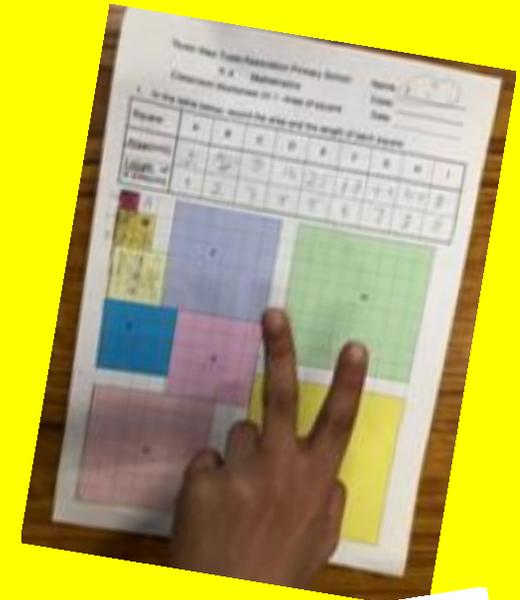
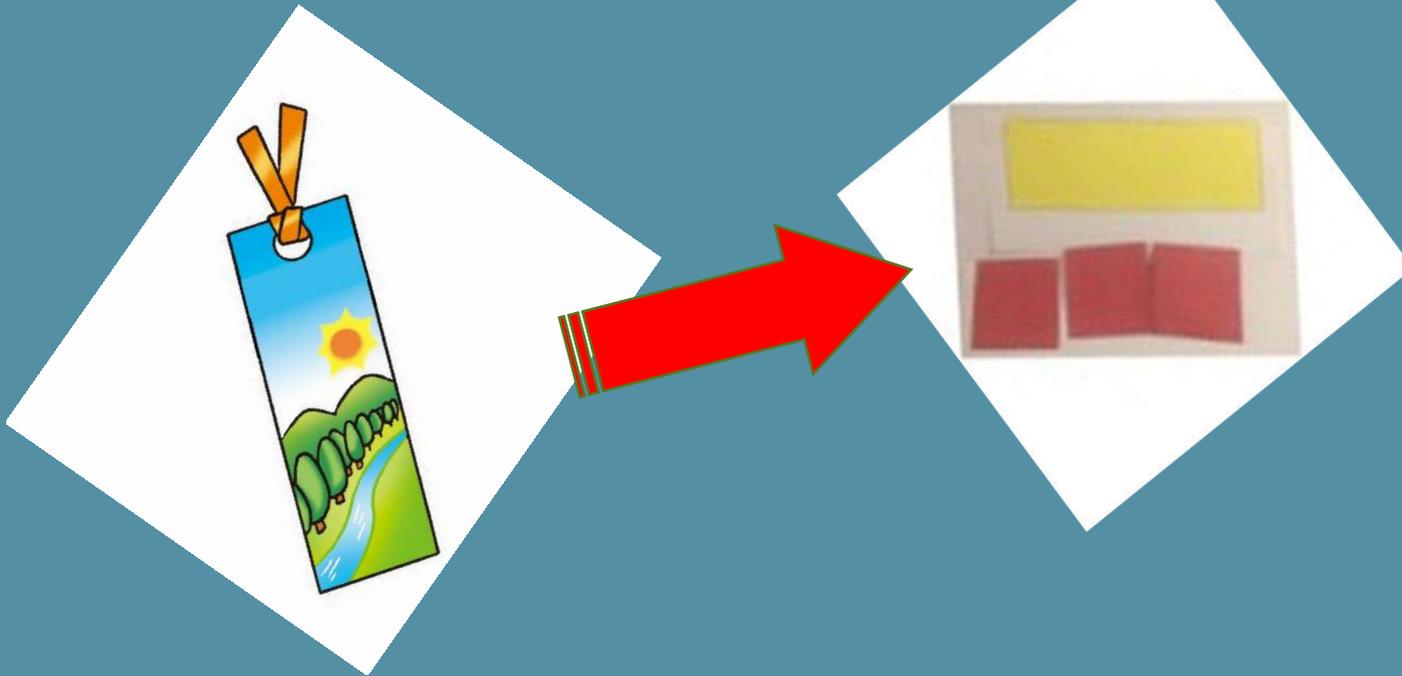


