附件三

嘉義縣 111 學年度全英語教學暨口說評量活動設計教案甄選

教案設計比賽甄選（封面）

主題名稱：The secrets of perimeter and area

參賽組別：國小

適合年級：四年級

設計理念: (實施計畫柒之(二)全英語教學教案設計原則—請依素養導向的教學四大原則進行設計，並依此陳述設計理念（200 字以內之簡要說明)

（一）整合知識、技能與態度

教學從學生最熟悉的早餐食材「吐司」出發，有的人愛吃吐司邊條（奶油酥條)，有的人則相反，所以做早餐時需要把吐司邊條切下來，形成「周長」的概念；而看每個人吃了多少，則是「面積」的概念。最後以常見的「報紙」讓學生體會兩張半全開的報紙可以裁切成「1平方公尺」，讓學生體會「量感」。也讓學生在做完實驗後享用吐司、清理保鮮膜和報紙的餘邊，其實也是熟悉家務技巧，參與家務工作及養成良好家庭生活習慣的方式。

（二）情境脈絡化的學習過程

透過「製作吐司邊條」、「看看一片吐司幾平方公分」、「一平方公尺有多大？」這些實作情境，使學生能夠將所學串聯，對周長和面積的區辨與計算有更連貫性脈絡化的了解。

（三）重視學習的過程與策略

「動手做」的過程讓學生「體驗」周長和面積的意涵，接續的「探究」讓學生自主產出周長和面積的計算公式，透過歸納整理的「策略」讓學生深層學習。

（四）知識在日常生活的實踐

在本教案的活動中，學生能將所學的「周長和面積」連結至生活當中常見的食材與情境，使知識的運用更加全面。

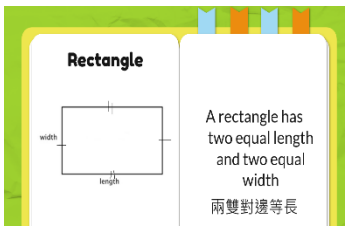
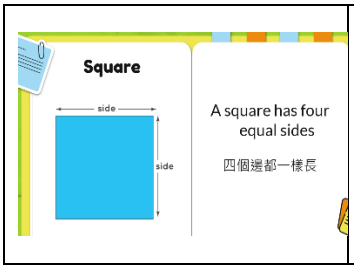
作品編號：請勿填寫

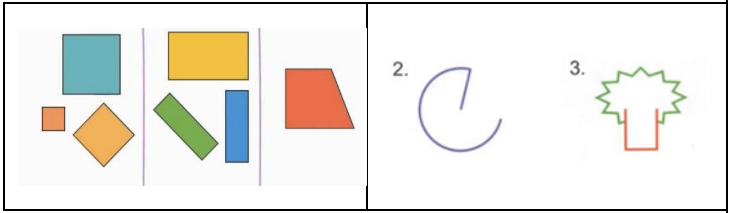
附件四

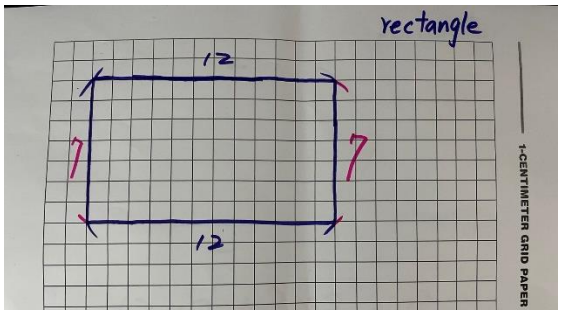
全英語教學~教案設計(範本)

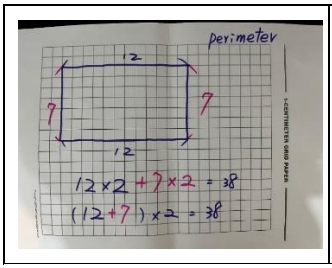
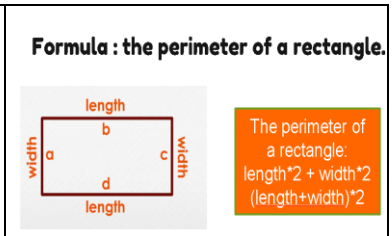
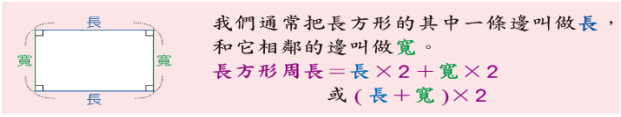
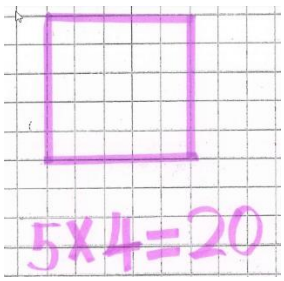
單元名稱 Unit/Title	The secrets of perimeter and area	適用年級 Grade	Grade 4
配合融入之學科領域(如無，可略) Integrated Subjects	■數學 □自然科學 □綜合活動 □健康與體育 □生活課程 □藝術 □社會 □科技 (第四學習階段) 備註：不包含語文領域		
配合融入之議題 Integrated Issues	□性別平等教育 □人權教育 □環境教育 □海洋教育 □品德教育 □生命教育 □法治教育 □科技教育 □資訊教育 □能源教育 □安全教育 □防災教育 □閱讀素養 □多元文化教育 □國際教育 □生涯規劃教育 ■家庭教育 □原住民教育 □戶外教育		
總綱核心素養(跨領域)或領綱核心素養(單領域) MOE Core Competencies	學科領域素養 Core competencies of content learning 1. 數-E-A2 具備基本的算術 操作能力、並能指認基本的形體 與相對關係，在日常生活情境中，用數學表述與解決問題。 2. 數-E-B1 具備日常語言與 數字及算術符號之間的轉換能力，並能熟練操作日常使用之度量衡及時間，認識日常經驗中的幾何形體，並能以符號表示 公式。 3. 數-E-C1 具備從證據討論事情，以及和他人有條理溝通的態度。 英語文領域素養 Core competencies of language (English) learning 4. 英-E-A2 具備理解簡易英語文訊息的能力，能運用基本邏輯思考策略提 升學習效能。 5. 英-E-B1 具備入門的聽、說、讀、寫英語文能力。在引導下，能運用所 學、字詞及句型進行簡易日常溝通。 6. 英-E-C2 積極參與課內英語文小組學習活動，培養團隊合作精神。		
單元目標 Unit Objectives	1. 計算長方形和正方形周長，並能歸納出長方形和正方形周長公式。 Calculate the perimeter of a rectangle and a square, and be able to summarize the perimeter formula. 2. 計算長方形和正方形面積，並能歸納出長方形和正方形面積公式。 Calculate the area of a rectangle and a square, and be able to summarize the area formula. 3. 能分辨與理解周長和面積的關係。 Be able to distinguish and understand the relationship between perimeter and area.		

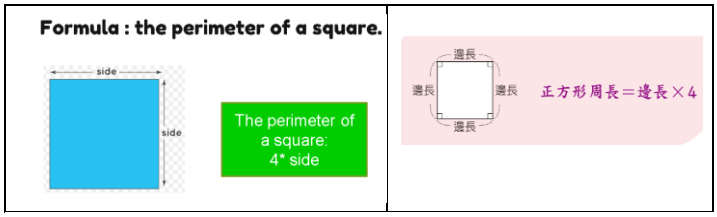
	4. 能建立「一平方公尺」的量感。 Be able to make sense about "one square meter".
表現任務 Performance Tasks	Be able to— 1. 能將長方形起司蛋糕的起司外皮、與正方形吐司邊視為周長，畫在平方公分方格紙上，並能正確計算出兩者的周長，而歸納出簡易周長計算公式。 Be able to take the cheese crust of the rectangular cheesecake, and the toast side of the square toast as the perimeter, draw them on the square centimeter graph paper, and be able to calculate the perimeter and summarize the simple formula. 2. 能使用平方公分方格紙計算一片長方形吐司、與一片正方形吐司的面積，並能歸納出簡易面積計算公式。 Be able to use square centimeter graph paper to calculate the area of a piece of rectangular toast and a piece of square toast, and can summarize the simple formula 3. 能使用報紙裁切、拼貼出「一平方公尺」的作品，建立量感。 Be able to cut and collage newspapers and form "one square meter".
Culture/ Community/ Citizen 情境脈絡 節次配置 Title of Each Period	Period one: Culture/Community/ Cut the crust of cakes and toasts, and then calculate the length of the crusts (perimeters) of a rectangle and a square, and be able to summarize the perimeter formulas. Period two: Cut a rectangle and a square toast with the unit of 1 square centimeter ($1cm^2$), and be able to summarize the area formulas. Period three: Build "one square meter"($1m^2$) with newspapers. Citizen: grade 4 students in Chiayi county Donshi Elementary school.
第一節 First Period	
相關領域之學習表現或相關議題之實質內涵 MOE Curriculum Guidelines	學科領域學習表現 Performance of content learning s-II-1 理解正方形和長方形的面積與周長公式與應用。 英語文領域學習表現 Performance of language (English) learning 1. 1-II-7能聽懂課堂中所學的字詞。 2. 1-II-8能聽懂簡易的教室用語。 3. 1-II-9能聽懂簡易的日常生活用語。 4. 1-II-10 能聽懂簡易句型的句子。 5. 6-II-1 能專注於教師的說明與演示。 6. 6-II-2積極參與各種課堂練習活動。 7. 6-II-3樂於回答教師或同學所提的問題。 8. 6-II-4 認真完成教師交待的作業。

