Welland Park Academy

Design & Technology Curriculum Map

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 11	Focus:	NEA- Research and investigation, Specification and brief	NEA- Ideation, developing ideas, drawing and modelling idea, NEA- realising ideas. Making prototypes	exploring outcomes and problem solving NEA- Evaluation and analysis. Mock exam questions	Revision: Core Principles, Energy generation, systems design, Mechanical devices,	Revision: Specialist Techniques timbers, plastics, metals, textiles,	Revision: New Materials, paper and board, Sources and origins, Specialist processes, surface treatments
	Assessment:	Core Principles, design Principales, communication Mind maps, existing products, primary user, Questionnaire environment issues, specification and brief.	Specialist Principles, new Materials, paper and board Creative ideas that meet the specification. Models, analysis Communication drawings, planning materials cutting list, materials, components.	Scales of production, Sources and origins, Making testing and planning of the final product, 3D modelling, CAD drawings Evaluation of final outcome, strengths, weakness, improvements, other opportunities.,	Specialist processes, Mock exam questions	Mock exam questions	Mock exam questions
Year 10	Focus:	Design communication: -, tolerance measurements joints, 3 types of CAD drawings communication drawings. Revision: - Electronics and systems,	Design and make Solar light-polymers, laser cutting, drape forming, Circuit manufacture, soldering system design, inputs, process, outputs Revision: - Polymers	Acrylic Jewellery- The work of others, Tatty Devine, Design communication, CAD, laser cutting, prototyping and tolerance. Revision: - Specialist processes	Wooden moving toy- specialist, specialist techniques and processes.	Rapid prototyping project: - Design and make interactive pop-up-book - Mathew Reinhart.	Start NEA- Research and investigation, Specification and brief
	Assessment:	Core Principles, New Materials, systems design, manufactured timbers and polymers, surface treatments	Work of others, Energy generation, mechanical devices, social footprint, surface treatments	Specialist Principles, scales of production, tolerance, surface treatments	Communications, production of a prototype,	Work of others, designing and making principles,	Mind maps, existing products, primary user, Questionnaire environment issues, specification and brief.
		Robot Project **Tron Mini project** 3D sketching, CAD, Card model making, **NEA skills builder** Theory topics:, Paper and Card Metals, Material properties	**Box project** Wood work skills, Measuring, Marking, Cutting, Sanding, Joining, Evaluative **NEA skills builder** Theory Topics: industry and enterprise, Sustainability, CAD/CAM	**Lamination project mini skateboard** Sketching skills, Digital manipulation, Packaging **Pizza Handle project** Styrofoam modelling, Ergonomics, Anthropometrics, **NEA skills builder** Theory Topics: smart/ modern materials, Textiles, Timbers	**House project** LED's circuits, CAD, Soldering, Model making **NEA skills builder** Theory Topics: energy, generation, Energy storage Systems design	**Chair project** Ergonomics, Anthropometrics, Forces and stresses, Trebuchet project **NEA skills builder** Theory Topics:, Forces and stresses, Mechanical devices, Ergonomics, Anthropometrics	Theory Topics: Functionality and improvement, 6r's, Scales of production, Soldering NEA launch 1st June Class work begins 5th June 2024
		Retrieval practice Exam questions End of unit tests	Retrieval practice Exam questions End of unit tests	Retrieval practice Exam questions End of unit tests	Retrieval practice Exam questions End of unit tests	Retrieval practice Exam questions End of unit tests	Retrieval practice Exam questions End of unit tests

CEIAG Harry Potter trip, regular promotion of careers in lessons.

SMSC. Students learn social responsibility. Students should have a knowledge and understanding of the ecological and social footprint left by designers. Ethical factors and the social footprint of materials used in products. Selection of materials based on ethical factors and social and environmental footprints. Excellent design focus and full understanding of the impact on society including; economic and social effects. Sustainable design and the 6R's. Ecological issues in the design and manufacture of products. Natural resource depletion and the knock on effects for local communicates and the environment. Fair trade. Oceanic and atmospheric pollution. Ethical resource sourcing.

