

Skill sticks: Polymer, metals and timbers.

3D CAD – Beginner and intermediate, 3D Printing – Basics.

NEA High profile event – Assessment objective 1, Research, Design Brief and Specification.

Theory – Core Technical Principals (CTP).

Autumn – Spring 1Term

What are we learning about?

- You will learn about how to bend, shape and join plastics, metal and wood, how to create parts in 3D CAD and then 3D print them.
- Research on a Non Examined Assessment topic - High profile event.
- The impact of products on production, society, the environment, new material developments and systems approach to design.



Why are we learning about it?

In design Technology we work with a variety of materials so we can choose which one we prefer to work with for our final project. 3D CAD so we can create complex parts for products that can be 3D printed. NEA research and design brief / specification so we can and understand the exam part of the course on CTP.



What new **KNOWLEDGE** will I gain?

- Introduction to bending, shaping and joining plastic, metals and wood.
- Learn 3D CAD skills
- Learn 3D Printing.
- Learn how to research and write design briefs at GCSE level.
- Learn CTP theory for the exam.



How does this build on the **SKILLS** I already have?

- Using tools and equipment safely whilst working in polymers, metal and timber.
- Skills from year 9 using 2D CAD.
 - Analysing skills.



What new **SKILLS** will I develop?

- Using tools and equipment safely using plastics, metals and woods.
 - Part creation on 3D CAD
- 3D printing preparation and slicing.
- Enhanced research and technical writing.
- Answering GCSE exam questions on CTP.



How does this build on the **KNOWLEDGE** I already have?

This will build on knowledge that you have gained in your time at KS3 school – looking at process and materials in more depth

3D CAD – Advanced skills.

CNC Machining– Basics & Systems and control – Basics.

NEA Comfort – Assessment objective 1, Research, Design Brief and Specification.

Theory – Core Technical Principals (CTP).

Spring - 1 Term

What are we learning about?

- You will learn about how to create assemblies in 3D CAD, program the CNC router and program a PICaxe chip to flash lights and control motors..
- Research on a Non Examined Assessment topic - Comfort.
- Mechanical devices material working properties of materials and papers, timbers and metals.



Why are we learning about it?

In design Technology we work with a variety of materials so we can choose which one we prefer to work with for our final project. 3D CAD so we can create complex product assemblies. CNC programming to improve the quality of our product manufacture, systems and control to include programmable elements in our products. NEA research and design brief / specification so we can understand the exam part of the course on CTP.



What new **KNOWLEDGE** will I gain?

- Learn 3D CAD skills
- Learn CNC Programming
- Learn systems and control programming.
- Learn how to research and write design briefs at GCSE level.
- Learn CTP theory for the exam.



How does this build on the **SKILLS** I already have?

- Skills from term 1 Y10 using 3D CAD.
- Analysing skills at GCSE level on High profile event NEA.



What new **SKILLS** will I develop?

- Part assembly creation on 3D CAD
- CNC programming using G & M codes and machining depths.
- Flowchart and BASIC programming for interactive products.
- Enhanced research and technical writing.
- Answering GCSE exam questions on CTP.



How does this build on the **KNOWLEDGE** I already have?

This will build on knowledge that you have gained in your time at KS3 and the first term of KS4 in school – looking at process and materials in more depth

3D CAD – Creating bespoke product parts and part assemblies.

NEA Comfort – Developing designs, manufacturing & evaluating a bespoke product.

Theory – Core Technical Principals (CTP) & Specialist Technical Principals (STP).

Summer - 1 Term

What are we learning about?

- You will learn about how to create assemblies for your bespoke product in 3D CAD,
- Develop designs, manufacture and evaluate a bespoke product
Assessment topic - Comfort.
- Polymers, textiles,. Selecting materials and ecology.



Why are we learning about it?

In design Technology we work with a variety of materials so we can choose which one we prefer to work with for our final project. 3D CAD so we can create our own product.
NEA - So we can develop our own design ready for manufacture and then have our client test and evaluate it
. So we can understand and answer exam questions on CTP & STP.



What new **KNOWLEDGE** will I gain?

- Bending, shaping and joining plastic, metals and wood on our own design.
- Drawing your own product on 3D CAD and potentially 3D printing parts.
- Learn how to develop and manufacture bespoke designs at GCSE level.
- Learn CTP & STP theory for the exam.



How does this build on the **SKILLS** I already have?

- Using tools and equipment safely whilst working in polymers, metal and timber.
- Skills from year 9 using 2D CAD.
- Sketching and modelling skills.



What new **SKILLS** will I develop?

- Applying 3D CAD, 3D Printing, and CNC programming on a bespoke product.
- Enhanced design development, manufacturing and testing and evaluation skills.
- Answering GCSE exam questions on CTP & STP.



How does this build on the **KNOWLEDGE** I already have?

This will build on knowledge that you have gained in the first term of KS4 in school by applying this to a product you design and make.