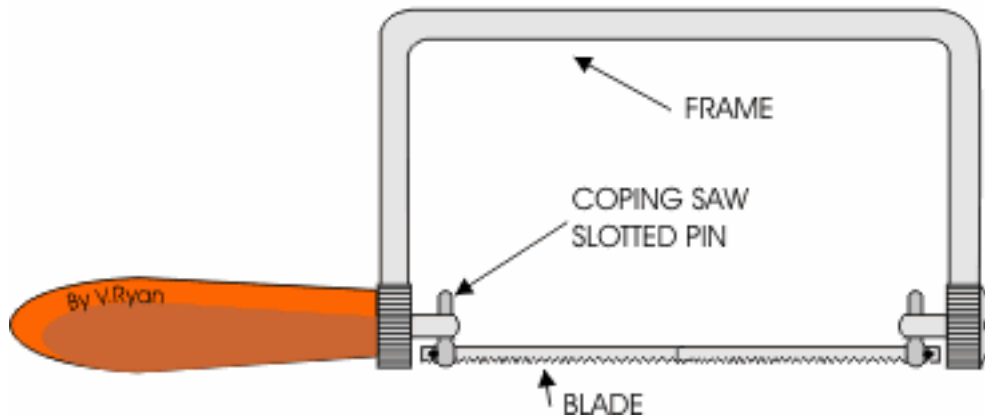


Image source: technologystudent.com

Knowledge: (answer 3 or more)

Which saws are part of the frame saw family, and why are they named frame saws?

How do you replace the blade of a frame saw and how do you set it up ready to cut.

Explain the affect the frame has on the blade?

Remember to explain the forces acting on the blade

What sort of shapes can the coping saw cut and can you explain how the teeth of the saw work?

Application: (pick 1 or more)

Draw a family tree of the frame saws. Include smaller diagrams to answer other questions

Produce several diagrams to answer each question

Write an account of how you would identify a frame saw, how it works and what you can use it for. Be sure to answer at least three of the points in the knowledge section.

Draw a storyboard explaining the use of the coping saw and its features.

"Enjoy failure, and learn from it. You can never learn from success." James Dyson

Evaluation: (answer 2 or more)

Identify the advantages of the coping saw compared to the tenon saw.

Describe how the coping saw teeth work, and how they affect the direction of cut. Your answer must include the words tension and wasting material.

Optional support can be found at:

<http://www.technologystudent.com/equip1/coping1.htm>

<https://www.dropbox.com/s/977ey5rwomk831w/coping%20saw.jpg>

<https://www.dropbox.com/s/l10xn2byimp1ffo/saws%20medium.jpg>

GRAPHIC ASSESSMENT

Box 1 Hand drawn image	Box 2 An image drawn on the computer	Box 3 A photo collage
Wilson's School Design and Technology		

The assessment is to:

Draw a neat, accurate 10mm boarder

Draw an accurate 10mm name box with your name, teacher's initials and Wilson's school D&T

Draw 3 boxes in the center of the page with equal spacing each side. The boxes should be 70mm by 150mm

Box 1 should contain a hand drawn image fully rendered.

Box 2 should contain an image drawn on the computer (paint for example). This should not be an image from the internet.

Box 3 should contain a photo collage of images! The funnier the better!

What is being assessed?

The quality of the pencil lines. Varied weight of pencil line to construct page layout.

Three images produced accurately, using flair and creativity. Use of three different visual communication techniques

Support can be found at:

[HTTPS://www.dropbox.com/s/00r92qh9u9pv436/boarder%20support.pptx](https://www.dropbox.com/s/00r92qh9u9pv436/boarder%20support.pptx)

WOOD

Knowledge: (answer 3 or more)

Why are the forests and woodlands of the world regarded as a precious natural resource? As part of your answer you should include examples of products made from natural woods.

What are the differences between tropical, boreal and temperate forests? As part of your answer give two examples of trees that grow in each forest and an example of what their wood is used to make.

How could you identify a hardwood and softwood tree by looking at it? Draw the tree and its leaves for each category.

What is a sustainable forest? Can you draw/describe it? You must use the following words: managed, environment, felled, maturity or mature, seedlings.