Team Teaching of P4 Area to Cater for Learners' Diverse Needs

, where Exercise Counts



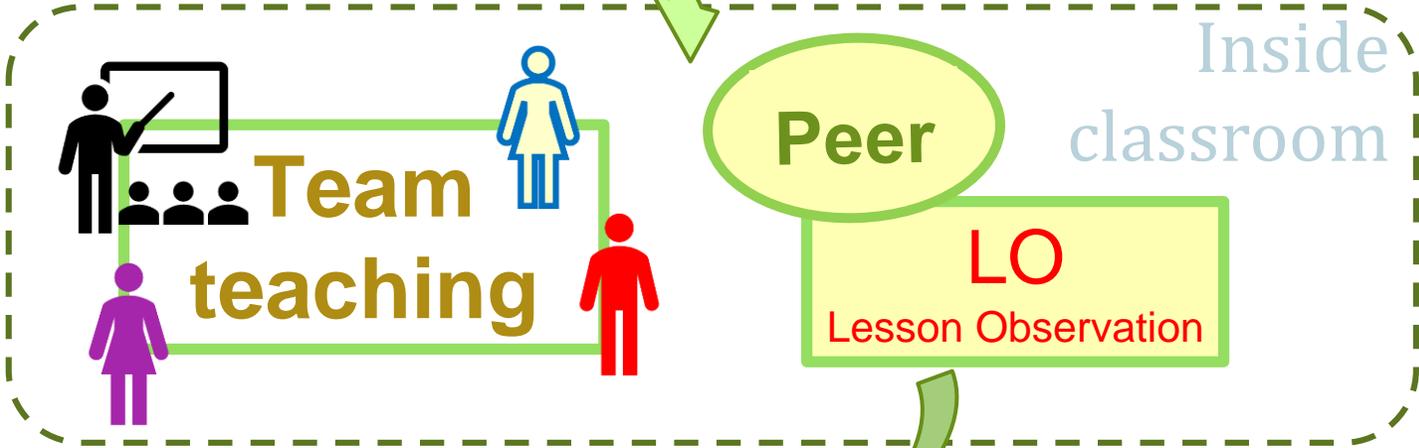
A rectangular bookmark is 6cm wide.
Its length is 3 times its width.
What is its area?



Collaboration in Team Teaching

CLP
Collaborative Lesson Planning

Outside
classroom



Peer
Inside
classroom

LO
Lesson Observation

PLE
Post-Lesson Evaluation

Curriculum Aims

Learning
mathematical knowledge

Developing generic skills and
positive values & attitudes

Learning Targets

P4 Area

Students are expected to

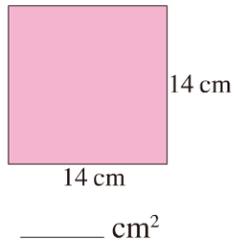
- ❖ inquire and use measurements formulae of 2-D shapes (CDC, 2017)
- ❖ find the areas of 2-D shapes formed by squares and rectangles <remarks> (CDC, 2017)



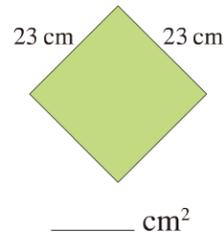
PLE → Collaborative Lesson Planning

Find the areas of the shapes below.

