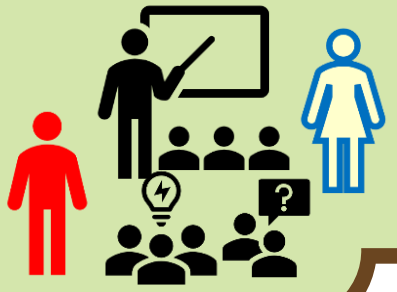


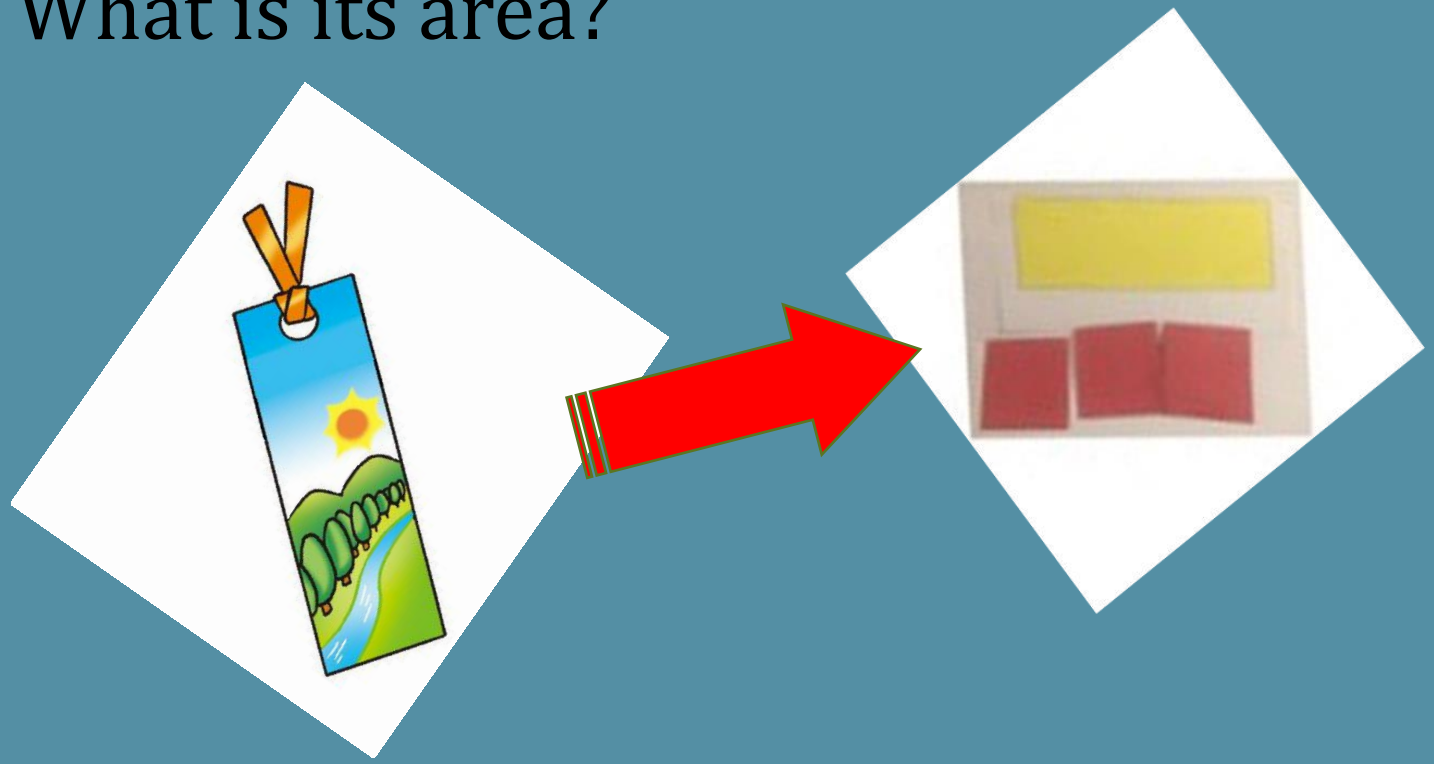
Team Teaching of P4 Area to Cater for Learners' Diverse Needs