學習目標 Learning Objectives	學科學習內容 Content **理解並能算出長方形和正方形的周長** Understand and be able to calculate the perimeter of rectangles and squares.		
	語言學習內容 (Language of Learning) Communication 目標字詞 Target vocabulary： shape, square, rectangle, toast, cheese cake, crust, perimeter, area, centimeters. 目標句型 Target sentences: What is the perimeter of the rectangle / square? What is the area of the rectangle / square?		
學習活動 Learning Tasks	步驟 Procedures	教學資源 Teaching Resources	認知能力 Cognition
	【Warm up】Review the definitions of square, rectangle, and perimeter.   T: What is this? (point to the picture of rectangle) S: It's a rectangle! T: Can you point the shape of rectangle in the classroom? S: The desk! (point to the student's desk)	PPT Students' desk Pictures	Review the concept of rectangle and square which have learned in grade 2 and grade 3.
	  T: What is this? (point to the picture of square) S: It's a square! T: Can you point the shape of square in the classroom?		Review the concept of rectangle and square which have learned in grade 2

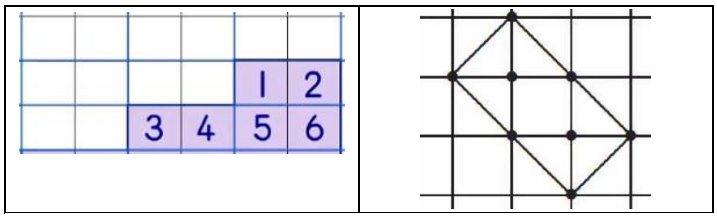
	S: The pink table! (point to the picture of the pink table)  T: There are three kinds of pictures. Can you find what shapes they are? S: They are squares! (point to the first species) They are rectangles! (point to the second species) It's not a square and It's not a rectangle! (point to the third species) T: Look at these two pictures. Show me the "perimeter"（周界）of them. S: This one doesn't have "perimeter" (point to the third one). But these do (finger pointing around the right pictures). 【Presentation and practice】 The perimeter of a rectangle The teacher gives each group a piece of cheese cake.  T: Now, each one show me the "perimeter" of the cake with your fingers. T: My friend doesn't like to eat the cheese crust. But I really like it! Can you take out the cheese crust of the cake, and tell me how long it is? Then draw them on the square centimeter graph paper.	PPT Students' desk Pictures Cheese cake ruler	and grade 3. Understand the concept of "perimeter" through operation. Understand the concept

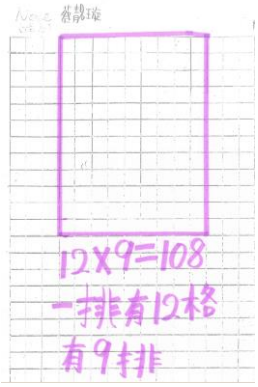
	 T: Now, each one draw a rectangle on the square centimeter graph paper. (The teacher patrols between the rows) T：What is the perimeter of this rectangle cake? Write down your answer and tell me why. (Students write down their answers on the square centimeter graph paper). (The teacher randomly assigns students to present on stage and publish on the blackboard. The teacher helps to clarify and guide students' misconceptions.) (Episode 1) S1: Tom  T：What is the length of this rectangle? S3: 38. T: Oh……the “length” is 38, how about the perimeter? S3: Well, I think the length is 12 and the perimeter is 38. T：You told me, the perimeter of this rectangle is 38. Why? S3：(finger pointing around the right picture) 12*2+7*2=38 T: What is that “12”? Can you explain? S3：Here, the length is “12” centimeters. T: What is that 7? S3：The width is “7” centimeters.	Cheese cake ruler the square centimeter graph paper the ruler the square centimeter graph paper the marker	of “perimeter” through operation. Be able to draw the “perimeter” of the cake and explain the way of calculation.

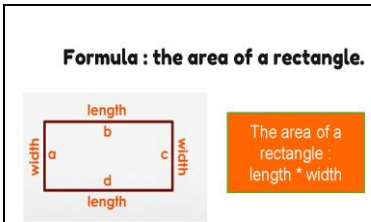
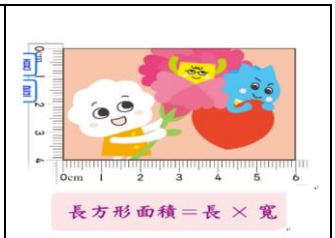
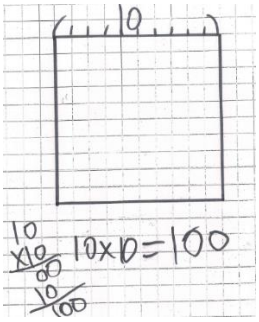
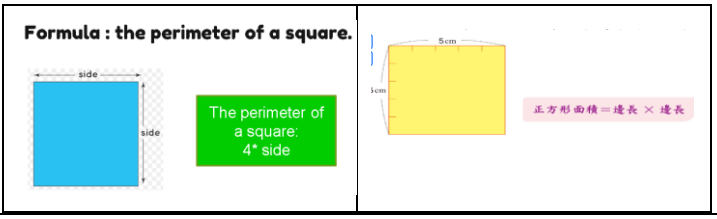
	T: Is there another way to find the perimeter of the rectangle? S4: （12+7）*2 T: Great! Can you explain? S4: Here is 12+7. (point to the length and the width of one side). And there are two sets. T: Very good. It's another faster way to know the perimeter of a rectangle.    	the ruler	Be able to find the way of faster calculation. (find the formula)
	The perimeter of a square The teacher gives each group a piece of square toast. Then ask the students to cut the crust of the square toast as the perimeter. T: Let's make the snack "shortbread" (奶油酥條). First, cut the crust of the square toast, and draw them on the square centimeter graph paper, calculate the perimeter and find out the faster way to solve it.   (Episode 2) S2: Cindy T: Cindy, come here. What is it? S2: It's a square. T: Look at this square. What's the perimeter of this square toast? S2: 20 centimeters.	square toast	Understand the concept of "perimeter" through

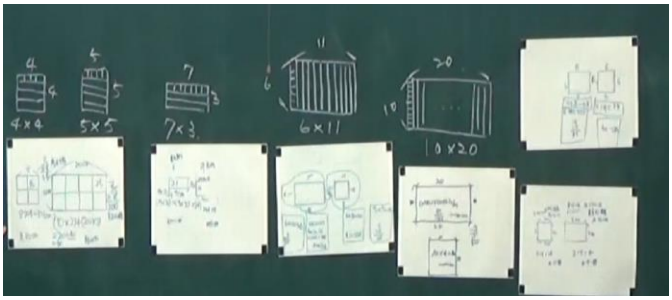
	T: Why? S2: 5*4=20 T: Can you explain it? S2: There are 4 equal sides. Each side is 5 centimeters. T：Hey, do you think this is a faster way to calculate the perimeter? All students: Yes, faster. T: It's a good formula to know the perimeter of a square.  【Wrap up】 The students do oral practice two by two. 1. This is a rectangle. 2. The perimeter of rectangle is □. 3. My way is ■*2+□*2. Or (■+□)*2 4. This is a square. 5. The perimeter of the square is ◎. 6. My way is ★*4 7. Then they done the worksheet 1 by themselves.	the square centimeter graph paper the marker the ruler	operation. Be able to draw the "perimeter" of the cake and explain the way of calculation. Be able to find the way of faster calculation. (find the formula) Oral practice
	自編自選教材或學習單 Learning Materials		
	1. Material: cheese cake, the square centimeter graph paper, the marker, the ruler 2. Self-designed worksheet 1. （配合康軒四年級下學期第八冊第四單元）		
	語言使用 Use of Language		
	課室語言 Classroom Language	授課語言 Instructional Language	互動語言 Interactional Language
	1. Open your math book. 2. Take out your ruler. 3. Be quiet. 4. Attention! 5. Eyes on me.	1. What is the perimeter of the rectangle / square? 3. What is	1. Why? 2. Can you explain it? 3. Is that a fast way?

		the area of the rectangle / square?	
評量 Assessment	學科內容學習評量 1. 上課時能完成小組任務：能剝下長方形蛋糕和正方形吐司的邊條，能在平方公分板上畫出蛋糕和吐司的周長，並計算其長度 2. 課程結束時能完成「周長」學習單（如附件） 3. 課程結束時能完成「周長」數學小考 英語口說學習評量 1. 能聽懂教師課室用語並依據指示做出相對應的行為。 2. 能聽懂教師主要授課字彙及句型，並依據指示完成數學任務。 3. 能與同儕用上課所學之字彙及句型對話，做周長計算公式的歸納與統整。		
第二節 Second Period			
相關領域之學習表現或相關議題之實質內涵 MOE Curriculum Guidelines	學科領域學習表現 Performance of content learning s-II-1 理解正方形和長方形的面積與周長公式與應用。 英語文領域學習表現 Performance of language (English) learning 1. 1-II-7能聽懂課堂中所學的字詞。 2. 1-II-8能聽懂簡易的教室用語。 3. 1-II-9能聽懂簡易的日常生活用語。 4. 1-II-10 能聽懂簡易句型的句子。 5. 6-II-1 能專注於教師的說明與演示。 6. 6-II-2積極參與各種課堂練習活動。 7. 6-II-3樂於回答教師或同學所提的問題。 8. 6-II-4 認真完成教師交待的作業。		
學習目標 Learning Objectives	學科學習內容 Content **理解並能算出長方形和正方形的面積** Understand and be able to calculate the area of rectangles and squares. 語言學習內容 (Language of Learning) Communication 目標字詞 Target vocabulary： shape, square, rectangle, toast, area, square centimeters, grids, rows. 目標句型 Target sentences: What is the area of the rectangle / square? What is the area of the rectangle / square?		

