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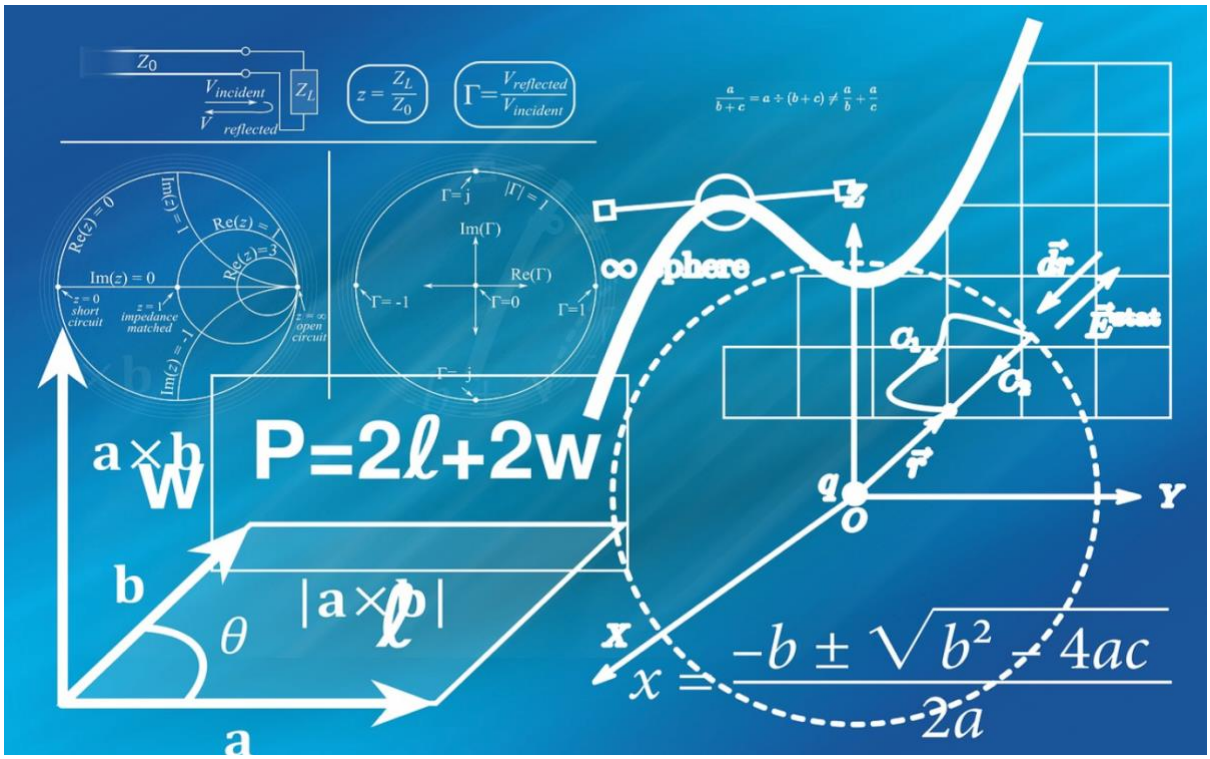
# Geometry




# Mini Lecture

EXAMPLE

# Lesson Plan: Geometry EXAMPLE

**Lessons:** Lecture Listening.
**Time:** 1 hour.
**Level:** ********* [B1/ B2/C1].

## Lesson Aim:

*To focus on one key topic and develop a range of key academic skills based on this topic.*

### Introduction [5 minutes]

- Introduce the topic 'Geometry'**.**

### Listening: Lecture & Test Questions [30-40 minutes + feedback]

**Video:** Available in paid download
**MP3:** Available in paid download

- Give out the '**Listening: Mini Lecture Worksheet'.**
- Students check key vocabulary.

**Option 1**

- Students look at the questions.
- Students listen & answer the questions.
- Give 2 minutes to tidy answers.
- Students listen again. Check answers & answer missed questions.
- Feedback: distribute or project ANSWERS.

**Option 2** (harder)

- Students listen & take notes (Use paper or the PPT slides in the Appendix).
- Students listen again & add to their notes.
- Students use their notes to answer the questions.
- Feedback: distribute or project ANSWERS.