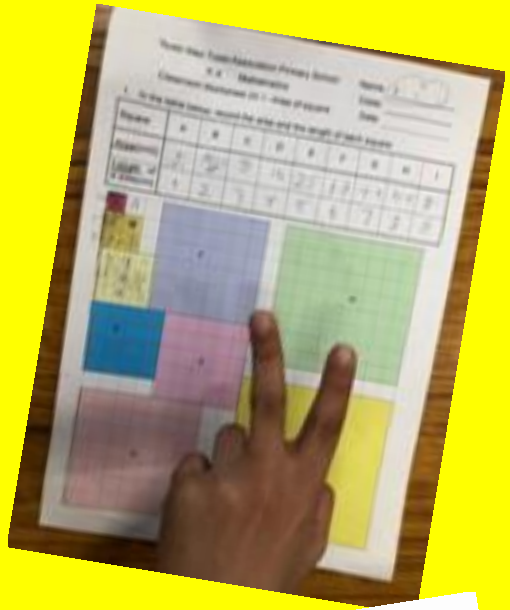
, where Exercise Counts

A rectangular bookmark is 6cm wide.

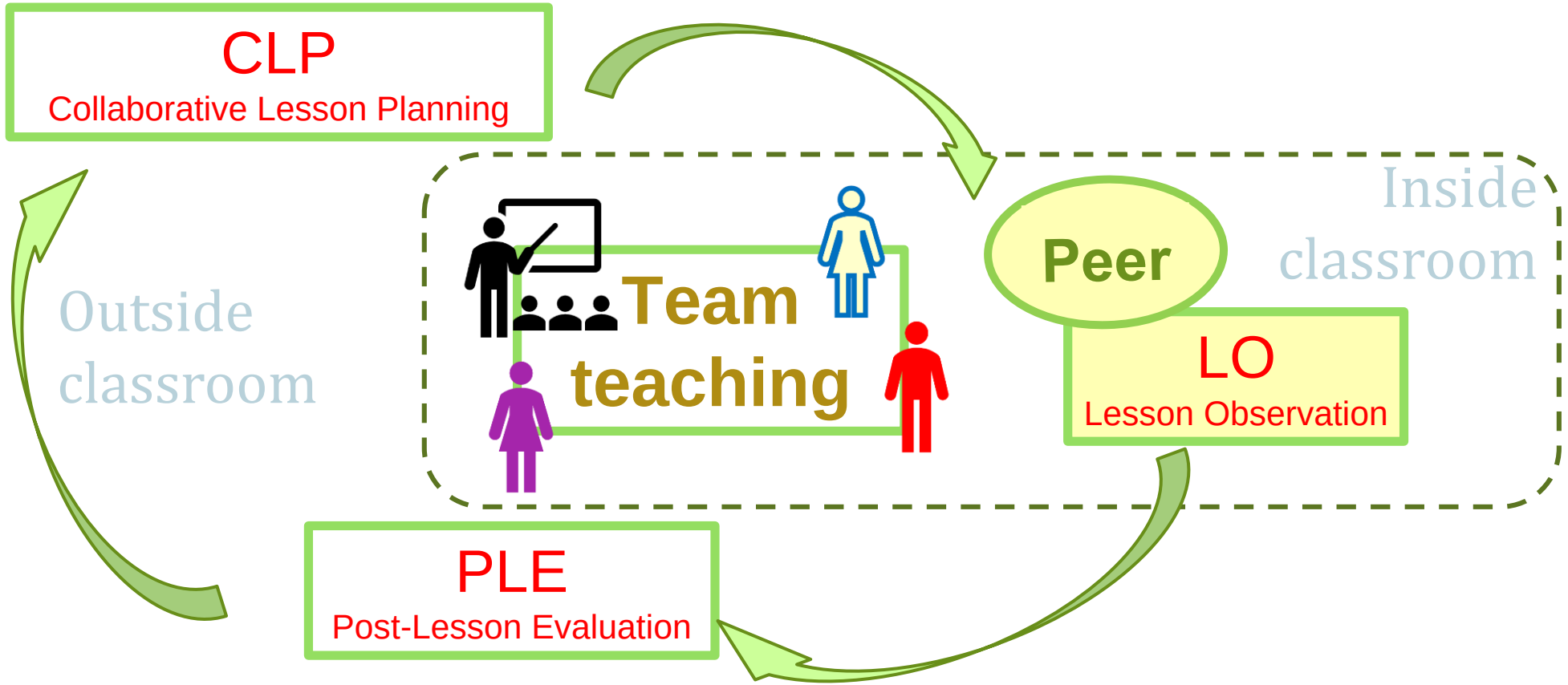
Its length is 3 times its width.

