

CoDA Curriculum Construction



Improving the life chances of all students

Design + Innovation

The Key Stage 3 Design + Innovation curriculum combines the KS3 National curriculum for Design and technology with the KS3 National curriculum for Computing.

For the first 13 weeks of Year 7 learners complete an Introduction to D+I unit, where they experience different subject areas within the faculty. After this they commence a regular carousel rotation program until the end of Year 8, where they do units of work in: Food and Cookery (lunchtime and world foods); Fashion and Textiles (cultural influences: Mexico and Japan); Design and Technology: Material Properties (polymers and metals); Design and Technology: Systems and Devices (mechanisms and electronics); and Information and Computer Technology (e-Safety, computing basics, and Programming).

In Year 9, learners have the opportunity to study a curriculum designed to join the skills and knowledge developed in Years 7 and 8 to those needed for subjects which may be taken in Year 10. The Year 9 units of work are: Food and Cookery (food for life); Fashion and Textiles (clothing and accessories); Design and Technology: Materials (timbers); Computer-Aided Design (Fusion360); and Creative iMedia (visual identity and digital graphics).

The Key Stage 4 Design + Innovation curriculum intends to give learners the skills and knowledge needed to make progress onto the next step following their secondary education, and currently includes qualifications in: Business; Construction; Creative iMedia; Design and Technology; Engineering Manufacture; Fashion and Textiles; and Food and Cookery.

Construction Curriculum Intent

We aim to deliver a curriculum that will give students the skills and knowledge to:

- Develop practical skills in Joinery/Carpentry, Tiling, and Electrical Installation through hands-on workshop training.
- Understand industry-relevant knowledge such as building regulations, sustainable practices, and construction principles.
- Apply safe working practices and risk management following Health & Safety regulations.
- Gain real-world experience through projects and exposure to industry partners.
- Explore career pathways and progression opportunities within the construction and built environment sector.

Why Study Construction?

The built environment sector is a diverse sector covering a wide range of occupations from handyman services to major infrastructure projects. According to the UK Standard Industrial Classification of Economic Activities (2007), the construction industry, including building services occupations, involves general and allied construction activities for buildings and civil engineering works. In addition to the erection of buildings and structures, these works also include repairing and renovating.

The sector is expansive, comprising 10% of the UK economy. However, only a third of employers in the construction sector believe that there is a talent pool sufficient to meet the industry's needs. This is despite construction being considered an increasingly attractive industry to young people, and despite there being more and more young people who are actively considering a career in construction.

There are many employment opportunities in the construction industry and the demand for workers is not currently being met; in 2018, more than two fifths of employers said that they had tried to recruit skilled workers and of those, nearly half had difficulties filling the positions. The wide and diverse range of careers in construction include manual and professional occupations, and many require further education and training either through apprenticeships or further and higher education.

At CoDA we have dedicated Construction teachers and a Construction classroom/suite. The yearly investment is in excess of £1500 in materials for the students to use to demonstrate their learning and understanding of construction processes. As a result, student engagement is high in lessons with fantastic assessed pieces being produced each year. This leads to some of the highest progress results in the school each year.

Unit 1 introduces students to the built environment and provides them with the opportunity to develop skills, knowledge and understanding in identifying, explaining and evaluating different ideas and concepts of the built environment. Students will explore a range of professions and trade roles, and some of the different structures and buildings of the built environment.

Unit 1 is externally assessed through a written examination available in May/June each year. The exam lasts 1 hour 30 minutes and is marked out of 80. The format of the exam is objective responses, short and extended answer questions based around applied situations. Students may be required to use stimulus material to respond to questions. This assessment contributes 40% to the overall qualification grade.

Unit 3 offers students the opportunity to develop skills, knowledge and understanding of three construction trade areas of the built environment, including planning, undertaking and evaluating construction tasks. At CoDA we look closely at Joinery and panelling for stud walling, Electrical installation and Tiling. These three construction areas form the basis of the qualification's practical assessment.

Unit 3 is internally assessed through controlled assessment available in May each year. This assessment contributes 60% to the overall qualification grade.

At Key Stage 4 students will follow the specifications:

Qualification Title	WJEC Level 1/2 Vocational Award in Construction and the Built Environment.
DfE Qualification Type	Technical Award
Ofqual QN	603/7015/4
WJEC Qualification Code	E819QA
First Teaching	2022

Construction Curriculum Intent Years 10 – 11.

