DESIGN AND TECHNOLOGY

Exam	Duration	Marks available	% of GCSE	Topics/ content
Design and Technology: **Component 1 8552** Written Paper	2 hours	100	50%	**Section A:** **Core Technical principles** (20 marks) **Section B:** **Specialist technical principles** Materials, manufacturing and the impact on the environment. (30 marks) **Section C:** **Designing and Making principles** (50 marks)
Design and Technology: Component 2 8552/C NEA (Non-Examined Assessment)	30-35 hours (guidance)	100	50%	**Identifying and investigating design possibilities** (10 marks) **Producing a design brief and specification** (10 marks) **Generating design ideas** (20 marks) **Developing design ideas** (20 marks) **Realising design ideas** (20 marks) **Analysing and Evaluating** (20 marks)

Before revising, students should complete personal learning checklists for their subjects. These ask students to RAG rate both the topics/ content of their exams and also the skills they are required to use. Doing this will help them to identify priorities and make effective use of their revision time.

Personal Learning Checklists

		Collins AQA Revision book			
	Topic	Page	R	A	G
Approaches to Designing	1– Design Strategies. ○ Describe the main features of iterative design, user-centred design and systems-based approach to design ○ Explain the advantages and disadvantages of using each design strategy.	8-9			
	2 – Electronic systems. ○ Describe the main stages that make up an electronic system. ○ Understand, select and use appropriate input, process and output devices in products.	10-11			
	3 – The work of others: Designers. ○ Analyse and evaluate the work of at least two different designers. ○ Use the work of past and present designers to aid your own designing. (demonstrate in NEA)	12-13			
	4 – The work of others: Companies. ○ Analyse and evaluate the work of at least two different design companies. ○ Use the work of design companies to aid your own designing. (demonstrate in NEA)	14-15			

	5 – Ecological, Environmental and Social Issues. o Explain how designing and making is affected by ecological, environmental and social issues. o Discuss the benefits of fair trade for producers and consumers.	16-17			
Designing Products	**6 – Research & Investigation** o Describe the main methods of conducting research and investigation o Explain the difference between primary and secondary data o Describe the use of ergonomics and anthropometric data when researching and designing products	22-23			
	7 – Briefs & Specifications o Write a design brief and a design specification for a product or system o Modify a design brief as a result of user feedback o Produce a manufacturing specification for a product or system	24-25			
	8 – Exploring & Developing Ideas o Describe the main stages of developing a design idea o Explain the use of card models, toiles and breadboards	26-27			
	9 –Communication of Ideas 1 o Produce sketches using perspective and isometric projection o Describe how to produce an exploded drawing o Annotate a drawing effectively to explain features of a design	28-29			
	10– Communication of ideas 2 o Use and produce working drawings o Describe how mathematical modelling and computer-based tools are used to communicate design ideas o Explain how ideas can be physically modelled.	30-31			
	11 – Computer Based Tools o Explain the effects and benefits of computer-based tools when communicating ideas o Describe how computer-based tools can be used to share and present ideas and technical information	32-33			
	12 – Prototype Development o Explain why designers produce prototypes o Explain the considerations that need to be taken account of when developing prototypes o Describe and explain how a prototype of a product or system can be evaluated	34-35			
Energy & Mechanisms	**13 – Energy Generation and Storage** o Describe how energy is generated and stored. o Explain the advantages and disadvantages of using renewable energy sources to power products and systems	46-47			
	14 – Mechanical systems 1 o Describe the four types of motion. o Describe the basic principles of a lever. o Explain the different classes of lever.	48-49			
	15 – Mechanical systems 2 o Describe how linkages, cams, gears and pulleys transfer motion o Explain how these mechanical devices are used to change the magnitude and direction of forces.	50-51			
Materials & Their Properties	**16 – Properties of materials** o Explain the meanings of the properties of materials. o Describe the typical properties of different types of materials.	60-61			
	17 – Materials: Paper and board o Describe the characteristic properties and common uses of a variety of paper and boards. o Describe the standard sizes of paper. o Explain how paper and boards are converted into usable material.	61-62			
	18 – Materials: Timber o Explain the difference between hardwood and softwood. o Describe the characteristic properties and common uses of a variety of natural and manufactured timbers. o Explain how timber is converted into usable material.	64-65			
	19 – Materials: Metals o Explain the difference between ferrous and non-ferrous metals. o Describe the characteristic properties and common uses of a variety of metals.	66-67			

	○ Explain how metal ore is converted into useable material.				
Materials & Their Properties	**20 – Materials: Polymers.** ○ Explain how polymers are converted into useable material. ○ Explain the difference between thermoforming and thermosetting polymers. ○ Describe the properties and uses of a variety of polymers. ○ Describe the forms in which polymers are available. Explain what happens to polymers at the end of their usable life.	68-69			
	21 – Materials: Textiles. ○ Explain how fabric is constructed from fibres. ○ Explain the difference between natural, synthetic & blended fibres. The characteristic properties & common uses of a variety of textiles.	70-71			
	22 – Materials: New materials. ○ Describe the characteristics of a variety of new materials. ○ Explain what is meant by a smart material and a composite material. List specific technical textiles, and modern, smart and composite materials, and their typical uses.	72-73			
	23 – Standard Components. ○ Explain why standard components are used. List standard components used with a variety of different materials.	74-75			
	24 – Finishing materials. ○ Explain the purpose of surface treating and finishing materials. Describe how surface treatments and finishing techniques are applied to a range of materials.	76-77			
	25 – Selection of materials. ○ Describe a wide range of factors that can influence the choice of material for a product. Explain the important properties required by commercial products.	78-79			
	26 – Working materials. ○ Explain why reinforcement is used in products. ○ Describe how the properties of a material can be enhanced. Describe a range of examples of how product designs can be modified to improve the performance of a product.	80-81			
Tools, Equipment and Processes	**27 – Scales of Manufacture.** ○ Describe the characteristics and give examples of different scales of manufacture. Explain why the equipment used changes with the scale of manufacture.	92-93			
	29 – Manufacturing Processes 2: Timber-Based Materials. ○ Identify the processes and equipment used to manufacture products from timber-based materials.	96-97			
	30 – Measurement and Production Aids. ○ Explain the meaning and importance of reference points used in measurement. ○ Explain the reasons why production aids are used. Describe how jigs, templates and patterns are used in product manufacture.	104-105			
	31 – Ensuring Accuracy. ○ Explain the reason why accuracy is important when manufacturing products and prototypes. ○ Explain the meaning and importance of quality control and quality assurance (QC & QA). Explain the importance of tolerances when manufacturing products.	106-107			
New & Emerging Technologies	**32 – Impact on Industry.** ○ Explain the impact of new and emerging technologies on industry and enterprise. Discuss the potential effects of the use of new and emerging technologies on employment.	122-123			
	33 – Impact on Production. ○ Explain the impact of CAD and CAM on production. Explain how production techniques and systems improve manufacturing efficiency.	124-125			
	34 – Impact on Society and the Environment. ○ Explain the impact of new and emerging technologies on sustainability and the environment. Discuss the potential effects of new designs on culture and society.	126-127			