What is its area?





Collaboration in Team Teaching



Curriculum Aims

Learning mathematical knowledge

Developing generic skills and positive values & attitudes

Learning Targets

P4 Area

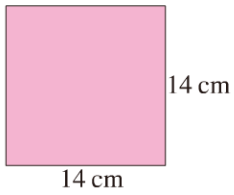
Students are excepted to

- 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

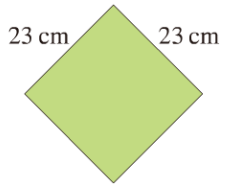
Find the areas of the shapes below.

① /er



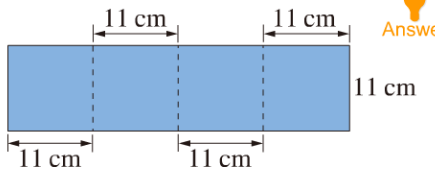
_____ cm^2

Answer ②



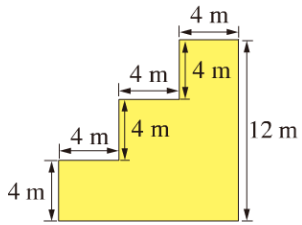
_____ cm^2

③ /er



_____ cm^2

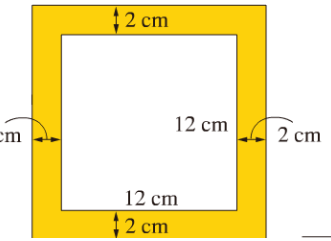
Answer ④



_____ m^2

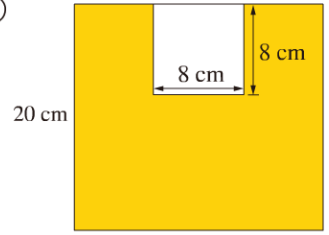
Find the area of the orange part in each shape.

