



Teacher Pack Sample

Introduction

These sample pages - from the Construction and the Built Environment Teacher Pack, 1st edition - give you an overview of the approach and depth of treatment you can expect and the various learning features the resources contain. The map of resources describes the full content of Components 1 and 3, and should be an invaluable aid to lesson planning for the course.

On the following pages you will find:

Component 1 (page 3)

Learning outcome C: Explore how superstructures are constructed

Activity sheet 1.16: Traditional walls

PowerPoint 1.16: Traditional walls

Component 2 (page 10)

Learning outcome A: Be able to understand hazards and risk for safe production of a practical construction outcome

Activity sheet 2.7: Brickwork: Tools for measuring and marking out

Activity sheet 2.8: Carpentry and joinery: Tools for measuring and marking out

PowerPoint 2.7: Measuring, marking and setting out

Component 3 (page 19)

A: Understand the needs of a client and the constraints on design when designing a low-rise building

Activity sheet 3.8: Budgets

PowerPoint 3.8: Constraints on design

Table of resources (page 24)

This includes resources for Components 1 and 3 in the BTEC Tech Award in Construction and the Built Environment Teacher Pack, organised by component.

Please note that these sample resources are taken from early proofs of the Teacher Pack, so may not reflect the exact contents that will be contained in the published Pack. The published Pack may include amendments or adjustments made during final proofreading and checking.

The content of this 1st edition has been written for the new specification and assessment arrangements for the 2022 BTEC Tech Award qualification.

The aims and scope of the Teacher Pack

The Teacher Pack - which is being hosted on Pearson's ActiveLearn platform - has been designed to support the delivery of the BTEC qualification in Construction and the Built Environment and provides a range of resources aimed at supporting a variety of teaching, learning and assessment styles. The pack contains:

- activity sheets
- slide presentations

In the live Teacher Pack, these resources can be downloaded by clicking on the hotspots in the table of contents. They can be downloaded individually, or a complete component at a time.

All of the resources can be edited, adapted and tailored to meet the needs of your learners. They are designed to be as flexible as possible, offering you a range of different delivery options.

You could:

- work through the table of resources, using the resources in sequence or in any order you prefer
- create playlists for specific lessons using selected resources, adding your own resources where you wish
- download all resources individually, or with a single click, and save them to your computer or network.

Playlists can be customized to include your own resources or weblinks. You can upload documents to the playlist and add weblinks, such as YouTube links or websites.

Many of the resources can be used independently by learners if desired. A number of tasks are suitable for either classroom or homework. Learners will need a printed worksheet for the relevant activity or task if completing it at home.



Component 1

Learning outcome C: Explore how superstructures are constructed

Activity sheet 1.16: Traditional walls

PowerPoint 1.16: Traditional walls

Learning aim C: Explore how superstructures are constructed

Learning aim C1: Superstructures - walls

1. Give three functions of a wall.

2. Discuss how the components of a wall opening help to meet the performance requirements of the wall.

DRAFT




3. Sketch and label a cross section through a window head.

DRAFT

Component 1: Construction technology

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Construction and the Built Environment
Component 1: Construction Technology
Learning aim C

Traditional walls



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Explain how traditional construction uses walls built out of bricks and blocks. This photograph shows cavity walls with an external leaf in facing bricks and an internal leaf constructed of blockwork. The cavity will be filled with cellulose insulation. You can see the lintels above the window openings to support the brickwork above.

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Component 1: Construction Technology
Learning aim C

Functions of a wall and wall openings

- Functions of a wall are to:
 - resist heat transfer
 - reduce sound transmission
 - transfer loads to foundations
 - provide shelter
 - provide security.
- Functions of a wall opening are to:
 - provide ventilation
 - provide light
 - provide views (be able to see out)
 - provide access.

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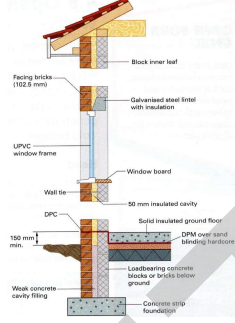
Use this slide to explain the functions of a cavity wall. Use the cross section provided on the next slide to explain how this is achieved for a typical cavity wall. Discuss the head and sill detailing of the opening.

