



Number of weeks (between 6&8)	Content of the unit	Assumed prior learning (tested at the beginning of the unit)
18 weeks  This unit is focused on the theory pupils need to learn in year 7 to ensure they develop the body of knowledge pupils need to successfully complete unit 1 of the AQA GCSEs in Product Design or Graphic products	Design Movements Timber Joints Surface finishes Paper, card/board Mechanisms	Pupils are not expected to have any prior knowledge
Assessment points and tasks	Written feedback points	Learning Outcomes (tested at the end and related to subject competences)
Week 8 phase test on timbers for homework logged on go 4 schools  Week 14 phase test for homework logged on go 4 schools  Week 18 end of year test logged on go 4 schools	Week 3 written feedback on the quality of drawing  Week 5, 10 and 15 formative evaluation on: <ul style="list-style-type: none"> <li>quality of written response and use of key words</li> <li>use of diagrams and annotation</li> <li>quality drawing and use of colour</li> </ul>	<b>Technical knowledge</b> <ul style="list-style-type: none"> <li>understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</li> <li>understand how more advanced mechanical systems used in their products enable changes in movement and force</li> </ul> <b>Make</b> <ul style="list-style-type: none"> <li>select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</li> <li>select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</li> </ul>

Week	Clear learning intentions	Clear success criteria	Hook	Presentation of content	Guided practice	Independent practice (homework)	Closure
1	Learn how product design has been influenced by iconic products and developments in style, trends and the latest thinking and to develop skills in free hand sketching and annotation	To be able to design a chair in the style of De-Stijl	What does De-Stijl mean	Explain the essential elements of the De-Stijl movement	Produce a range of designs for a bird house inspired by the De-Stijl movement  Annotate your designs explaining how they are in the style of De-Stijl	Draw a De-Stijl painting	Show and tell, have you captured the essence of De-stijl
2	Learn how product design has been influenced by iconic products and developments in style, trends and the latest thinking and to develop skills in free hand sketching and annotation	To be able to design a lamp in the style of Memphis	What are these products	Discuss homework task  Explain the essential elements of the Memphis design movement	Produce a range of designs for a bird house inspired by the Memphis movement  Annotate your designs explaining how they are in the style of Memphis	Draw a Memphis bookcase	Show and tell, have you captured the essence of Memphis
3	Learn how product design has been influenced by iconic products and developments in style, trends and the latest thinking and to develop skills in free hand sketching and annotation	To be able to design a piece of Jewellery in the style of Art Nouveau	Can you describe the influences which inspire these products	Discuss homework task  Explain the essential elements of the Art Nouveau design movement	Produce a range of designs for a bird house inspired by the Art Nouveau movement  Annotate your designs explaining how they are in the style of Art Nouveau	Draw an Art Nouveau poster	Show and tell, have you captured the essence of Art Nouveau



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4	Learn how product design has been influenced by iconic products and developments in style, trends and the latest thinking and to develop skills in free hand sketching and annotation	To be able to design a birdhouse in the style of Art Deco	Who was Tutankhamen	Discuss homework task  Explain the essential elements of the Art Deco design movement	Produce a range of designs for a bird house inspired by the Art Deco movement  Annotate your designs explaining how they are in the style of Art Deco	Draw an Art Deco window	Show and tell, have you captured the essence of Art Deco
5	Learn that timber is a general name for wood materials. There are three main types of timbers called hardwoods, softwoods, and manufactured boards and that these have different properties and characteristics	To be able to identify the 3 groups of timbers and give specific examples	Name 3 things you know about trees	Where do timbers come from  What are their general characteristics	Complete the worksheet on timbers  Draw a tree half softwood and half hardwood	Draw 1 product in your house made from timbers and try and name which group they come from	Exit pass I thing I do not understand
6	Hardwoods come from deciduous or broad leaf trees and they are usually slow growing, is usually hard and is used for making toys, furniture and fine joinery	Explain the characteristics and uses of hardwoods	Draw a leaf and a fruit	Why choose hardwoods <ul style="list-style-type: none"> <li>• Source of raw materials</li> <li>• Primary Processing</li> <li>• Stock sizes</li> <li>• Description</li> <li>• Use</li> </ul>	Fill in the table giving the name, description and uses of the 3 main hardwoods	Make a list of 20 hardwoods, use the internet to help	mini whiteboards name 3 hardwoods
7	Softwoods come from coniferous trees that have needles instead of leaves; they are faster growing than hardwoods and easier to work. It is mainly used in buildings for	Explain the characteristics and uses of softwoods	Draw a needle and a cone	Why choose softwoods <ul style="list-style-type: none"> <li>• Source of raw materials</li> <li>• Primary Processing</li> <li>• Stock sizes</li> <li>• Description</li> <li>• Use</li> </ul>	Fill in the table giving the name, description and uses of the 3 main softwoods	Make a list of 20 softwoods, use the internet to help	Q&A name one difference between hardwood and softwood
8	Manufactured boards are timber sheets made by gluing wood layers (veneers) or wood fibres together. They are made in very large sheets of consistent quality and used for furniture, internal panelling and doors	Explain the characteristics and uses of manufactured boards	What happens to all the bits of wood left over from processing hardwood and softwood	Why choose manufactured boards <ul style="list-style-type: none"> <li>• Source of raw materials</li> <li>• Primary Processing</li> <li>• Stock sizes</li> <li>• Description</li> <li>• Use</li> </ul>	Fill in the table giving the name, description and uses of the 4 main manufactured boards	Phase test on timbers	Learning triangle on timbers
9	Wood Joints are used to build structural strength into products that are made from timbers. There are many types of joints and each does a different job	Understand what joints are and what they are used for and to be able to name 3 common joints	Look at this chair and explain how it has been put together	Discuss homework  Explain the difference between a <ul style="list-style-type: none"> <li>• Halving joint</li> <li>• Mortise and tenon joint</li> <li>• And a housing joint</li> </ul>	Draw and label 3 types of Joint	Draw the following tools used for making joints <ul style="list-style-type: none"> <li>• Tenon saw</li> <li>• Chisel</li> <li>• Try square</li> <li>• Bench hook</li> </ul>	Exit pass what are wood joints for