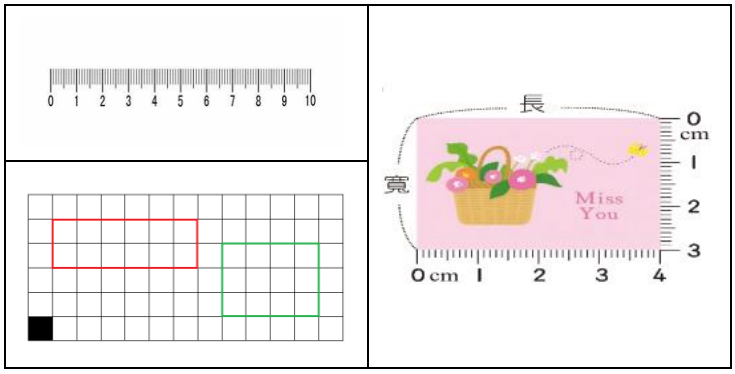
	步驟 Procedures	教學資源 Teaching Resources	認知能力 Cognition
學習活動 Learning Tasks	【Warm up】Review the definitions of area of squares and rectangles. 複習以前三年級學過的「方格紙點數」面積法。  【Presentation and practice】 The area of a rectangle The teacher gives each group a piece of toast and a piece of square centimeter graph paper.  T: Show me "1 square centimeter" on the graph paper! T: Look at the toast in your hand. What shape is it? S: It's a rectangle! T: Hey, I am really very curious about what's the area of the toast. I think you are, too. Let's find the answer! Now, each group tries to cut the toast and counts how many square centimeters equal a piece of toast!  T: After you count, draw the shape of your toast on the square centimeter graph paper. (The teacher patrols between the rows) Then, the teacher asks students to think about any	Flash cards PPT toast square centimeter graph paper	Review the concept of area of squares and rectangles which have learned in grade 2 and grade 3. Understand the concept of "area" through operation.

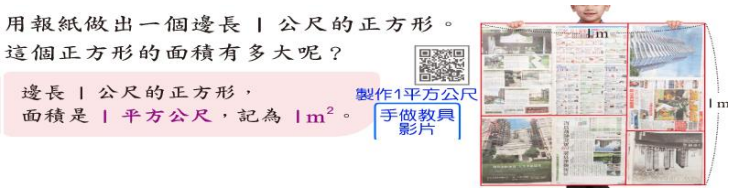
	“faster way” to calculate the area the rectangle toast! T: Look at your picture. Is there any faster way to know the area of the toast? 教師請學生思考，除了點數以外，有沒有更快的方法可以算出吐司的面積？ (Episode 4) S8: Lucy  T: Let’s see. What’s the area of this toast? S8: 12*9=108. T: Lucy, you learn quickly! Can you explain the equation for us? S: There are 12 grids in a row, and there are 9 rows, so the total is 108 grids, and the area is 108 square centimeters. (每排有 12 格，總共有 9 排，共 108 格，所以是 108 平方公分)。 T: Awesome. Let’s think about it: How long is the length? S: It’s 12 cm. T: If you don't have square centimeter graph paper, but you know the length is 12 cm, how many grids are there in a row? S: 12 cm means there are 12 grids in a row. T：Terrific! How about the width? S：9 cm T: If you don't have square centimeter graph paper, but you know the width is 9 cm, how many grids are there in a row? S: 9 cm means there are 9 grids in a row. T: Good job. If we know the length is 12 cm and the width is 9 cm, do you know what the area of the rectangle is?	Markers square centimeter graph paper problem posing	Be able to draw the “area” of the toast and explain the way of calculation. Be able to find the way of faster calculation. (find the formula) Be able to find the area formula.

	如果我們知道一個長方形的長為 12 公分，寬為 9 公分，它的面積是多少呢？ S4: Well, 12*9=108. T: Great! It's a good formula to know the area of a rectangle.   The area of a square The teacher gives each group a piece of toast and a piece of square centimeter graph paper. T: Cut a square with a side length of ten centimeters. Then draw it in the square centimeter graph paper. T: What is the area of the square? (Episode 3) S19: Lisa  T: Lisa, What is the area of this square? S5: 10*10=100 T: Can you explain? S1: There are 10 grids in a row, and there are 10 rows, so the total is 100 grids, and the area is 100 square centimeters. (每排有 10 格，總共有 10 排，共 100 格，所以是 100 平方公分)。 T: Good job! That is a faster way to know the area of the square. 	problem posing square centimeter graph paper toast marker ppt	Be able to find the area formula of a rectangle. Understand the concept of "area" through operation. Be able to draw the "area" of the cake and explain the way of calculation.

	【Wrap up】 The teacher show all the paintings on the blackboard and ask students do oral practice two by two.  1. This is a rectangle. 2. The area of rectangle is □. 3. My way is ■*□ (The length is ■, the width is □) 4. This is a square. 5. The area of square is ◎. 6. My way is ★*★ 7. Then they done the worksheet 2 by themselves.		Be able to find the way of faster calculation. (find the formula) presentation Oral practice
	自編自選教材或學習單 Learning Materials		
	1. Material: rectangle and square toast, the square centimeter graph paper, the marker, the ruler 2. Self-designed worksheet. （配合康軒四年級下學期第八冊第四單元）		
	語言使用 Use of Language		
	課室語言 Classroom Language	授課語言 Instructional Language	互動語言 Interactional Language
	1. Open your math book. 2. Take out your ruler. 3. Be quiet. 4. Attention! 5. Eyes on me.	1. What is the area of the rectangle / square? 2. There are 12 grids in a row, and	1. Why? 2. Can you explain it? 3. That is a faster way to know the

		there are 9 rows.	area of the square.
評量 Assessment	學科內容學習評量 1. 上課時能完成小組任務：能切下10cm*10cm 的吐司，並在平方公分板上畫出與計算其面積。 2. 課程結束時能完成學習單（如附件） 3. 課程結束時能完成「面積」數學小考 英語口說學習評量 1. 能聽懂教師課室用語並依據指示做出相對應的行為。 2. 能聽懂教師主要授課字彙及句型，並依據指示完成數學任務。 3. 能與同儕用上課所學之字彙及句型對話，做面積計算公式的歸納與統整。		
第三節 Third Period			
相關領域之學習表現或相關議題之實質內涵 (MOE)	學科領域學習表現 Performance of content learning s-II-1 理解正方形和長方形的面積與周長公式與應用。 英語文領域學習表現 Performance of language (English) learning 1. 1-II-7能聽懂課堂中所學的字詞。 2. 1-II-8能聽懂簡易的教室用語。 3. 1-II-9能聽懂簡易的日常生活用語。 4. 1-II-10 能聽懂簡易句型的句子。 5. 6-II-1 能專注於教師的說明與演示。 6. 6-II-2積極參與各種課堂練習活動。 7. 6-II-3樂於回答教師或同學所提的問題。 8. 6-II-4 認真完成教師交待的作業。		
學習目標 Learning Objectives	學科學習內容 Content		
	認識一平方公尺，並以平方公尺為單位進行實測與估算		
	語言學習內容 (Language of Learning) Communication		
	目標字詞 Target vocabulary： Newspaper, 1 square centimeter, 1 square meter, sides, make a “big square” 目標句型 Target sentences: 1 “square meter” ($1m^2$) equals 10000 square centimeters. ($1cm^2$)		
	步驟 Procedures	教學資源 Teaching Resources	認知能力 Cognition

學習活動 Learning Tasks	【Warm up】 Teacher reviews the unit of “centimeter” and “square centimeter” with pictures.  T: Look at this rectangle card. How long is the length? S: It’s 4 “centimeters”. T: How long is the width? S: It’s 3 “centimeters”. T: Look at this square graph paper. What is the black grid? S: It’s 1 “square centimeter”. T: What is the area of the rectangle card? S: 4*3=12 It’s 12 “square centimeters”. 【Presentation and practice】 The teacher gives each group some newspapers. T: Let’s make a “big square” with 100 cm sides.  The students in the same group work together to make a big square with sides 100 cm in length. Then they show their “square” to the whole class.	pictures flash cards newspapers square centimeter graph paper	Be able to review the concept of “1 centimeter” and “1 square centimeter”. Understand the concept of “square with sides 100 cm in length.” through operation.

學習活動 Learning Tasks	 T: That's think about it. How many "1cm^2" equal your square? Why? S: The side length of the square is 100 cm. That means there are 100 grids in the length. The other side is 100 cm, too. That means there are 100 rows in the other side. 100*100=10000. There are 10000 "1cm^2" in our square. T: Terrific! We call this big square "1 square meter" (1m^2) in math. T: In other words, "1 square meter" (1m^2) equals 10000 square centimeters. (1cm^2)  【Wrap up】 Oral practice The teacher invites each group say the sentences in the following with their "square" in the hand. The example of presentation may: 1. This is one square meter (point to the newspaper square). 2. One square meter equals 10000 square centimeters. $1m^2 = 1cm^2$ 3. Ask students to do the worksheet 3 by themselves. Performance assessment The teacher asks students the following questions: 1. How large is the aisle?	newspapers square centimeter graph paper	Understand the concept of "one square meter" (1m^2)through operation. oral practice performance assessment

	2. How to measure the area of the aisle?  The whole class go outside and measure the area of the aisle by their "$1m^2$".		performance assessment
自編自選教材或學習單 Learning Materials			
	1. Material: newspaper, square centimeter graph paper, scissors, and tapes. 2. Mathematics workbook. （配合康軒四年級下學期第八冊第四單元）		
語言使用 Use of Language			
	課室語言 Classroom Language	授課語言 Instructional Language	互動語言 Interactional Language
	1. Open your math book. 2. Take out your tool (one square meter, $1m^2$). 3. Be quiet. 4. Attention! 5. Eyes on me.	1. This is one square meter. 2. How long is the length /width? 3. One square meter equals 10000 square centimeters.	1. Why? 2. That's think about it.
	學科內容學習評量 1. 上課時能完成小組任務：能將報紙裁切、拼貼成100cm*100cm=1m^2，即1平方公尺的大小。 2. 課程結束時能完成實作評量（量測教室外走廊面積） 3. 能完成雙語學習單（附件） 英語口說學習評量 1. 能聽懂教師課室用語並依據指示做出相對應的行為。 2. 能聽懂教師主要授課字彙及句型，並依據指示完成數學任務。 3. 能與同儕用上課所學之字彙及句型對話，並說出諸如"This is one square meter"、"The aisle is 8m^2"等句子。		