Application: (pick 1 or more)

Write explanations to the above questions. Type up your answers, including images from the internet and boarder

Draw a storyboard or flow diagram to explain your answers. You can use paragraphs as well to help support drawings, if needed.

Produce a campaign poster on for sustainable forestry, including all the information.

Optional support can be found at:

<https://www.dropbox.com/s/irfnueukqpau7dx/woods%20medium.jpg>

<https://www.dropbox.com/s/gk6ms0sbqqjld/woods%20quiz.jpg>

<http://www.technologystudent.com/joints/joindex.htm>



Image source:

<http://www.dezeen.com/2011/03/03/ausgebrannt-by-kaspar-hamacher-at-20-designers-at-biologiska/>

Evaluation: (answer 2 or more)

Is wood a sustainable material? Present an argument for or against giving examples to support your argument.

Summarise the advantages of sustainable forestry. Give examples to support your answers

If wood is a sustainable material, should we use more hard or soft woods. Give arguments for both.

PLASTICS



Image source:

<http://www.treehugger.com/sustainable-product-design/precious-plastic-diy-plastic-recycling-machine-dave-hakkens.html>

Knowledge: (answer 3 or more)

What are the two types of plastic? Explain using accurate terminology how they are different.

Explain how plastics are produced from crude oil. You must include the following words: hydrocarbons, naphtha, carbon, fractional distillation.

Argue why plastics are so readily used by designers. Use an example product to help illustrate your answer.

Application: (pick 1 or more)

Write explanations to the above questions. Type up your answers, including images from the internet and boarder

Draw a storyboard or flow diagram to explain your answers. You can use paragraphs as well to help support drawings.



Image source: <http://www.dezeen.com/2012/07/09/nike-gs-football-boot-by-nike/>

Evaluation: (answer 2 or more)

Are plastics sustainable? Present an argument for or against giving examples to support your argument.

Summarise the advantages of each of the types of plastic. How is each manufactured and how does this process affect its use.

Draw or explain what a long chain monomer is.

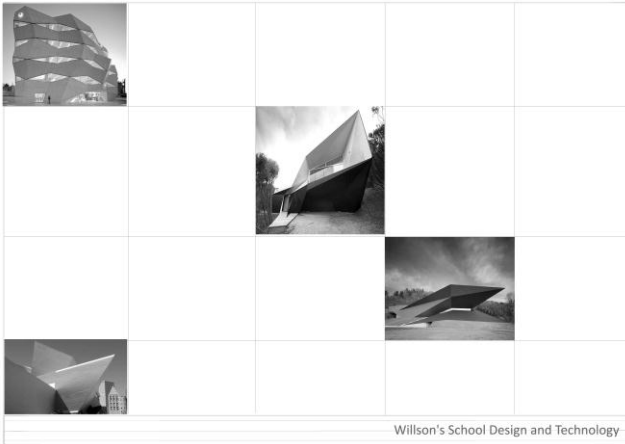
Optional support can be found at:

<https://www.dropbox.com/s/24vj99xcwh2073x/plastics%20medium.jpg>

<https://www.dropbox.com/s/c2mcndg0nof6bx3/plastics2%20medium.jpg>

<http://www.technologystudent.com/joints/joindex.htm>

GRAPHIC ASSESSMENT



The assessment is to: (part 1)

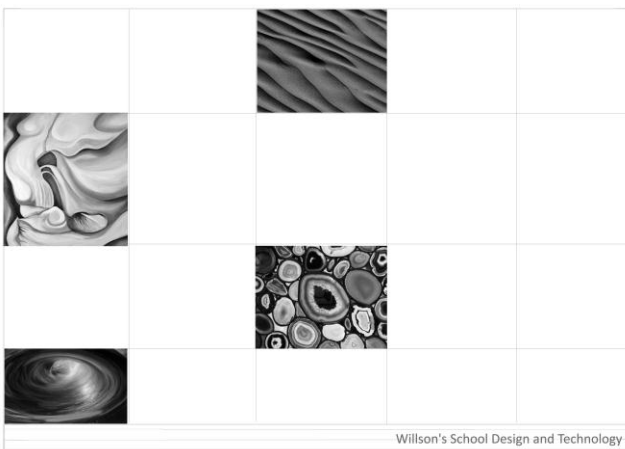
Download one of the two sheets. (You can hand draw something similar if you wish.)

