

2024/		AUTUMN		SPRING		SUMMER	
2025		HT1	HT2	HT3	HT4	HT5	HT6
Y7	<p>Area of study D&T- Micro-bits D&T - Core programming D&T – Materials and their working properties Key concepts Papers and Boards, Timbers, Metals and Alloys, Polymers & Textiles, Material Properties, Metals and Alloys, Changing Material Properties, Polymers, Composites, Material Cost and Supply, function, user needs, aesthetics, properties, sustainable~ Computing, Electronics, Intelligence, Inputs, Sensors, Outputs, Components, Programmable, Microcontrollers</p> <p>Assessment method Written Assessment Evaluation of final program</p>	<p>Area of study Engineering- Walking Toys Engineering- Materials Engineering- Core practical Skills Key concepts Coping saw, File, Abrasion, Sanding, Fret saw, Disc Sander, Pillar Drill, Accuracy, tolerance, Metals, Polymers, Ceramics, Composites, Alloys, Thermoplastics, Thermosetting Plastics, Carbon Fibre, Stainless Steel, Aluminium, Titanium, Copper, Glass, Graphene, Nanomaterials, Biomaterials, Smart Materials, Hardness, Tensile Strength, Ductility, Corrosion, Resistance, Conductivity, Density, Thermal Expansion</p> <p>Assessment method Written Assessment Evaluation of Final Product</p>	<p>Area of study Food Technology- Core Skills Key concepts Hazards and Safety, Bacteria, Diets and Usage of Equipment, Hygiene, Knife Skills, Chopping, Peeling, Measuring, Weighing, Boiling, baking, Grilling, Food preparation, Food Groups, Calories Energy,</p> <p>Assessment method Demonstration of Skills & Knowledge</p>	<p>Area of study 2D CAD- Techsoft V3 Key concepts Layout, Lines, Shapes, Contours, Bitmaps, Text, Grid, Attach and Clip/Crop, Move, Rotate, Scale, Group, Snap to Grid, Line tool, Offset, Laser Cutting, Plotting, Export, Duplicate, Mirror</p> <p>Assessment method Demonstration of Skills & Knowledge</p>			
	<p>Area of study D&T- Lamp Project D&T- Designing & Manufacturing D&T- Developing Practical Skills Key concepts Form, function, aesthetics, ergonomics, anthropometrics, design fixation, exploded drawing, iterative designing, user-centred design, collaborative design, destructive and non-destructive testing, manufacture Communication of Design Ideas. Manufacturing Preparation, 2D CAD & CAM, Wasting, Abrading, Assembly and Evaluation</p> <p>Assessment method Written Assessment Evaluation of final Product</p>	<p>Area of study Engineering-Solidworks Islamic influenced product design 3D CAD- Solidworks Islamic influenced product design Engineering- Manufacturing processes Key concepts References. Patterns, Simulations, File Conversion, Surface Modelling, Edit materials & scenery, Mating objects, Photoview 360 and Final rendering, Casting, Machining, Milling, Drilling, Forging, Extrusion, Injection Moulding, Welding, 3D Printing, CNC (Computer Numerical Control), Assembly Line, Additive Manufacturing, Subtractive Manufacturing, Lean Manufacturing, Just-In-Time (JIT), Quality Control, Automation, Heat Treatment, Forming, Stamping, Cutting, Rapid Prototyping, Tooling, Surface Finishing, Material Handling</p> <p>Assessment method Demonstration of Skills & Knowledge Evaluation of model</p>	<p>Area of study Food Technology- Balanced Eating Key concepts Health and Safety, GM Foods, Equipment, Healthy Eating, Cooker Usage and Following Methods, Macro nutrients, Micro nutrients, Nutrient density, Metabolism, Saturated fats, Unsaturated Fats, Balanced diet, Food Pyramid, Dietary Guidelines, Meal Planning, Nutritional Requirements</p> <p>Assessment method Demonstration of Skills & Knowledge</p>	<p>Area of study Music Key concepts Musical Elements Rhythm Improvisation Musical Styles Lyrical Structure Musical Structure</p> <p>Assessment method Peer/Teacher assessed performance</p>			
	<p>Area of study D&T – Storage Project D&T- New and Emerging Technologies D&T- Manufacture Key concepts Emerging technology, robotics, crowd funding, virtual marketing, retail, cooperatives, fair trade, technology push, market pull, pollution, global warming, automation, CAD, CAM, FMS, JIT, lean manufacturing, planned obsolescence. Prototyping, Development, Prototyping Analysis, On-going Research, Fixtures/Fixings, CAD Model, Materials Investigation, Materials and Cutting List, Manufacturing and Diary, Evaluation, Testing, Feedback</p> <p>Assessment method Written Assessment Evaluation of Final Product</p>	<p>Area of study Engineering- Mini NEA Engineering – Mini NEA Engineering – Systems Key concepts Engineering Brief, Context Analysis, Primary Research, Research Analysis, Specification, Ideas, Development, Assemblies, References. Patterns, Simulations, File Conversion, Surface Modelling, Edit materials & scenery, Mating objects, Photoview 360 and Final rendering Final Idea . Subsystem, Feedback Loop, Control System, Automation, Integration, Optimisation, Reliability, Scalability, Modularity, System Architecture, Redundancy, Simulation, Systems Engineering, Interconnectivity, Life Cycle Interface, Systems Analysis, Complexity, Signal Processing, Energy Efficiency, Safety Margins, Systems Design, Fault Tolerance, Maintenance, Cyber-Physical Systems</p> <p>Assessment method RAG Data Sheet</p>	<p>Area of study Food Technology- Creating Chefs Key concepts Health and Safety, Food Poisoning, Meat Storage, Cooking Safety, Food Labelling, Cooker and Hob, Culinary techniques, Flavours, Plating, Menu Planning, Texture, Pastry Skills, Dough Preparation, Marinades, Garnishing</p> <p>Assessment method Demonstration of Skills & Knowledge</p>	<p>Area of study Innovation Samsung/V&A competition Key concepts Team building, Problem solving, Creative Solutions, Technology Integration, STEM, Iteration, User Feedback, Smart Technology, Collaboration, Design Thinking, Pitch, Feasibility, Prototyping, Criteria, Project Management.</p> <p>Assessment method Evaluation of final project</p>			