附件五

全英語教學~學習活動設計 (範本)

<table>
<tr><td>領域／科目／跨領域</td><td colspan="3">數學/英語</td></tr>
<tr><td>實施年級</td><td>四年級</td><td>總節數</td><td>共 3 節，120 分鐘</td></tr>
<tr><td>（聚焦之）單元名稱</td><td colspan="3">The secrets of perimeter and area</td></tr>
<tr><td colspan="4">設計依據</td></tr>
<tr><td rowspan="2">學習重點</td><td>學習表現</td><td>數學領域學習表現
s-II-1 理解正方形和長方形的面積與周長公式與應用。

英語領域學習表現
1. 1-II-7能聽懂課堂中所學的字詞。
2. 1-II-8能聽懂簡易的教室用語。
3. 1-II-9能聽懂簡易的日常生活用語。
4. 1-II-10 能聽懂簡易句型的句子。
5. 6-II-1 能專注於教師的說明與演示。
6. 6-II-2積極參與各種課堂練習活動。
7. 6-II-3樂於回答教師或同學所提的問題。
8. 6-II-4 認真完成教師交待的作業。</td><td rowspan="2">核心素養</td><td rowspan="2">數學領域素養
1. 數-E-A2 具備基本的算術 操作能力、並能指認基本的形體 與相對關係，在日常生活情境中，用數學表述與解決問題。
2. 數-E-B1 具備日常語言與 數字及算術符號之間的轉換能力，並能熟練操作日常使用之度量衡及時間，認識日常經驗中的幾何形體，並能以符號表示公式。
3. 數-E-C1 具備從證據討論事情，以及和他人有條理溝通的態度。
英語文領域素養
1. 英-E-A2 具備理解簡易英語文訊息的能力，能運用基本邏輯思考策略提升學習效能。
2. 英-E-B1 具備入門的聽、說、讀、寫英語文能力。在引導下，能運用所 學、字詞及句型進行簡易日常溝通。
3. 英-E-C2 積極參與課內英語文小組學習活動，培養團隊合作精神。</td></tr>
<tr><td>學習內容</td><td>數學領域學習內容
S-4-3 正方形與長方形的面積與周長：理解邊長與周長或面積的關係，並能理解其公式與應用。簡單複合圖形。(備註：邊長限整數)。
R-4-3 以文字表示數學公式：理解以文字和運算符號聯合表示的數學公式，並能應用公式。可併入其他教學活動（如 S-4-3）。
(備註：如 S-4-3 的「長方形面積＝長×寬」、「正方形周長＝邊長×4」等)。
英語領域學習內容</td></tr>
</table>

		1. B-Ⅱ-1第二學習階段所學字詞及句型的生活溝通。 2. D-Ⅱ-1 所學字詞的簡易歸類。		
議題融入	議題／學習主題	家 E11 養成良好家庭生活習慣，熟悉家務技巧，並參與家務工作。		
	議題實質內涵	教學從學生最熟悉的早餐食材「吐司」出發，有的人愛吃吐司邊條（奶油酥條），有的人則相反，所以做早餐時需要把吐司邊條切下來，形成「周長」的概念；而看每個人吃了多少，則是「面積」的概念。最後以常見的「報紙」讓學生體會兩張半全開的報紙可以裁切成「1 平方公尺」，讓學生體會「量感」。也讓學生在做完實驗後享用吐司、清理保鮮膜和報紙的餘邊，其實也是熟悉家務技巧，參與家務工作及養成良好家庭生活習慣的方式。		
與其他領域／科目的連結		數學：正方形與長方形的面積與周長：理解邊長與周長或面積的關係，並能理解其公式與應用。認識平方公尺。		
教材來源		1. Material: cheese cake, the square centimeter graph paper, the marker, the ruler, the newspapers. 2. Self-designed worksheets. 3. 參考康軒四年級下學期第八冊第四單元		

學習目標

1. 計算長方形和正方形周長，並能歸納出長方形和正方形周長公式。
   Calculate the perimeter of a rectangle and a square, and be able to summarize the perimeter formula.
2. 計算長方形和正方形面積，並能歸納出長方形和正方形面積公式。
   Calculate the area of a rectangle and a square, and be able to summarize the area formula.
3. 能分辨與理解周長和面積的關係。
   Be able to distinguish and understand the relationship between perimeter and area.
4. 能建立「一平方公尺」的量感。
   Be able to make sense about "one square meter".

節數	學習活動設計 學習引導內容及實施方式 （含時間分配）	學習評量	備註
第一節	1.【Warm up】Review the definitions of square, rectangle, and perimeter. 2.【Presentation and practice】 A. measure the cheese crust (perimeter) of the rectangle cake. B. measure the crust (perimeter) of the square toast. C. Find the perimeter formulas. 3. 【Wrap up】 A. The students do oral practice two by two. B. The students do the worksheet 1 by themselves.	1. Oral practice 2. point to the right picture with fingers 1. Oral practice 2. performance assessment 1. Oral practice 2. worksheet writing	3 minutes 30 minutes 7 minutes

教學設備／資源：

1. Material: cheese cake, the square centimeter graph paper, the marker, the ruler
2. Self-designed worksheet 1.

（配合康軒四年級下學期第八冊第四單元）

第二節	1.【Warm up】Review the definitions of area of squares and rectangles. 2.【Presentation and practice】 A. measure the area of the rectangle toast with square centimeter graph paper. B. measure the area of the square toast with square centimeter graph paper. C. Find the area formulas. 3. 【Wrap up】 A. The students do oral practice two by two. B. The students do the worksheet 2 by themselves.	1. Oral practice 1. Oral practice 2. performance assessment 1. Oral practice 2. worksheet writing	3 minutes 30 minutes 7 minutes
教學設備／資源： 1. Material: rectangle and square toast, the square centimeter graph paper, the marker, the ruler 2. Self-designed worksheet 2. （配合康軒四年級下學期第八冊第四單元）			

第三節	1.【Warm up】Reviews the unit of "centimeter" and "square centimeter" with pictures. 2.【Presentation and practice】 A. Make "1 square meter" with newspapers. B. Do the induction that "1 square meter" $(1m^2)$ equals 10000 square centimeters. $(1cm^2)$ 3. 【Wrap up】 A. The students do oral practice two by two. B. Performance assessment: find the area of the aisle.	1. Oral practice 1. Oral practice 2. performance assessment 1. Oral practice 2. performance assessment	3 minutes 30 minutes 7 minutes
教學設備／資源： **1.** Material: newspaper, square centimeter graph paper, scissors, and tapes. 2. Self-designed worksheet 3. （配合康軒四年級下學期第八冊第四單元） .			
● **參考資料：** 一、 康軒四年級下學期第八冊第四單元: 周長與面積。			
附錄： worksheet1, 2, 3 and ppt.			

(請自行增刪)

附件六

【實施成效】

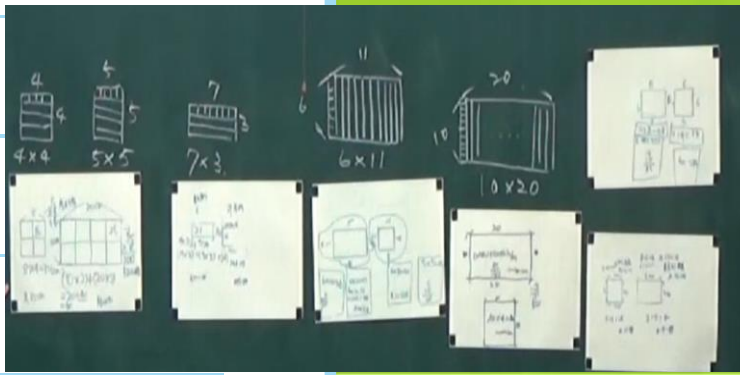
- 領域/科目/跨領域：數學/英語
- 實施年級：四年級
- 授課教師)：陳欣民

項目	項次	檢核指標	課程實施情形描述
課程實施	1	能依據課程計畫所訂定之各週進度實施課程	1. 本教案係按照「部定數學領域」四年級數學課程計畫所訂定之各週進度實施課程。 2. 本教案能善用相關之教學資源、教具、器材等如吐司、蛋糕、報紙等，充實課程內容，並豐富學習經驗 3.課程實施之歷程皆為異質分組學習，能落實差異化、適性化之原則，以符應不同學生之學習風格。 4. 針對數學學習落後之學生，能於課中或課後進行相關補救教學，以減少學習落差。
	2	能善用相關之教學資源、教具、器材等，充實課程內容，並豐富學習經驗	
	3	課程實施之歷程，能落實差異化、適性化之原則，以符應不同學生之學習風格	
	4	針對學習落後之學生，能於課中或課後進行補救教學，以減少學習落差	
課程效果	5	能依課程內容及特性，採用最合宜之多元評量方式，評估學生學習成效	5. 本教案能依課程內容及特性，採用最合宜之多元評量方式如實作、口頭、學習單、紙筆測驗，評估學生學習成效。 6. 課程經實施及評量後，多數學生確實能達成數學領域核心素養，並精熟周長與面積概念和計算公式。 7. 能依據評量結果，滾動式修正課程設計及規劃，調整教學策略，以促進有效教學目標之達成。 8. 面對教學目標與教學成效兩者之落差，本教案透過多元評量與小組合作完成任務的方式，能提升教學效能
	6	課程經實施及評量後，多數學生確實能達成該學習領域/科目核心素養，並精熟學習重點	
	7	能依據評量結果，滾動式修正課程設計及規劃，調整教學策略，以促進有效教學目標之達成	
	8	面對教學目標與教學成效兩者之落差，能積極規劃自主性專業成長方案，以提升教學效能	

