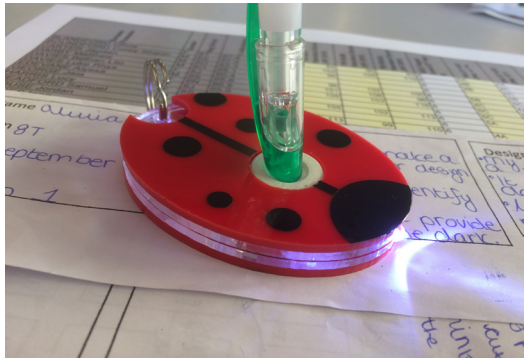
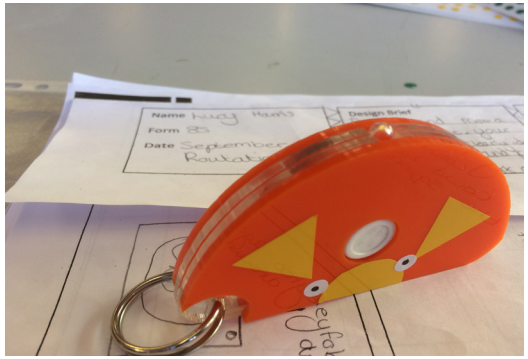
GCSE Design and Technology

2017 Specification - Course Structure

- Effective delivery of specification content (Core and In depth).
- Knowledge and understanding to prepare for examination.
- Skills to undertake NEA, Year 10 is assessment 'free'.
- June 1st Year 10 – NEA contexts released.
- Year 11 NEA focussed (with some exam preparation / theory revision).
- 120 Guided Learning Hours – 60 hours Yr 10 / 60 hours Yr 11.
- Generally 2 hours per week / 4 hours per fortnight Curriculum Time.
- An extension of KS3. Multi-disciplined approach required.
- A range of mini tasks to 'dip in' to lots of different areas.
- Mapping specification content required.
- Iteration approach training – think, test, evaluate, repeat.
- A sketchbook approach to designing.
- Range of practical experiences to reinforce learning.
- Theory folder / ringbinder with notes / handouts / exam preparation.

Eduqas GCSE D&T New Specification – Year 10 Possible Course layout									
Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Jul
D&T and our world **Design Practice 1** **Alessi inspired CAD CAM KeyFob**		Papers and Boards Iphone stand or business card dispenser	Energy / Electronics / Mechanical / Materials Design Practice 2 Solar powered toy		SMART Materials, composites and technical Textiles	Electronic systems and Programmable components Design Practice 3 PIC Night Light		In-depth Knowledge and understanding Candidates focus on ONE or MORE area In-Depth NEA begins June 1st		
Core knowledge & Understanding					Focussed Study	Core knowledge & Understanding		In depth Knowledge and understanding from Specification		
• D&T and our world • CAD CAM • Emerging technology • Electronics • Materials / Polymers		• Paper and boards • Business cards • Vinyl adhesives • Logos	• Sustainablility • Energy - solar • Electronics • Mechanical components • Timbers • Metals		• Thermos • Photo's • SMA and nitinol • Polymorph • QTC pills • Fibres • Others	• Systems approach • Flowcharts • Sensors / outputs • Electronics • PCB design and manufacture • Soldering • Vacuum forming • Assembling		• Further study in specialist area • More depth in chosen topic • Arrow / deeper coverage • Additional topics • Focussed tasks • Disassembly / evaluation		
Core Designing & Making Principles					**Product Analysis**	**Core Designing & Making Principles**		**In depth Designing & Making**		
• **D&T Practice** • **User needs** • **Brief / Specification** • **Iterative design development** • **Work of others** • **Prototyping** • **Decision making**		• Users • Sketching • Ideas / concepts • Prototypes • Evaluating • User trials	• Material areas may vary • Group activities • Different mechanical systems / outputs		The study of a wide range of products that use SMART, modern and technical materials	• Brief / Spec • Iterations • Prototype building • Analysis / testing • Modifications		• Mini tasks • Specialist processes • Specific practical skills • Further study • Challenge / advanced content • Preparation for NEA in Yr11		