Fill all the empty boxes with design ideas. Creating either sharp architectural designs or smooth pebble designs.

Use a variety of views, top, side, 3D etc.

What is being assessed?

- The quality of the pencil lines. Varied weight of pencil line when drawing outlines or rendering designs
- All boxes filled with creative, accurate design ideas



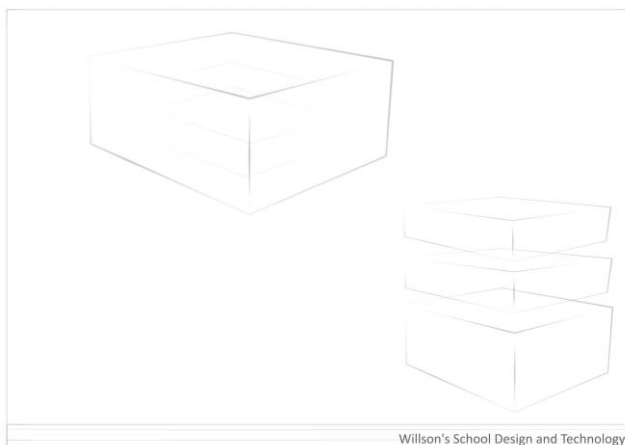
The assessment is to: (part 2)

Download the final design sheet (below)

Complete the 3D and exploded view

What is being assessed?

- The quality of the pencil lines. Varied weight of pencil lines.
- The quality of the 3D projection
- Quality of the rendering



The three sheets can be downloaded from:

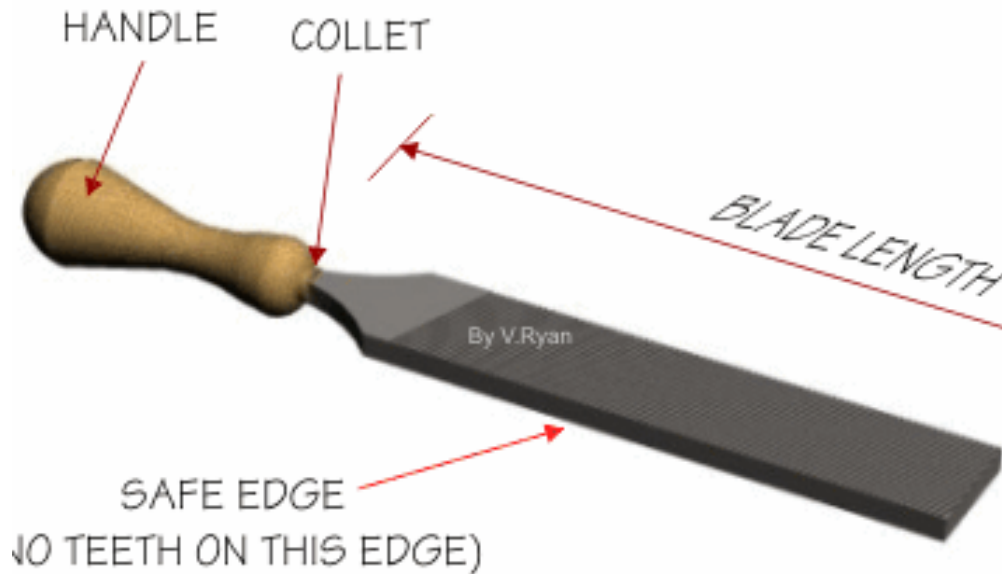
<https://www.dropbox.com/s/ux8ov6c568p1bas/design%20sheet%201.jpg>

<https://www.dropbox.com/s/fo6b76wzje53s6i/Design%20sheet%202.jpg>

<https://www.dropbox.com/s/q6m24qarc3sn5r9/keyfob%20final%20design.jpg>

<http://www.technologystudent.com/designpro/drawdex.htm>

HAND FILES



Knowledge: (answer 3 or more)

What are the three types of hand file? What are their profiles? And what is each type used for?

What does a file do to the surface of a material?

How would someone set up a piece of material in a vice if they were about to file it? Use the words: stress the material, noise, breaking.

