Grade ranges for 1.5 are 1.2 (just), 1.5 (middle) and 1.8 (secure), all are level 1. The descriptor indicates middle of the range.

	Year 7		Year 8		Year 9	Year 10		Year 11		
GCSE grade	U G	G F	E	D	C	B		A	A A*	A*
Assessment criteria	**0.5**	**1.5**	**2.5**	**3.5**	**4.5**	**5.5**	**6.5**	**7.5**	**8.5**	**9.5**
Design & Technology in the 21st Century	Verbally name products that use new technology and decorative techniques.	Name and write sentences about useful products used in D&T.	Outline key features of a number of designers / engineers / technologists.	Research Independently the 6 R's to include examples of products that fall into each category.	Describe features of a Product lifecycle.	Explain Technology Push and Market Pull using examples of products.	Evaluate the usefulness and sustainable features of a modern day product.	Justify the sustainability of a range of materials to include carbon footprint issues.	Justify fully the carbon footprint of a product using a Lifecycle Analysis.	Discuss in-depth having undertaken additional research the sustainable problems associated with modern day products.
Commercial Design		Name the various scales of production.	State the advantages and disadvantages of using CAD/CAM.	Research independently the ways in which consumer choice affects design and production.	Describe the different forms of energy sources, their availability and environmental impact.	Explain the advantages and disadvantages of scales of production and how manufacturing systems are organised.	Consider and analyse the impact of new and emerging technologies on society.	Explain how legislation and consumer rights affect the designer.	Analyse and consider how design and manufacture can be influenced by moral and ethical factors.	Discuss the designer's responsibility towards society and the environment.
Smart, Modern & Technical Materials		Name and identify products that are made from modern or smart materials.	Outline the features of simple modern materials such as polymorph, lenticular sheet and thermochromic ink.	Write the definition and give examples of the use of Smart and Modern materials.	Describe how smart materials respond to their environment.	Consider how the use of technical and composite materials have enhanced product design.	Explain how phase changing materials such as Rhovyl can improve the performance of products.	Analyse how interactive textiles have improved our life styles.		
Electronic and Mechanical Devices	Use equipment with a basic understanding of their advantages in respect of motion, force and accuracy.	Verbally explain types of motion encountered in the workshop.	Identify every day mechanical devices and how they function.	Describe the 'systems' approach - input/ process/output.	Describe the importance of feedback in a control system.	Create circuit diagrams, block diagrams and flowcharts which graphically describe systems.	Explain the use of input data from a sensor in electronic systems.	Perform simple calculations involving mechanical systems.	Evaluate familiar electronic products in terms of their control systems.	Discuss in depth the use of programmable components to embed functionality into products.
Metals	Verbally name a range of ferrous and non-ferrous metals used in common products.	Name and write sentences about the various forms of common available metals, and where they come from.	Outline the differences between common ferrous, non-ferrous and metal alloys.	Describe the application and use of common applied and natural metal finishes i.e. painting and polishing.	Describe and compare the properties and characteristics of common available metals.	Identify and explain metal manufacturing processes that can have an effect on different scales of production.	Discuss the ecological, social and environmental impact of using recycled metals.	Justify and explain the designer's responsibility when selecting and using metal materials in products.	Describe and evaluate specialist timber manufacturing techniques. e.g. laminating, laser cutting and routing	Describe and discuss in depth industrial specialist metal manufacturing techniques used to produce high quality products.
Timbers	Verbally name a range of natural and man-made timbers used in common products.	Name and write sentences about the various forms of available common timbers, and where they come from.	Outline the differences between hardwood, softwoods and manufactured timbers.	Describe the application and use of common applied and natural timber finishes i.e. lacquer and sanding.	Describe and compare the properties and characteristics of common available timbers.	Identify and explain timber manufacturing processes that can have an effect on different scales of production.	Discuss the ecological, social and environmental impact of using recycled timbers.	Justify and explain the designer's responsibility when selecting and using timber materials in products.	Describe and evaluate specialist metal manufacturing techniques. e.g. turning, welding and milling	Describe and discuss in depth industrial specialist timber manufacturing techniques used to produce high quality products.