At CoDA, our Construction curriculum is meticulously crafted to provide a comprehensive and hands-on education that prepares students for successful careers in all elements of the construction sector. At CoDA we focus on Joinery/Carpentry, Tiling, and Electrical Installation. We are committed to fostering craftsmanship, technical skills, and safety within our students, ensuring they are well-equipped for the demands of the construction industry. Our curriculum focuses on the following:

Specialised Skill Development: Our curriculum places a strong emphasis on the acquisition of specialised skills in Joinery/Carpentry, Tiling, and Electrical Installation. Students receive hands-on training in our workshops, enabling them to master the techniques and tools essential for success.

Industry-Relevant Knowledge: Beyond practical skills, our curriculum provides students with a solid theoretical foundation. They explore the principles of construction, building regulations, and sustainable practices, ensuring they have a well-rounded understanding of the industry.

Health and Safety Focus: Safety is paramount in the construction industry. Our curriculum instills a culture of safety consciousness, teaching students to identify and mitigate risks. This includes practical training in the correct use of tools and machinery, as well as understanding and adhering to safety protocols.

Real-World Application: We believe in learning by doing. Our students engage in real-world projects that simulate the challenges of the construction industry. This hands-on approach allows them to apply their skills in authentic scenarios, building confidence and competence.

Industry Partnerships: We foster strong connections with local businesses and industry professionals to provide students with valuable insights and opportunities. Guest talks, site visits, and placements to external Alternative Provisions enhance the curriculum, exposing students to the realities of the construction field and establishing meaningful connections for future career pathways.

Multi-Disciplinary Approach: Recognising the interconnected nature of construction trades, our curriculum encourages a multi-disciplinary approach. Students gain exposure to related disciplines, fostering collaboration and a holistic understanding of how various trades contribute to successful construction projects.

Adaptability and Innovation: The construction industry is dynamic, and our curriculum reflects this reality. We emphasize adaptability and innovation, ensuring students are equipped to embrace emerging technologies and evolving industry standards.

Career Pathway Guidance: Our commitment extends beyond the classroom. We provide dedicated career guidance, helping students explore various pathways within the construction industry and supporting them in making informed decisions about their future.

At CoDA, our Construction curriculum is more than a set of lessons; it's a pathway to a fulfilling and successful career in Joinery/Carpentry, Tiling, and Electrical Installation. We are dedicated to empowering our students with the skills, knowledge, and mindset needed to excel in the construction industry and make meaningful contributions to the built environment.

Construction Year 10 Curriculum

<p>Topic</p>	<p>1.1 The sector. In this section, learners will gain knowledge and understanding of the following areas in construction and the built environment sector:</p> <ul style="list-style-type: none"> • buildings and structures • infrastructure and civil engineering products • building services engineering • professional and managerial roles and responsibilities associated with the built environment sector. 	<p>1.2 The Built Environment life cycle. In this section learners will gain knowledge and understanding of the built environment life cycle, specifically:</p> <ul style="list-style-type: none"> • raw material extraction • manufacturing • construction • operation and maintenance • demolition • disposal, reuse or recycling. 	<p>1.3 Types of building and structure. In this section learners will gain knowledge and understanding of the features and characteristics of:</p> <ul style="list-style-type: none"> • different forms of infrastructure construction • residential dwellings • commercial buildings • industrial buildings • agricultural buildings • community buildings • religious buildings • recreational buildings. 	<p>1.4 Technologies and materials. In this section learners will gain knowledge and understanding of tools, technologies and materials used in the construction and built environment sector:</p> <ul style="list-style-type: none"> • main elements and components of low-rise buildings • main materials involved in constructing walls, installing building services, fitting roofs and finishing interiors • renewable technologies and materials, including heat pumps, wind turbines and solar panels. 	<p>1.5 Building structures and forms. In this section learners will gain knowledge and understanding of the following building structures and forms:</p> <ul style="list-style-type: none"> • cellular constructions • rectangular frame constructions • portal frame constructions • heritage and traditional methods. 	<p>1.6 Sustainable construction methods. In this section learners will gain knowledge and understanding of issues related to sustainable construction methods:</p> <ul style="list-style-type: none"> • the environmental, financial, cultural, and social benefits of sustainable construction methods • pollution and the preservation of the natural environment and natural habitats • sustainable materials used to create building frames, walls, roofs • waste disposal, re-use and recycling • planning permission, brownfield sites and greenfield sites. 	<p>1.7 Trades, employment and careers. In this section, learners will gain knowledge and understanding of the following:</p> <ul style="list-style-type: none"> • bricklaying • stonemasonry • plastering • carpentry and joinery • electrical installation • plumbing installation • painting and decorating • flooring and tiling. 	<p>1.8 Health and safety. In this section learners will gain knowledge and understanding of health and safety in relation to:</p> <ul style="list-style-type: none"> • risks for employees, employers and the public during construction and the built environment projects • following procedures and carrying out risk assessments • relevant legislation, including Health and Safety at Work Act and Control of Substances Hazardous to Health (COSHH) regulations • using personal protective equipment (PPE) • safely working with gas, water and electricity • working at height and in enclosed spaces.
<p>End Points (Knowledge and Skills)</p>	<p>The following topic areas will be covered during the following half terms of year 10:</p> <p>Autumn 1 – Topic area 1.1 The Sector</p> <p>Autumn 2 – Topic area 1.2 The Built Environment life cycle & 1.3 Types of building and structure</p> <p>Spring 1 – Topic area 1.4 Technologies and materials</p> <p>Spring 2 – Topic area 1.5 Building structures and forms & 1.6 Sustainable construction methods</p> <p>Summer 1 – Topic area 1.7 Trades, employment and careers & 1.8 Health and safety</p> <p>Summer 2 – Beginning of NEA (Unit 3) – half the year on <u>practical 1</u> (topic area 3.7 Carrying out techniques) and half beginning the written aspect (topic area 3.1 Interpreting technical sources of information).</p>							

