

Single Roofs.

Unit: 207
306

Collared Roof.



LCB

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The background of the slide is a faded, high-angle photograph of a construction worker wearing a yellow hard hat and a white shirt, working on a wooden roof structure. The worker is positioned on the right side of the frame, leaning over the roof. The roof consists of numerous wooden beams and planks, creating a complex geometric pattern. The overall tone is light and professional.

Introduction:

This activity helps learners identify key components within a typical pitched roof structure. Using a 3D model and a printable worksheet, students will label essential structural elements and begin to understand their purpose within the overall roof system.

This task builds foundational knowledge required for progression into roofing systems, structural carpentry, and health & safety awareness.

Aim:

To help learners identify and correctly label the key components of a pitched roof using a 3D model and diagram.

Learning Objectives

By the end of this activity, learners will be able to:

- Identify **core roof components** from a diagram or 3D model
- Correctly label structural elements such as rafters, ridge board, joists, battens, and wall plates
- Understand the **basic function** of each component
- Develop spatial awareness by linking 2D diagrams to 3D structures

The background of the slide is a faded, high-angle photograph of a construction worker wearing a yellow hard hat and a white shirt, working on a wooden roof structure. The worker is positioned on the right side of the frame, looking down at the roof. The roof consists of various wooden beams, including rafters and joists, which are visible across the entire scene. The lighting is bright, suggesting a sunny day.

Activity Overview:

In this activity, learners use a 3D roof model and a labelled diagram to identify and label key components of a pitched roof. Students examine the structure from different angles, match each part to its correct name, and build confidence in recognising essential elements such as rafters, ridge boards, joists, and battens. The task supports visual learning, reinforces core terminology, and prepares learners for further study in roof construction and structural carpentry.



How this activity helps learning:

This activity strengthens learners' understanding of roof construction by helping them visually recognise and correctly name key structural components. By working between a 3D model and a 2D diagram, students develop spatial awareness and begin to understand how each part contributes to the overall stability of a roof. The task reinforces essential terminology, supports memory through repetition, and builds confidence in identifying components they will encounter in practical carpentry and joinery work. It also prepares learners for future units involving structural systems, roofing methods, and on-site inspection skills.

Student Instructions:

1. Look closely at the roof diagram or 3D model provided.
2. Use the **word bank** to help you identify each component.
3. Write the correct label in each blank box or line.
4. Check your spelling and ensure each label matches the correct part of the roof.
5. Extension (optional): Write one sentence describing the purpose of each component.

Lecturer Instructions.

- Display the 3D roof model on screen or allow students to explore it independently.
- Provide printed worksheets (blank + answer sheet).
- Encourage learners to rotate and zoom the 3D model to understand how components connect.
- Support SEND learners with:
 - Colour-coded word banks
 - Reduced number of labels
 - First-letter prompts
- Use the answer sheet for quick formative assessment.
- Stretch learners by asking them to explain load paths or compare traditional vs trussed roofs.

Scaffolding Options:

These scaffolds support learners who need additional guidance while still allowing independence and success.

1. Word Bank Support

Provide a **full word bank** for all components.

Offer a **reduced word bank** for SEND learners.

Use **colour-coded categories** (e.g., structural elements, coverings, fixings).

2. First-Letter or Partial Prompts

R _ _ _ _ (Ridge)

W _ _ P _ _ _ (Wall Plate)

C _ _ _ _ J _ _ _ _ (Ceiling Joist) Helps learners recall terminology without giving the full answer.

3. Highlighted Zones on the Diagram

Lightly shade or outline areas where labels should be placed.

Use arrows or circles to draw attention to specific components.

SEND version: fewer highlighted zones.

4. Step-by-Step Guided Labelling

Break the task into small steps:

Identify the topmost component

Identify the main sloping members

Identify the horizontal members

Identify the coverings This reduces cognitive load and supports sequencing.

5. Matching Activity Before Labelling

Provide a mini warm-up:

Match component names to definitions

Match names to small thumbnail images This primes learners before the main task.

6. Peer-Support Pairing

Pair confident learners with those who need support

Encourage discussion: "Why do you think this is the rafter?"

7. Visual Clues (Your Learners Love These)

Examples include:

Small icons (e.g., arrow pointing to the ridge)

Colour overlays on the 3D model

Zoomed-in callout boxes showing close-ups of tricky components

Dashed outlines around hidden or internal elements

8. Reduced Number of Labels

For SEND or lower-ability learners:

Provide a simplified diagram with only 5–6 key components

Offer a second sheet with more components for stretch learners

9. Sentence Starters for Extension

For learners who can explain functions:

"This component supports..."

"This part helps to keep the roof..."

"This is fixed to the..."

Differentiation Strategies.

