ROOF TRUSS
IDENTIFICATION

Educon

City&Guilds

Lecturer: James Rix

Contents:

Introduction:

Roof trusses are a fundamental structural system used to support pitched roofs in domestic and commercial construction. This activity helps learners recognise and differentiate common truss types by examining their shapes, internal members, and typical applications. Using a set of matching cards and a 3D model, students develop confidence in identifying trusses visually and understanding how their geometry relates to structural performance.

Aim:

To enable learners to accurately identify a range of roof truss types and understand the purpose of their key components.

Learning Objectives

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

- Identify common roof truss types from images and 3D models.
- Describe the distinguishing features of each truss.
- Match truss names, descriptions, and images correctly.
- Explain how different truss designs support loads and span requirements.

Activity Overview:

Learners use a set of truss identification cards — including **image cards**, **name cards**, and **description cards** — alongside a 3D roof truss model. Students examine each truss type, compare structural layouts, and match the correct name and description to the corresponding image. The activity reinforces visual recognition, technical vocabulary, and structural understanding.

How this activity helps learning:

This activity supports:

- **Visual learning** through clear truss images and 3D models.
- **Technical vocabulary development** by linking names to structural features.
- **Spatial understanding** of load paths and member arrangements.
- **Active learning** through hands-on matching tasks.
- **Preparation for practical carpentry tasks** where truss identification is essential.

Student Instructions:

1. Review the truss image cards and study the shapes carefully.
2. Examine the 3D model to see how each truss looks from different angles.
3. Read each description card and identify the key features mentioned.
4. Match each **image**, **name**, and **description** card into a correct set.
5. Check your answers with a partner or compare them to the 3D model.
6. Complete the short reflection questions provided by your lecturer.

Lecturer Instructions.

- Introduce the purpose of roof trusses and show the 3D model.
- Demonstrate how to identify key features such as webs, chords, and bracing.
- Distribute the card sets and explain the matching process.
- Circulate the room to support learners and prompt deeper thinking.
- Facilitate a group discussion on why different trusses are used in different situations.
- Review answers and clarify any misconceptions.

Scaffolding Options:

- Provide a simplified sheet showing each truss with labelled members.
- Offer a reduced set of trusses (e.g., only three types) for learners who need a gentler start.
- Allow students to use the 3D model freely while matching cards.
- Provide a “feature checklist” (e.g., *Has a central vertical? Has multiple webs?*) to guide identification.

Differentiation Strategies.

- **Support learners** by giving partially completed matches (e.g., image + name, student finds description).
- **Challenge advanced learners** by asking them to sketch each truss from memory.
- Provide extension questions such as:
  - “Which truss spans the longest distance and why?”
  - “Which truss is best for creating open internal spaces?”
- Allow paired or group work for learners who benefit from collaborative discussion.

3D Model Activity

Activity

Roof Trusses

Name Cards

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Attic

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

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Fan

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

James Rix

Fink

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

James Rix

Girder

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

James Rix

King Post 1

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

James Rix

King Post 2

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

James Rix

Mono

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

James Rix

Howe

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

James Rix

Pratt

3D Model Activity

Activity

Roof Trusses

Name Cards

City & Guilds

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Queen Post

3D Model Activity

Activity

Roof Shapes

Image Cards

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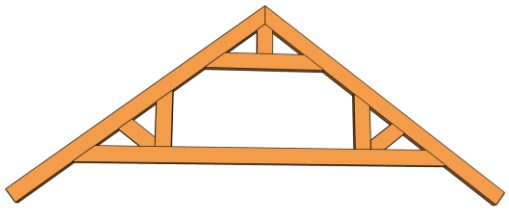

3D Model Activity

Activity

Roof Shapes

Image Cards

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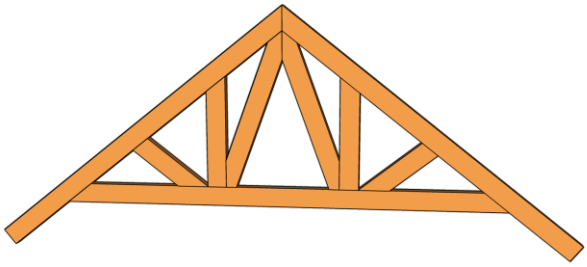

3D Model Activity

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Roof Shapes

Image Cards

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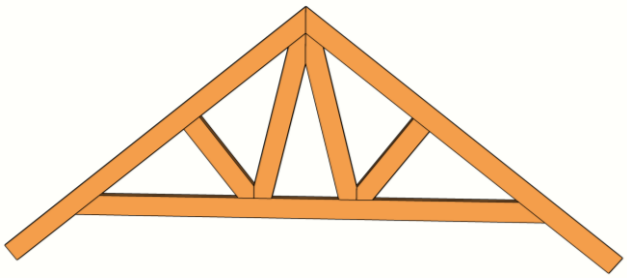

