



Curriculum Overview Document Engineering



Our whole School curriculum intent believes:

Our aim at Hadley Learning Community is to provide an excellent education for all our students; an education which brings out the best in all of them and prepares them for success in life.

Our curriculum is designed to provide children with the core knowledge they need for success in education and later life, to maximise their cognitive development, to develop the whole person and the talents of the individual and to allow all children to become active and economically self-sufficient citizens. By drawing on the best that's been thought, said and done in each subject, alongside the promotion of our local environment, we hope that our curriculum at Hadley Learning Community enables children to appreciate and participate in the full richness of the human experience. Subjects work together to identify knowledge, thematic and skills-based links between their disciplines and exploiting those through careful joint planning will enable students to make connections that will help them to understand the world around them and their place in it.

Within that framework, each subject must consider our core values and as a result needs to embed activities that promote our community alongside our 5 key words: Belong, Respect, Inspire, Succeed and Enjoy

Our intention for our curriculum is:

By the end of KS3, pupils will understand what it is to be an engineer. Pupils will have a curiosity and fascination in finding out about the roles of engineers including how they impact and shape the world that we live in. They will also have an understanding of the different types of engineering jobs that are currently available. They will have developed a passion and commitment to the subject. Our pupils will have developed an excellent knowledge of how engineers use and select materials that are relevant in relation to their working properties in their job/environment. They will develop an independent sense of working and an inquisitive mind to discuss how products work and function.

Pupils will develop a comprehensive understanding of the engineering design process; this process will enable them to solve problems or a need that has been identified and develop a practical solution in order to address the issue. Our pupils will have an extensive core of engineering knowledge and vocabulary, which will be learned and regularly practised so that students are confident and comfortable using academic language in every context that requires it throughout their education and beyond. They will have good spatial/ coordination awareness and be able to use a wide range of tools, machinery and software effectively and confidently. They will be able to carry out increasingly complex, independent engineering enquiries, ask their own relevant questions; make sense of engineering information and data, think and reflect critically about different viewpoints that differ from their own; and justify their own view in reaching conclusions.

The foundations laid in KS3 will help them to go on to succeed in KS4. They will have the knowledge and understanding of the properties of materials and

how they impact the use of the chosen material deciding if it is suitable for the requirement within the engineering design process, as this will help them to plan out in different stages of what needs to be done to be successful. This will help them to go on to achieve their potential, not just at A Level and in Higher Education but as global citizens living in a dynamic and interdependent world. Engineers at Hadley Learning Community will have an appreciation for the world they live in and a deep understanding of how their actions as engineers can have a positive impact on the people and environment around them locally, nationally and worldwide.

Linking our curriculum intention to our local community:

The curriculum, through enrichment during the school day and within enrichment opportunities, will maximise the use of the local area. We will link our curriculum to the following:

- We have over several years worked closely with Saint-Gabain and have had a number of days where students have gone to the local site to learn more about the business they undertake.
- As a department we currently looking at other companies that can offer opportunities for the students to gain an insight into how they operate, and the qualifications needed to become part of their company.
- We have also had one of the local colleges come in to promote a new qualification they are offering in aviation engineering to our year 10 students who also were given the opportunity to give them feedback.

Implementation

Lessons are engaging because they are rigorous. Students want to succeed, and, through hard work and achievement, they want to learn more. Modelling and an excellent range of quality resources is a key aspect of teaching in engineering. Through regular feedback and guided practice students master key concepts and processes. Teachers explicitly teach students how to investigate, learn and revise so that they can be successful in regular knowledge tests, this will be achieved through ongoing assessments, skills tests, the students will also undertake interactive quizzes using the Kahoot website to test their recall knowledge ability. This helps to ensure long-term retention of core principles from KS3 through to KS4 and beyond. Practical opportunities at KS3 and 4 provide students with real hands on learning contexts to apply their knowledge. Key concepts are revisited over key stages as well as between lessons to practice retrieval and recall.

Year 7 Curriculum implementation

The Engineering Department aims to instil the love of the engineering world that every person comes into contact with on a daily basis. Students should gain an understanding of problem solving through investigating the needs and wants of different user groups in order to solve a problem/ requirement successfully with a practical outcome. They will need to be aware of the challenges that they face and how these can be tackled in a number of different ways. This will be achieved through

developing students' skills in using the correct tools, machinery or techniques and process suitable for the material being used. Having confidence in asking questions about their designs and investigating the designs of others. They will also be introduced to the fundamental concepts of health and safety legislation and requirements. Year 7 will be within a rotation and will have 1 point of contact throughout the year.