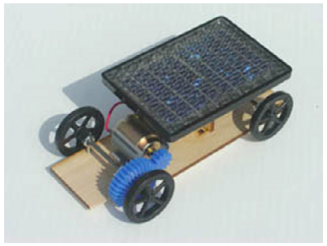


Emerging technology – CAD CAM Keyfob

- Ice breaker task.
- Sketchbook approach.
- Alessi inspired.
- Multi discipline ‘dip in’.
- Iterative training.
- CAD CAM skills.
- Prototyping in card, foam and CAD.
- High quality outcomes.
- 3V Cr2032 cell
- Ix ultra bright LED.

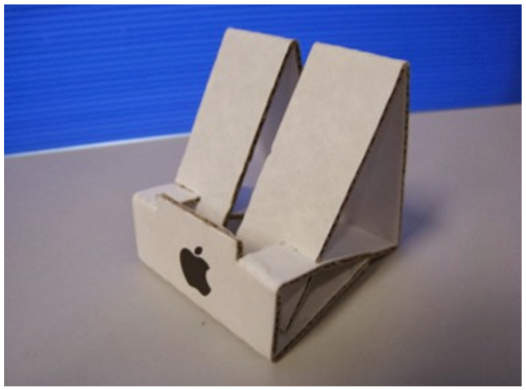




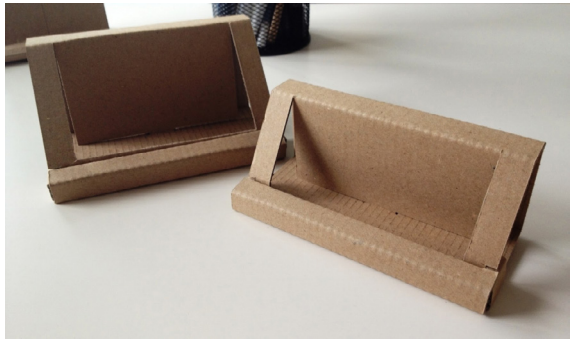

Energy / eco design – Solar powered toy

- Introduction into Energy.
- Renewable sources.
- Using PV cells / solar energy.
- Kits / races/ competition.
- Numeracy skills.
- Mechanical components.
- Transfer of motion.
- Multi material opportunities.
- Hand tools, machining, CAD CAM elements.



Sustainability project – papers & boards

- Tablet or phone holders.
- Papers or boards based.
- Properties and characteristics.
- Cheap, easy to source.
- Start with sketching or modelling or measuring device or internet trail?
- Push for iterative cycle.
- Sketchbook based design develop make task.
- Take home and use.



Corporate identity – product launch / revitalise

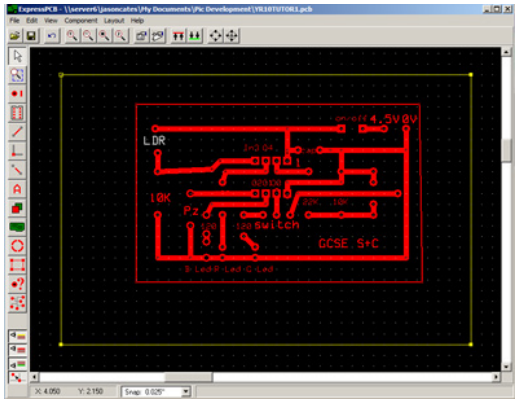
- Business card and dispenser.
- Company of their choice.
- Cards / boards / sustainability themed.
- Recycled / reused materials.
- Small manageable task.
- Lots of designing, testing, modelling, analysis - iterations!
- High quality well finished outcome.
- Prototyping skills.