3D Model Activity

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Roof Shapes

Image Cards

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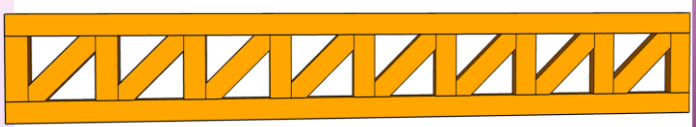

3D Model Activity

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Roof Shapes

Image Cards

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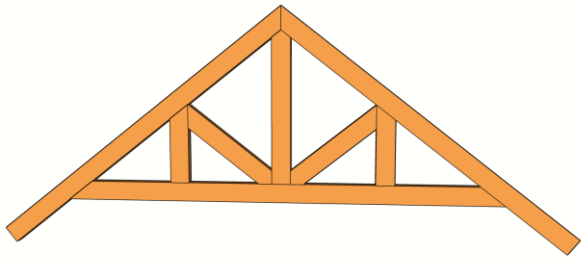

3D Model Activity

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Image Cards

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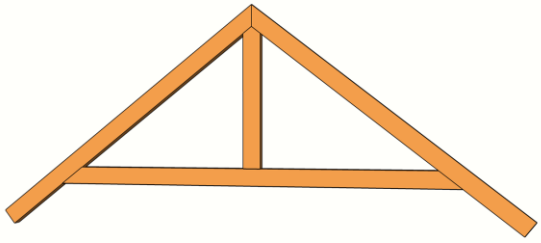

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Image Cards

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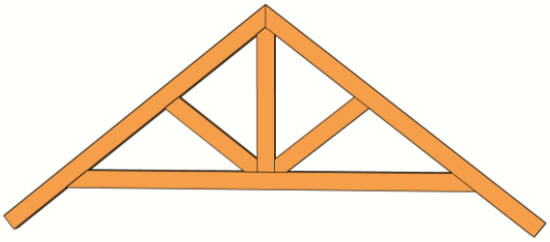

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Image Cards

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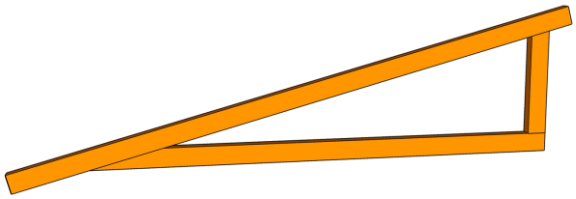

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Image Cards

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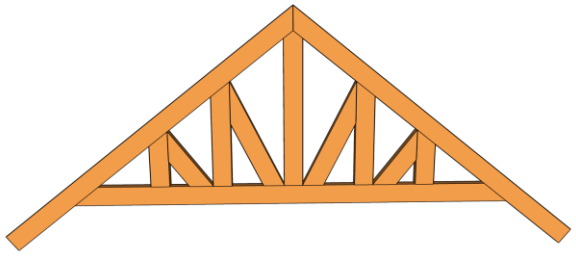

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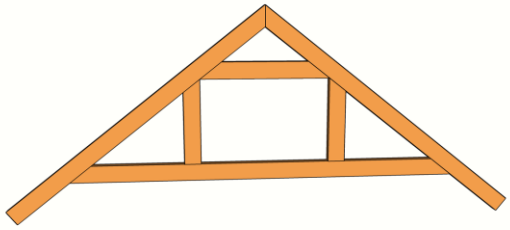

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Image Cards

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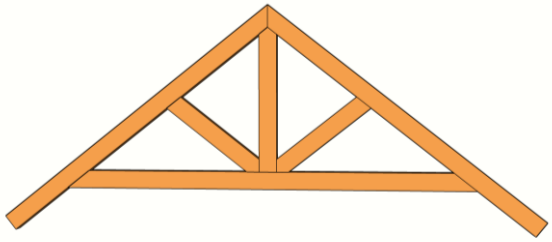

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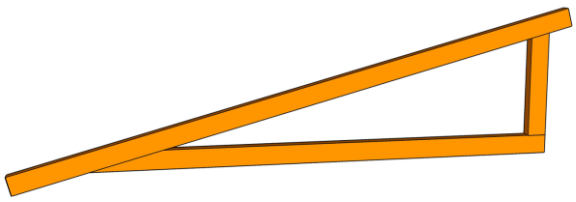

Thank You.

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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