Component 1: Construction technology

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Component 1: Construction Technology
Learning aim C

Functions of a wall and wall openings

- The image to the right shows a cross section through a typical cavity wall.




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Component 1: Construction Technology
Learning aim C

Partitions

- Partitions can be:
 - solid blockwork – usually loadbearing at ground floor level and often provide support for upper floors
 - timber stud (top image) – the vertical timbers are called studs and they run from a floorplate and a headplate. The short timbers between the studs are called noggins and they stiffen the structure
 - metal stud (bottom image) – a modern form of construction. Components are crimped together.



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Both methods will be covered in plasterboard.

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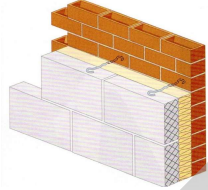
Use this slide to explain the three types of partition listed. Explain the difference between loadbearing and non-loadbearing partitions. Point out the first fix electrics in the upper image.

Component 1: Construction technology

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Construction and the Built Environment
Component 1: Construction Technology
Learning aim C

Cavity walls

- This image shows a typical cavity wall detail with full fill cavity wall insulation.
- Wall ties hold the brickwork and blockwork together and provide stability. Wall ties are spaced at:
 - 900mm centres horizontally
 - 450mm centres vertically
 - 225mm centres alongside openings (could be 300mm centres but blocks are 225mm per course).
- Materials used in cavity walls: thin joint masonry, lightweight thermal blockwork, high-density blockwork, facing bricks, engineering bricks, stone, mortar, cavity wall insulation.



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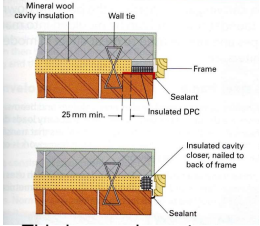
Pearson

Use this slide to explain cavity wall construction.

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Construction and the Built Environment
Component 1: Construction Technology
Learning aim C

Components of a wall opening

- The following are components of a wall opening:
 - lintel
 - sill
 - threshold
 - damp proof course (DPC)
 - cavity tray (a form of DPC at the head of the opening over the lintel)
 - cavity closure
 - weepholes.



This image shows two different jamb details.

A jamb is the vertical side of a wall opening.

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Use this slide and the next to explain the components of a wall opening. The image shows the cross-section detail through two different jambs of openings, explain how continuity of insulation is achieved and how potential damp transfer is dealt with at the point of cavity closure.

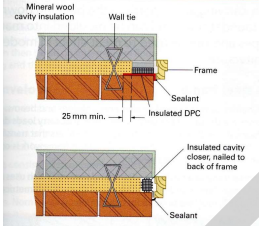
Component 1: Construction technology

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Construction and the Built Environment
Component 1: Construction Technology
Learning aim C


Components of a wall opening

Detailing of openings should:

- prevent damp transfer
- provide continuity of insulation
- maintain structural integrity
- provide load distribution.

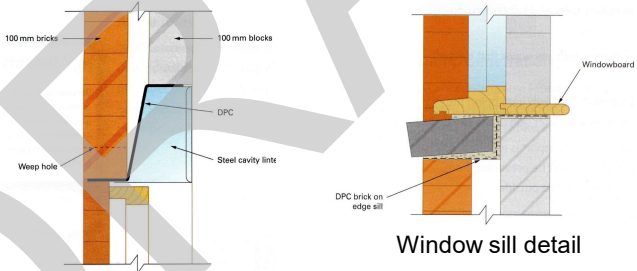


This image shows two different jamb details.
A jamb is the vertical side of a wall opening.

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Learning aim C

Detailing around wall openings



Opening head detail
(door or window)

Window sill detail

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Use this slide to explain the window head and window sill details. Note that cavity wall insulation is omitted for clarity.

Comment on the:

- use of lintel
- use of DPCs including tray DPC
- use of sill weathering (falls) and drips
- reason for the weepholes.