1 10 week	END POINT TEST & THERAPY	2 10 week	END POINT TEST & THERAPY	3 10 week	END POINT TEST & THERAPY	4 10 week	END POINT TEST & THERAPY
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Desk Tidy

This unit of work focuses on introducing students into the world of engineering/ product design. The main purpose of this unit of work is to introduce students into the design process, how to work safely and correctly select and use a range of tools for working with wood. students will have had little to no experience of the design process regarding the needs and wants of a particular user group and especially when it comes to being within a workshop environment and safely and correctly using a range of tools and equipment.

Students will investigate and start to build their knowledge of the different types of tools that are used and what job they are used for.

Students will be undertaking focused practical tasks that help them to build their knowledge and understanding of the tools, machinery and process used to manufacture a product. They will have a basic introduction to using CAD (2D design) they will learn basic tools and how to use them within the CAD program, this will lead to students being able to manipulate a drawing to their own individual needs and wants within the product.

The aim of this unit is to give the students the foundation of knowledge and skills of CAD/CAM and workshop practises that they will then be able to build on as they progress.

It is also designed to give them knowledge and understanding of working with different materials and tools and processes.

For example:

Being able to select the correct tool.

Using tolerances.

Working with different materials

Being able to work more independently.

Through this unit the knowledge and skills gained will give them confidence to develop their understanding of how to apply their newly learnt skills in future problem-solving situations.

Year 8 Curriculum implementation

Having learnt key engineering skills in Year 7, in Year 8 students are challenged to apply these to a more in-depth situation. The Year 8 curriculum is also designed to challenge students to question how and why products work and are made. We aim to foster an appreciation for the careful balance of the traditional skills, as well as developing an understanding of technical knowledge and know-how to help prepare them for today and also tomorrow's technological world that they will encounter. Whilst seeking to support them to become future engineers we also want them to develop an independent and inquisitive mind that will explore different solutions to a problem. They will learn, as an engineer, they will need resilience and determination to succeed. Year 8 will have contact time of a 10-week block within the rotation. Year 8 will build on their knowledge and skills gained during year 7 and extend the core principles of engineering Design and Manufacture even further.

1	END POINT TEST & THERAPY	2	END POINT TEST & THERAPY	3	END POINT TEST & THERAPY	4	END POINT TEST & THERAPY
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Pewter Casting

This unit further progresses pupil's understanding of the design processes and the use of tools and equipment they gained in Year 7. A greater sense of independence will be installed in year 8 through independent research outside of the school environment.

Students will be introduced to using CAD (Serif Draw Plus and 2D design) they will learn basic tools and how to use them within the CAD programs, this will lead to students being able to manipulate their own hand-drawn design through CAD in order for them to produce a mould via CAM (laser cutter)

The aim of this unit is to give the students the foundation of knowledge and skills of CAD/CAM and workshop practises that they will then be able to build on as they progress. In this unit, pupils will take on the role of owning their own company and need to design and manufacture a product of worth. Students will need to investigate a target group of their choice (this will help them understand the difference between a user's needs and their wants). They will need to research and investigate the material's properties and why the material is being used. They will understand how to use a mood board to help them be creative and to further develop their own design ideas. Students will be introduced to CAD/CAM to produce the mould for their design. Throughout the making process they will undertake quality control procedures and

understand why, as a manufacturer, they are important. Throughout each stage of the project, they will be evaluating the progress of their product from design ideas to the final finished product and their own performance throughout and how they could develop the product and themselves.

Manufacturing of the product will develop students' technical abilities as well as developing their knowledge and skills needed to use the appropriate engineering tools. They need to understand that within an engineering environment there are different roles from designer, draft person, CAD Designer to skilled manufacturer. The role of the skilled manufacture is to be able to use the technical drawing and manufacture a product of worth. Year 8 provides a strong basis for further study in KS4 in preparation for studying engineering in greater depth.

Year 9 Curriculum implementation

Desk top clock.