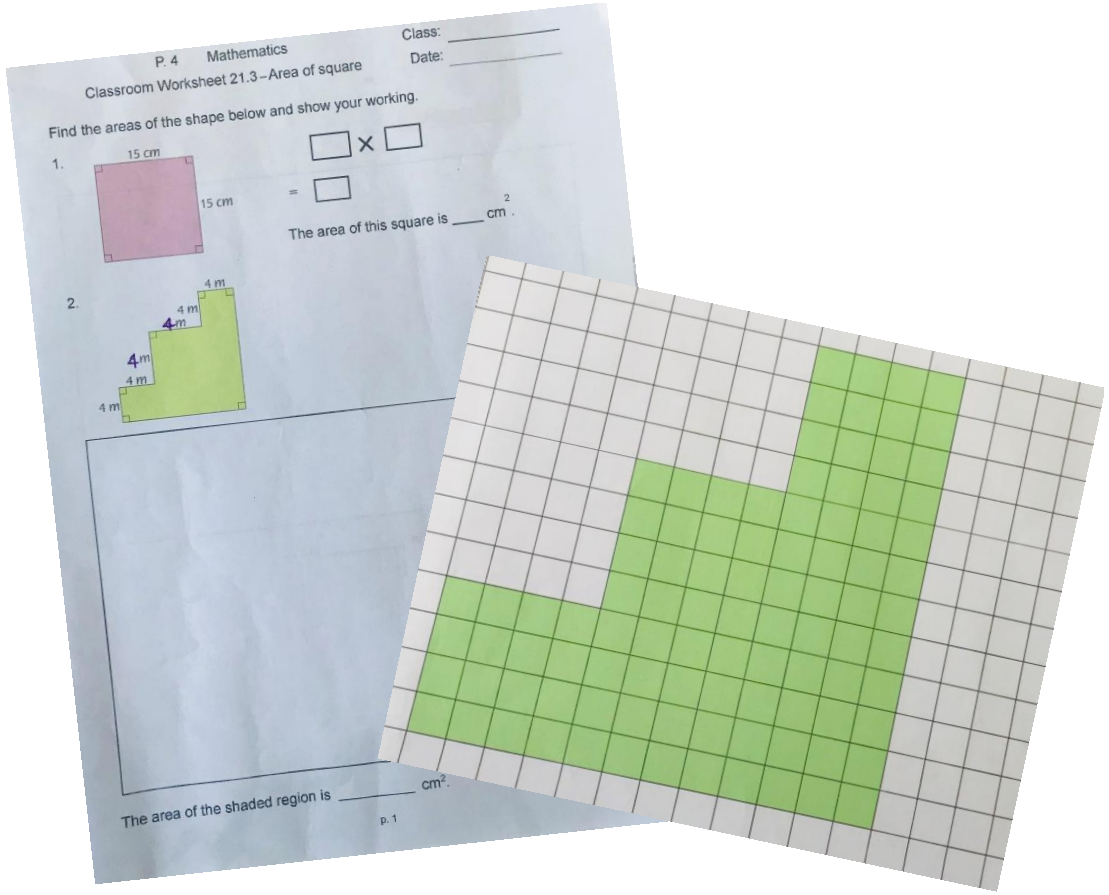
⑤ /er



_____ cm^2

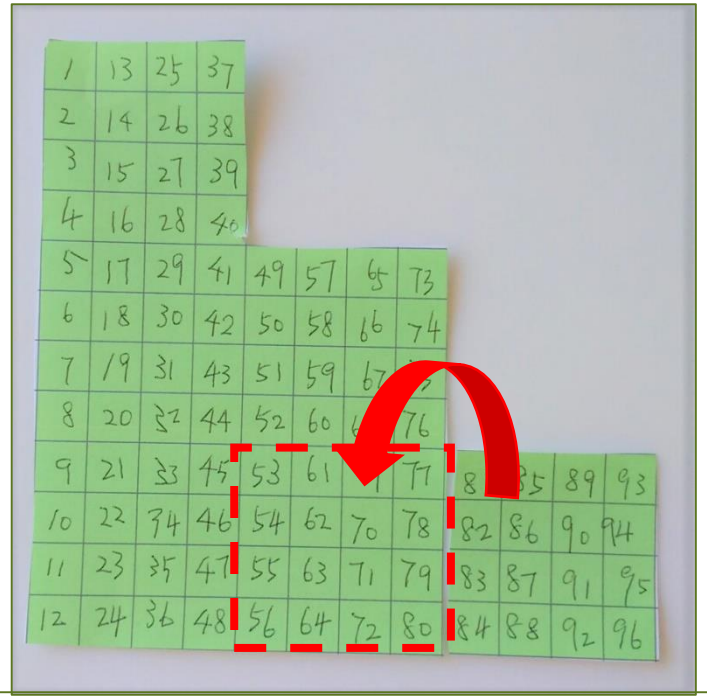
Answer ⑥





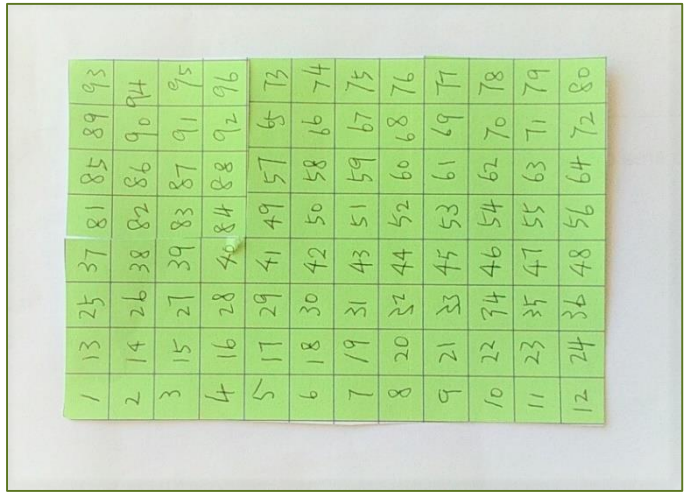
Outside classroom, Cycle 2

CLP → Teaching & Peer Lesson Observation



Method 1:
Counting from 1 to 96

Method 2:
16 x 6 = 96



Method 3:
Length x width
= 12 x 8
= 96