<p>What is assessed?</p>	<p>As set by the exam board, the assessment objectives for this specification are as follow: 24% AO1 Demonstrate knowledge and understanding from across the specification. 11% AO2 Apply skills (including practical skills), knowledge and understanding in a variety of contexts and in planning and carrying out investigations and tasks. 5% AO3 Analyse and evaluate information, making reasoned judgements and presenting conclusions. 40% Of their overall GCSE grade.</p>							
<p>Key Vocabulary</p>	<p>Building Structures Residential Non-residential Substructure Superstructure Bridges Roads Infrastructure Civil engineering Mechanical services Electrical services Professional roles Professional associations</p>	<p>Raw Materials Oil/Gas Extraction Tree Felling Quarry Extraction Mining Extraction Manufacturing Sawn Timber Manufactured Boards Beam and Column Rolled Steel Joist Alteration Conversion Renovation Disposal, Recycle & Reuse</p>	<p>Infrastructure Harbour/Port Residential Dwelling Commercial Industrial Agricultural Community Religious Recreational</p>	<p>Primary Structure Secondary Structure Shallow Foundation Deep Foundations Load Bearing Insulating Top Plate Sole/Base Plate Stud & Noggin Joist Renewable Technologies</p>	<p>Cellular Rectangular Frame Portal Frame Apex, Rafter Knee/Footing Bracket Cold-Formed Steel Heritage/Traditional</p>	<p>Sustainable Energy Efficiency Pollution Preservation Protected Areas Planning Permissions Brownfield Sites Greenfield Sites</p>	<p>Bricklayer Stonemason Plasterer Joiner Carpenter Electrician Plumber Painter and Decorator Floor Layer Tiler</p>	<p>Fatal & Non-Fatal Risk Hazard Control Measure Legislation Health & Safety Executive (HSE) Control of substance Hazardous to Health (COSHH) Reporting of Injuries, Diseases & Dangerous Occurrences Regulations (RIDDOR) Personal Protective Equipment (PPE)</p>
<p>Literacy Skills Developed (Writing/Oracy/ Tier 2)</p>	<p>Literacy skills developed through quality teacher craft and an embedded high expectation regarding the presentation of books. Sentence starters and tiered key words are provided every theory lesson. Opportunities taken for oracy when appropriate.</p>							
<p>Career Links (Employability Skills, Career Opportunities)</p>	<p>Individual lessons are delivered specifically on the following construction careers:</p> <ul style="list-style-type: none"> • Designer/Architect • Civil/Structural Engineer • Contracts Manager and Site Manager • Surveyor • Quantity Surveyor 	<ul style="list-style-type: none"> • Mining Engineer • Geologist • Environmental Engineer • Blasting Engineer • Mineralogist 	<ul style="list-style-type: none"> • Civil Engineer • Urban Planner • Surveyor • Highway Engineer • Telecommunications Engineer 	<ul style="list-style-type: none"> • Renewable Energy Consultant • Solar Panel Installer • Wind Turbine • Sustainable Building Material Specialist • Smart Home Technician 	<ul style="list-style-type: none"> • Stone Mason • Carpenter • Traditional Thatcher • Plasterer • Blacksmith • Stonemason • Historic Preservationist • Dry Stone Waller • Coppersmith • Woodcarver 	<ul style="list-style-type: none"> • Waste Management Specialist • Hazardous Waste Technician • Environmental Compliance Officer • Landfill Manager • Sanitation Worker 	<p>Individual lessons are delivered specifically on the following construction careers:</p> <ul style="list-style-type: none"> • bricklaying • stonemasonry • plastering • carpentry and joinery • electrical installation • plumbing installation • painting and decorating • flooring and tiling 	<ul style="list-style-type: none"> • Fire safety Officer • Risk Manager • Compliance Officer • Public Health Inspector • Safety Consultant • Vehicle Safety Inspector