Year 9 is a key transitional year in Engineering in which students are taught to apply their invaluable knowledge from Year 7 and 8. They will come to understand how they can use a range of materials and processes in various situations in order to solve a given problem. They will then use this knowledge to help inform their choice of material and manufacturing process to design and produce their final practical outcome. Students will use their knowledge of 2D design to produce their own 3rd angle projection drawing to help aid the manufacturing process to produce a product of worth

Students will be taught in greater depth areas that they have previously covered and as part of engineering there is a greater emphasis on precision and quality of work. To build a solid foundation of knowledge and become confident independent learners they will draw upon these learning folders of the different skills and knowledge that they have gained throughout their learning journey. They learn how to produce a range of hand drawn graphical and technical drawing and how to interpret those drawings in a workshop setting. Students will start to build up their understanding of how CAD/CAM is used along with the advantages and disadvantages of using technology. They will undertake a number of different materials testing and investigation tasks in the workshop and start to build their knowledge of the use of machinery in order to manufacture products.

1	END POINT TEST & THERAPY	2	END POINT TEST & THERAPY	3	END POINT TEST & THERAPY	4	END POINT TEST & THERAPY
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Focused Practical task

Students will undertake a focused practical task where they will combine a number of different materials together using different manufacturing processes, this will include acrylic, aluminium and wood, through this investigation they will use a range of different methods of joining the material together using Countersunk screws, nuts and bolts.

Students will then build on their knowledge from year 7 and 8 of 2D design and 3rd angle projection drawings as part of this process students will gain a greater understanding that drawing is a language of its own. There are a few different symbols and different line styles that convey meaning within a drawing. This is a universal language and is understood by designers and engineers around the world. Students will learn how decipher the information found within a 3rd angle project drawing (working drawing). They will use this information to help them construct the main element of the final product, they will also use this to inform their own design input.

Developing knowledge of Tools and Machinery in order to produce engineered products.

Students will undertake several small practical tasks to help them build their knowledge and understanding and develop their skills using different tools and machinery that are suitable for the material being used.

They will focus on the following areas.

Processes

- Drilling, cutting. Measuring, line bending,

Materials

- Ferrous
- Non-ferrous
- Thermoplastics
- Thermosetting plastics

Properties

- Tensile strength
- Hardness
- Toughness
- Malleability
- Ductility
- Conductivity
- Corrosive resistance
- Environmental degradation
- Elasticity

During their investigations they will keep a record of the tools and process used as part of their learning journal to refer to when working independently.

How engineered products meet requirements.

As an Engineering designer, pupils will need to build their knowledge and gain an understanding of the difference between features, requirements and function of engineered products.

In essence they will need to be able to apply the following.

Identify features that contribute to the primary function of engineered products:

Features

- Of component parts
- Electrical components
- Mechanical components
- Properties of component materials

Identify features of engineered products that meet requirements of a brief:

Requirements

- Aesthetic
- Environment (where used)
- User/customer/client
- Cost
- Safety
- Ergonomics
- Size
- Limits
- Sustainability

Describe how engineered products function:

Function

- How components interrelate

Students will reverse engineer a product and apply their understanding of how the product has been made based on these 3 key areas of features, requirements and function. They will also go on to investigate the manufacturing process of how the product would have been made in industry.

Year 10 Curriculum implementation

The Year 10 curriculum aims to combine the application of students' knowledge and communication skills both written and graphical, to deepen and strengthen their insight into the world of engineering. They will revisit some of the previous learning to help reinforce their understanding and to perfect their skill in preparation for Unit 1 (Engineering Design). The work is implemented around the concept of a 'plan, do, review' approach to learning where learners are introduced to a context for learning, review previous learning to plan activities, carry out activities and review outcomes and learning. This approach mirrors engineering production and design processes and also provides for learning in a range of contexts, thus enabling learners to apply and extend their learning.

There are 3 units to be carried out for successful completion of the course, Unit 1 and 2 are internally assessed units and Unit 3 is externally assessed.

Unit 1 Engineering Design is a simulation of the work that is carried out within the design studio and would produce all required information and drawing prior to manufacture. This unit will be undertaken and completed during year 10. The completion of Unit 1 will give them the foundation of knowledge to understand the different stages of engineering design and how it leads onto Unit 2, Producing Engineered Products, unit 2 is the second stage once the design and technical drawing have been produced, they will be given the opportunity to see and understand the work carried out in industry and how they are important to the engineering process. The work for Unit 2 will be carried out during year 11.

Unit 3: This will be taken at the end of year 10 and the purpose of this unit is for learners to use their knowledge and understanding of engineering processes and material properties to solve problems.