For Learners Needing Support.

- **Reduced number of labels** Provide a simplified worksheet with 5–6 key components only (e.g., rafters, ridge board, joist, wall plate, battens, tiles).
- **Colour-coded diagrams** Use colours to group components (e.g., structural timber in blue, coverings in red). Helps visual learners and reduces cognitive load.
- **Guided prompts** Offer first-letter clues, partial words, or sentence starters such as: *“This component supports the...”*
- **Highlighted diagram zones** Light shading or outlines around areas where labels should be placed.
- **Pre-teaching vocabulary** Introduce key terms with images before the main task to build confidence.
- **Chunked instructions** Break the task into smaller steps (e.g., “Label the top components first, then the sloping ones, then the coverings”).
- **Peer support** Pair learners strategically so they can discuss and check understanding together.

For Learners Working at Expected Level

- **Full labelling task** Use the standard worksheet with 10–12 components.
- **Function descriptions** Ask learners to add a short explanation of what each component does.
- **3D model exploration** Encourage independent rotation and zooming to identify components from different angles.

For Learners Ready for Stretch/Challenge

- **Explain load paths** Ask learners to describe how loads travel from the roof to the foundations.
- **Compare roof types** Challenge them to identify differences between traditional cut roofs and trussed roofs.
- **Spot the missing component** Provide a modified diagram with one or two components removed and ask learners to identify what’s missing and why it matters.
- **Mini-sketch task** Learners draw a simplified roof section and label it from memory.
- **Terminology extension** Introduce additional components such as collar ties, struts, or truss webs.



Assessment Opportunities

- **Formative:** Completed labelling sheet
- **Summative:** Short quiz on component functions
- **Practical link:** Identify the same components on workshop models or site photos
- **Stretch:** Explain how loads travel from roof to foundation

Word Bank.

- Rafter
- Ridge Board
- Wall Plate
- Ceiling Binder
- Ceiling Joist
- Hanger
- Collar Tie
- Purlin
- Strut
- Binder
- Spreader Plate

Collared Roof.