What are the two methods of filing and how do they work?

Application: (pick 1 or more)

Draw and label the hand file use diagrams to show methods of filing, how to set up material, and how the two methods of filing work.

Explain in writing the answers to the above. Use diagrams/images from the internet to illustrate your understanding.

Create a comic strip of how to use the file. Include the information from above.

Evaluation: (answer 2 or more)

Construct an argument supporting the advantages of using a hand file and a frame saw as opposed to just a frame saw.

Identify the key steps when trying to achieve a smooth finish using a hand file.

Prioritise the most important steps when setting up material in a vice ready to file.

Optional support can be found at:

<https://www.dropbox.com/s/rug8ogdoyk51wg8/files%20basic.jpg>

<http://www.technologystudent.com/equip1/hfile1.htm>

BELT SANDER

Knowledge: (answer 3 or more)

What is the belt sander used for? Include in your answer: how does the belt work, what does the belt do to the surface of the material, what type of materials can it shape?

What are the health and safety precautions to remember when working with this machine?

What level of manufacture (one off, batch, mass) is this machine used for, use examples to justify your answer. Include in your answer the set up cost (machine costs about £3,000) and the unit cost (guess the unit cost of your example based on level of manufacture)

Application: (pick 1 or more)

Draw and label the belt sander use diagrams to show how you would shape material.

Create a comic strip of how to use the belt sander. Remember to include all the information from above.

Evaluation: (answer 2 or more)

Distil all information about the belt sander to a 5 point checklist to show someone how to use the machine.

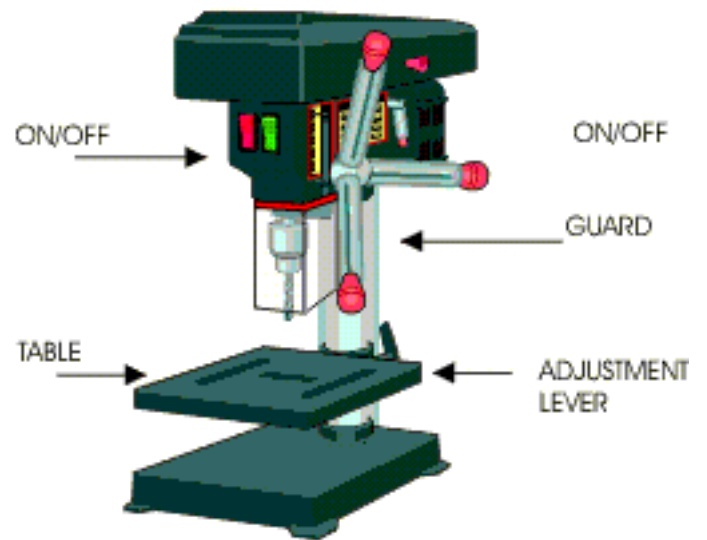
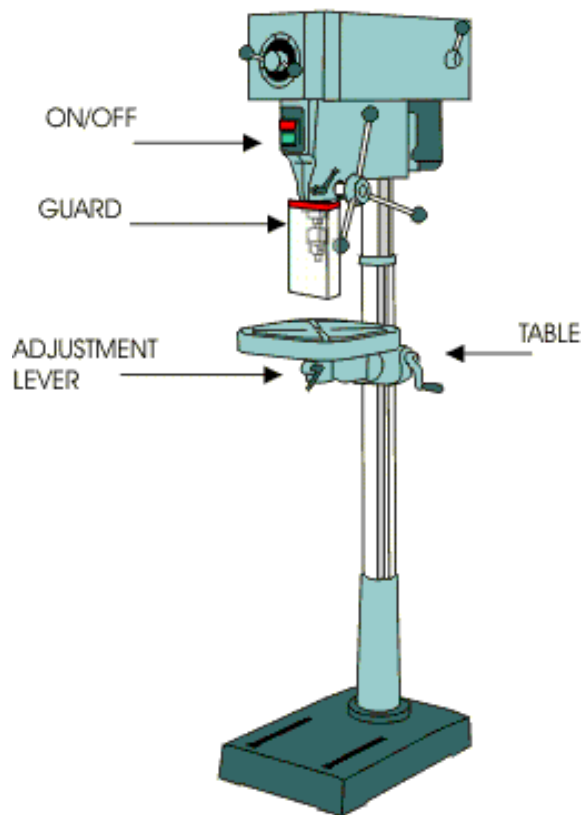
Prioritise the most important health and safety checks when using this machine.