Component 2

Learning outcome A: Be able to understand hazards and risk for safe production of a practical construction outcome

Activity sheet 2.7: Brickwork: Tools for measuring and marking out

Activity sheet 2.8: Carpentry and joinery: Tools for measuring and marking out

PowerPoint 2.7: Measuring, marking and setting out

Activity sheet 2.7: Brickwork: Tools for measuring and marking out

Learning aim A: Be able to understand hazards and risk for safe production of a practical construction outcome

A2 Measuring, marking and setting out

You will develop knowledge and understanding of the uses of different measuring, marking and setting-out tools used in the industry to construct a practical outcome. You will be able to demonstrate safe working and vocationally correct techniques when using these tools to accurately measure, mark and set out. Additionally, you will understand how to correctly interpret construction specifications and drawings in order to measure, mark and set out materials to construct a practical outcome.

Answer the following questions about brickwork.

1. What is the depth of a standard brick?

2. What is the standard depth of a brick joint?

3. What is the depth of one course of bricks?

4. How many courses of bricks are in 450mm high brick wall?

Activity sheet 8: Carpentry & Joinery: Tools for measuring and marking out

Learning aim A: Be able to understand hazards and risk for safe production of a practical construction outcome

A2 Measuring, marking and setting out

You will develop knowledge and understanding of the uses of different measuring, marking and setting-out tools used in the industry to construct a practical outcome. You will also be able to demonstrate safe working and vocationally correct techniques when using these tools to accurately measure, mark and set out. Additionally, you will understand how to correctly interpret construction specifications and drawings in order to measure, mark and set out materials to construct a practical outcome.

Answer the following questions about tools.

1. What tool would you use for marking out a line?

2. What tool allows for a 45 degree line to be marked accurately?

3. What is a setting out rod?

4. What tool is used to set out a mortice joint?

Component 2: Construction in Practice

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Tech Award Level 1/2
Construction and the Built Environment
Component 2: Construction and Design
Learning outcome A

A2 Measuring, marking and setting out

- **Learning outcome A: Be able to understand hazards and risk for safe production of a practical construction outcome**
- Learners will develop knowledge and understanding of the uses of different measuring, marking and setting-out tools used in the industry to construct a practical outcome. They will be able to demonstrate safe working and vocationally correct techniques when using these tools to accurately measure, mark and set out. Additionally, learners will understand how to correctly interpret construction specifications and drawings in order to measure, mark and set out materials to construct a practical outcome.

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This session is all about the marking out of brickwork using various tools.
The common setting out tools will be illustrated.
You could use actual tools with a quiz to engage learners.

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Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- **Pencil** – used to mark out on brickwork so it can be rubbed out and removed and not damage the facework.



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This is often called a carpenter's pencil.
Why is it rectangular in shape?
So it won't roll away!

Component 2: Construction in Practice

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Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- **Tape** – used to measure metric lengths in 10mm increments.



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Explain that this is a standard tape measure available in various lengths
A ruler isn't used in brickwork any more.

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Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- **Builders square**
 - Explore the internet and find a builders square - does it fold flat?

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Student activity to research a builders square.

Answer: This folds out and locks and creates a perfect 90 degree corner that can then be used to set out a corner of a building.

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Construction and the Built Environment
Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Corner profiles – this allows courses to be gauged and a string line hung between profiles that can easily be moved up with each course.
- Watch the video
- <https://bricky.com/building-tools/marshall-profiles/>

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A great video to demonstrate the use of a corner profile to build walls.

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Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Watch this video about the gauge rod:
- <https://www.youtube.com/watch?v=b41BMxF2HJ4>

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You can see the timber gauge rod that has cuts across it at the gauge required for the brick that has been used.

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Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Spirit level – used to check horizontal and vertical alignment of the brickwork.




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Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Line and pins – used to provide a straight line to lay a course of bricks to from corner to corner.
- The pin is pushed into the joint at a corner.



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The pin is pushed into the joint and the line stretched across so it can be followed as the bricks are laid.

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Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Line and pins – Setting up a line and pin.
- <https://www.youtube.com/watch?v=8dB9Jk2CMWo>


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Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Corner blocks



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A simple timber corner block.

The red plastic ones are demonstrated in the next slide.

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Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Corner blocks allow a string line to grip a corner.