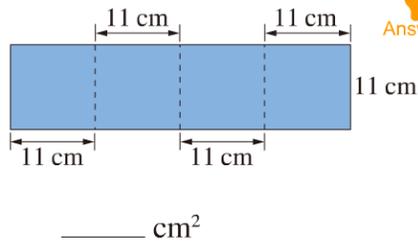
①



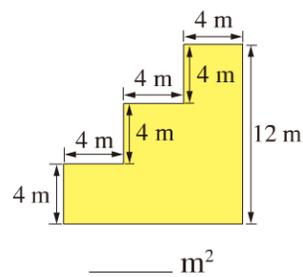
Answer ②



③

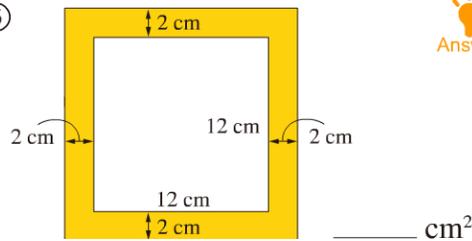


Answer ④

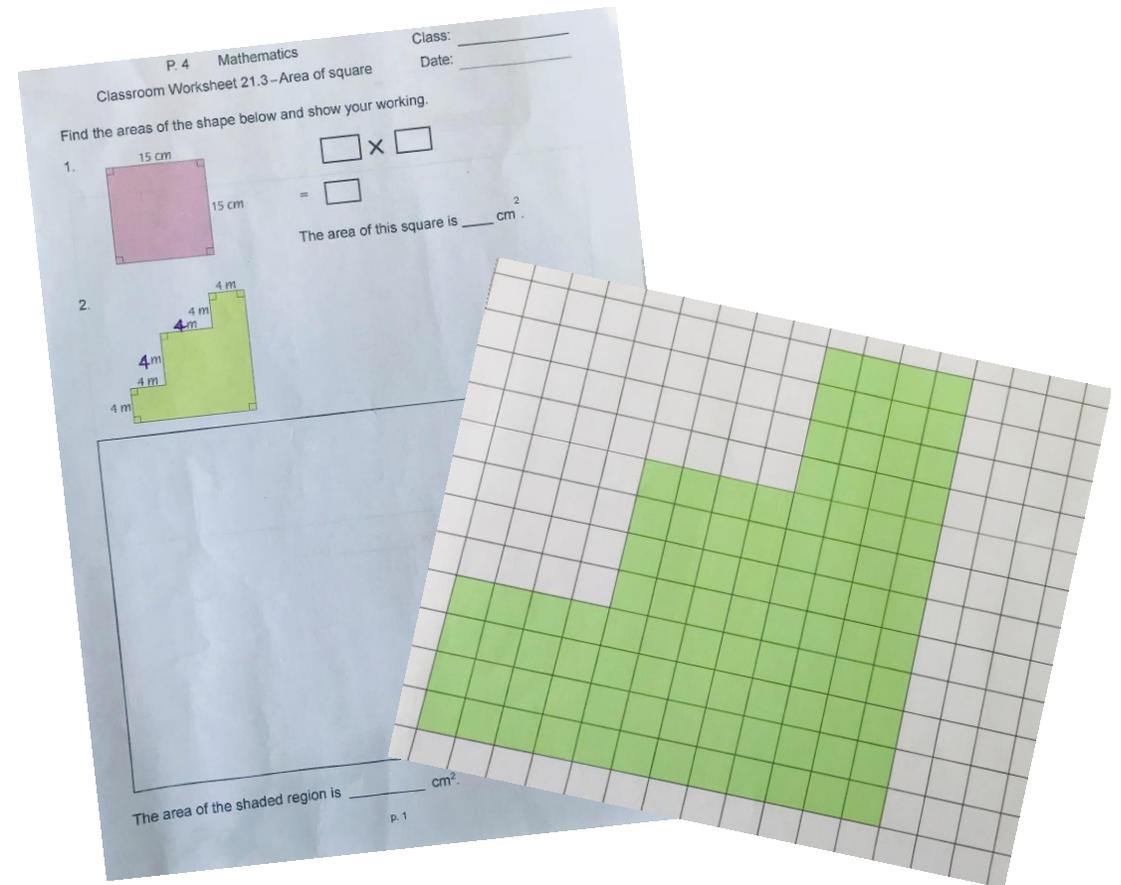
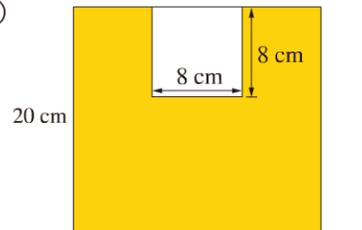


Find the area of the orange part in each shape.