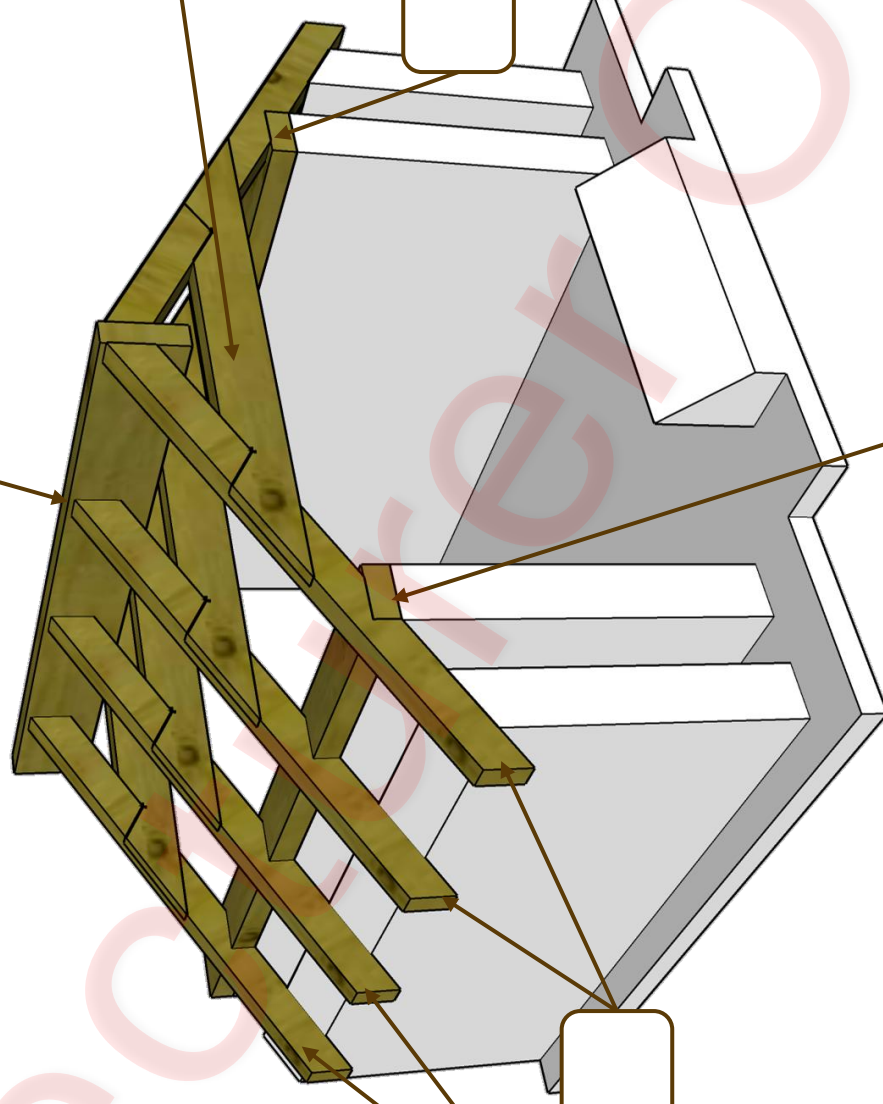
Ridge Board

Collar Tie

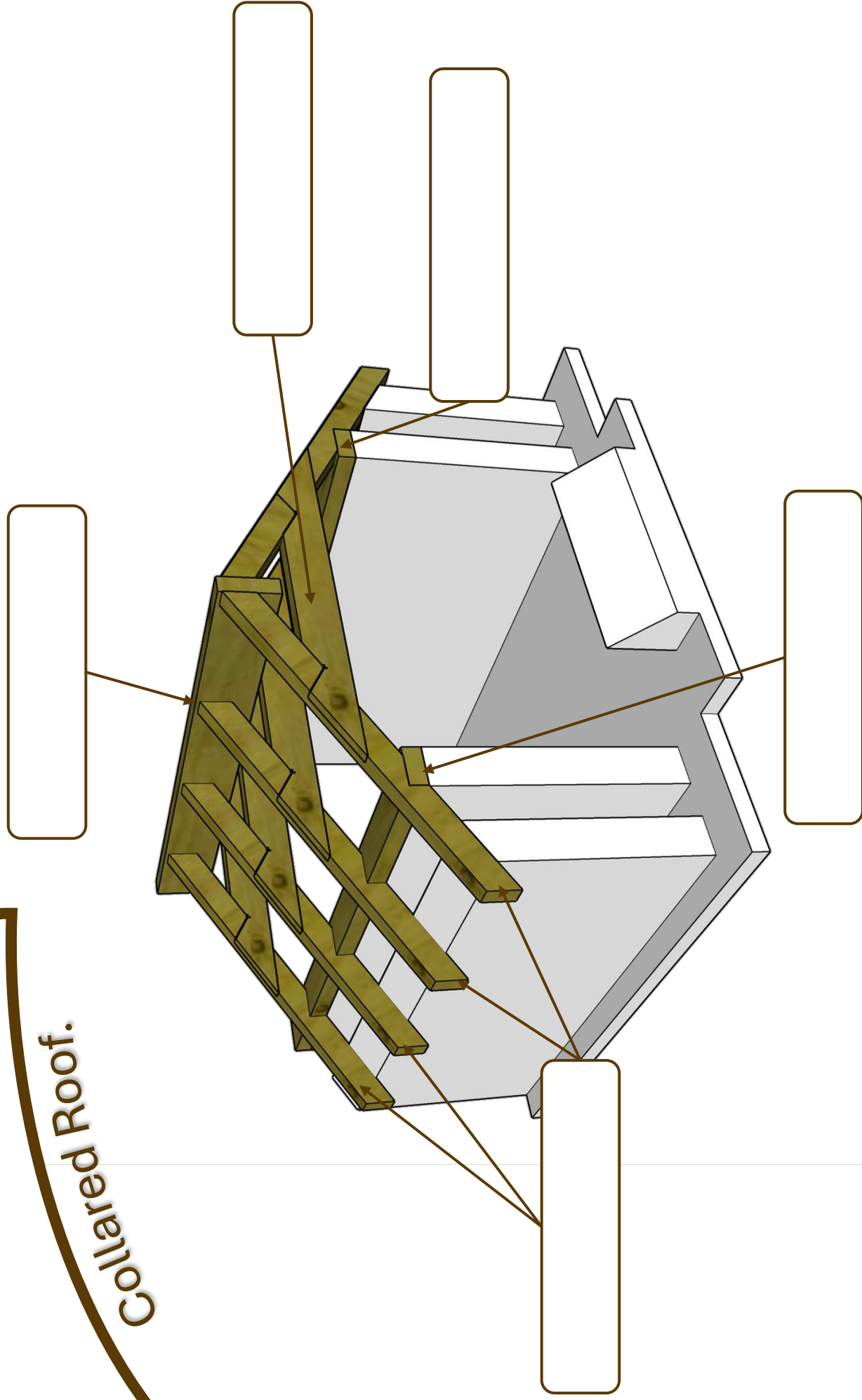
Wall Plate

Wall Plate

Rafters



Collared Roof.



Thank You.

We would like to say thank you for using this learning material, we hope you found it useful.



If you have any questions regarding this or any other learning material produced by James, or have any suggestions about improvements or ideas please email James Rix at:

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