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Component 2: Construction in Practice

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Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Tingle plate – used to stop the string line sagging under its own weight in the middle.
- Watch the video that demonstrates the use of this tool.
- <https://www.youtube.com/watch?v=10o46qlA3Hs>

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A tingle plate is used to stop the line sagging in the middle, which would cause a wall to be built incorrectly.

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Component 2: Construction and Design
Learning outcome A

Brickwork: Tools for measuring, marking out brickwork

- Straight edge – often this is a piece of timber that is checked for straightness.
- When placed diagonally across a wall, the wall should be flat against the straight edge.

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A metal straight edge can be used, but a level is used instead.

Component 3: Construction and design

Component 3

A: Understand the needs of a client and the constraints on design when designing a low-rise building

Activity sheet 3.8: Budgets

PowerPoint 3.8: Constraints on design



Activity sheet 3.8: Budgets

A: Understand the needs of a client and the constraints on design when designing a low-rise building

A2: Constraints on design – Resources

As part of this component, you will need to understand other influences and constraints on design.

Answer the following questions.

1. A client is considering the use of eternal rendering painted instead of facing brickwork.

Discuss the use of such a specification.

2. Examine the following system and establish the life cycle costs associated with the use of such a system on a domestic application

<https://www.uk.weber/webertherm-xp>

Component 3: Construction and design

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Construction and the Built Environment
Component 3: Construction and design

Constraints on design: Budget

- **Learning outcome A: Understand the needs of a client and the constraints on design when designing a low-rise building.**
- Learners will need to understand other influences and constraints on design, which include:
 - resources
 - local environment
 - local planning and building control requirements.

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Budget

- A client's budget is an important part of a building project, without which the construction phase not may even occur.
- Estimates have to be made in order to determine if a building will meet the budget constraints.

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Component 3: Construction and design

Budget: Determining size

- Determining the size of building that can be built within budget is important and this is linked to function.
- For example, you a large restaurant and a small kitchen would not work! A balance would have to be made on seating vs the kitchen to serve the guests.
- Often when designs are costed, the size of the project may be over budget and it has to be scaled down in size.

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Component 3: Construction and design

Budget: Floor area analysis

- Floor area analysis is when the floor area of a building is used to work out the budget.
- For example:
 - Cost of a retail unit = £1,750,000
 - Floor area = 250 m²
 - Cost per m² = £1,750,000 / 250 = £7000/m²

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We can now use this to budget our new proposal, this rate can be adjusted for inflation to take account of any change in time frames.

Floor area analysis as a method does have some inconsistencies in accuracy as the buildings must be very similar in terms of complexity and services.

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Construction and the Built Environment
Component 3: Construction and design

Budget: Comparison

- Comparison with similar projects is a technique that can be used to establish a fairly accurate budget.
- The RICS publish access to the Building Cost Information Service (BCIS). It publishes projects with a breakdown of costs so you can select a similar proposal and adapt to the size and shape required.
- This is a very accurate method of establishing a budget that will meet a client's needs.

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Access to BCIS is through a subscription.

Component 3: Construction and design

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Component 3: Construction and design

Budget: Initial costs and life cycle costs

- Initial costs – costs associated with the concept design and scoping of the building into a design that a client can approve and sign off on. Fees will have to be agreed with designers, structural engineers, ground worker investigations and site surveying.
- Life cycle costs – a method of exploring the whole life costs of a building and is often used to determine a comparison of a project in terms of sustainability in the long term.

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Component 3: Construction and design

Budget: Specification

- Level and range of specification available within budget – specialist skills required.
- Specification is often one of the variables that can be adjusted in order to meet a client's budget, this is termed cost value engineering.

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A specification can be linked to function. For example, a bank spends more money on the outside and the front entrance hall in order to impress customers to bank with them. Similarly, a shopping centre has very well decorated services and corridors but behind the scenes can be unpainted blockwork.

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Construction and the Built Environment
Component 3: Construction and design

Budget: Contingencies

- Contingency allowances have to be accommodated within a budget, especially when there are unknowns. For example:
 - The site has not had a ground investigation report and the foundations support is unknown.
 - Electrical and mechanical works have not been fully designed and will be estimated within the contract.
 - The client has not decided on aspects of finishes and so provisional costs are included in the contract.