Plastics	Verbally name a range of natural and synthetic plastics used in common products.	Name and write sentences about the various forms of available common plastics, and where they come from.	Outline the differences between natural plastics, thermoplastics and thermosetting plastics.	Describe the application and use of common applied and natural plastic finishes i.e. polishing and printing	Describe and compare the properties and characteristics of common available plastics.	Identify and explain plastic manufacturing processes that can have an effect on different scales of production.	Discuss the ecological, social and environmental impact of using recycled plastics.	Justify and explain the designer's responsibility when selecting and using plastic materials in products.	Describe and evaluate specialist plastic manufacturing techniques. e.g. laser cutting, injection moulding and casting	Describe and discuss in depth industrial specialist plastic manufacturing techniques used to produce high quality products.
Fashion and Textiles	Visually identify the difference between a Fibre, Yarn and Fabric.	Recognise fibres can be classified as either Natural or Manufactured and group fibres accordingly.	Recognise different fibres have different working properties.	Identify the working properties of different Natural and Manufactured fibres.	Describe the properties of different fibres in relation to end products.	Explain the differences between working characteristics and properties of different fibres.	Evaluate the overall environmental benefit(s) of using recycled materials to make textile product(s).	Explain when applying knowledge how blending and mixing fibres can enhance the properties and uses of yarns and materials.	Explain how technological advancements can produce high performance fabrics.	Discuss in depth the environmental impact of different materials and apply this knowledge when designing and making products.
	Visually identify a decorative finish which can be applied to a material.	Name different types of decorative finishes which can be applied to different materials.	Select appropriate decorative finishes when making products.	Identify a variety of finishes which will enhance the functionality of a material.	Describe how different decorative finishes can be achieved.	Explain the processes involved in the application of finishes/decorative effects to materials.	Discuss the appropriateness of certain finishes/decorative effects in relation to specific products.	Demonstrate an in-depth knowledge and reasoned decision making in selecting decorative and functional finishes when making products.	Evaluate the effectiveness of different aesthetic and functional finishes on selected products.	Discuss in depth the responsibilities of designers and manufactures who design with Textiles materials.
Papers & Boards	From smallest to biggest, verbally name the standard ISO sizes of paper	Name the two different ways in which the weight of paper and card are measure	Outline the reasons for the use of papers, cards and boards in every day product	Research Independently the advantages and disadvantages of **a selected** paper/card/board for every day us	Describe the ways in which the strength of papers, cards and boards can be improved. (E.g. Laminating /adding ribs/flutes.)	Explain the different ways in which paper, card and board can be manufactured.	Explain the overall environmental benefit(s) of using recycled materials to make packaging (e.g. Open & Closed loop recycling.)	Justify the appropriate surface treatments and finishes that can be applied to paper/card & board, for functional and aesthetic purposes.	Discuss in depth the ecological and social footprint of a named material. (E.g. paper/card/ board.)	Investigate in practice, the forces and stresses of papers, cards and boards.
Design Process: Research	No evidence of research has been submitted.	Only one design opportunity has been identified. Research is limited or mostly inappropriate to the design problem. A Design Specification may be written but the range of criteria is small and may not be appropriate.	Only one design opportunity has been identified but it does include an appropriate target market. Some research tasks have been conducted but are broad and not always appropriate or useful. A Design Specification has been written but only as a list of key criteria.	A contextual design challenge has been reviewed and the target market chosen to represent has been clearly identified. Some research tasks have been conducted but findings are broad and only useful in part to the design brief/problem. A Design Specification has been written with key criteria having been identified from research gathered.	A contextual design challenge has been reviewed well if briefly and the target market chosen to represent is clearly identified. Some research tasks have been conducted but are broad although some useful information was gathered. A Design Specification has been written and does include both measurable and objective criteria.	A contextual design challenge has been reviewed in terms of needs, wants and values of users. Some research tasks have been conducted and most are appropriate. Design specifications are relevant, are within a hierarchy and do include with clarity measurable and objective criteria.	Contextual design challenge(s) are analysed appropriately and are used to write and conduct research tasks that are in the main appropriate and useful to the chosen brief. Design specifications are relevant, are within a hierarchy and criteria chosen are mostly justified.	Contextual design challenge(s) are analysed well ensuring research tasks and investigations are appropriate to the problem identified. Design specifications are relevant, within a hierarchy and are justified in the majority of places to include clearly objective and measurable criteria.	Contextual design challenge(s) are analysed with detail and are used to write, conduct and evaluate a range of useful research tasks and investigations. Design specifications are relevant, within a hierarchy and are almost fully justified including both objective and measurable criteria.	Contextual design challenge(s) are analysed thoroughly and are used to write, conduct and evaluate a set of comprehensive research tasks and investigations. Design specifications are relevant, within a hierarchy and are fully justified including both objective and measurable criteria.