Engineers can have a major impact on industry and society. The achievements they have made have improved the quality of our everyday life, from the buildings we live and work in to the transport we use to get around and how we enjoy our leisure time. Pupils will be taught how to find solutions to problems, whether it is adapting or combining materials used to produce a product to make it withstand severe weather conditions or fixing materials in a different way to make something more portable. Problem solving is critical to working in engineering. In this unit students will learn about how engineers in the past have found solutions to problems and how other engineers use their ideas to solve problems today. They will learn about materials, processes and maths that engineers use and how they are used to solve problems. In solving problems, they will use their previous knowledge from year 9 and 10 in drawing skills to communicate their solutions.

1	2	END POINT TEST & THERAPY	3	4	5	6	END POINT TEST & THERAPY
<p>Unit 3 External preparation. Solving Engineering Problems Students must develop an understanding of the externally assessed unit. As part of this unit students will apply their knowledge of the different drawing techniques that are used within unit 1 but they will also be required to show understanding of a range of different engineering situations and applications. The knowledge required will be built up throughout the year in the different sections covered during both practical and theory lessons. This unit will be taken at the end of year 10.</p>							
<p>Unit 1 Prep Engineering drawings. From the work that was carried out in year 9, year 10 students will look at the layout of technical working drawings and the information that they contain.</p> <ul style="list-style-type: none"> Title block Scale. Materials Symbols Metric units of measurement <p>Students will also become more confident in being able to convert between isometric sketches and 3rd angle orthographic projections:</p> <p>Convert</p> <ul style="list-style-type: none"> Section views Construction lines Centre lines Hidden detail Standard conventions <p>How they communicate design ideas is also important when thinking about finding a solution to a problem through a means of visual design ideas. They will need to be able to develop a deep rooted knowledge and understanding of the following.</p> <p>Communicate</p> <ul style="list-style-type: none"> Convey meaning 				<p>Properties of engineering materials This topic builds on the year 9 knowledge and understanding and develops a more complex and deeper knowledge in relation to the properties required of materials for engineering products. Students will look at a different range of engineered products for example:</p> <ul style="list-style-type: none"> Structural, e.g. buildings, bridges Mechanical, e.g. gearbox, crane, bicycle Electronic, e.g. mobile phone, communications, alarm <p>Students will learn how to analyse products and be able to make the connections between the function, features, requirements and the material properties.</p> <p>They will undertake focused practical tasks so that they explain how materials are tested for their properties. This will include</p>		<p>Unit 3 Prep Maths in engineering Being able to apply a fundamental grasp of maths is a key element of engineering. Students will be using basic maths on an everyday basis and need a secure knowledge of the different units of measurement.</p> <ul style="list-style-type: none"> Metric; Meters, Millimetres; Pounds, pence. Calculation Measuring <p>There are times, however, that they will need to be able to apply knowledge that is more in depth. This will involve working out the area, mass and volumes of geometric shapes. It is important that the work on maths being done mirrors that being delivered by the maths department. There will also be a link with the science department when it comes the use</p>	

<ul style="list-style-type: none"> • Using appropriate language • Logical structure • Presentation of information • Clarity of language and presentation • Use of appropriate terminology • Audiences (engineers, non-engineers) • Use of visual support, e.g. mock-ups, CAD <p>Student must be able to propose design solutions As part of unit 1 students will not only need to recall the knowledge and apply the skills that they have already previously learnt, they will also need to</p> <p><u>Develop creative ideas for engineered products, this will involve.</u></p> <p>Creative ideas</p> <ul style="list-style-type: none"> • Identify features of other engineered products • Generate ideas • Explore implementation of ideas <p><u>Evaluate options for design solutions. Students will be able to apply the following to their work</u></p> <p>Evaluate</p> <ul style="list-style-type: none"> • Constraints • Design requirements • Fit for purpose • Best fit • Operating performance • Reliability <p>Evaluation techniques</p> <ul style="list-style-type: none"> • Total Design Model • SWOT analysis <p>Advantages and disadvantages</p>	<p>both destructive and non-destructive test. They will be able to record their findings.</p> <p>The focused practical tasks will also develop their ability to complete the following processes and then go onto recall and describe in detail.</p> <p>Processes</p> <ul style="list-style-type: none"> • Marking out • Cutting • Finishing • Preparing • Shaping • Drilling • Turning • Brazing • Joining <ul style="list-style-type: none"> Permanent Temporary fixings • Filing • Soldering 	<p>of formulae in regards to electronic information.</p> <ul style="list-style-type: none"> • Ohms law • Components. • Electronic symbols; <p>This will ensure that there is a seamless link in applying taught knowledge in different situations from across the curriculum.</p>
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As part of this unit the students will need to draw upon previous knowledge that they will have learnt in regards to specifications. They will be required to Produce a design specification that enables them to be creative within a required design brief:

Design specifications

- Clear communication
- Demands/wishes
- Using set criteria

Year 11 Curriculum implementation

Year 11 requires students to use skills developed during year 9 and 10. Students will learn to interpret different types of engineering information in order to plan how to make engineered products. They will develop the skills needed to work safely with a range of engineering processes, equipment and tools. With these skills, they will learn to make a range of engineered processes that are fit for purpose.