NOTES	SKILLS FOR LIFE/ FUTURE LEARNING AND EMPLOYMENT	
	Skills for Life: Creativity, Problem Solving, Critical Analysis, Iterative Development, Thinking Skills, Collaborative Approaches, Self-awareness, Critical Thinking, Decision Making, Effective Communication, Empathy, Resilience, Time Management, Working Under Pressure, Digital Literacy, Technological Skills, Health and Safety, Focus, Methodical Thinking, Presentation, Leadership, Flexibility and Adaptability	
	Future Learning- A Level Product Design/3D Design, A level Engineering, T Level STEM, Apprenticeships in all Product, Engineering, Architecture fields, Employment Opportunities- Product Design, Engineering (all categories), Architecture, Fashion Design, Chef, CAD (all related career paths)	

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Y10	<p>Area of study</p> <ul style="list-style-type: none"> - Unit 1 – Engineering materials - Problem Solving <p>Key concepts Problem Analysis, Problem Solving, Modelling, Communicating, Prototype Production, Materials and their properties, Metals and alloys, Composites, Other materials, Material Costs and supply, Factors influencing design of solutions</p> <p>Assessment method</p> <ul style="list-style-type: none"> - Live Data sheet - Written Assessment 	<p>Area of study</p> <ul style="list-style-type: none"> - Unit 2 – Engineering manufacturing Processes - Drawings and conventions <p>Key concepts Developmental Drawings, Computer aided design, Conventions, Annotation, Information, Additive Manufacturing, Material Removal, Shaping, Casting and moulding, Joining & Assembly, Heat & Chemical treatment, Surface Finishing</p> <p>Assessment method</p> <ul style="list-style-type: none"> - Live Data sheet - Written Assessment 	<p>Area of study</p> <ul style="list-style-type: none"> - Unit 3- Systems - Production Planning <p>Key concepts Producing and following a plan, Explaining the plan, Ensuring repeatability and using CNC, Sequencing & Quality Control, Health & safety, Mechanical systems, Electrical Systems, Electronic Systems, Structural Systems, pneumatic Systems</p> <p>Assessment method</p> <ul style="list-style-type: none"> - Live Data sheet - Written Assessment 	<p>Area of study</p> <ul style="list-style-type: none"> - Unit 4- Testing and investigation - Engineering Skills used <p>Key concepts Skill, Use a range of Processes and materials, Quality control and working to tolerances, level of demand, Explanation of Processes, Modelling & calculating, Testing, Aerodynamics</p> <p>Assessment method</p> <ul style="list-style-type: none"> - Live Data sheet - Written Assessment 	<p>Area of study</p> <ul style="list-style-type: none"> - Unit 5- The impact of modern technologies - Applying Systems Technolog <p>Key concepts Application of systems Technology, Explanations of systems Technology, Use of New and Emerging technology , Impact of Engineering Industries</p> <p>Assessment method</p> <ul style="list-style-type: none"> - Live Data sheet - Written Assessment 	<p>Area of study</p> <ul style="list-style-type: none"> - Unit 6- Practical Engineering Skills - Testing and Evaluating <p>Key concepts Testing, Evaluating, logical, Systematic, Schematics, Engineering Drawings, CAD, CAM, Structural Behaviour, Component, Production plan, Modelling, Processes, Quality Control , manufacture, Purpose, Performance</p> <p>Assessment method</p> <ul style="list-style-type: none"> - Live Data sheet - Written Assessment
	Y11	<p>Area of study Unit 5D- Polymers Identifying, Investigating Design Possibilities & Design Brief/Specification</p> <p>Key concepts Mindmap, Task Analysis, Target Market Profile, Primary Research, Product Evaluation, SMSC Impacts, Design Possibilities, Design Brief/Specification</p> <p>Assessment method RAG data, Specification, Written Assessment</p>	<p>Area of study Generating Design Ideas Developing Design Ideas</p> <p>Key concepts Ideation, Logo/Brand, Packaging Prototyping, Development, Prototyping Analysis, Ongoing Research, CAD Model, Materials Investigation</p> <p>Assessment method RAG data sheet against Specification</p>	<p>Area of study Realising Design Ideas</p> <p>Key concepts Materials and Cutting Lists Manufacturing Diary Manufacturing Development</p> <p>Assessment method RAG data sheet against Specification</p>	<p>Area of study Realising Design Ideas Analysing and Evaluating</p> <p>Key concepts Quality Control Tolerances Commercial Viability Assembly Finishing</p> <p>Assessment method RAG data sheet against Specification</p>	<p>Area of study Revisiting all theory Units</p> <p>Key concepts Complete and reflect on past papers</p> <p>Assessment method Self-reflection and teacher feedback on specific topic areas to develop fill gaps in knowledge</p>

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