⑤



Answer ⑥



Peer L0 → Post Lesson Evaluation

Teachers gained insights about students' learning

1. Starting an exercise from an accessible level,
 - initial success
 - sense of achievement
 - confidence to explore other methods
2. Hands-on approach
 - playfulness, manageability, ownership
 - motivation towards higher achievement
3. Release of potential and eagerness
 - Capability for higher achievement, indeed shown

Outside classroom, Cycle 2

PLE → Collaborative Lesson Planning

Teachers' Discovery about Exercise Design

1. **Starting low and aiming high**
→ no students left behind
2. **Gradual increase in difficulty**
→ students' progress and mastery
3. **Incrementally developing procedures**
→ students' observation and discovery
4. **Open-ended tasks**
→ space for exploration of multiple methods

1. Starting from an accessible level
2. Hands-on approach
3. Release of potential & eagerness



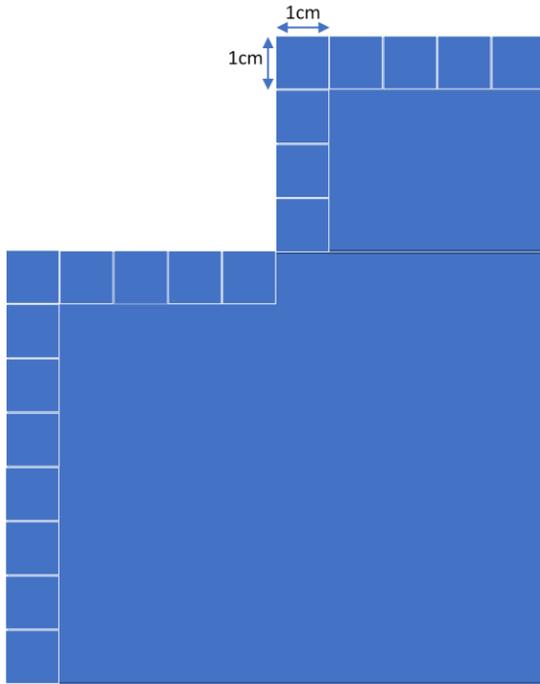
Outside classroom, Cycle 3

Development of Ideas in Exercise Design (1)

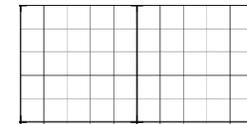
Find the areas of shapes A and B.