Using the right tools and equipment in a safe way is critical to production engineering and will give the students a valuable insight into the engineering world. Production engineers, skilled machinists and maintenance engineers will use a range of engineering processes, equipment and tools to make engineered products. They will work from engineering information, whether provided by design consultants, quality managers or colleagues, or they will produce their own information as they try out different ways of engineering a product. The purpose of building the student's knowledge and skills base in this manner is to provide the opportunity for authentic work related learning, but more than this, it will require learners to consider how the use and application of their learning impacts on individuals, employers, society and the environment. The applied learning will also enable students to learn in such a way that they develop a range of skills required for independent learning and development that gives them a range of generic and transferable skills in the ability to solve problems, project based research, development and presentation. It also helps to promote the fundamental ability to work alongside other professionals in a professional environment.

As part of the local environment that HLC resides, Telford has a heritage that has been forged through the traditions of industry, This is reflected in the industrial past, present and future of Telford. Within the engineering department at HLC the student's knowledge and skills base have been built up over the different key stages of development throughout their school life. This development of knowledge and skill is the key basis that will help to give students the extended opportunities within the local engineering companies.

1	2	END POINT TEST & THERAPY	3	4	5	6	END POINT TEST & THERAPY
<p>Unit 2 Producing Engineering Products</p> <p>This topic provides an understanding of how to interpret engineering drawing and information. As part of the previous knowledge gained during year 9 and 10 students will be familiar with the following concepts.</p> <p>Interpret</p> <ul style="list-style-type: none"> • Symbols • Conventions • Information • Calculations <p>Sources</p> <ul style="list-style-type: none"> • Sketches • Drawings • Design specifications <p>As part of the manufacturing process students will develop their knowledge and understanding of data charts and data sheets. Pupils will have to think about how engineering companies operate in terms of managing time and resources. They will develop the knowledge and then apply the skill of being able to prioritise activities recognising that tasks need to be completed before others. They will have to take into account designated parameters within a brief, while also taking into consideration the resources that are available, as well as building in contingencies.</p> <p>A greater sense of independence will be instilled with the year 11s through the use of the learning journals that they have produced on the different engineering process throughout previous learning. They will use this to help recall knowledge to work independently during the manufacturing stages. During each stage of manufacture students will have to show understanding of an awareness and application of Health and Safety practices.</p>					<p>Unit 3 External preparation. Solving Engineering Problems</p> <p>Students will be given the opportunity to apply their knowledge again at the end of year 11 for the external unit.</p>		
Impact of our curriculum:							

Progress is measured within lessons, and over terms, years and key stages. In lessons, progress is measured through quizzes, interactive multiple choice questioning and through marking. Feedback plays a crucial role in assessing depth of student understanding and analysing other students' answers allows students to assess their own progress based upon the feedback from the teacher.

Mastery is achieved through regular opportunities to practice recalling key information, and redrafting and improving work based on feedback from the teacher. I can do statements are tracked throughout the year and tested in a summative assessment at the end of each topic and cumulatively at the end of the year. Data from end of topic tests will be entered into a spreadsheet for teachers to use to review and reteach parts of the curriculum. Gaps are addressed and closed at the end of each topic to ensure students have a solid understanding before another topic is taught. This may lead to classes starting topics in different weeks, but will ensure all students are secure in their understanding. Key terms and processes will be learnt and tested fortnightly, but also on key terms from previous lessons in order to practice recall and retrieval.

Engagement in engineering will be evident in a healthy uptake for KS4 courses. Conversations about engineered products and completion of practical outcomes will demonstrate the student's understanding in applying their engineering knowledge. The diverse and knowledge rich curriculum at Hadley Learning Community Academy should develop confident and articulate engineers who want to learn more about the engineering and manufacturing world around them.

