Roof Shapes.

Unit 207.1
Unit 102.6
Unit 202.15

Flash Cards

Lecturer: James Rix

Contents:

Introduction:

This activity introduces learners to eleven roof shapes found across the world: **Dutch, Gable, Mono, Flat, Gambrel, Mansard, Saltbox, Pyramid, Hipped, Jerkinhead, and Valley**.

Using a combination of flash cards, and our 3D interactive model, and guided exploration, learners develop the vocabulary, visual recognition skills, and structural understanding needed for construction-based learning. The activity encourages comparison, classification, and real-world application.

Aim:

To help learners confidently identify, describe, and compare common global roof shapes using visual cues, technical terminology, and 3D spatial understanding.

Learning Objectives

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

- **Identify** eight key roof shapes using flash cards and the 3D model.
- **Describe** the defining features of each roof shape using correct terminology.
- **Compare** similarities and differences between roof shapes.
- **Explain** where and why different roof shapes are used in real-world construction.
- **Apply** knowledge by matching roof shapes to scenarios, climates, or building types.

Activity Overview:

Learners rotate through a set of flash-card-based tasks supported by the 3D model.

Activities include:

- Flash-card identification
- Feature-spotting challenges
- Roof-shape matching tasks
- Real-world application scenarios
- Peer-teaching mini-tasks
- Quick-fire recognition rounds

The lecturer facilitates discussion, checks understanding, and provides scaffolding where needed.

How this activity helps learning:

This activity supports learning by:

- **Building visual literacy** — learners recognise shapes quickly and accurately.
- **Strengthening vocabulary** — repeated exposure to terminology improves retention.
- **Supporting spatial reasoning** — the 3D model helps learners understand angles, slopes, and geometry.
- **Encouraging comparison** — learners learn not just *what* a roof shape is, but *why* it is used.
- **Promoting active learning** — flash cards and model exploration keep learners engaged.
- **Linking theory to practice** — learners connect roof shapes to climate, materials, and building design.

Student Instructions:

1. Collect a set of flash cards.
2. Explore the 3D model and rotate it to view each roof shape.
3. Match each flash card to the correct part of the model.
4. Read the description on each card and summarise it in your own words.
5. Complete the comparison tasks (e.g., “Which two shapes are most similar?”).
6. Work with a partner to quiz each other using the flash cards.
7. Complete the worksheet or digital quiz provided.

Lecturer Instructions.

- Introduce each roof shape using the 3D model.
- Demonstrate how to identify key features (slope, symmetry, breaks in pitch, hips, valleys).
- Distribute flash cards and model-based tasks.
- Circulate and question learners to check understanding.
- Provide scaffolding for learners who need support (word banks, sentence starters, simplified definitions).
- Challenge confident learners with application-based tasks (e.g., “Which roof shape suits a snowy climate and why?”).
- Finish with a whole-class recap or quick-fire quiz.

Scaffolding Options:

- **Colour-coded word banks** (shape names, features, comparison vocabulary).
- **Sentence starters** (“This roof shape is…”, “It is commonly used because…”).
- **Simplified definitions** for Level 1 learners.
- **Visual cues** (arrows, labels, icons).
- **Model navigation prompts** (“Rotate to the left to see the break in pitch”).
- **Fill-in-the-blank descriptions**.
- **Matching tasks** (shape → definition, shape → climate, shape → building type).
- **Comparison frames** (“Both… however…”).

Differentiation Strategies.

For Learners Needing Support

- Provide simplified flash cards with fewer technical terms.
- Use colour-coded categories (e.g., symmetrical vs asymmetrical roofs).
- Offer step-by-step guided identification tasks.
- Allow learners to work in pairs for confidence.
- Provide a “hint sheet” showing key features to look for.

For Stretch & Challenge

- Ask learners to justify roof-shape choices for specific climates.
- Introduce real-world case studies (e.g., barns, townhouses, tropical buildings).
- Challenge learners to sketch a building using two roof shapes.
- Ask learners to design a roof shape for a fictional building with constraints.
- Provide advanced terminology (e.g., pitch break, dormer integration, load distribution).

Assessment Opportunities

Formative

- Observation during model exploration.
- Questioning during flash-card matching.
- Peer-teaching accuracy.
- Quick-fire identification rounds.
- Exit tickets (“Name two roof shapes and describe their features”).

Summative

- Worksheet or digital quiz.
- Matching tasks (shape → definition).
- Short written comparison (“Compare a Gambrel and a Mansard roof”).
- Application task (“Which roof shape is best for heavy snowfall and why?”).
- Practical sketching task.

Word Bank.

Roof Shape Names

- Gable
- Flat
- Gambrel
- Mansard
- Pyramid
- Mono
- Dutch
- Saltbox
- Hipped
- Jerkinhead
- Valley

Key Features

Symmetrical
Asymmetrical
Double-pitch
Break in slope
Hip
Valley
Ridge
Eaves
Overhang

Comparison Vocabulary

- Similar to...
- Different because...
- Has a steeper pitch...
- More suitable for...
- Commonly used in...

Sentence Starters.

Sentence Starters (SEND-Friendly)

- “This roof shape has…”
- “You can recognise it because…”
- “It is often used on buildings that…”
- “Compared to a ___ roof, this one…”
- “A key feature of this roof is…”

Simplified Definitions.

Gable: A simple roof with two sloping sides that meet in the middle.

Flat: A roof that looks level, with a very small slope for drainage.

Gambrel: A roof with two slopes on each side, like a barn.

Mansard: A roof with four sides, each with two slopes.

Saltbox: A roof with one long slope and one short slope.

Hipped: A roof where all sides slope downwards.

