




Computing and Technology

Key Stage 4 Framework for Learning


Year 10 2017-2018: Successful Foundations

Syllabus:



NCFE V Cert Engineering Level 2

Autumn 1	
Knowledge	<p>Students will complete tasks, that allows students to develop the knowledge, understanding and skills in the following area:</p> <ul style="list-style-type: none"> What engineering is <p>Students will complete research tasks in order to complete a portfolio of work.</p> <p>During this unit students will focus on what engineering. In relation to this topic students' knowledge will center around:</p> <p>What engineering is</p> <ul style="list-style-type: none"> Sectors: from a variety of industries both locally and nationally Organisations: national, international
Skills	<p>Students will:</p> <ul style="list-style-type: none"> Know what engineering is Understand the advantages and disadvantages of engineering on society Understand the use of science, technology and maths in engineering
Assessment	<p>Work produced by students will be marked on a regular basis in accordance with the school policy. Work will be graded using a performance descriptor;</p> <ul style="list-style-type: none"> distinction merit pass <p>Three pieces of work will be assessed during each half term.</p> <p>Marking Point 1 <i>Marking Point</i></p> <p>Piece of classwork: Students will be required to write their own practice design brief and must complete an initial interpretation and identification of suitable research.</p> <p>Marking Point 2 Homework Assignment 1</p> <p>Marking Point 3 Piece of classwork: Students will complete ten Initial Design Ideas</p>
Cultural enrichment	<p>Enrichment:</p> <p>Skill 1: Drawing and sketching in 2D and 3D Look at the work of local Engineers and local design companies to show the impact of 2D and 3D designs upon the development of products and spaces in the local area – Manchester.</p> <p>This will form part of the controlled assessment tasks students are completing for this unit of the course.</p>
Character	<div style="text-align: center;">  </div> <p>Q of S Optimism CV – Self-help & Self-responsibility</p>





	<p>Optimism: When carrying out independent written tasks, students will be challenged to complete tasks beyond their identified pathway and to have an optimistic outlook on their ability to produce good or outstanding work with the assistance of additional resources as necessary.</p> <p>Self-help: Students will be encouraged to access the self- help sheets that will be provided each lesson. This will allow students to manage their own learning.</p> <p>Self-responsibility: As homework learning tasks are set during each half term, students will show self-responsibility in managing their time and showing organizational skills to hand work in on time to be marked.</p>
<h2>Autumn 2</h2>	
Knowledge	<p>Students will complete tasks, that allows students to develop the knowledge, understanding and skills in the following area:</p> <ul style="list-style-type: none"> • What engineering is <p>Students will complete research tasks in order to complete a portfolio of work.</p> <p>During this unit students will focus on what engineering. In relation to this topic students' knowledge will center around:</p> <p>What engineering is</p> <ul style="list-style-type: none"> • Sectors: from a variety of industries both locally and nationally • Organisations: national, international
Skills	<p>Students will:</p> <ul style="list-style-type: none"> • Know what engineering is • Understand the advantages and disadvantages of engineering on society • Understand the use of science, technology and maths in engineering
Assessment	<p>Work produced by students will be marked on a regular basis in accordance with the school policy. Work will be graded using a performance descriptor;</p> <ul style="list-style-type: none"> • distinction • merit • pass <p>Three pieces of work will be assessed during each half term.</p> <p>Marking Point 1 Practical Assessment</p> <p>Marking Point 2 Homework Assignment 2</p> <p>Marking Point 3 Mid year test.</p>
Cultural enrichment	<p>Enrichment:</p> <p>Skill 1: Drawing and sketching in 2D and 3D Look at the work of local Engineers and local design companies to show the impact of 2D and 3D designs upon the development of products and spaces in the local area – Manchester.</p> <p>This will form part of the controlled assessment tasks students are completing for this unit of the course.</p>
Character	<div style="text-align: center;">  <p>Empathy</p> </div> <p>Q of S Empathy</p> <p>CV – Caring for others, Equality and Equity</p> <p>Empathy: When working with materials and considering materials students are required to consider the social moral, cultural, ethical and environmental issues</p>