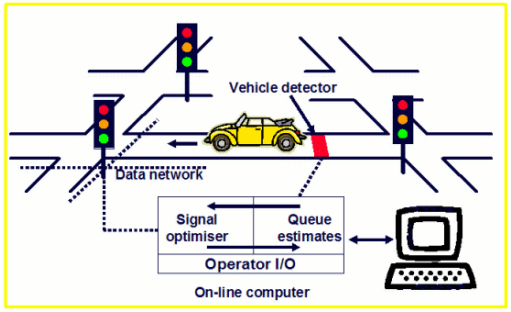
Textiles / fabrics – Door stop

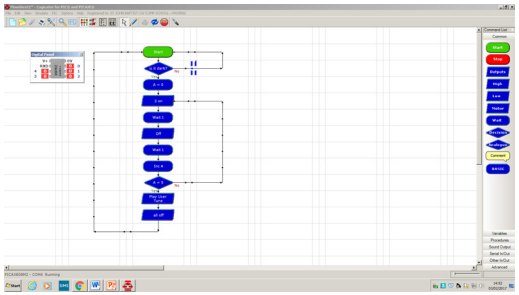
- Natural and man made fibres and fabrics.
- Combinations of materials.
- Construction techniques.
- Fittings / fastenings.
- Decorative techniques.
- Fun theme / Designers.
- Skills, understanding, knowledge in practice.
- Workshop / facilities issue.
- Expertise / rotation?
- Conductive thread / LEDs.

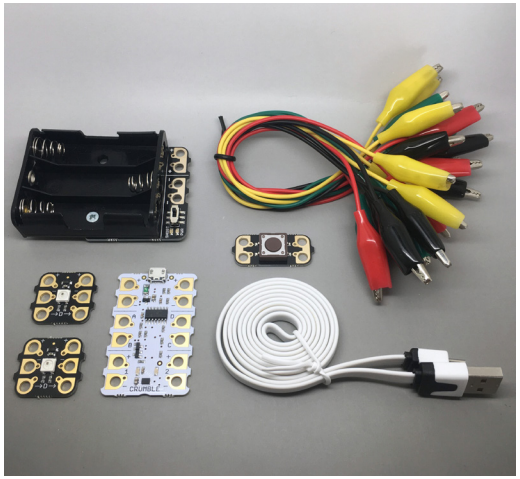
Textiles / fabrics – smaller projects

- Cartoon keyring.
- Small manageable task.
- Techniques for In depth.
- LED / electronics slant.
- Tablet holders.
- Fixtures / fittings.
- Laser cut buttons.
- 3D printed toggles.
- Recycled denim.
- Fashion / mood board inspired.







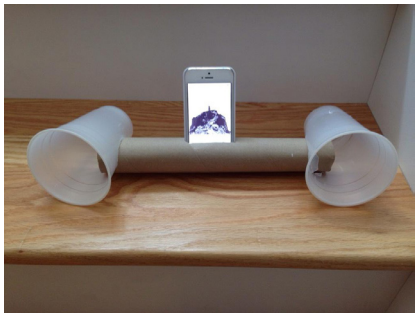


Electronics and Programmables – PIC Night Light

- Experience programming.
- Potential to design PCBs.
- Etching / constructing.
- Build whole products.
- Program pre-made kits.
- Traffic lights systems.
- Light activated systems.
- Flowchart / program.
- Expertise / rotation?
- Mathematical principles.

User needs and wants – Ice Scraper

- Small handheld product.
- User interface.
- Ergonomic rules / Anthropometric data.
- Lends itself to lots of modelling and testing.
- CAD CAM links.
- Small keyring version.
- Possibly promotional gift.
- Rubberised grips / tactile finishes.
- Multi material possibility.



Sustainable sounds – iphone speakers

- Concept design.
- 6Rs focus.
- Simple machining.
- Sketching shapes.
- Testing methods.
- Amplifying sound waves.
- Small compact design.
- Useable product.
- Range of finishes.

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- Year 11 focuses on NEA.
- Iteration based design process.
- NEA completed by end April / start May.
- Teachers will need to cross moderate to agree standards across NEA outcomes.
- Assess NEAs by applying the marking criteria.
- Enter marks on WJEC secure site.
- Sample automatically generated.
- The sample is displayed for moderation.
- Verbal feedback and discussion – Formal Report.

See the *GCSE Design and Technology 2017 Specification - NEA Guidance* document.

Acknowledgements

- Drawing (cover), blackred / Getty Images