



# Year 9 DT – Product design: Timbers and metals

## WHAT WILL YOU STUDY? DO?

Students are presented with a contextual challenge which they will need to investigate, create variety of ideas, develop a final idea, make a prototype and test & evaluate the success of the prototype. Students will use the same process as GCSE DT students undertake as well as learn core knowledge of 2 materials in preparation for GCSE studies.

## Key knowledge

- Categories of metals – ferrous and non-ferrous
- Properties of metals and alloys and their uses
- Health & Safety in the workshop

Suggested reading: BBC Bitesize - GCSE Design and Technology – AQA [Physical and working properties - Material categories and properties - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize](#) And [ENGINEERING - DESIGN AND TECHNOLOGY \(technologystudent.com\)](#)

## Key vocabulary

Key vocabulary	Definition
ferrous	Metals that contain iron. Besides iron itself, all ferrous metals are alloys.
non-ferrous	Metals that do not contain iron.
alloy	a mixture of at least one pure metal and another element.
Product specification	a list of criteria your product needs to address
Iterative design process	a design methodology based on a cyclic process of prototyping, testing, analyzing, and refining a product or process. Based on the results of testing the most recent iteration of a design, changes and refinements are made.
Sustainable	a method of harvesting or using a resource so that the resource is not depleted or permanently damaged
Softwood	the wood from a conifer tree
Hardwood	the wood from a broadleaved tree

## Skills and National Curriculum Links

Use specialist tools, techniques, processes, equipment and machinery.

- CAD
- Engraving tools such as Dremel
- Laser cutter
- Band saw
- Mitre saw
- Brazing forge



TAKE STEPS TO SUCCEED



## Assessment and homework

Students will be assessed in 6 areas: Investigate, Specification, Initial and develop ideas, Making, Evaluation & Testing. Homework is set once a fortnight and students will have 2 weeks to complete it.

## Differentiation

Students will be supplied with differentiated worksheets where appropriate. Students will have demonstrations for all practical tasks, together with teacher and support staff assistance. Where necessary the project will be changed and adapted to student's individual needs. Higher ability students will be taught use of additional tools and equipment to create more complex finishing techniques.