Design Process: Designing	No evidence of designing has been submitted.	Designing has taken place but ideas are under developed. Testing has not taken place or has no bearing on designing. A Manufacturing Specification addresses few details or doesn't exist.	Some designing has taken place but it doesn't follow an iterative process. Testing has been conducted on a superficial level. Designs are not always suitable to brief written. A Manufacturing Specification is evident with only key factors/processes identified.	Some designing has taken place and is within an iterative process. Testing has been conducted but evidence is lacking or is scant. Designs are suitable to brief written and target market selected. A Manufacturing Specification is evident with only key factors/processes identified.	Some designing has taken place and is within an iterative process. Testing is limited but is appropriate and analysed. Designs suitable to brief written but lack detailed development. A Manufacturing Specification is evident with only the main constructional details and key measurements identified.	Designs generated are not refined but are developed and are within an iterative process. Some modelling or testing is evident. A Manufacturing Specification has been produced to a satisfactory level identifying the main design details.	Designs generated show some refinement and are within an iterative process. Testing and modelling is evident and helps the evolvement of suitable designs. Manufacturing Specification is well produced but is missing some details that a third party will need clarification to enable replication.	Designs generated show sound development within an iterative process. Testing and modelling is detailed and useful and helps the evolvement and refinement of designs. Manufacturing Specification is detailed enough for it to be followed by a third party.	Designs generated are detailed in nature and are developed within an iterative process. Testing and modelling is thorough and helps the evolvement and refinement of designs. Manufacturing Specification is fully detailed enough so it can be followed by a third party.	Designs generated are comprehensive in nature and are developed within an iterative process. Testing and modelling is extensive and helps clearly the evolvement and refinement of designs. Manufacturing Specification is professionally devised and can be followed by a third party with ease.
Design Process: Evaluating	No evidence of evaluating has been submitted.	An end of project evaluation is superficial. Feedback from others is not useful. Design does not show much development, an idea is shown early on in the iterative process and does not reflect any testing/modelling findings if submitted. Modifications to prototype product are limited and lack an understanding of construction and finish processes.	An end of project evaluation is founded. Feedback from others is not included or basic/made up. Design does not show much development, an idea is shown early on in the iterative process and does not reflect any testing/modelling findings. Modifications to prototype product are limited and lack an understanding of construction and/or finish processes.	An end of project evaluation is founded. Feedback from others is included but it lacks the detail needed to help identify problems with the design. Design does not show much development - the idea is shown early on in the iterative process - but testing/modelling has been useful to quality outcomes. Modifications to construction and/or finish are given as a list but are relevant.	An end of project evaluation is founded. Feedback from others is included (not necessarily from users). Designs do show some development but are not always according to evaluative findings. Modifications to construction and finish are given but there will be limited or no justifications.	Evaluations are objective and do take into account the views of others (not necessarily users). Designs do show development but are not always according to evaluative findings. Modifications to construction and finish are given but lack clear justifications.	Evaluations are objective and do take into account at times, the views of users. Designs do show development but are not always according to evaluative findings. Modifications to construction and finish are given and some clear justifications are included..	Evaluations are critical, objective and often take into account the views of users. Designs develop in part to evaluative findings. End product evaluation is useful to further development as it includes suggestions to improve the construction and finish of the prototype product; much justification is given.	Evaluations are critical, objective and mostly take into account the views of users. Designs develop according to evaluative findings. End product evaluation is useful to further development as it includes suggestions to improve both construction and finish of the prototype product, most is justified.	Evaluations are critical, objective and always take into account the views of users. Designs develop perfectly according to evaluative findings. End product evaluation is detailed and useful to further development as a range of modifications to both construction and finish are included and justified fully.
Working Safely		Cannot work without constant support and advice.	Cannot work without considerable support and advice.	Requires fairly frequent support and advice.	Some support and advice is needed. Some gaps in H&S knowledge.	Some support and advice is needed. A sound understanding of H&S in the workshop.	Only minor support and advice is required. A good understanding of H&S issues.	Health and Safety is at a good standard.	Can work almost entirely unaided. Very good H&S understanding.	Highly independent, safe and mature worker.