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Table of resources

Key:

- PPT = PowerPoint
- AS = Activity sheet

Component 1: Construction Technology

Learning outcome A1: Low-rise construction requirements

Resource	Title	Description	Resource link
PPT 1.1	Construction technology	5 slides: Students are introduced to the learning outcomes and performance requirements of buildings and what are substructures and superstructures.	
AS 1.1	Introduction to construction technology	Students need to label parts of a building and discuss the importance of performance requirements.	
PPT 1.2	Strength and stability of buildings	6 slides: Students learn about types of structural load and testing of materials.	
AS 1.2	Strength and stability of buildings	Students need to answer questions about load types, lateral restraint and types of testing.	
PPT 1.3	Fire resistance	4 slides: Students learn about fire resistant materials, fire compartments and barriers and methods to mitigate fire.	
AS 1.3	Fire resistance	Students answer questions on fire resistance and write a report about how people are protected from fire in a public building.	
PPT 1.4	Thermal resistance	5 slides: Students learn about insulating components and materials, U values and draught proofing.	
AS 1.4	Thermal resistance	Students need to answer questions about insulation and U values.	

Construction and the Built Environment



Resource	Title	Description	Resource link
PPT 1.5	Sound reduction and absorption	4 slides: Students learn about how to reduce the passage of sound in buildings.	
AS 1.5	Sound reduction and absorption	Students answer questions about what noise is, why it is a problem and discuss what materials can be used for sound reduction.	
PPT 1.6	Water resistance	5 slides: Students learn about why buildings need to be water resistant and how they are made water resistant.	
AS 1.6	Water resistance	Students need to explain the purpose of a damp proof course and write a report on the impact of water penetration on the structure and fabric of a building.	

Component 1: Construction Technology

Learning outcome A2: Sustainability

Resource	Title	Description	Resource link
PPT 1.7	Sustainability	6 slides: Students learn about key considerations for sustainable construction.	
AS 1.7	Sustainability	Students need to answer questions about sustainable materials and discuss how alternative energies benefit sustainable development.	

Component 1: Construction Technology

Learning outcome A3: Common Structural Forms for Low-rise Construction

Resource	Title	Description	Resource link
PPT 1.8	Forms of low-rise construction	6 slides: Students learn about different forms of low-rise construction.	

Construction and the Built Environment



Resource	Title	Description	Resource link
AS 1.8	Forms of low-rise construction	Students need to write a letter to a client describing the different forms of low-rise construction.	
PPT 1.9	Timber frame construction	4 slides: Students learn about timber frame constructions and the benefits and drawbacks.	
AS 1.9	Timber frame construction	Students need to answer questions about timber frame constructions and discuss the benefits and drawbacks.	

Component 1: Construction Technology

Learning outcome B1: Preconstruction Work

Resource	Title	Description	Resource link
PPT 1.10	Preconstruction work	6 slides: Students learn about the legal requirements for preconstruction, a site layout plan and planning and preparation.	
AS 1.10	Preconstruction work	Students need to answer questions about the important activities that need to take place during preconstruction work.	

Component 1: Construction Technology

Learning outcome B2: Sub-structure Groundworks

Resource	Title	Description	Resource link
PPT 1.11	Groundworks	4 slides: Students learn about groundworks including the hazards associated with groundworks and underground services.	
AS 1.11	Groundworks	Students need to discuss the hazards associated with working in excavations.	
PPT 1.12	Principles of foundations	4 slides: Students will learn about the functions of a foundation and about construction fill patterns.	

Construction and the Built Environment



Resource	Title	Description	Resource link
AS 1.12	Principles of foundations	Students need to discuss the issues when designing the foundations for a housing development.	
PPT 1.13	Strip foundations	4 slides: Students learn about strip foundations.	
AS 1.13	Strip foundations	Students need to sketch a diagram of a strip foundation and outline the advantages of trench/mass fill concrete deep foundations.	
PPT 1.14	Raft foundations	3 slides: Students learn about raft foundations and their advantages.	
AS 1.14	Raft foundations	Students need to sketch a diagram of a raft foundation and discuss the advantages.	
PPT 1.15	Piled and pad foundations	4 slides: Students learn about piled and pad foundations and beam and block floors.	
AS 1.15	Piled and pad foundations	Students need to answer questions summarising the different types of foundations.	

