STEAM Year 10-unit Overview – Completion date: 14th December 2021

Lamp Project

You will Learn:

- To work safely and with accuracy in the workshop.
- To produce 2D and 3D Designs using Solidworks CAD.

Lesson Overview	**Key Words**
Lesson 1 – Introduction discuss the course in detail - Health and Safety in the workshop – Discuss project and produce initial design ideas. Lesson 2 - Model design ideas in card. Lesson 3 - Computer Aided design intro – Solid works. Lesson 4 - Computer Aided design - Solidworks Lesson 5 - Computer Aided design - Solidworks Lesson 6 - Computer Aided design - Solidworks Lesson 7 – Computer Aided design - Solidworks Lesson 8 – Independent practical task – following drawings Lesson 9 – Independent practical task – following drawings Lesson 10 – Independent practical task – following drawings Lesson 11 – Independent practical task – following drawings Lesson 12 – Independent practical task – following drawings Lesson 13 – Circuit manufacture Lesson 14 – Circuit manufacture Lesson 15 – Applying Finishes Lesson 16 + Contingency	Orthographic projection Standard drawing conventions CAD/CAM/CNC Tolerance Accuracy **Reading List** https://www.wired.co.uk/ https://www.theiet.org/membership/member-publications/et-magazine/
Suggested reading or support available **www.Technologystudent.com**	**Cross curricular** Science – Physics/Maths **SMSC** Sustainability **Literacy links** Sentence structure reviewed during knowledge pit stops.

STEAM Year 10-unit Overview – Completion date: 20th Feb 2022

Theory Unit

You will Learn about:

- Technical Drawing – Isometric, Orthographic, Exploded view.
- Workshop skills – Joints and testing

Lesson Overview	**Key Words**
Lesson 1 – Mechanisms – Levers, linkages and gears Lesson 2 - Materials – Metals and plastics Lesson 3 - Materials – Wood / Ceramics and smart materials Lesson 4 - Technology pull – Technology push Lesson 5 - CAD/CAM/JIT/FMS/Lean manufacturing Lesson 6 - Systems approach to designing – basic electronic Lesson 7 – Energy sources – renewable – non renewable Lesson 8 – Ergonomics Lesson 9 – Systems approach to designing – basic electronic components Lesson 10 – Sustainability – planned obsolescence – life cycle assessment Lesson 11 – Jigs and fixtures accuracy and tolerances Lesson 12 – CNC Joints and testing	Isometric Orthographic Exploded Dove tail Mortice and Tenon Testing
Suggested reading or support available **www.Technologystudent.com** https://www.wired.co.uk/ https://www.theiet.org/membership/member-publications/et-magazine/	**Cross curricular** Science – Physics/Maths **SMSC** Sustainability **Literacy links** Sentence structure reviewed during knowledge pit stops.

STEAM Year 10-unit Overview – Completion date: 6th April 2022

Gravity Car

You will Learn about:

- Electronic and mechanical systems/Programming
- Working to technical drawings

Lesson Overview	**Key Words**
Lesson 1 – Electronic components and systems analysis. Lesson 2 – Connecting the circuit and programming Lesson 3 – Programming Lesson 4 – Working to technical drawings - Constructing the chassis Lesson 5 - Working to technical drawings - Constructing the chassis Lesson 6 - CAD/CAM – Wheel Design and manufacture. Lesson 7 – Card modelling Lesson 8 – Card modelling Lesson 9 – Card modelling Lesson 10 – Fixing shell to chassis Lesson 11 – Final race Lesson 12 – Poster presentation	System Torque Analysis Linkage Programming Orthographic Modification Electronics Pivot
Suggested reading or support available **www.Technologystudent.com** https://www.wired.co.uk/ https://www.theiet.org/membership/member-publications/et-magazine/	**Cross curricular** Science – Art/Maths **SMSC** Sustainability **Literacy links** Sentence structure reviewed during knowledge pit stops.

STEAM Year 10-unit Overview – Completion date: 1st June 2022

You will

Learn about:

- Coursework Preparation

Lesson Overview	**Key Words**
Lesson 1 – Creative design solutions Lesson 2 - Iterative design and design modification Lesson 3 - Workable designs and design annotation. Lesson 4 - Joints and fixings/material testing Lesson 5+ theory review before test. TBC: Yr 10 Test	Iterative Creativity Innovation

1st June – NEA Coursework task	
Suggested reading or support available **www.Technologystudent.com** https://www.wired.co.uk/ https://www.theiet.org/membership/member-publications/et-magazine/	**Cross curricular** Science – Physics/Maths **SMSC** Sustainability **Literacy links** Sentence structure reviewed during knowledge pit stops.