Making - Quality and complexity of processes	No practical processes evident.	Some straightforward practical process have been used in the manufacture of a simple product.	Some sound techniques have been carefully used during the manufacture of the prototype product.	An adequate range of practical processes and / or finishes have been used in most aspects of making the prototype product.	Some sound techniques and finishes have been used carefully during the manufacture of the prototype product.	A range of demanding practical processes and finishes have been used to make a fully working prototype product.	A good range of demanding practical processes and finishes have been used to make a good prototype product.	A good range of demanding complex practical processes and finishes have been used to make a very good prototype product.		A wide range of challenging practical processes and finishes have been used to produce an outstanding prototype product.
Food 1 - Nutrient and Functions (Diet and Good Health)	Verbally name nutrients found in foods.	Recognise health conditions due to the over or under consumption of food and drink. Verbally explain what seasonality means.	Name different food groups and identify foods that belong to each food group (Eatwell Guide). Research and list foods grown in different seasons.	Identify the specific function of **macro**nutrients and **micro**nutrients in the body. Identify the impact of importing foods vs buying locally produced foods (food miles).	Explain the importance of **macro**nutrients and **micro**nutrients in the diet and identify sources of both.	Apply knowledge and understanding of healthy eating guidelines to be able to offer recommendations for how to achieve a balanced diet. Consider sustainability of food and the impact that food waste and food packaging has on the environment.	Consider and analyse dietary requirements for specific lifestyle needs e.g. coeliac, vegetarian, Jewish and plan a balanced diet in order to meet consumer needs.	Explain the impact of dietary reference values upon individuals across a range of life stages and specific lifestyle needs.	Discuss the consequences of malnutrition (over and under) of macronutrient and micronutrient consumption.	Independently research and discuss the complementary actions of macro nutrients and micronutrients (how they work within the body).
Food 2 - Food Science	Verbally explain why food is cooked and why foods should be stored correctly.	Recognise basic functional properties of ingredients e.g. sugar to sweeten and add colour.	State the definition of aeration and give examples of aeration methods e.g. to sieve, to add raising agents.	Identify which parts of the oven are responsible for conduction, convection and radiation. Name suitable foods for each method of heat transference.	Understand aeration methods e.g. steaming, folding, whisking, creaming, the addition of raising agents. Explain the importance of correct food storage and the consequences of inadequate/unacceptable food hygiene practices	Understand growth conditions, ways of prevention and control methods for enzyme action, mould growth and yeast production.	Explain how different types of raising agents function within different food products, e.g. kneading, proving.	Explain in detail the more complex working characteristics, functions and chemical properties of ingredients to achieve particular results.	Discuss how selection of appropriate cooking methods can conserve or modify nutritive value and improve palatability.	Discuss in-depth having undertaken additional research the signs, symptoms, risks and consequences of inadequate/unacceptable food hygiene practices. Identify common food poisoning bacteria and those who fall in to high risk groups.
Food 3 - Skills and Product Outcomes	No practical processes evident.	Some straightforward practical process have been used in the production of a simple product e.g. vegetable preparation.	Some sound techniques have been carefully used during the manufacture of the food product e.g. fruit crumble.	An adequate range of practical processes and / or presentation finishes have been used in most aspects of making the product e.g. pasta salad.	Some sound techniques and finishes have been used carefully during the manufacture of the food product e.g. rough puff pinwheel.	A range of demanding practical processes and finishes have been used to produce a food product of satisfactory quality e.g. Victoria Sponge Cake.	A good range of demanding practical processes and finishes have been used to used to produce a food product of good quality e.g. Pastas and doughs.	A good range of demanding complex practical processes and finishes have been used to produce a food product of very good quality e.g. Jointing a chicken into Kiev's, alternative coatings, use of food processor, blender etc.	A wide range of demanding complex practical processes and finishes have been used to produce a food product of very good quality e.g. Full meals, plated up, filleting fish, flavoured sauces, own pastes, use of more complex equipment.	A wide range of challenging practical processes and finishes have been used to produce a food product of very good quality e.g. adapted recipes, accurately judge and manipulate sensory properties throughout the cooking process, own processing of meat etc.