SMSC Links	<p>Social:</p> <ul style="list-style-type: none">• Collaboration in practical workshop tasks• Teamwork when planning and completing projects• Developing communication skills through oracy tasks <p>Moral:</p> <ul style="list-style-type: none">• Understanding responsibility for safe practice in construction• Considering ethical implications of sustainability and waste management• Respecting the built environment and communities affected by construction <p>Spiritual:</p> <ul style="list-style-type: none">• Appreciation of craftsmanship and traditional construction methods• Reflection on personal growth through practical skill development• Sense of achievement in completing high-quality practical tasks <p>Cultural:</p> <ul style="list-style-type: none">• Exploring heritage and traditional construction methods• Recognising global influences on modern construction techniques• Understanding how construction impacts diverse communities and environments
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Construction Year 11 Curriculum

Topic	<p>3.1 Interpreting technical sources of information. In this section learners will gain knowledge, understanding and skills in interpreting a range of technical sources of information, using the symbols, conventions and terminology of:</p> <ul style="list-style-type: none"> • specifications • building regulations • drawings • design briefs. 	<p>3.2 Planning and organising work. In this section learners will gain knowledge, understanding and skills in planning and organising work that meets specific requirements, including how work is sequenced, planned to meet deadlines and compliant with relevant health and safety practises.</p>	<p>3.3 Identifying resource requirements. In this section learners will gain knowledge, understanding and skills in identifying resource requirements, for the three selected trade areas, to meet design requirements:</p> <ul style="list-style-type: none"> • tools • equipment • personal protective equipment (PPE) • materials based on characteristics, qualities, sustainability, and limitations. 	<p>3.4 Calculating the materials required. In this section learners will gain knowledge, understanding and skills in calculating the materials required to complete construction tasks that meet design requirements, in relation to:</p> <ul style="list-style-type: none"> • volume • area • perimeter • time • ratio. 	<p>3.5 Writing and setting success criteria. In this section learners will gain knowledge, understanding and skills in writing and setting appropriate project success criteria to meet the requirements of set briefs, with respect to:</p> <ul style="list-style-type: none"> • levels of tolerance • timescales • quality. 	<p>3.6 Prepare for construction tasks. In this section learners will gain knowledge, understanding and skills in preparing materials and undertaking any other required preparations for each selected task, with regard to:</p> <ul style="list-style-type: none"> • the properties of common materials required to complete construction tasks (for the three selected trade areas). 	<p>3.7 Carrying out techniques. In this section learners will gain knowledge, understanding and skills in carrying out techniques, focussing on:</p> <ul style="list-style-type: none"> • the processes involved in carrying out simple construction tasks (in each of the three selected trade areas). 	<p>3.8 Removing and disposing of materials. In this section learners will gain knowledge, understanding and skills in removing and safely disposing of materials used in carrying out three of the above techniques, focussing on safe and environmentally responsible means of recycling of materials.</p>	<p>3.9 Working practices that promote health and safety. In this section learners will gain knowledge, understanding and skills in working practices that promote their own health and safety and that of others, developing an awareness of health and safety practices related to each of the three selected trade areas, including:</p> <ul style="list-style-type: none"> • ensuring the cleanliness and safety of work areas • correct personal protective equipment. 	<p>3.10 Evaluating construction tasks. In this section learners will gain knowledge, understanding and skills in evaluating the quality of completed construction tasks, including how outcomes can be evaluated:</p> <ul style="list-style-type: none"> • requirements of the brief • personally-set success criteria • needs of end users, including their safety.
<p>End Points (Knowledge and Skills)</p>	<p>The following topic areas will be covered during the following half terms of year 11:</p> <p>Year 10: Summer 2 – Beginning of NEA (Unit 3) – half the year on <u>practical 1</u> (topic area 3.7 Carrying out techniques) and half beginning the written aspect (topic area 3.1 Interpreting technical sources of information).</p> <p>Autumn 1 – GROUP SWAP Continuing of NEA (Unit 3) – half the year on <u>practical 1</u> (topic area 3.7 Carrying out techniques) and half beginning the written aspect (topic area 3.1 Interpreting technical sources of information).</p> <p>Autumn 2 –The cohort will complete the written aspect of topic area 3.2 Planning and organising work, topic area 3.3 Identifying resource requirements & topic area 3.4 Calculating the materials required.</p> <p>Spring 1 – The cohort will complete the written aspect topic area 3.5 Writing and setting success criteria & topic area 3.6 Prepare for construction tasks. During this half term students will complete <u>practical 2</u> of the NEA within topic area 3.7 Carrying out techniques.</p> <p>Spring 2 – The cohort will complete the written aspect topic area 3.8 Removing and disposing of materials topic area, 3.9 Working practices that promote health and safety & topic area 3.10 Evaluating construction tasks. Throughout this half term students will complete <u>practical 3</u> of the NEA within topic area 3.7 Carrying out techniques.</p> <p>Summer 1 – Revision of Unit 1 in preparation for the exam.</p>									
<p>What is assessed</p>	<p>As set by the exam board, the assessment objectives for this specification are as follow:</p> <p>3% AO1 Demonstrate knowledge and understanding from across the specification.</p> <p>39% AO2 Apply skills (including practical skills), knowledge and understanding in a variety of contexts and in planning and carrying out investigations and tasks.</p> <p>18% AO3 Analyse and evaluate information, making reasoned judgements and presenting conclusions.</p> <p>60% Of their overall GCSE grade.</p>									