<h2>Spring 1</h2>	
Knowledge	<p>Students will complete tasks, that allows students to develop the knowledge, understanding and skills in the following area:</p> <ul style="list-style-type: none"> • What engineering is <p>Students will complete research tasks in order to complete a portfolio of work.</p> <p>During this unit students will focus on what engineering. In relation to this topic students' knowledge will center around:</p> <p>What engineering is</p> <ul style="list-style-type: none"> • Sectors: from a variety of industries both locally and nationally • Organisations: national, international
Skills	<p>Students will:</p> <ul style="list-style-type: none"> • Know what engineering is • Understand the advantages and disadvantages of engineering on society • Understand the use of science, technology and maths in engineering
Assessment	<p>Work produced by students will be marked on a regular basis in accordance with the school policy. Work will be graded using a performance descriptor;</p> <ul style="list-style-type: none"> • distinction • merit • pass <p>Three pieces of work will be assessed during each half term.</p> <p>Marking Point 1 A piece of classwork: 3d drawing</p> <p>Marking Point 2 A home learning task: research scales of production</p> <p>Marking Point 3 A piece of classwork: Manufactured product.</p>
Cultural enrichment	<p>As part of home learning students will look into the work of others, this includes engineers and specialist engineering companies.</p> <p>Students will create a project surrounding there chosen designer/ company. During the Spring term students will focus on the following topics:</p> <ul style="list-style-type: none"> • Fossil fuels • Nuclear power • Renewable energy <p>Students will be able to look into the impact that the work of the engineering industry has on these areas.</p> <p>There will be opportunities to look at articles and visit local organisations to gather primary research.</p>
Character	<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>Q of S Creativity & Curiosity CV – Social Responsibility</p> <p>Creativity: During the completion of pieces of work students will need to consider the presentation and creative aspects of their work. They may need to be creative when drawings are required</p> <p>Curiosity: This will be encouraged through the delivery of the lesson looking at Engineering Terminology.</p>



	Social responsibility: Students can investigate the social responsibility of engineers when selecting materials.
Spring 2	
Knowledge	<p>Students will complete tasks, that allows students to develop the knowledge, understanding and skills in the following area:</p> <ul style="list-style-type: none"> • Engineering drawings <p>Students will focus on the Engineering drawing types commonly used by engineers. (Specific examples are highlighted below)</p> <p>During this unit students will focus on engineering drawings. In relation to this topic students' knowledge will center around:</p> <p>Engineering drawings</p> <ul style="list-style-type: none"> • Systems: pre- and post-decimalisation • Measuring devices: manual, semi- automatic, automatic • 2D and 3D engineering drawings: <ul style="list-style-type: none"> 2D: first angle projection, third angle projection, layout drawings, circuit diagrams, schematic diagrams, freehand sketch 2D: assembly drawings, plan views 3D: oblique, perspective, drawings, freehand sketch isometric, exploded isometric Plano metric, assembly drawings
Skills	<p>Students will:</p> <ul style="list-style-type: none"> • Know systems of measurement, measuring devices, scale and proportion in engineering drawing • Be able to use measurement and scale to produce 2D and 3D engineering drawing
Assessment	<p>Work produced by students will be marked on a regular basis in accordance with the school policy. Work will be graded using a performance descriptor;</p> <ul style="list-style-type: none"> • distinction • merit • pass <p>Three pieces of work will be assessed during each half term.</p> <p>Marking Point 1 A piece of classwork: 2d/3d drawing</p> <p>Marking Point 2 A home learning task: Produce a set of 2d and 3d drawings for a games console of their choice that includes measurements, scale and proportion.</p> <p>Marking Point 3 Mid year test.</p>
Cultural enrichment	<p>As part of home learning students will look into the work of others, this includes engineers and specialist engineering companies.</p> <p>Students will create a project surrounding there chosen designer/ company.</p> <p>During the Spring term students will focus on the following topics:</p> <ul style="list-style-type: none"> • Fossil fuels • Nuclear power • Renewable energy <p>Students will be able to look into the impact that the work of the engineering industry has on these areas.</p> <p>There will be opportunities to look at articles and visit local organisations to gather primary research.</p>
Character	<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>Q of S</p>