Optional support can be found at:

http://www.technologystudent.com/equip_flash/disk er1.html



PILLAR DRILL



Knowledge: (answer 3 or more)

What is the pillar drill used for? What are the three main types of drill bit used in the pillar drill? Why do we need different types of drill bit? Use the three bits as examples.

What are the health and safety precautions to remember when working with this machine?

When using this piece of machinery to produce 1000 of the same product we would use a jig. What is a jig, and why is it important?

Application: (pick 1 or more)

Draw and label the pillar drill, use a diagram to show how you would set up and use this machine.

Create a comic strip of how to use the pillar drill.
Remember to include all the information from above.

Evaluation: (answer 2 or more)

Distil all information about the pillar drill to a 5 point checklist to show someone how to use the machine.

Prioritise the most important health and safety checks when using this machine.

Optional support can be found at

<http://www.technologystudent.com/equip1/macdril1.htm>

<https://www.dropbox.com/s/xc8z4rxlmoj6ybq/pillar%20drill.ppt>

<https://www.dropbox.com/s/3xaazdf5y64t79z/DRILL%20BASIC.jpg>

POLISHING MOP

Knowledge: (answer 3 or more)

What is the polishing mop used for? What substance is applied to one of the wheels? What is the difference between the two wheels?

What are the health and safety precautions to remember when working with this machine?

Describe the stages of shaping before using the polishing mop. Include the two types of filing, Emory cloth, quality checks and a description of how the abrasions are made smaller as the steps progress

Application: (pick 1 or more)

Draw and label the polishing mop, use a diagram to show how you would set up and use this machine and the stages of shaping.

Create a comic strip of the entire process of shaping. Remember to answer the questions above.

Evaluation: (answer 2 or more)

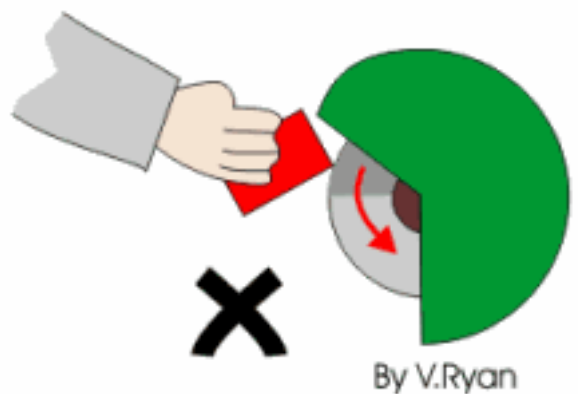
Distil all information about the polishing mop to a 5 point checklist to show someone how to use the machine.

Prioritise the most important health and safety checks when using this machine.

Optional support can be found at:

<http://www.technologystudent.com/equip1/buff1.htm>

<https://www.dropbox.com/s/tyisrn52k34p1de/POLISHING%20MOP%20BASIC.jpg>



STYLING AND SEMANTICS ASSESSMENT

The assessment is to:

Print off links 2&3

Complete and render both sheets to the best of your ability

Use link 1 for tips and techniques

Each sheet requires a 2H or HB pencil and a couple of coloured pencils

Link 1: Have a number of tips and techniques which will help you render your assessment. This link is **not** submitted for assessment.

<https://www.dropbox.com/s/ntlf7a3oy7cq145/rendering.pdf>

Link 2: Print off this sheet and submit for assessment. Complete all the sections and render all the images.