Jerkinhead: A gable roof with the top corners clipped off.

Valley: Where two roof slopes meet in an inside corner.

Mono-Pitch Roof: A roof with one single slope going in one direction. It looks like half of a gable roof and is often used on small buildings, extensions, or modern designs.

Pyramid Roof: A roof where all sides slope up to a single point at the top, like a pyramid. It is usually used on square buildings and gives good wind resistance.

Dutch Roof (Dutch Gable Roof): A roof that mixes a gable and a hipped roof. It has a small gable at the top and sloping sides below. This gives extra space inside and a more decorative look.

Visual Clues.

1. Shape-Based Clues
These help learners recognise the *overall silhouette* of the roof.
Triangle shape → Gable roof
Single long slope → Mono-pitch roof
Four equal slopes meeting at a point → Pyramid roof
Two slopes on each side (barn-like) → Gambrel roof
Four sides sloping downwards → Hipped roof
Clipped gable ends → Jerkinhead roof
One long slope + one short slope → Saltbox roof

2. Slope & Pitch Clues
These help learners focus on angles and changes in slope.
Very shallow slope → Flat roof
Steep upper slope + shallow lower slope → Mansard roof
Break in pitch halfway down → Gambrel or Mansard
Symmetrical slopes → Gable, Pyramid, Hipped
Asymmetrical slopes → Saltbox, Jerkinhead

3. Feature-Spotting Clues
These direct learners to look for specific roof elements.
Look for a ridge line running across the top → Gable, Hipped
Look for hips (sloping corners) → Hipped, Pyramid, Jerkinhead
Look for valleys (inside corners) → Valley roof
Look for a point at the top → Pyramid roof
Look for clipped ends → Jerkinhead
Look for a long overhang on one side → Saltbox

4. Real-World Association Clues
These help learners connect shapes to familiar buildings.
Looks like a barn → Gambrel
Looks like a townhouse or French-style building → Mansard
Looks like a modern extension → Mono-pitch
Looks like a simple house shape → Gable
Looks like a gazebo or pavilion → Pyramid

Fill in the blanks...

1. Roof Shape Identification

Learners fill in the missing roof shape name.

1. A roof with two sloping sides that meet at a ridge is called a _____ roof.
2. A roof that looks almost level, with a very small slope, is a _____ roof.
3. A roof with two slopes on each side, often seen on barns, is a _____ roof.
4. A roof with four sides, each with two slopes, is a _____ roof.
5. A roof with one long slope and one short slope is a _____ roof.
6. A roof where all sides slope downwards from a ridge is a _____ roof.
7. A gable roof with the top corners clipped off is a _____ roof.

Fill in the blanks...

2. Feature-Spotting Blanks

Learners use key terminology to complete the sentences.

1. A _____ roof has a single slope going in one direction.
2. A _____ roof has four equal slopes that meet at a point.
3. A _____ roof mixes a gable and a hipped roof.
4. A _____ is the line where two roof slopes meet at the top.
5. A _____ is the outside corner where two roof slopes meet.
6. A _____ is the inside corner where two slopes meet.
7. A _____ roof has a break in slope halfway down each side.
8. A _____ roof is often used on modern extensions.

LCB

The Roof Game

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Dutch
Roof

Elements of both gable and hip roofs. The gable sits at the top of the roof and the lower part slopes downwards like a hip roof.

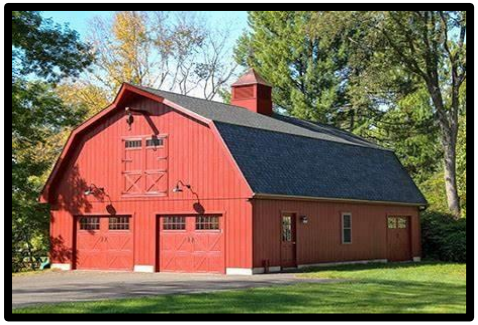
Flat
Roof

Flat roofs have a slight pitch for drainage. Common choice for modern homes due to being cost effective. Design allows for HVAC systems, Solar Panels or rooftop gardens.

Gable End
Roof

A triangular portion of a wall between the edges of intersecting roof pitches. A poor design for hurricane or tornado-prone regions, as it easily peels off in strong winds.

Gambrel
Roof



Symmetrical two-sided roof with two slopes on each side. The upper slope is positioned at a shallow angle, while the lower slope is steep. The name comes from the Medieval Latin word *gamba*, meaning horse's hock or leg.

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Hipped
Roof

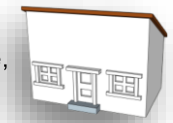
Roof sides slope downwards to the walls, usually with a fairly gentle slope. It has no gables or other vertical sides to the roof.

Jerkinhead
Roof

Known by many names including half-hipped and clipped gable. a combination of the two more common roof styles of gable roof and hip roof.

Mono Pitch
Roof

referred to as a pent roof, shed roof, lean-to roof, and/or skillion roof. a single-sloped roof surface, often not attached to another roof surface.



Mansard
Roof

Called a French roof or curb roof. is a four-sided gambrel-style hip roof characterised by two slopes on each of its sides with the lower slope. The upper slope of the roof may not be visible from street level

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Pyramid
Roof

roof structure where all four sides slope downwards to meet at a single central point, forming a point. This design is common in smaller buildings or structures like bungalows, gazebos, and pavilions.

Saltbox
Roof

This type of roof features an asymmetrical design, with one side extending longer and sloping more gradually, while the other side is shorter and steeper.

Valley
Roof

A gutter-like section that runs between two sloped sections of roof. Where two sloping sections of roof meet, they need a way for water to escape.

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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