Component 1: Construction Technology

Learning outcome C1: Superstructures – walls

Resource	Title	Description	Resource link
PPT 1.16	Traditional walls	6 slides: Students learn about traditional walls such as cavity walls, partitions and components of a wall opening.	
AS 1.16	Traditional walls	Students need to answer questions about wall openings and sketch a and label a cross section through a window head.	
PPT 1.17	Structural insulated panels (SIPs)	3 slides: Students learn about structural insulated panels and their use.	
AS 1.17	Structural insulated panels (SIPs)	Students need to discuss the advantages and disadvantages of SIPs construction.	

Construction and the Built Environment



Component 1: Construction Technology

Learning outcome C2: Superstructures – floors

Resource	Title	Description	Resource link
PPT 1.18	Floors	3 slides: Students learn about the different types of floor and the function of a floor.	
AS 1.18	Floors	Students need to answer questions about the different types of floor and the function of a floor and sketch a cross section of a solid concrete floor.	
PPT 1.19	Timber floors	5 slides: Students learn about timber floors, including traditional timber floors, eco-joist floors and engineered timber floors.	
AS 1.19	Timber floors	Students need to answer questions about the different types of timber floors and sketch an eco-joist.	
PPT 1.20	Precast concrete floors	4 slides: Students learn about the different types of precast concrete floor and their benefits.	
AS 1.20	Precast concrete floors	Students need to discuss the benefits and drawbacks of precast concrete floors.	

Component 1: Construction Technology

Learning outcome C3: Roofs

Resource	Title	Description	Resource link
PPT 1.21	Pitched roofs	5 slides: Students learn about the functions of roofs and the different types of pitched roof.	
AS 1.21	Pitched roofs	Students need to identify the different types of pitched roof and sketch an eaves detail of a pitched roof.	

Construction and the Built Environment



Resource	Title	Description	Resource link
PPT 1.22	Flat roofs	3 slides: Students learn about the components of a flat roof and the types of finishes for a flat roof.	
AS 1.22	Timber floors	Students need to answer questions about flat roofs and sketch an eaves detail of a flat roof.	
PPT 1.23	Precast concrete floors	4 slides: Students learn about the different types of precast concrete floor and their benefits.	
AS 1.23	Precast concrete floors	Students need to discuss the benefits and drawbacks of precast concrete floors.	

Component 1: Construction Technology

Learning outcome D1: The Type of Work Undertaken in the Construction Industry

Resource	Title	Description	Resource link
PPT 1.24	Types of construction project	4 slides: Students learn about the different types of construction project.	
AS 1.24	Pitched roofs	Students need to answer questions about the different types of construction project and explain the difference between refurbishment of a building and repair and maintenance.	

Component 1: Construction Technology

Learning outcome D2: The Construction Industry and the Built Environment

Resource	Title	Description	Resource link
PPT 1.25	The construction industry and the built environment	5 slides: Students learn about other types of construction projects such as transportation and coastal defences.	

Construction and the Built Environment



Resource	Title	Description	Resource link
AS 1.25	The construction industry and the built environment	Students need to answer questions about transportation systems and the different types of defence against water (flood, coastal and river).	
PPT 1.26	Question types and command verbs	8 slides: Students learn about the different types of questions they will come across in their studies.	
AS 1.26	The construction industry and the built environment	Students need to link the command verb to the correct description.	

Component 3: Construction and Design

A1: Client's needs

Resource	Title	Description	Resource link
PPT 3.1	Types of buildings	9 slides: Students are introduced to different types of buildings, including industrial, residential and commercial.	
AS 3.1	Types of buildings	Students need to study their local area and identify as many different types of functional buildings as they can.	
PPT 3.2	Types of accommodation	6 slides: Students learn about types of structural load and testing of materials.	
AS 3.2	Types of accommodation	Students answer questions on the function of different buildings and rooms.	
PPT 3.3	Style and aesthetics	11 slides: Students learn about how style and aesthetics can affect the design of a building.	
AS 3.3	Style and aesthetics	Students answer questions on style considerations when adding a new building to a street scene.	
PPT 3.4	Sustainability	12 slides: Students learn about sustainability in building including materials and thermal efficiency.	