	<p>Responsibility & Reflection CV – Solidarity</p> <p>Responsibility: Students will regularly demonstrate this by completing tasks within lessons and also health and safety within practical lessons</p> <p>Solidarity: Tasks set during the course of the term will frequently ask the students to work as small groups. During these times it is expected that the students show solidarity towards one another and work as a cohesive group rather than separate individuals.</p>
<h2>Summer 1</h2>	
Knowledge	<p>Students will complete tasks, that allows students to develop the knowledge, understanding and skills in the following area:</p> <ul style="list-style-type: none"> • Engineering drawings <p>Students will focus on the Engineering drawing types commonly used by engineers. (Specific examples are highlighted below)</p> <p>During this unit students will focus on engineering drawings. In relation to this topic students' knowledge will center around:</p> <p>Engineering drawings</p> <ul style="list-style-type: none"> • Systems: pre- and post-decimalisation • Measuring devices: manual, semi- automatic, automatic • 2D and 3D engineering drawings: <ul style="list-style-type: none"> 2D: first angle projection, third angle projection, layout drawings, circuit diagrams, schematic diagrams, freehand sketch assembly drawings, plan views 3D: oblique, perspective, drawings, freehand sketch isometric, exploded isometric Plano metric, assembly drawings
Skills	<p>Students will:</p> <ul style="list-style-type: none"> • Know systems of measurement, measuring devices, scale and proportion in engineering drawing • Be able to use measurement and scale to produce 2D and 3D engineering drawing
Assessment	<p>Work produced by students will be marked on a regular basis in accordance with the school policy. Work will be graded using a performance descriptor;</p> <ul style="list-style-type: none"> • distinction • merit • pass <p>Three pieces of work will be assessed during each half term.</p> <p>Marking Point 1 A piece of classwork: 2d/3d drawing</p> <p>Marking Point 2 A home learning task: Produce a set of 2d and 3d drawings for a mobile phone that includes measurements, scale and proportion.</p> <p>Marking Point 3 A piece of classwork: Manufactured product.</p>
Cultural enrichment	<p>As part of home learning students will look into the work of others, this includes designers and companies. Students will create a project surrounding there chosen designer/ company.</p> <p>During the Spring term students will complete an independent project that will allow them to extend the knowledge that they have learnt.</p> <p>There will be opportunities to look at articles and visit local organisations to gather primary research.</p>
Character	



Q of S
Practice & Resiliency
CV- Openness & Honesty

Practice: To assist in their completion of the course tasks, students will be provided with work which will ensure that they practice particular elements


Resiliency: Students will throughout the course of the term be informed of their progress and the need to improve work to generate a higher mark. Students need to be resilient to criticism and then revisit work completed.

Openness & honesty:
During all lessons students will be asked to show openness and honesty about their personal feelings about the topics covered.

Summer 2

<p>Knowledge</p>	<p>Students will complete tasks, that allows students to develop the knowledge, understanding and skills in the following area:</p> <ul style="list-style-type: none"> • Engineering drawings <p>Students will focus on the Engineering drawing types commonly used by engineers. (Specific examples are highlighted below)</p> <p>During this unit students will focus on engineering drawings. In relation to this topic students' knowledge will center around:</p> <p>Engineering drawings</p> <ul style="list-style-type: none"> • Systems: pre- and post-decimalisation • Measuring devices: manual, semi- automatic, automatic • 2D and 3D engineering drawings: <ul style="list-style-type: none"> 2D: first angle projection, third angle projection, layout drawings, circuit diagrams, schematic diagrams, freehand sketch 2D: assembly drawings, plan views 3D: oblique, perspective, drawings, freehand sketch isometric, exploded isometric Plano metric, assembly drawings
<p>Skills</p>	<p>Students will:</p> <ul style="list-style-type: none"> • Know systems of measurement, measuring devices, scale and proportion in engineering drawing • Be able to use measurement and scale to produce 2D and 3D engineering drawing
<p>Assessment</p>	<p>Work produced by students will be marked on a regular basis in accordance with the school policy. Work will be graded using a performance descriptor;</p> <ul style="list-style-type: none"> • distinction • merit • pass <p>Three pieces of work will be assessed during each half term.</p> <p>Marking Point 1 A piece of classwork: 2d/3d drawing</p> <p>Marking Point 2 A home learning task: Produce a set of 2d and 3d drawings for a piece of furniture that includes measurements, scale and proportion.</p> <p>Marking Point 3 Formal end of year examination.</p>
<p>Cultural enrichment</p>	<p>As part of home learning students will look into the work of others, this includes designers and companies. Students will create a project surrounding there chosen designer/ company.</p> <p>During the Spring term students will complete an independent project that will allow them to extend the knowledge that they have learnt.</p>



	There will be opportunities to look at articles and visit local organisations to gather primary research.
Character	 Q of S Motivation CV – Self Help & Self-responsibility Motivation: Students will throughout the course be required to show motivation during the completion of tasks. They will frequently be given the opportunity to challenge themselves and complete tasks that further their expected attainment level. Self-help & Self-responsibility: Students will be encouraged to attend after school clinic sessions when they have failed to complete tasks within the allocated time frame of lessons.