Wider Curriculum offer

The following sections clarify how areas such as Personal development, Careers and Cultural Capital are woven into the intention, implementation and impact of the subject curriculum

Personal Development within our curriculum	
Personal Development	<p>The personal development for Students who study Design Technology / Engineering / Food at HLC will be successful, enthusiastic, and resilient and produce creative work, exploring their ideas and recording their experiences.</p> <p>Students will become proficient in researching, understanding design briefs, producing design ideas and developing their making skills.</p> <p>Students will enjoy learning about how the design process works as well as the challenge of problem solving in a practical way.</p> <p>Students will learn to evaluate, analyse and understand a user's needs in relation to aesthetics, ergonomics, cost and environmental concerns. They will be able to produce creative solutions in response to a design brief. They will develop an ability to interpret, make judgments and express opinions and show respect for the work others.</p> <p>Students will be inspired by the way in which Design Technology / Engineering have influenced the world around them, they will look at our past in order to design for the future.</p> <p>Our team aim to create a learning environment in which students feel they belong and are safe and supported in their creative journey.</p>

SMSC	<p>Spiritual</p> <ul style="list-style-type: none"> • Explore creativity and imagination in the design and construction of Engineered products • Promote self-esteem through the presentation of your work to others • Explore how ideas in Engineering have inspired others. • Create / Design Engineered products which incorporate your beliefs. <p>Moral</p> <ul style="list-style-type: none"> • Encourage respect for other people’s views and opinions. • Encourage respect for the Design/ workshop rooms and the equipment you use and how this affects others. • Encourage respect in the use of materials and processes and their impact on the environment – for example, the use of plastic materials and non-renewable resources. • Explore moral issues around the design of products - For example, copyright and plagiarism, cultural beliefs. • Explore the promotion of moral issues through environmental issues and designs. <p>Social</p> <ul style="list-style-type: none"> • Encourage students to assist one another in problem solving. • Encourage appropriate social behaviours in the classroom including listening whilst others are talking and generally interacting as caring a community. • Encourage good practice and respect of others work. <p>Cultural</p> <ul style="list-style-type: none"> • Encourage the sensible use of digital technology in the classroom and homework situations given that you are currently living in a digitally cultural environment. • Encourage an awareness and appreciation of the digital divide and to be aware of differing cultural and spiritual or religious views towards engineered process and products. • Empowering students to apply their design and making skills and knowledge to the wider curriculum and acknowledge links between subjects. <p><u>Fundamental British Values for our students:</u> As part of design technology / Engineering courses that we deliver the importance of:</p> <ul style="list-style-type: none"> • Health and Safety and copyright legislation will always be taught. • The Equality Act
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	<ul style="list-style-type: none"> • Behaviour (Rule of Law, Safety, Roles and Responsibilities of themselves and others). • Tolerance and mutual respect. • Legislation which directly impacts on learners' work can provide an opportunity to discuss how these laws have come about through the democratic system and as a result of the use of the democratic system to achieve change. Examples such as: Newspaper, TV, radio and social media campaigns to introduce new laws.
Extra-Curricular & Enrichment	As a department we are keen to promote and develop the student's enthusiasm for design technology and we offer year 7 and 8 design and make clubs. The rationale behind the running of the clubs is that they have a more hands on approach and to make it a fun environment to learn and develop their skills and confidence in using tools and machinery correctly and safely.
Careers/Work Experience	
Careers	Engineering can lead you into many different avenues of possibilities, the careers that it can lead to range from, mechanical, structural, civil, aerospace, avionics, design (CAD/CAM) engineering, architect, architect technician, draftsman working on technical drawings.
Work Experience Offer & Staff Work Experience	<p>Students are encouraged to actively look for engineering work experience placements within the local area, a number of past students have taken up apprenticeships with local companies including CAT.</p> <p>Staff that work in the department have a full range of experience ranging from product design degrees to industrial engineering experience.</p>
Cultural Capital	
Ofsted Definition	<p><i>It is the essential knowledge that pupils need to be educated citizens, introducing them to the best that has been thought and said and helping to engender an appreciation of human creativity and achievement.</i></p> <p>Engineering successfully helps to install a sense of creativity, belonging and that engineering is at the heart of a rapidly developing technological advances within society. Engineering helps the pupils to understand the continually changing world around them. It helps them to develop the necessary skills for success in the ever developing environment that we live. The skills that they will develop are:</p> <p>Creativity and Innovation; Critical thinking and Problem Solving; Communication; Collaboration; Career and Life Skills; Information Management; Cultural and Social Awareness:</p>

	<p>Engineering gives students a toolkit of skills to be able to understand, manage or resolve concerns encountered while learning. It is these tool that will help prepare our students for real world applications and for the workplace requirements.</p>
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