Yr 11 GCSE Design and Technology (AQA): AutumnTerm

Core Technical Principles (all page references refer to the CGP blue revision guide – Available on SCOPAY)

Topic	R	A	G	To further your understanding try answering these questions:	Page ref.
Powering systems				○ Identify the difference between a Finite and Non-finite fuel. ○ Be able to name examples of fossil fuels ○ List an advantage and disadvantage of nuclear power	p.12-p.13
Sustainability				○ Explain the meaning of the six Rs – Reduce, Reuse, Refuse, Repair, Recycle, Rethink	p. 6-9
Designing and Making Principles				○ Be able to explain the Iterative Design process. ○ Explain why designers conduct research and product analysis before designing.	p.104-p 108
Specialist terminology				○ Be able to define specific technical language: ○ Ergonomics ○ Anthropometrics ○ Aesthetics ○ CNC ○ CAD/CAM	 p 102 p 96 p 4-5
Work of others				○ Be able to list a designer and design era and comment on their impact on design and society	P 94-95
Mechanical Systems				○ Be able to describe different types of motion ○ Explain the difference between a first, second, and third order lever ○ Name and explain different types of linkages ○ Understand how gearing can affect output – be able to use gear ratio equation. ○ Describe the use of a variety of Cams and followers ○ Be able to explain how a pulley can provide a mechanical advantage	p.28 - 31
Materials - Timbers				○ Define the difference between a natural and a man-made board ○ Explain the difference between a hardwood and a softwood. ○ Be able to name three hard and softwoods stating their appearance, properties and what they could be used for	p.17
Materials - Metals				○ Explain where metal is sourced. ○ Be able to define a ferrous metal ○ Be able to define a non-ferrous metal ○ Be able to define the term - alloy ○ Name three non-ferrous metals, detailing their properties and uses ○ Name three ferrous metals, detailing their properties and their uses. ○ Define toughness, hardness, ductile, malleability, tensile strength – relating to properties of metals	p.14 p. 18
Materials - Polymers				○ Understand the difference between a thermosetting and a thermoplastic ○ Be able to name two thermoplastic and two thermosetting plastics explaining their properties and possible uses ○ Explain how the vacuum forming process works ○ Explain how the injection moulding process works (lego) ○ Explain how the blow moulding process works	p.123

Technical materials				○ Understand what is meant by a Smart Material ○ Be able to name three examples of a Smart material and their uses ○ Understand what is meant by a Modern Material ○ Be able to name three examples of a Modern material and their uses ○ Understand what is meant by a composite material ○ Know a little about technical textiles!!	p.32-35
Business Initiatives and models				○ Understand how a business can be developed under a co-operative model ○ Understand how businesses can be started up by crowd funding	p.10
Renewable energy				○ How is power generated from: ○ Wind? ○ Solar? ○ Tidal? ○ Hydro-electrical? ○ Biomass? ○ What are the pros and cons of using each renewable energy type?	P12
Treatments and finishes				○ How can metal be protected from the elements ○ How can you stop wood from decaying and rotting	p.73 p72