



CLIL LESSON PLAN

Perimeter & Area: Measuring the World Around Us



LESSON OVERVIEW

Subject(s)	Arithmetic · Geometry
Age Group	11–14 years old
Duration	45 minutes
CEFR Level	B1



LEARNING OBJECTIVES

Content Objectives

- Students will be able to calculate the perimeter and area of rectangles and squares using the correct formulas.
- Students will be able to apply addition, subtraction, multiplication and division to solve geometric word problems.
- Students will be able to interpret word problems involving measurements and costs, identifying the relevant data and selecting the appropriate formula.
- Students will be able to use formulas correctly in practical, real-life contexts (e.g., calculating the cost of fencing a garden).
- Students will be able to interpret scale drawings and calculate real measurements from scaled representations (e.g., scale 1:5, 1:10).

Language Objectives

- Students will be able to use academic vocabulary related to geometry and arithmetic accurately: perimeter, area, length, width, formula, total, multiply, divide, units, scale, ratio, proportion. Key vocabulary is displayed on a poster throughout the lesson; pronunciation is modelled and practised chorally before the main activity.
- Students will be able to describe mathematical processes using structured explanations: 'The perimeter is calculated by...'; 'The area equals...'; 'First I multiply..., then I add...'
- Students will be able to justify their mathematical reasoning in writing and orally: 'I chose this operation because...'; 'This result shows that...'
- Students will be able to use comparative language to discuss measurements: 'This measurement is larger than...'; 'The real size is bigger than the drawing because...'



COMMUNICATION SKILLS

Reading:

- Read word problems with mathematical data, identifying relevant measurements and selecting the correct formula.
- Interpret tables, diagrams and scaled drawings.
- Understand formulas written in academic language.

Listening:

- Understand the teacher's explanation of perimeter and area formulas using worked examples.
- Follow multi-step instructions for problem-solving activities.
- Listen to a partner's reasoning during pair work and identify any errors in their steps.

Writing:

- Write calculations step by step, specifying the formula used, the steps followed and the final answer with correct units.
- Complete problem-solving tables for guided practice.
- Write short academic explanations justifying the operation chosen.

Speaking:

- Explain processes step by step: 'First I calculate..., then I multiply..., finally I get...'
- Justify answers: 'I used this formula because...'
- Compare results with a partner: 'This measurement is larger than... because...'

GRAMMAR, VOCABULARY & PRONUNCIATION

Language of Learning (CALP)

Geometry vocabulary: perimeter, area, length, width, square, rectangle, shape, scale, drawing, measurement, side.

Arithmetic vocabulary: add, subtract, multiply, divide, total, result, ratio, proportion, formula, units.

Academic structures for describing processes:

- 'The perimeter is calculated by adding all the sides.'
- 'The area is found by multiplying length by width.'

Explaining cause and reason:

- 'I used multiplication because the formula for area requires it.'
- 'This happens when the length increases and the width stays the same.'



Sequencing steps:

- 'First I identify the length and width. Then I apply the formula. Finally I write the answer with the correct units.'

Using formulas in sentences:

- 'The formula for area is $A = \text{length} \times \text{width}$.' • 'According to the scale 1:10, the real length is...'

Comparisons:

- 'The real size is bigger than the drawing.' • 'This value is smaller because the scale reduces the measurements.'

Language for Learning (BICS)

All BICS phrases are displayed on the board and on a reference card throughout the lesson.

Pair-work and verification phrases:

- 'What formula did you use?' • 'I agree / I disagree with your answer.' • 'Let's check our steps.'

Classroom phrases:

- 'Can you repeat, please?' • 'I don't understand this step.' • 'How do you say ___ in English?'

Self-correction phrases:

- 'I made a mistake. Let me try again.' • 'I think the answer should be...'

Language Through Learning (not planned)

- Spontaneous vocabulary related to real-life measurement contexts students bring to the lesson (e.g., room dimensions, football pitch sizes, floor tiles).
- Questions about units of measurement and their equivalences across different systems (e.g., metres vs. feet).
- Emergent problem-solving language: 'What if the shape is not a rectangle?'; 'Can we use the same formula for a triangle?'