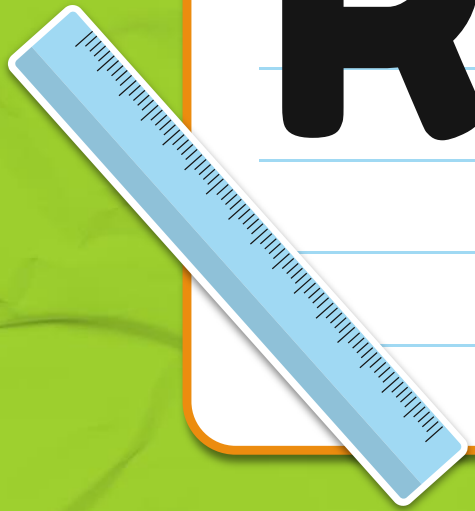
課程實踐歷程紀錄(課堂學習活動照片、學生成果照片)	
	
說明1 ：學生剝下起士外層並量測「周長」	說明2： 學生展示手上正方形吐司「周長」
	
說明 3：以「1平方公分」為單位裁切吐司	說明4：學生思考如何更快速的求取面積大小
	
說明 5：學生做出「1平方公尺」	說明6：以「1平方公尺」量測走廊面積
課程實踐省思與回饋	
1. 近端情境讓雙語數學課兼顧數學學習目標與英語學習目標 2. 雙語數學課帶給學生正向的感知 3. 「讓學生容易理解」的數學課程設計是雙語數學課首要考量	

The secrets between perimeter and area

Square and Rectangle

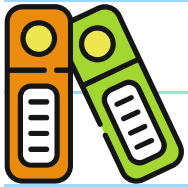


Review

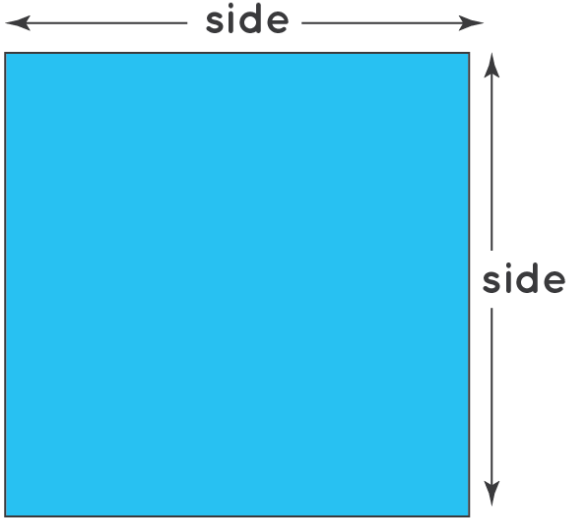


01

review



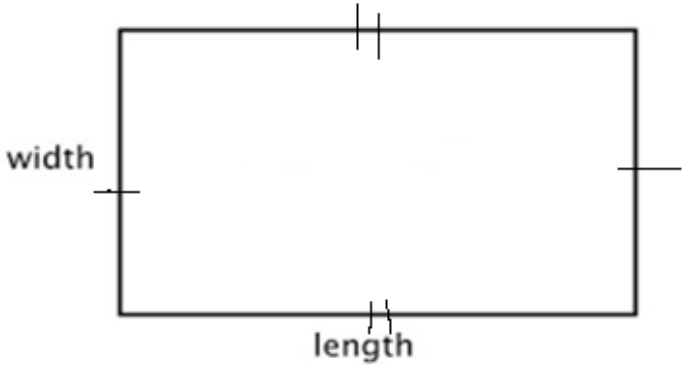
Square



A square has four equal sides

四個邊都一樣長

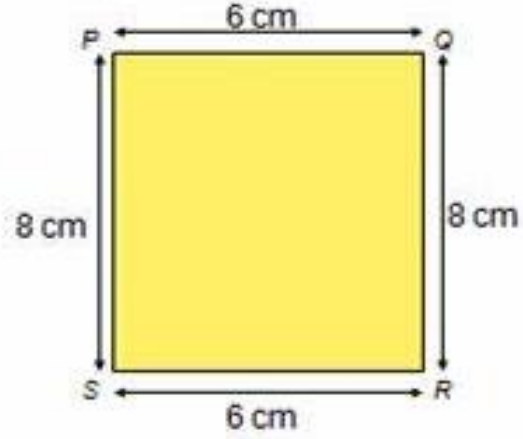
Rectangle



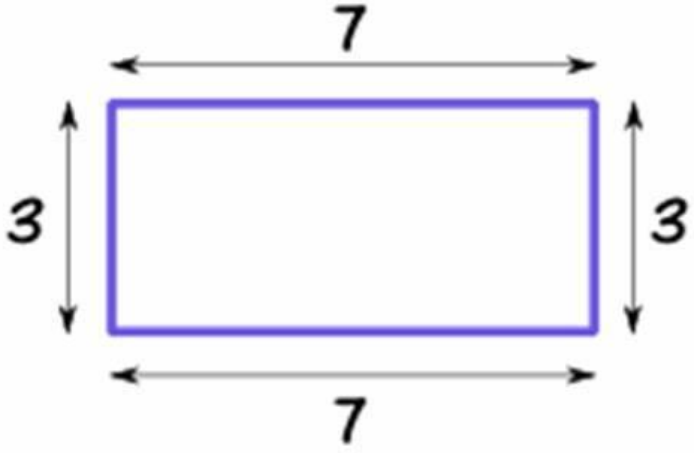
A rectangle has two equal length and two equal width