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Resource	Title	Description	Resource link
AS 3.4	Sustainability	Students need to answer questions about the advantages and disadvantages of using different types of sustainable material.	
PPT 3.5	Alternative energies	10 slides: Students learn about alternative energies such as ground source heat pumps, air source heat pumps and solar energy.	
AS 3.5	Alternative energies	Students answer questions about the advantages and disadvantages of solar voltaic panels and must draw a diagram showing how heat can be extracted from the air or ground to heat a home.	
PPT 3.6	Orientation	9 slides: Students learn about how the orientation of a building affects lighting and solar gain benefits and drawbacks.	
AS 3.6	BREEAM	Students investigate a BREEAM case study.	
PPT 3.7	Carbon footprint analysis	4 slides: Students learn about carbon footprint analysis.	
AS 3.7	Carbon calculator	Students need to calculate their gas or electricity usage at home.	

Component 3: Construction and Design

A2: Constraints on Design

Resource	Title	Description	Resource link
PPT 3.8	Budget	7 slides: Students learn about different ways to budget for a project such as floor area analysis and initial and life cycle costs.	
AS 3.8	Budget	Students need to answer a question about life cycle costs.	
PPT 3.9	Site	10 slides: Students learn about different considerations when selecting a building site and the size and shape of a building.	

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Resource	Title	Description	Resource link
AS 3.9	Site	Students need to complete a case study by locating a suitable plot of land and preparing a report on its suitability for a client.	
PPT 3.10	Environmental	4 slides: Students are introduced to environmental constraints on building design such as flood risks and the local climate.	
AS 3.10	Environmental flood risk	Students need to examine a case study on the Somerset floods and the impact they had.	
PPT 3.11	Local planning and building control requirements	8 slides: Students learn about planning and building control requirements such as accessibility, conservation areas and planning objections.	
AS 3.11	Building regulations	Students need to study building regulations and approved documents and answer questions to demonstrate their understanding.	

Component 3: Construction and Design

A3: Client Brief for a Design of a Low-Rise Building

Resource	Title	Description	Resource link
PPT 3.12	Client brief	8 slides: Students learn how to analyse a client's needs and constraints on a design to create an appropriate solution.	
AS 3.12	Client brief	Students are given a scenario from a client and must produce a suitable brief.	

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Component 3: Construction and Design

B1: Development of Sketching Techniques

Resource	Title	Description	Resource link
PPT 3.13	Development of sketching techniques	9 slides: Students learn how to sketch floor plans to approximate scale freehand.	
AS 3.13	Sketching techniques	Students need to produce a plan for a small extension to the rear of a building.	
PPT 3.14	Freehand sketching of external views	7 slides: Students learn how to 3D sketching techniques such as two point perspective.	
AS 3.14	Sketching techniques two point perspective	Students need to produce a 3D image for a client using two point perspective.	

Component 3: Construction and Design

B2: Generation of Sketch Ideas in Response to Client Needs

Resource	Title	Description	Resource link
PPT 3.15	Designing for different needs	10 slides: Students learn about designing for different needs such as sustainability, functionality and public safety.	
AS 3.15	Design	Students need to create a mood board for a client who wants an iconic building to house an art collection.	
PPT 3.16	External appearance	5 slides: Students will learn about considerations for the external appearance of a building.	
AS 3.16	Concept external elevations	Students need to produce a concept external design for the front of a building.	
PPT 3.17	Internal appearance	6 slides: Students learn about the inside of a building and its components.	

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Resource	Title	Description	Resource link
AS 3.17	Concept internal designs	Students need to produce a 3D design for a small kitchen.	
PPT 3.18	Annotations and labelling	11 slides: Students learn about how to annotate and label room and floor plans.	
AS 3.18	Detailing a drawing	Students need to annotate drawings of an extension to a house.	

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