COGNITION

LOTS — Remembering, Understanding, Applying

HOTS — Analysing, Evaluating, Creating

- Which formula should you use in this situation? Why? How are the arithmetic



- What is the formula for perimeter? What is the formula for area?
- Can you explain the difference between perimeter and area?
- What does a scale of 1:5 mean?
- Use the scale 1:10. What is the real length of a 5 cm drawing?
- Apply the formula to find the missing side of a rectangle given its area and one dimension.
- Solve this word problem using the correct formula.

operations connected to geometry in this problem? (Analysing)

- Is this result reasonable? Which strategy is more efficient? Do you agree with this solution? Justify your answer. (Evaluating)
- Create your own geometry problem involving perimeter and area. Design a scale drawing of a rectangle. Create a real-life situation where ratios are needed. (Creating)



GUIDING QUESTIONS FOR TEACHERS

Pre-lesson and in-lesson self-reflection:

- Have I activated students' prior knowledge of perimeter and area before the lesson — and have I planned a moment to check whether they can recall the formulas before introducing new content?
- Have I displayed both formulas (Perimeter = $2 \times (l + w)$; Area = $l \times w$) clearly on the board with labelled diagrams, so that students can refer to them independently throughout the lesson?
- Have I modelled a complete worked example — including the formula, the substitution of values, the calculation and the unit — before asking students to solve problems independently?
- Have I ensured that the word problems require students to select the appropriate formula themselves, rather than being told which one to use, in order to activate higher-order thinking?
- Are my students confident enough with the arithmetic operations required (multiplication, division) to focus on the geometry content, or do I need to provide a brief numerical scaffolding before the main activity?
- After the lesson, do the completed worksheets and the written justifications provide sufficient evidence that students can apply both formulas correctly, interpret word problems and explain their reasoning?



CULTURE

Measurement systems across cultures: The lesson briefly acknowledges that different countries use different measurement systems (metric vs. imperial). Students from backgrounds where feet, yards or inches are used are invited to share their experience. The comparison reinforces the importance of specifying units and provides a concrete example of why a universal mathematical language is valuable.

Geometry in architecture and design: Students explore how the concepts of perimeter and area appear in the built environment across different cultures — from the layout of traditional homes to the design of public spaces, markets and gardens. Examples from different regions of the world (e.g., the courtyard layouts of Arab architecture, the rectangular rice fields of Southeast Asia, the modular design of Japanese tatami rooms) illustrate that geometry is a universal human tool.



Scale drawing in cartography and planning: Scale drawings are used in maps, architectural plans and urban design worldwide. Students are invited to consider familiar maps or plans they have encountered and to reflect on the role of mathematics in representing physical space accurately.

Real-life applications: The fencing and gardening problems in the lesson connect geometry to practical decision-making that is culturally relevant across contexts — whether planning a vegetable plot, a school playground or a family home. Students are encouraged to suggest real-life examples from their own environments.

Life skills: The ability to calculate area and perimeter has direct practical applications in daily life: estimating the amount of material needed to decorate a room, calculating the size of a plot of land or planning the layout of a space. The lesson explicitly connects mathematical reasoning to informed, responsible decision-making.

★ 21ST-CENTURY SKILLS

BICS-Related Skills

Communication: Students explain their calculation process step by step to a partner using structured academic language ('First I... then I... finally I...'), and justify their choice of formula in writing.

Collaboration: Students work in pairs during the guided practice, checking each other's steps and discussing discrepancies in their results using the cooperation phrases on the board.

Time Management: Students must complete two guided problems and the real-life integration task within the allocated time, requiring independent management of their working pace.

Social & Cross-Cultural Skills: The Culture section invites students to share examples of measurement systems and geometric design from their cultural backgrounds, acknowledging that mathematical knowledge is embedded in diverse cultural traditions.

CALP-Related Skills

Critical Thinking: Students must select the appropriate formula for each problem (perimeter or area) without being told which one to use, and evaluate whether their result is reasonable given the context of the word problem.

Problem-solving: The real-life integration task presents a multi-step problem (calculate length, then perimeter, then fencing cost) that requires students to chain operations and apply results sequentially — a genuine problem-solving challenge.

Productivity & Accountability: Students are responsible for completing the worksheet with all steps shown (formula, substitution, calculation, unit) and for the written justification. The self-assessment form requires them to evaluate their own accuracy.

Creativity (Academic): The HOTS Creating tasks ask students to design their own geometry problem and a scale drawing of a rectangle, applying their knowledge in an open-ended context that goes beyond procedure reproduction.