(i) Algorithms beyond drawing and counting all the small squares

Shape A

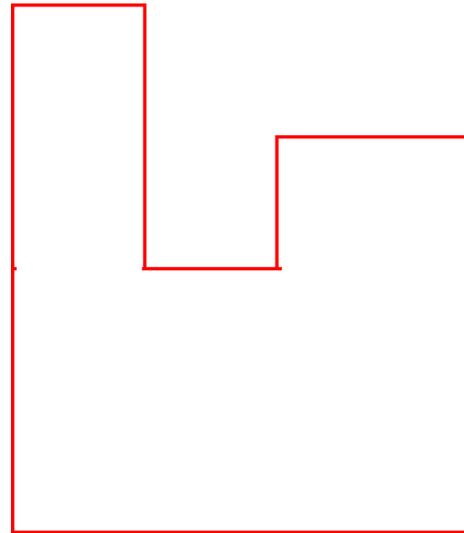


(ii) Measuring with 1cm x 1cm grid transparency, or



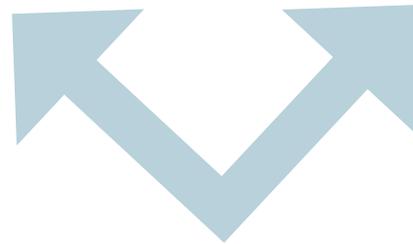
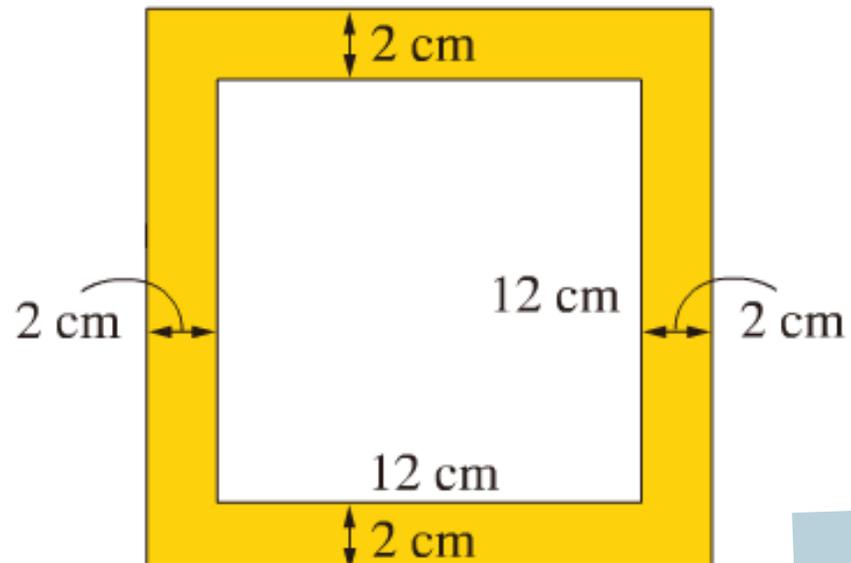
(iii) measuring with a ruler.

Shape B



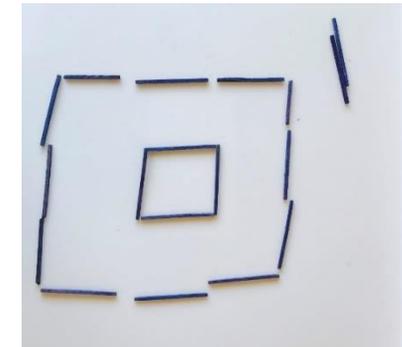
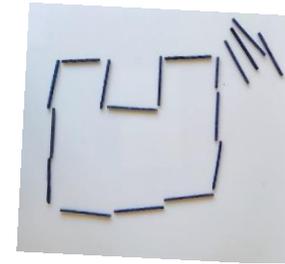
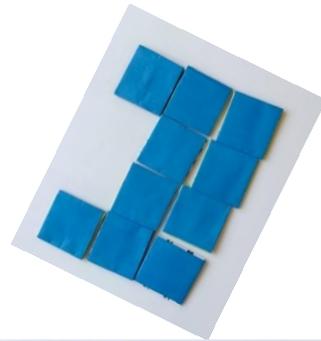
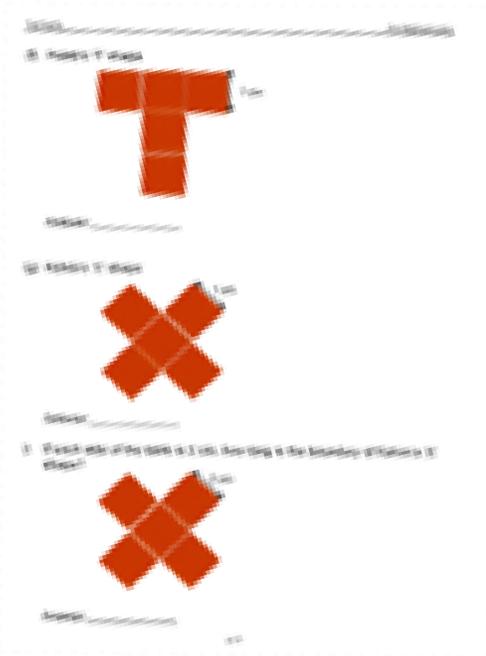
Development of Ideas in Exercise Design (2)

Contextualizing the problem



Development of Ideas in Exercise Design (3.1)

Letting students create innovative shapes



..... enhances engagement and ownership.