Peer LO ⟶ 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

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

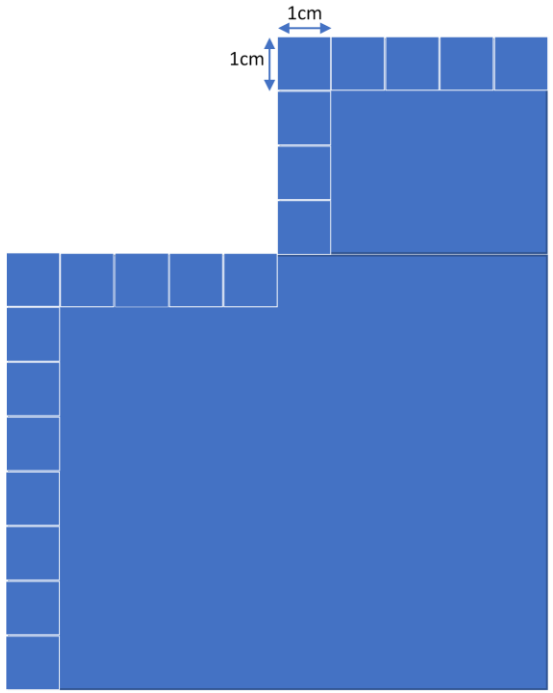
1. Starting from an accessible level
2. Hands-on approach
3. Release of potential & eagerness

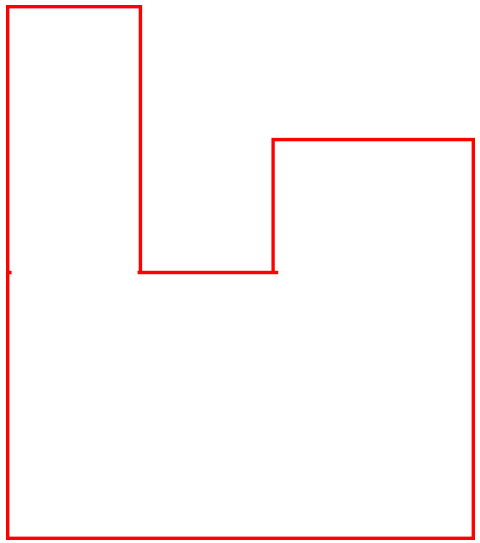
Development of Ideas in Exercise Design (1)

Find the areas of shapes A and B.