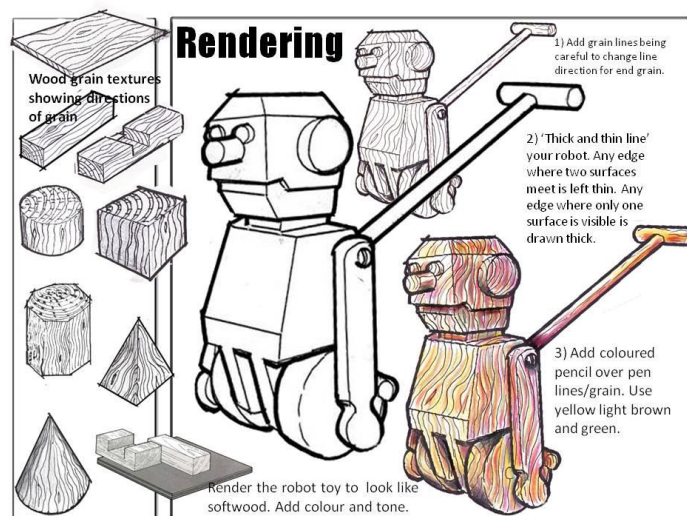
https://www.dropbox.com/s/3mwdzuwakfeq7wa/Shading_worksheet.pdf

Link 3: Print off this sheet and submit for assessment. Complete all the sections and render all the images.

<https://www.dropbox.com/s/v5x1h9ghs0auvrg/robot3.jpg>

What is being assessed?

- The quality of the pencil lines. Varied weight of pencil line and accuracy of drawing.
- Rendering is accurate, in one direction and fills the area.
- Visual communication techniques used accurately.



JACK PLANE

Knowledge: (answer 3 or more)

How does the jack plane work? What does it do to the surface of material? In your answer include the following words: frog, blade, sole, wasting process and handle.

What three things can you do to ensure you get a 'square' cut when using the jack plane? (Think about the preparation of the plane, the use, and how you could check after removing material)

How do you set up a jack plane? Use accurate terminology in your explanation.

Describe the process of removing material. Use accurate terminology in your explanation.

Application: (pick 1 or more)

Draw and label the jack plane use diagrams to show methods of removing material, and how to set up the blade.

Explain in writing the answers to the above. Use diagrams/images from the internet to illustrate your understanding

Create a comic strip of how to use the jack plane. Include the information from above.

Evaluation: (answer 2 or more)

What is the face edge and why is it important?

Identify the key steps when trying to achieve a smooth finish using a jack plane.

Prioritise the most important steps when setting up the blade in a jack plane.

Optional support can be found at:

<http://www.technologystudent.com/equip1/planes2.htm>

<https://www.dropbox.com/s/eojvcyfam7c0n8u/jack%20plane%20medium.jpg>

<http://www.technologystudent.com/equip1/planes1.htm>



By Ryan

METAL

Knowledge: (answer 3 or more)

What are the two types of metal? Explain using accurate terminology how they are different. Can you give an example of each? What is a simple test to check which type of metal a product is made of?

Define what an alloy is, how are alloys used. Your answer must include the following words:

Argue why types of steel are so readily used by designers are. Use an example product to help illustrate your answer.

Application: (pick 1 or more)

Write explanations to the above questions. Type up your answers, including images from the internet and boarder

Draw a storyboard or flow diagram to explain your answers. You can use paragraphs as well to help support drawings.



Image source:

<http://www.dezeen.com/2013/03/28/3-plus->

Evaluation: (answer 2 or more)

Are metals sustainable? Present an argument for or against giving examples to support your argument.

Summarise the advantages of each of the types of metal.

Complete the following worksheet.

<https://www.dropbox.com/s/hfmqmqufzmduxnd/metals%20research.jpg>

Optional support can be found at:

<http://www.technologystudent.com/designpro/metals1.htm>

<http://www.technologystudent.com/joints/ferous1.html>



Image source:

<http://www.dezeen.com/2013/03/19/heavy-metal-exhibition-woodstock-foundry-design-indaba/>

MANUFACTURING

This assessment is based on the GCSE exam paper.
The assessment is to show, through drawings and notes, your understanding of manufacturing techniques.

You are advised to spend about 45mins on this homework

This trophy (below) could be made in the school workshop

You will be asked to show how you would make a batch of ten trophies in the school workshop

Use notes and sketches to clearly show how you would make a batch of ten using any equipment you have used this year. You cannot use the laser cutter.

Remember to:
Add names of tools
Use notes to explain your drawings



The assessment document can be downloaded from
<https://www.dropbox.com/s/6suvxhboggypxir/Presentation%202.pdf>