兩雙對邊等長

Perimeter

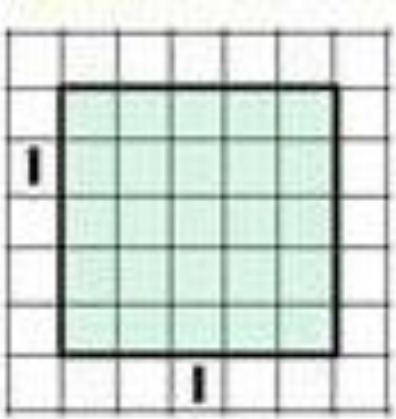


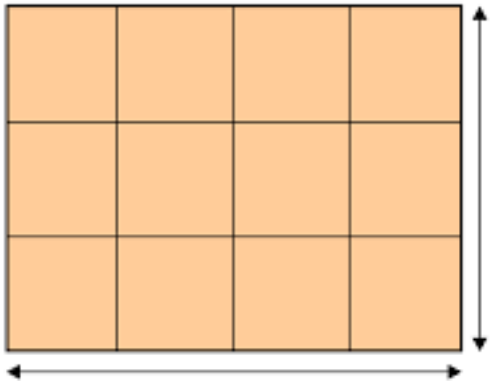
The perimeter of square is
Length * 4



The perimeter of rectangular is
(Length + width)* 2
Length*2 + width * 2

Area



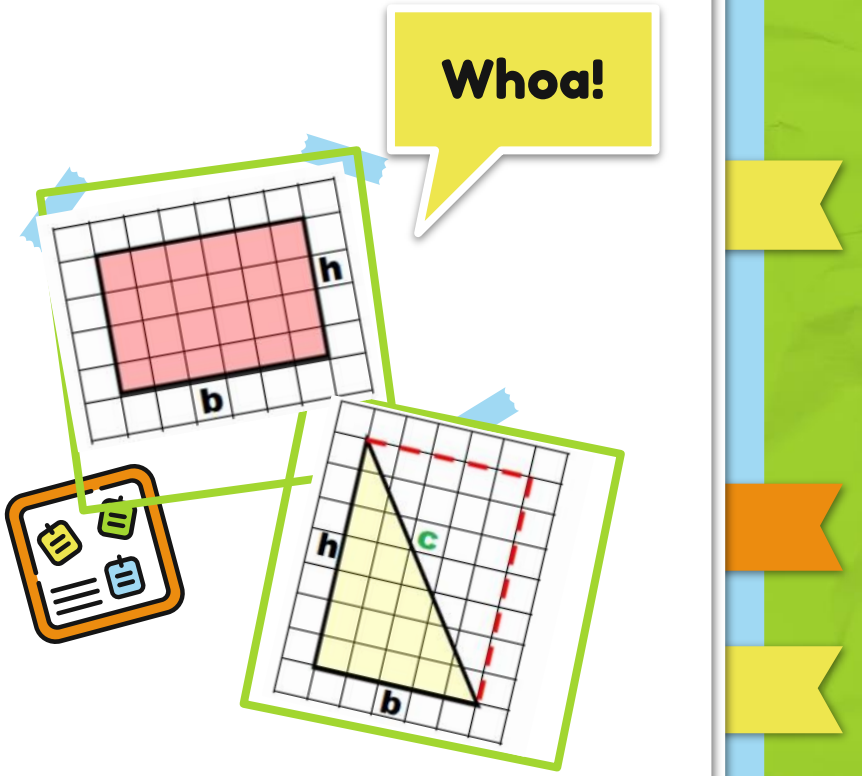


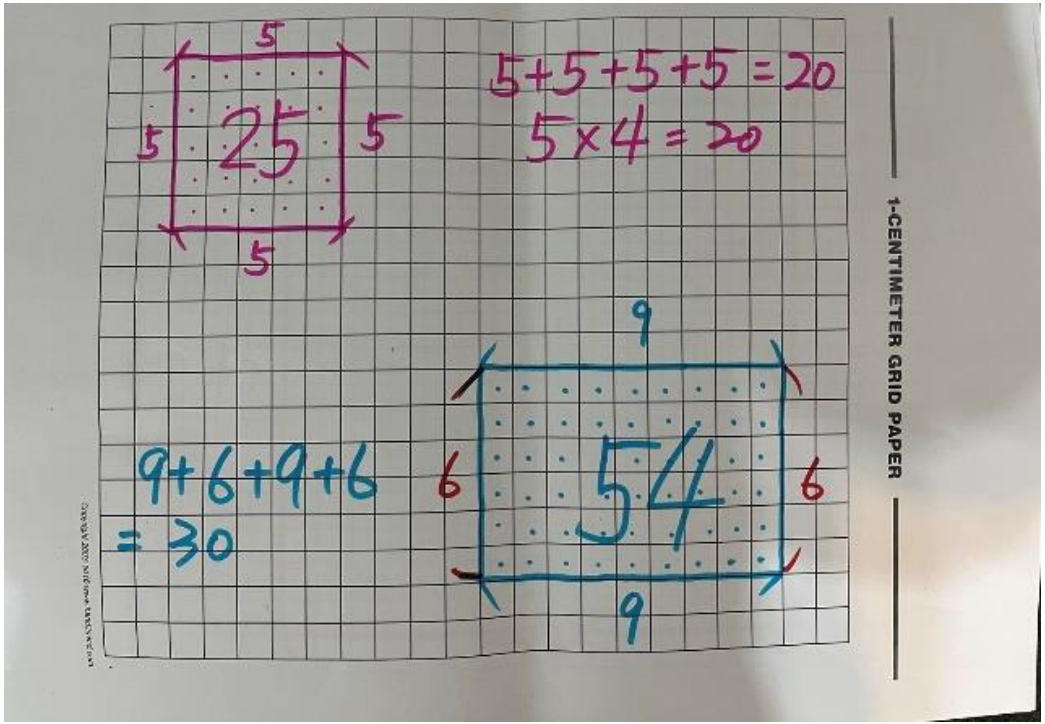
Do it !

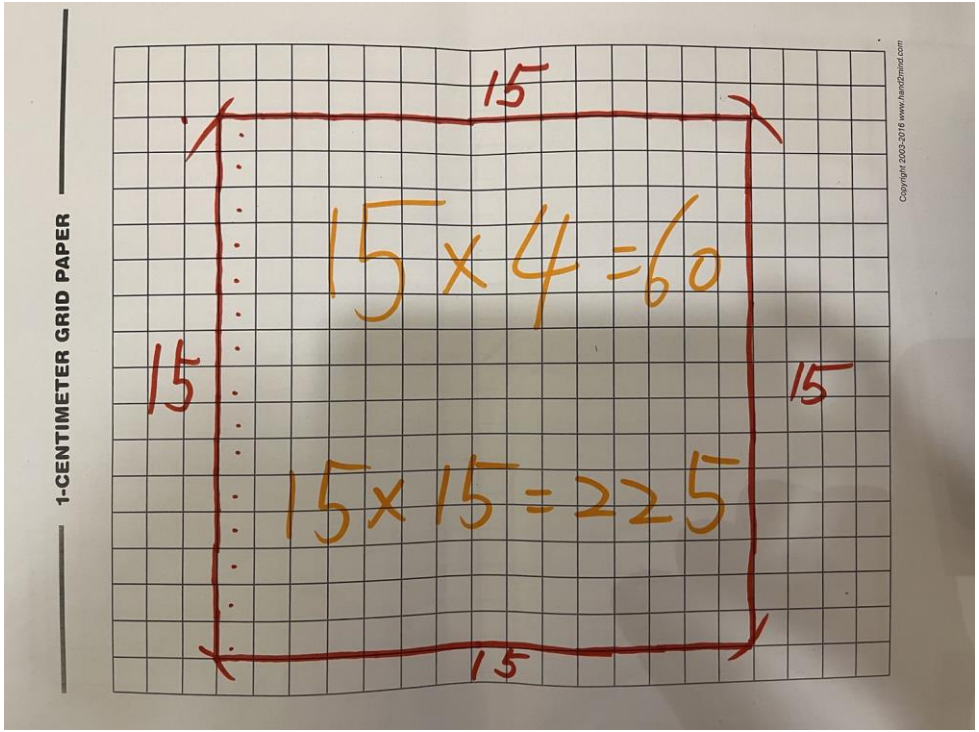
checkered board time

TASK

- Draw a square and a rectangle on the board.
- Calculate area and perimeter of the square and rectangle.




5
5
25
5
5
5+5+5+5=20
5x4=20
9
6
54
6
9
9+6+9+6
=30
1-CENTIMETER GRID PAPER


1-CENTIMETER GRID PAPER
15
15
15
15
15 x 4 = 60
15 x 15 = 225
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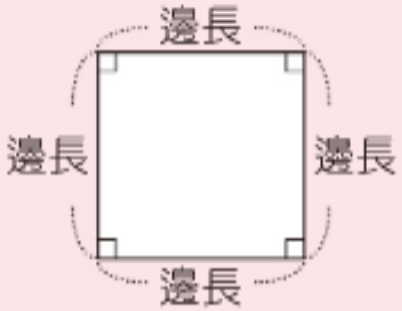
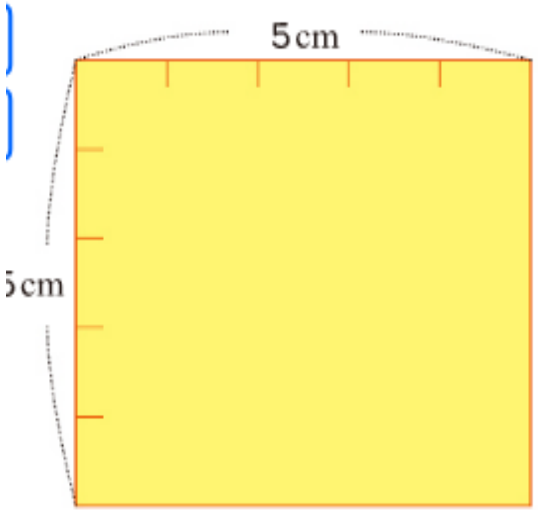
Formula : the perimeter of a square.

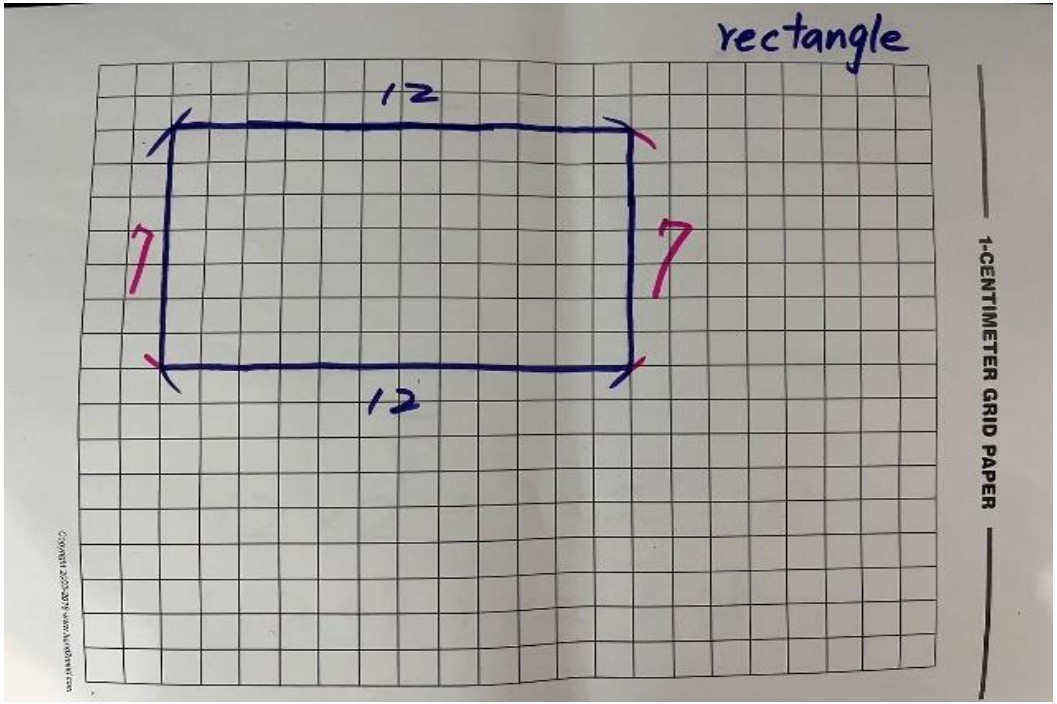


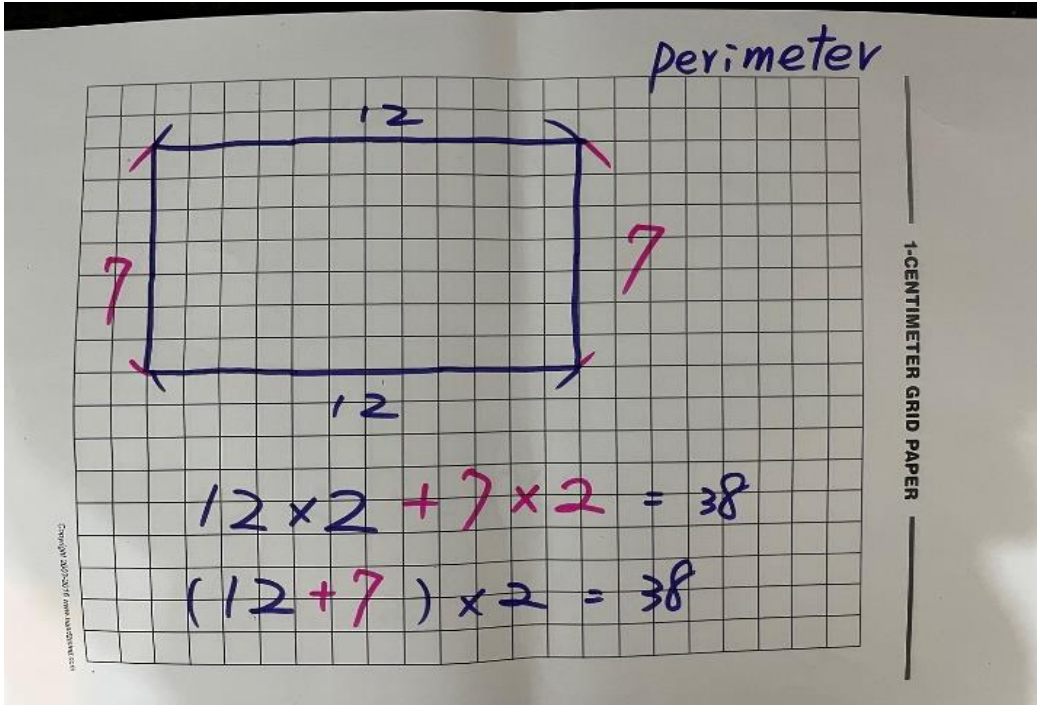
正方形周長＝邊長×4

Formula : the area of a square.