Development of Ideas in Exercise Design (3.2)

Interactive
Simulation

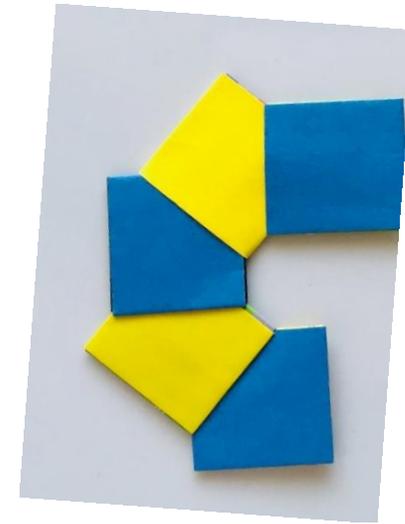
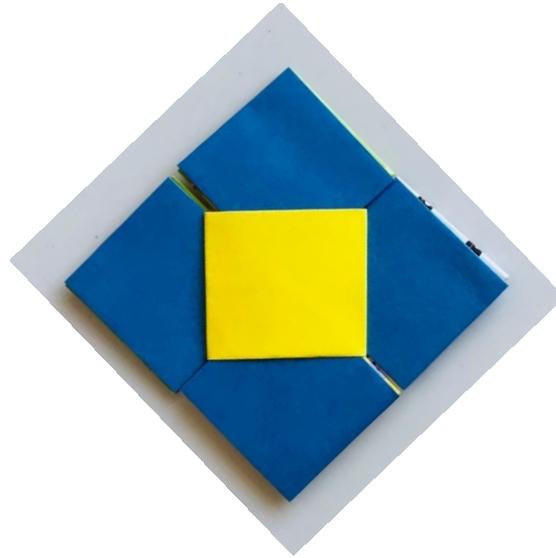
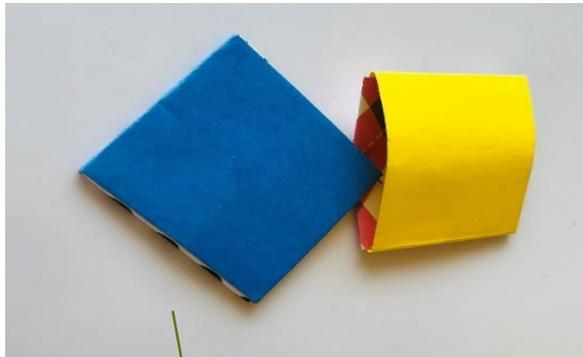


The screenshot shows the 'Area Builder' simulation interface. At the top left, a box displays 'Area: 22' and 'Perimeter: 34'. At the top right, a box displays '+ Values'. The main area consists of two 10x10 grids. The left grid shows a green 5x5 square with a 2x2 square hole in the center, with dashed lines indicating the grid lines. The right grid is empty. At the bottom, there are two baskets: a blue basket containing green blocks and a blue basket containing purple blocks. To the left of the baskets is a control panel with a checked checkbox, a grid icon, and a 3x3 grid icon with numbers 3, 2, 3. To the right of the baskets is a control panel with a plus icon, a toggle switch, and a minus icon. A yellow eraser icon is positioned below each basket. A circular refresh icon is located in the bottom right corner.

<https://phet.colorado.edu/en/simulation/area-builder>

Development of Ideas in Exercise Design (3.3)

Unexpected shapes created by students, enabling further exploratory dialogue.



e.g. instead of placing the squares side by side, some students inserted the blue and yellow square(s) into one another.

Quality Exercise Design

- How much have you embedded the following into your exercise?

1. Gradual increase in difficulty → students' progress and mastery
2. Starting low and aiming high → no students left behind
3. Incrementally developing procedures → students' observation & discovery
4. Open-ended tasks → space for exploration of multiple methods

.....

Developing generic skills and positive values & attitudes

- How much have you incorporated the following when you assign the exercise to the students?

1. adding visual components or other tools,
2. activating students to invent the method instead of directly teaching it, and
3. requiring students to explain their method and convince their classmates.

.....

Effective Team Teaching

Goal :

to help **all** students to reach learning **targets**, and **beyond**

Indispensable dynamic :

high-quality teacher **collaboration** & **communication**