### Post lecture extra ideas

- Write a 100-word summary of the lecture.
- Apply critical thinking strategies to the lecture. Use this critical thinking question document: https://www.academic-englishuk.com/wp-content/uploads/2020/03/Critical-Questions-a-linear-model-AEUK.pdf (writing, presentation or seminar).
- Research other types of geometry (presentation or seminar).
- Research the positives and negatives of geometry (presentation or seminar).

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www.academic-englishuk.com

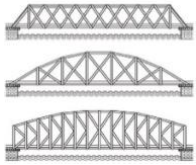
# Listening: Mini Lecture Worksheet

## Task 1: Key Vocabulary

Check these words and phrases before listening:

| | | | | | |
|---|---|---|---|---|---|
| | *rigidity* | | *frame* | *member* | |
| *tension* | *compression* | *load* | | *arch* | *intrinsic* |

## Task 2: Lecture Listening



Listen to the lecture on bridge construction and answer the following questions:

### 2.1 Gap Fill

Complete the purpose of a modern bridge. The first letter is already given.

| |
|---|
| Today's modern bridges are built with and a_____ reasons in mind, making them an iconic s_____ of |

____ / 2

### 2.2 Name ONE notable Truss bridge.

| |
|---|
| |

____ / 1

### 2.3 Open Questions

Answer these questions about the use of triangles in bridge structures.

| | | |
|---|---|---|
| i. | Which triangle is most commonly used? | |
| ii. | | |
| iii. | Why are scalene triangles not usually used? | |
| iv. | | |
| v. | What is the main reason for using triangles in bridges? | |

____ / 5

### 2.4 Multiple Choice

Answer these questions about Truss bridges. Select ONE answer only per question.

| | | |
|---|---|---|
| i. | When was the Warren Truss bridge invented? | A. In 1840. |
| | | B. |
| | | C. Sometime between 1840 and 1848. |
| ii. | | A. Compression and tension above and below. |
| | | B. . |
| | | C. Compression above and tension below. |
| iii. | What were truss bridges originally designed to do? | A. |
| | | B. Carry goods over water. |
| | | C. |
| iv. | | A. They can be combined with other bridges. |
| | | B. They are cheap to make. |
| | | C. |

____ / 4

### 2.4 Gap Fill

What does the lecturer say about future bridge structures? Complete the gaps.

| |
|---|
| Although modern bridges may use more _____ , the a _____ part of the overall design and construction. |

**Total Score ___/14**

# PowerPoint Slides

Listen to the lecture and take notes using the PPT slides

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## Purpose of a bridge

Brockley (2021)
University of Bristol

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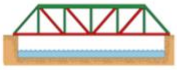
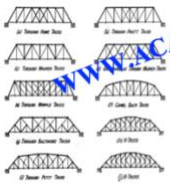
## Triangles in bridge construction



A Truss Bridge

Equilateral Triangle

Warren Truss Bridge
(James Warren)



Sydney Harbour Bridge

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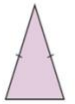
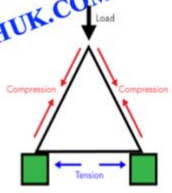
## Triangles in bridge construction

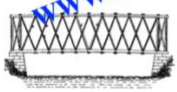


Isosceles Triangle

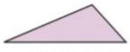
Right Angled Triangle




Load distribution



Isometric Truss by Alfred Neville 1840



Scalene Triangle

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## Truss bridge examples

Forth Railway Bridge
Edinburgh

Tower Bridge
London

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# Listening ANSWERS

## 2.1 Gap Fill

Complete the purpose of a modern bridge. The first letter is already given.

| |
|---|
| Today's modern bridges are built with technical, social, financial and *aesthetic* reasons in mind, making them an iconic *symbol* of engineering. |

____ / 2

**ALL ANSWERS ARE INCLUDED IN PAID VERSION…**

## Triangles Used in Bridge Design and Construction

(H. Kennedy, 2022)

*Hello and welcome to this brief lecture on how and why triangles are used in bridge design and construction. According to Brockley, the purpose of a bridge is both technical and social, which includes financial and aesthetic reasons. Today's bridges not only transport goods and people safely, but they are also a platform for a symbolic or iconic feat of engineering.*

**THE FULL TRANSCRIPT IS INCLUDED IN THE PAID VERSION…**