METHODOLOGY

Duration	Lesson Flow	Activities	Materials Needed	AI Tools Integration
5'	Warm-up Activities	<p>Recall the Formulas</p> <p>The teacher draws a labelled rectangle on the board (length and width marked) and asks:</p> <ul style="list-style-type: none"> 'What is the perimeter of this rectangle?' 'What is the area?' <p>Students respond individually or in pairs. The teacher writes both formulas on the board — Perimeter = $2 \times (\text{length} + \text{width})$; Area = $\text{length} \times \text{width}$ — and invites students to provide the L1 equivalents of perimeter and area. Pronunciation of PERimetre, AREa, MULtiPLY, DIvide is modelled and practised chorally. Both formulas remain displayed throughout the lesson.</p>	<p>Board / markers.</p> <ul style="list-style-type: none"> Vocabulary poster: geometry and arithmetic terms. 	—
25'	Main Activities	<p>Formula Review and Worked Example (5')</p> <p>The teacher models a complete worked example on the board, showing every step:</p> <ul style="list-style-type: none"> 'A playground is 10 m long and 5 m wide.' 'Perimeter = $2 \times (10 + 5) = 2 \times 15 = 30$ m' 'Area = $10 \times 5 = 50$ m²' <p>The teacher thinks aloud: 'I use the perimeter formula because I need to know the total distance around the shape. I use the area formula because I need to know how much space is inside.' The sentence frames on the board are highlighted: 'The perimeter is calculated by...'; 'The area is found by...'</p> <p>ICQs: 'What units do we use for perimeter? What units do we use for area? Why are they different?'</p> <p>Guided Pair Practice (10')</p> <p>In pairs, students solve two problems and record: formula used, steps, final answer with units.</p>	<p>Worksheet with shapes and word problems (one per student).</p> <ul style="list-style-type: none"> Ruler. Calculator (optional, for Step 3 only). Sentence frames displayed on the board. 	<p>Liveworksheets:</p> <p>Interactive practice activity: liveworksheets.com/worksheet/en/math/1615363</p> <p>CANVA Image Bank:</p> <p>Visual diagrams and shape cards: https://www.canva.com/design/DAHBgYc56rk/edit</p>



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		<ul style="list-style-type: none">• Problem 1 — Rectangle: length 8 m, width 4 m. Calculate perimeter and area.• Problem 2 — Square: side 6 m. Calculate perimeter and area. <p>Sentence frames on the board: 'I used the [formula] because...'; 'First I..., then I..., finally I get...'</p> <p>Real-Life Integration — Arithmetic + Geometry (10')</p> <p>The teacher presents a multi-step problem: 'A garden has an area of 60 m² and the width is 6 m.' Students must:</p> <ul style="list-style-type: none">• Step 1: Calculate the length ($60 \div 6 = 10$ m).• Step 2: Calculate the perimeter ($2 \times (10 + 6) = 32$ m).• Step 3: Answer: 'If fencing costs €3 per metre, how much will it cost to fence the garden?' ($32 \times 3 = €96$) <p>Students solve independently, then compare with a partner. The teacher circulates and uses reformulation to address errors.</p>		
5'	Wrap-Up & Sharing	<p>One Learning Point</p> <p>Students complete the sentence: 'Today I learned how arithmetic helps solve geometry problems because...' Two or three volunteers share their response. The teacher reinforces the key message: 'Perimeter tells us the distance around a shape. Area tells us the space inside. Both require arithmetic — but different operations for different questions.'</p> <p>Key vocabulary is reviewed on the board: perimeter, area, length, width, formula, units, scale, ratio.</p>	Board with formulas and key vocabulary (still displayed).	—
10'	Evaluation & Feedback	<p>Teacher Assessment (Observation)</p> <ul style="list-style-type: none">• Correct application of the perimeter and area formulas to rectangles and squares.• All steps recorded: formula, substitution, calculation, final answer with correct units.• Correct resolution of the multi-step word problem (length, perimeter, fencing cost).	Teacher observation checklist. <ul style="list-style-type: none">• Student self-assessment sheet.• Completed worksheet as	—



Duration	Lesson Flow	Activities	Materials Needed	AI Tools Integration
		<ul style="list-style-type: none">Use of structured explanation language in the written justification and oral pair discussion. <p>Student Self-Assessment</p> <ul style="list-style-type: none">I can state the formula for perimeter and the formula for area.I can explain the difference between perimeter and area in my own words.I can solve a word problem using the correct formula and show all my steps.I can explain why I chose a particular operation: 'I used multiplication because...'I can calculate the cost of fencing a garden if I know the perimeter and the price per metre. <p>Additional Practice Resources</p> <ul style="list-style-type: none">Word problem worksheets: mashupmath.com/area-and-perimeter-worksheetsArea and Perimeter of Rectangles Word Problems (PDF): available via squarespace.com (Area+and+Perimeter+of+Rectangles+Word+Problems)	assessment evidence.	