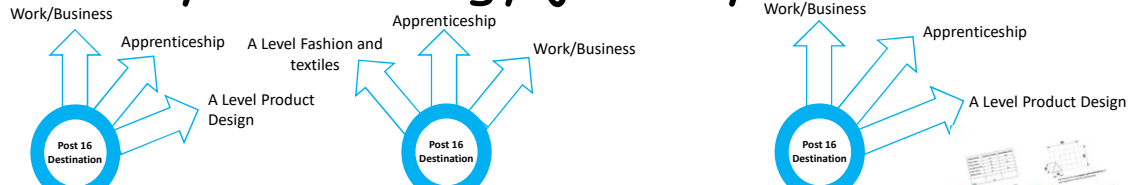


## Golden threads

Materials  
Processes and  
Techniques  
Knowledge

# My Technology journey



**Engineering**

**Year 11**

GCSE – Revision  
Casting and moulding  
Joining methods  
Heat treatments  
Surfaces finishing

GCSE – Revision  
Properties  
Materials – metals, plastics, composites and timbers / ceramics  
Calculating: Stress, Strain and Young's modulus

NEA – Making and evaluating

NEA – Modelling a solution, production plan, systems analysis

NEA – Designing a solution and Design review

NEA starts – Investigation of design problem

3.5 Structural systems – loads, space frame and monocoque structures

3.3 Electrical systems – current, mains and battery supplies, input and output devices

3.1 Describing systems – block diagrams, schematic diagrams and flow charts

2.7 Finishes  
Painting, Dip coating, Electrolysis, Galvanising

2.5 Joining methods  
Threaded fasteners, Rivets, soldering, Brazing, Welding

2.3 Shaping and forming – bending, folding, press forming, press moulding stamping and punching.

2.1 Additive manufacturing – Sintering, Rapid prototyping, FDM and STL

Mechanical safe

Calculating Area, Cost and Waste

Energy sources – Non Renewable and Renewable sources

Plastics – HDPE, LDPE, PP, PVC, PET, PE, Nylon, Polycarbonate

Material properties  
Strength, Stiffness, Ductility, Malleability, Hardness, Toughness and Brittleness

2.6 Heat treatments  
Normalising, Annealing, Hardening and Tempering

2.4 Casting – Die and sand casting

2.3 Calculating Pressure

2.2 Material removal – sawing, shearing, laser cutting, turning, milling and drilling

3D modelling - Inventor

Wood joints  
Laser cutting  
Hinging  
Mechanism  
Drilling  
Marking out

Calculating Stress, Strain and Young's modulus

Timbers and ceramics

Composites – CRF, GRP, Plywood, MDF

Metals – Ferrous and non Ferrous

**Textiles**

**Year 11**

GCSE – Revision  
Design question  
Calculating area  
Percentage calculations

GCSE – Revision  
Core - materials  
Core - properties  
Specialism - materials  
Specialism - equipment  
Specialism - processes

NEA – Making and evaluating

NEA – Modelling a solution, final design drawing and costings

NEA – Designing ad reviewing a solution

NEA starts – Investigation of design problem

Fibres Specialism –  
6.5 – stock forms and sizes  
6.6 – Manufacturing processes  
6.7 – Techniques  
6.8 – Surface treatments and finishes

Fibres Specialism -  
6.1 - Context  
6.2 - Properties  
6.3 - Selecting fibres  
6.4 - Forces on fibres

Core:  
1.11 - Textiles  
1.12 - Timbers  
1.15 - designers  
1.17 - Drawing methods

Core:  
1.6 - Electronic components  
1.7 - Programming  
1.8 - Metals  
1.9 - Papers  
1.10 - Plastics

Practical – PJ bottoms  
Pattern making  
Pattern cutting  
Seams  
Finings  
Finishes

Core:  
1.1 – Impact of new technologies  
1.2 – Analysis of new technologies  
1.3 – Energy sources  
1.4 – Smart materials  
1.5 – Mechanisms

**Resistant materials**

**Year 11**

GCSE – Revision  
Design question  
Calculating area  
Percentage calculations

GCSE – Revision  
Core - materials  
Core - properties  
Specialism - materials  
Specialism - equipment  
Specialism - processes

NEA – Making and evaluating

NEA – Modelling a solution, final design drawing and costings

NEA – Designing and reviewing a solution

NEA starts – Investigation of design problem

Timbers Specialism –  
7.5 – stock forms and sizes  
7.6 – Manufacturing processes  
7.7 – Equipment and processes  
7.8 – Surface treatments and finishes

Timbers Specialism -  
7.1 - Context  
7.2 - Sources of timber  
7.3 - Selection of timber  
7.4 - Strengthening timber

Core:  
1.6 – Electronic components  
1.7 - Programming  
1.8 - Metals  
1.9 - Papers  
1.10 - Plastics

Core:  
1.11 - Textiles  
1.12 - Timbers  
1.15 - Designers  
1.17 - Drawing methods

Practical – Seating  
Product analysis  
Designing a seat  
Drawing types  
Selecting materials  
Prototyping

Core:  
1.1 – Impact of new technologies  
1.2 – Analysis of new technologies  
1.3 – Energy sources  
1.4 – Smart materials  
1.5 - Mechanisms

## Engineering

## Textiles

## Resistant materials

## GCSE

**Year 9**

3D textiles

Fair trade

Recycling

Day of the dead project

Health and safety

Patterns

Patchwork

Denim

Sewing machines

Top stitching

Constructing 3D shape in textiles

Fabric design and decoration

2D design

Laser cutting

Soldering Safety

Finishing

Painting

Varnishing

Templates

Workshop tools

Workshop health and safety

Design brief

Specification

Research

Questionnaire

Product analysis

**Year 8**

Materials

Timber, metals, Plastics

Properties

Workshop health and safety

PPE

Moulds casting

Workshop tools

Night light

Workshop health and safety

**Year 7**

Design

Sewing on a button

Reverse Applique

Mobile phone cushion

3D CAD

AUTODESK INVENTOR

Cam toy

Finishing

Paint

Workshop tools

2D design

Laser cutting

2D DESIGN