Key Vocabulary	Specification Design brief Client Drawing plan Elevation Scale Dimensions Symbols Tolerances	Sequence Gantt chart Dependencies Logistics Timescale Deadline Constraints Compliance	Tools Equipment PPE Materials Sustainability Limitations Quantities	Measurement Perimeter Area Volume Coverage Ratio Proportion Unit conversion Time estimation Wastage	Success criteria Tolerance Quality standard Timescale Surface finish	Datum Reference lines Marking out Templates Jigs Cutting list Tool selection Safe working	Joinery: measuring, marking, cutting, planning; pilot hole, countersink; fixings; joints; sanding, finishing Tiling: setting-out lines, adhesive, notched trowel, back-buttering, tile spacers, grout, trim, levelling, cuts Electrical: cable identification, stripping & termination, connector blocks, containment, basic continuity checks, safe isolation quality checks: level, plumb, square, alignment, spacing workflow: dry-fit → fix → finish → clean down	Deconstruction Sequencing Reuse Recycling Disposal COSHH Duty of care Contamination Signage	Hazard Risk Control measure Risk assessment PPE Safe isolation Manual handling Signage Barriers HSE HSWA COSHH RIDDOR Incident First-aid	Evaluation Review Reflection Success criteria Tolerance checks Functionality Performance feedback
Literacy Skills Developed (Writing/Oracy/Tier 2)	Literacy skills developed through quality teacher craft and an embedded high expectation regarding the presentation of books. Sentence starters and tiered key words are provided every theory lesson. Opportunities taken for oracy when appropriate.									
Career Links (Employability Skills, Career Opportunities)	Throughout the year students will complete 3 practical tasks based on 3 of the following trade areas: <ul style="list-style-type: none"> • Textiles • Wood • Brick • Plaster • Tiles • Electrical • Plumbing • Heritage 									

SMSC Links	<p>Social:</p> <ul style="list-style-type: none">• Collaboration in practical workshop tasks• Teamwork when planning and completing projects• Developing communication skills through oracy tasks <p>Moral:</p> <ul style="list-style-type: none">• Understanding responsibility for safe practice in construction• Considering ethical implications of sustainability and waste management• Respecting the built environment and communities affected by construction <p>Spiritual:</p> <ul style="list-style-type: none">• Appreciation of craftsmanship and traditional construction methods• Reflection on personal growth through practical skill development• Sense of achievement in completing high-quality practical tasks <p>Cultural:</p> <ul style="list-style-type: none">• Exploring heritage and traditional construction methods• Recognising global influences on modern construction techniques• Understanding how construction impacts diverse communities and environments
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