Enrichment: Practical kinaesthetic lessons. Trip

British Values (Tolerance of diff. Cultures & Religions, Mutual Respect, Individual Liberty, Rule of Law, Democracy) Cultural differences between different countries. How designing for other cultures can change, interpretation. Working with others, teamwork.

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Year 9	Focus:	Design and make a laser cut mood light, this project requires more challenging technical skills using hand tools and machinery, and an electronic circuit. This project builds on prior learning improving design presentation skills and preparing pupils to use a wide variety of tools, materials and equipment, this will give them a good practical grounding for GCSE.			Making Skills- Using softwood and manufactured boards, Accuracy in tool use and mark making. Using adhesives and quality of finish.		
	Assessment:	This project is it assessed internally they receive grades for designing, this will make up 50% of their overall grade. The skills I will be assessing for are: Written communication skills (design brief) Visual communication skills sketching (design ideas) Visual communication skills rendering (design ideas) CAD skills 2D design 3D technical drawings isometric			This project is it assessed internally they receive grades for making, this will make up 50% of their overall grade. The skills I will be assessing for are: Cutting skills Safe and accurate use of a craft knife Accurate mark making Accurate cutting Tenon Saw/Coping Saw Safe and accurate cutting Scroll Saw Safe and accurate sanding (wood) Accurate comb joint Accurate and safe use of the power drill Construction using panel pins Safe use of an electrical screwdriver Accurate adhesive application		

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Enrichment Harry Potter trip, careers.

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Year 8	Focus:	Design and make a mobile phone holder this project requires technical skills using hand tools and a variety of different new materials. This project builds on prior learning improving de-sign presentation skills including the introduction of Isometric drawings.			Making Skills- Using manufactured boards, Accuracy in tool use and mark making. Using adhesives and quality of finish.		
	Assessment:	This project is it assessed internally they receive grades for designing, this will make up 50% of their overall grade. The skills I will be assessing for are: Written communication skills (design brief) Visual communication skills sketching (design ideas) Visual communication skills rendering (design ideas) Technical visual communication skills (Working drawings) Accurate mark making and mathematical skills (template) CAD skills 2D design Construction skills mock up model in card .			This project is it assessed internally they receive grades for designing, this will make up 50% of their overall grade. The skills I will be assessing for are: Cutting skills Safe and accurate use of a craft knife Accurate mark making Accurate cutting Tenon Saw/Coping Saw Safe and accurate cutting Scroll Saw Safe and accurate sanding (wood) Accurate Butt Joint Safe and accurate use of the line bender Accurate and safe use of the pillar drill Accurate construction of a dowel joints Safe use of a screwdriver Accurate adhesive application Safe and accurate use of the line bender		

CEIAG trip, regular promotion of careers in lessons.

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Enrichment trip, careers.

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Year 7	Focus:	Design and make project for a desk tidy come phone holder, this project introduces the design cycle and the role of the designer, it covers some 3D drawing skills, and CAD CAM utilising the laser cutter, as well as hand skills.			Making Skills- Using manufactured boards, Accuracy in tool use. Dry assemble of parts and quality control. Using adhesives and quality of finish.		
	Assessment:	This project is it assessed internally they receive grades for designing, this will make up 50% of their overall grade. The skills I will be assessing for are: Written communication skills (design brief) Visual communication skills sketching (design ideas) Visual communication skills rendering (design ideas) CAD skills 2D design In addition to assessed skills students will learn: 3D technical drawings 2 point perspective woods theory Importance of testing a product Evaluative and self-reflection			This project is it assessed internally they receive grades for designing, this will make up 50% of their overall grade. The skills I will be assessing for are: Accurate mark making Accurate cutting Tenon Saw/Coping Saw Safe and accurate cutting Scroll Saw Safe and accurate sanding (wood) Accurate construction of a Butt Joint Safe and accurate use of the line bender Accurate adhesive application		

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