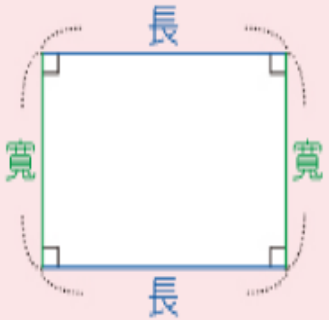


正方形面積＝邊長 × 邊長


rectangle
12
7
7
12
1-CENTIMETER GRID PAPER


perimeter
12
7
7
12
12×2 + 7×2 = 38
(12+7)×2 = 38
1-CENTIMETER GRID PAPER

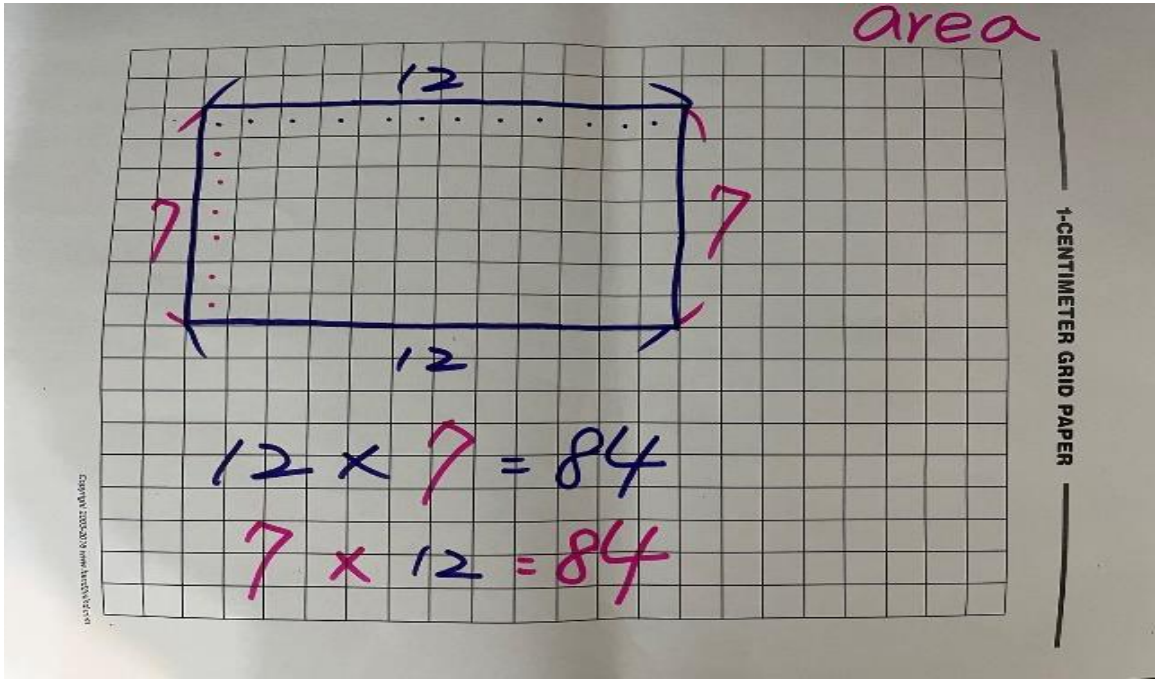
Formula : the perimeter of a rectangle.



我們通常把長方形的其中一條邊叫做長，和它相鄰的邊叫做寬。

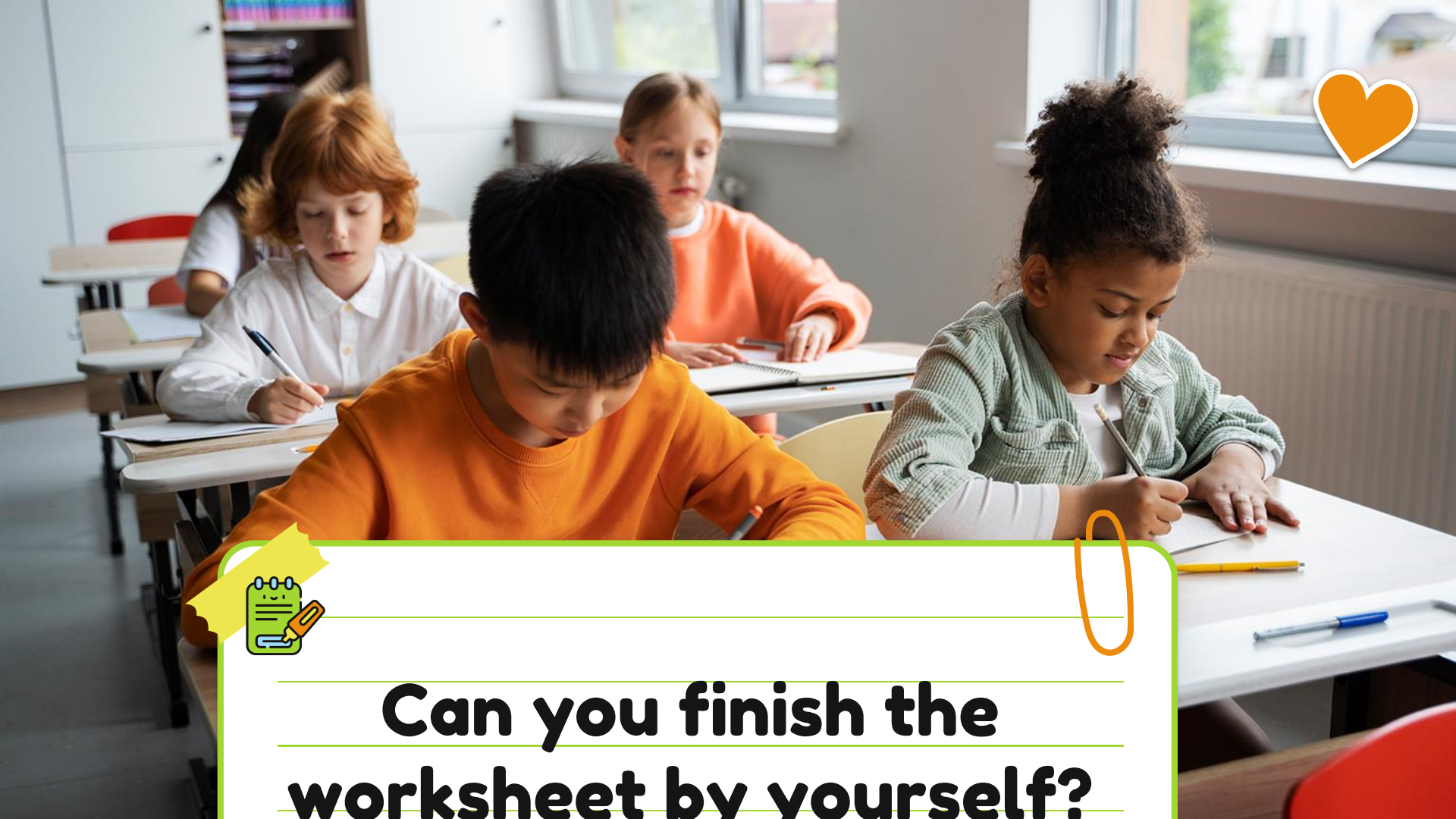
長方形周長＝長×2＋寬×2

或（長＋寬）×2


area
12
7
7
12
12 x 7 = 84
7 x 12 = 84
1-CENTIMETER GRID PAPER

Formula : the area of a rectangle.

長方形面積＝長 × 寬



Can you finish the worksheet by yourself?