Week	Clear learning intentions	Clear success criteria	Hook	Presentation of content	Guided practice	Independent practice (homework)	Closure
10	Many materials need some form of surface finish to make them look more attractive and to protect them	Understand why surface finishes are applied and to be able to name common surface finishes	What is varnish for	Many materials need some form of surface finish to: <ul style="list-style-type: none"> <li>• Make them look more attractive</li> <li>• And protect them from determination</li> </ul>	Complete table on surface finishes  If metals are not given a surface finish they may corrode And if timbers are not given a surface finish they may rot	With the help of the internet explain the process of plating metal	Exit pass give 2 reasons for applying a surface finish
11	Paper is a web like material made from very fine vegetable fibres which are made for cellulose and extracted from wood	Understand the primary processing of paper and card	Name one thing you know about paper	Discuss homework  Describe the four stage process of making paper	Produce a flow chart showing the primary processing of paper	Who invented paper making and explain how they did it	Show and tell pupils explain the process of paper making
12	Paper and boards are designed to perform different tasks so it is important to be able to identify the correct type for a specific job	To be able to identify and name 4 common types of paper and card	Discuss last week's homework	Describe: <ul style="list-style-type: none"> <li>• Cartridge paper</li> <li>• Layout paper</li> <li>• Copier paper</li> <li>• Duplex board</li> <li>• Corrugated board</li> <li>• Foil lined board</li> </ul>	Complete table on different types of paper and board	Make an origami figure	Mini white board questions on different papers and boards
13	Paper is made in different sizes eg. A4, A3, A2 and in different weights e.g. 100grams per metre squared. Different substances are added to change its characteristics	Understand the working characteristics and stock sizes of common papers and cards	Fold a piece of A3 paper in half and then in half again and then again  What size is it now	Discuss the stock size and how is board different from paper	Annotate diagram of paper sizes and grades  Produce table of working characterises of paper and card	With help from the internet explain the process of laminating paper and card	Exit pass 1 thing I don't understand about paper and card
14	What is paper and card used for	Understand what different papers and cards are used for	What material could we use if we did not have paper	Discuss different products made from paper and card and why paper and card is such a good material for each purpose	Ten things paper and card are used for	Phase test on paper and card	Learning triangle on paper
15	Mechanisms are designed to make tasks easier to carry out. They generate a force and movement in a product. They can be used in many products	Understand that different mechanisms enable changes in movement and force	Name a product that contains a mechanism	When deciding on a particular mechanism to use, you need to look at the input force and movement available and the output force and movement required	Complete table on <ul style="list-style-type: none"> <li>• Rotating motion</li> <li>• Linear motion</li> <li>• Reciprocating motion</li> <li>• Osculating motion</li> </ul>	Explain how a car engine makes the wheels go round	Exit pass 2 things I have learnt today
16	Different types of mechanisms produce different output forces and movement	To be able to name common mechanical components and explain what they do	Watch video and describe the force and movement  <a href="https://youtu.be/-oGRmymyfBo">https://youtu.be/-oGRmymyfBo</a>	Discuss <ul style="list-style-type: none"> <li>• Cam and follower</li> <li>• Cranks</li> <li>• Pulleys</li> <li>• Rack and pinion</li> </ul>	Complete table on different mechanical components	Revision for end of year test	Mini whiteboards what do these mechanical components do
17	Design a toy that has 3 forms of movement	To understand that mechanical components can be combined to make complex systems like a watch	Watch video on automata  <a href="https://youtu.be/bLb54FCMt9o">https://youtu.be/bLb54FCMt9o</a>	Explain the task and give some examples	Produce a design for a toy that uses 3 different mechanical components to do something	Revision for end of unit test	Show and tell your toys
18		Endo of year exam covering all elements of this unit		Class in rows sitting an unseen test set by one member of the department			



### Key stage 3

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion].

When designing and making, pupils should be taught to:

#### Design

- use research and exploration, such as the study of different cultures, to identify and understand user needs
- identify and solve their own design problems and understand how to reformulate problems given to them
- develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses
- develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools

#### Make

- select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties

#### Evaluate

- analyse the work of past and present professionals and others to develop and broaden their understanding
- investigate new and emerging technologies
- test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
- understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists

#### Technical knowledge

- understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- understand how more advanced mechanical systems used in their products enable changes in movement and force
- understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].