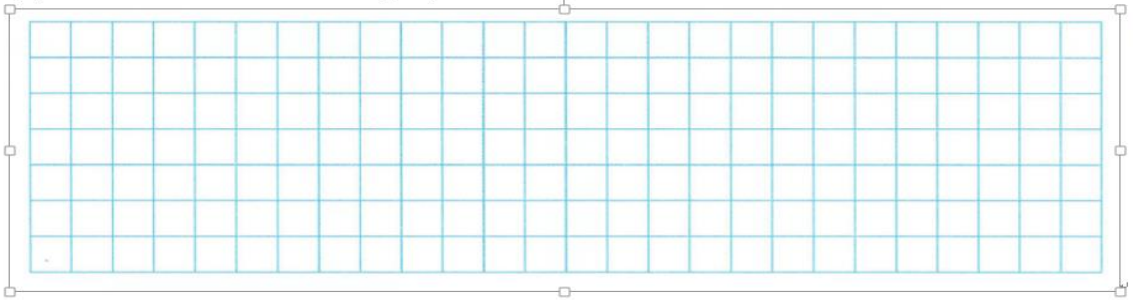
Perimeter and Area

1. Find the perimeter and the area of your handkerchief, pencil box and desk.

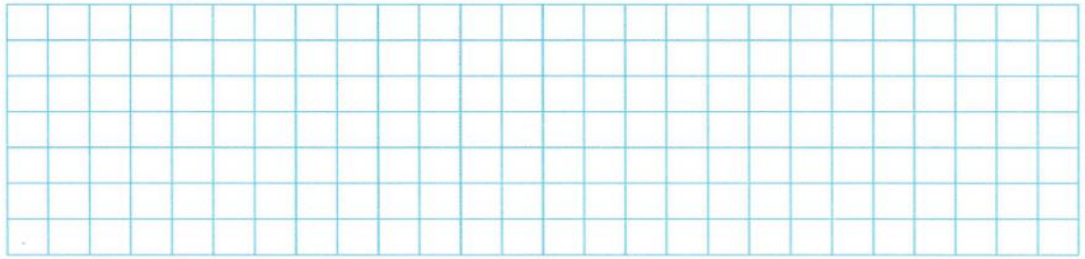
		
perimeter: _____cm	perimeter: _____cm	perimeter: _____cm
area: _____cm^2	area: _____cm^2	area: _____cm^2

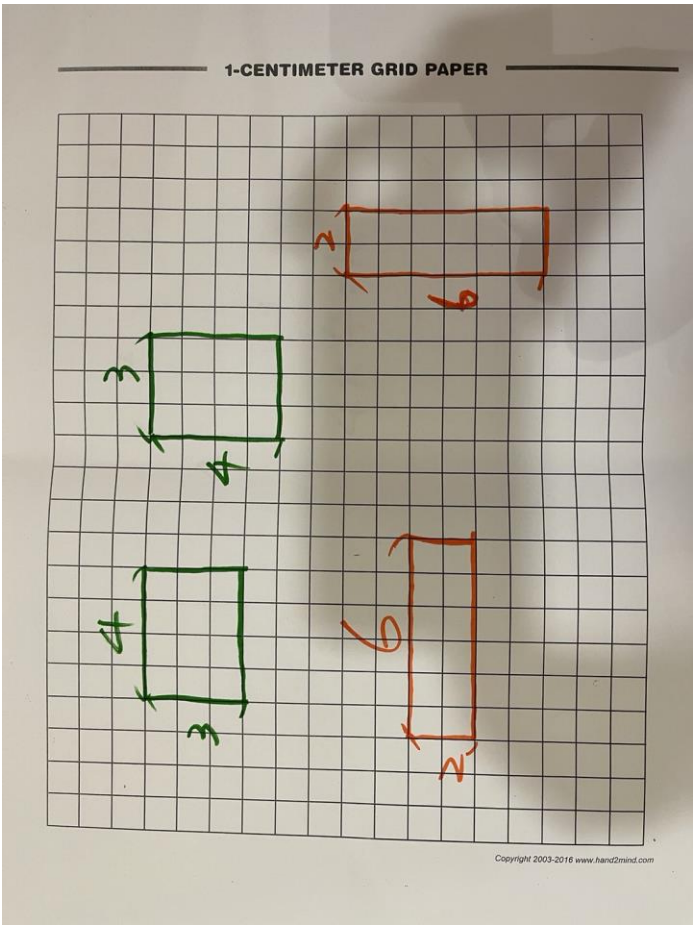
2. Draw

(1)Draw two different rectangles, each with an area of $12cm^2$



(2)Draw two squares, one's perimeter is 9cm, the other's perimeter is 16cm.




1-CENTIMETER GRID PAPER
2
6
3
4
4
3
6
2
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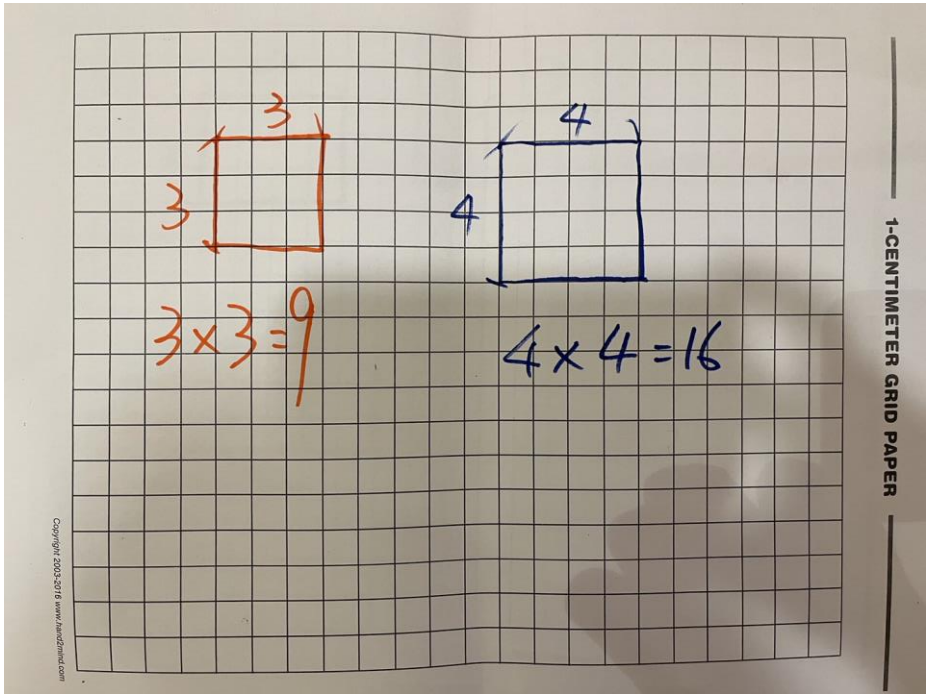
3
3
3×3=9
4
4
4×4=16
1-CENTIMETER GRID PAPER
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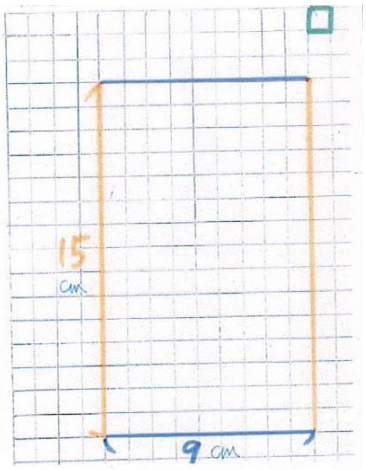
Dear, you all did a very good job!

姓名：　　座號：

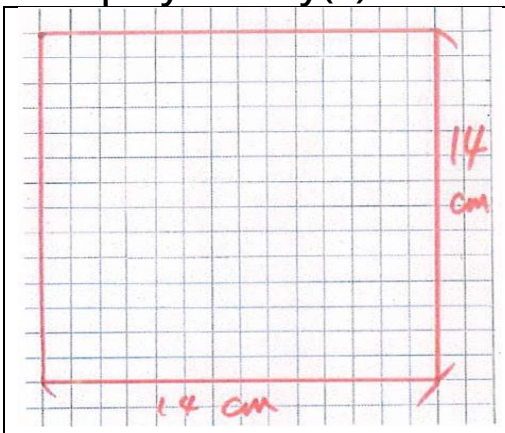
Perimeter(周長)

A. Inquiry activity(1)



What is the perimeter of the rectangle ?
Write down your calculation.

B. Inquiry activity(2)



What is the perimeter of the square ?
Write down your calculation.

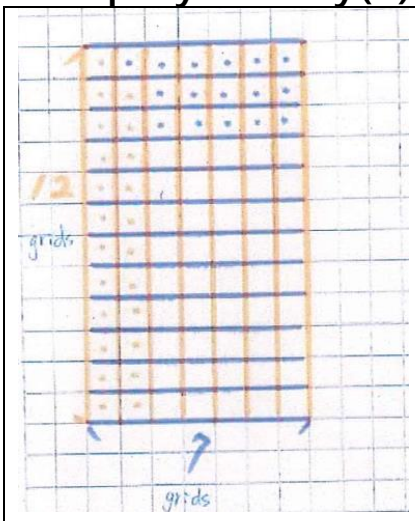
C. I know that.....

Write down anything you learn in this class.

姓名： 座號：

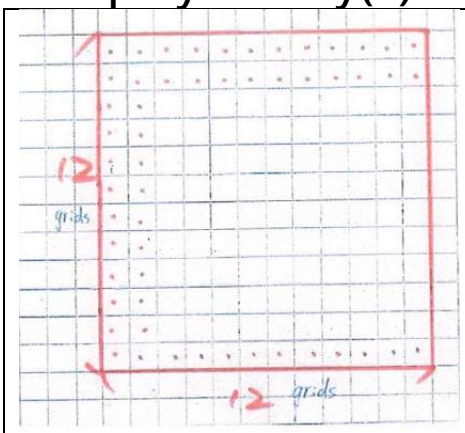
Area(面積)

A. Inquiry activity(1)



What is the area of the rectangle ?
Write down your calculation.

B. Inquiry activity(2)



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C. I know that….. (Write down anything you learn in this class).

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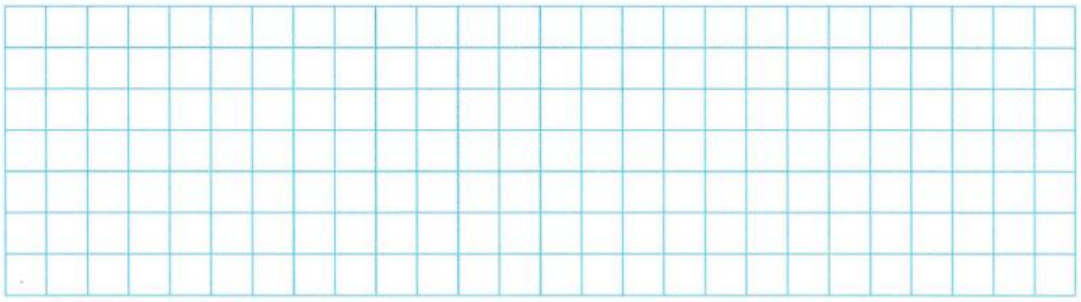

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