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

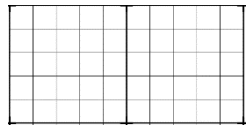
Shape A





Shape B

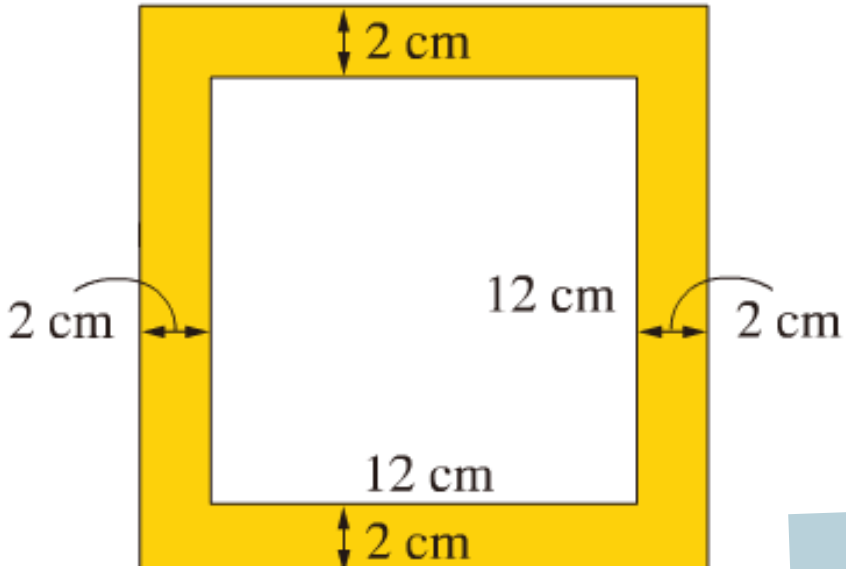
(ii) Measuring with 1cm x 1cm grid transparency, or



(iii) measuring with a ruler.

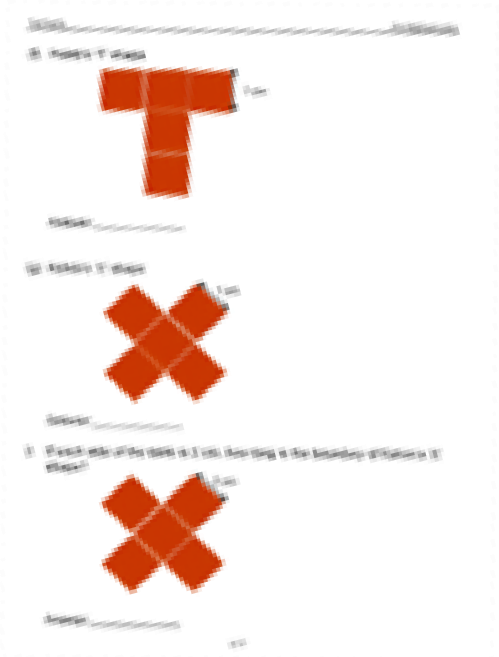
Development of Ideas in Exercise Design (2)

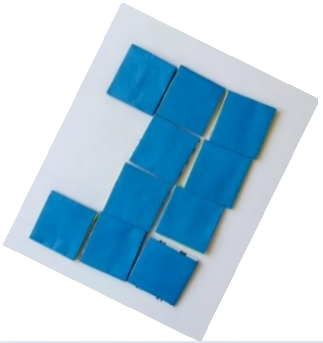
Contextualizing the problem

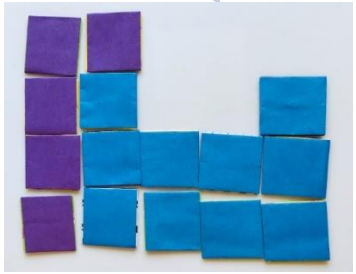


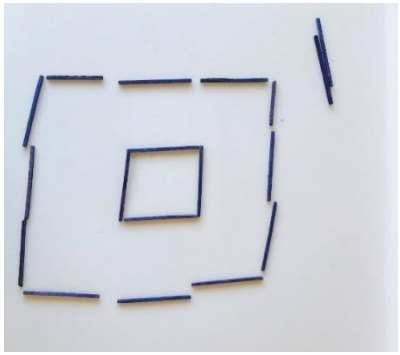
Development of Ideas in Exercise Design (3.1)

Letting students create innovative shapes .....





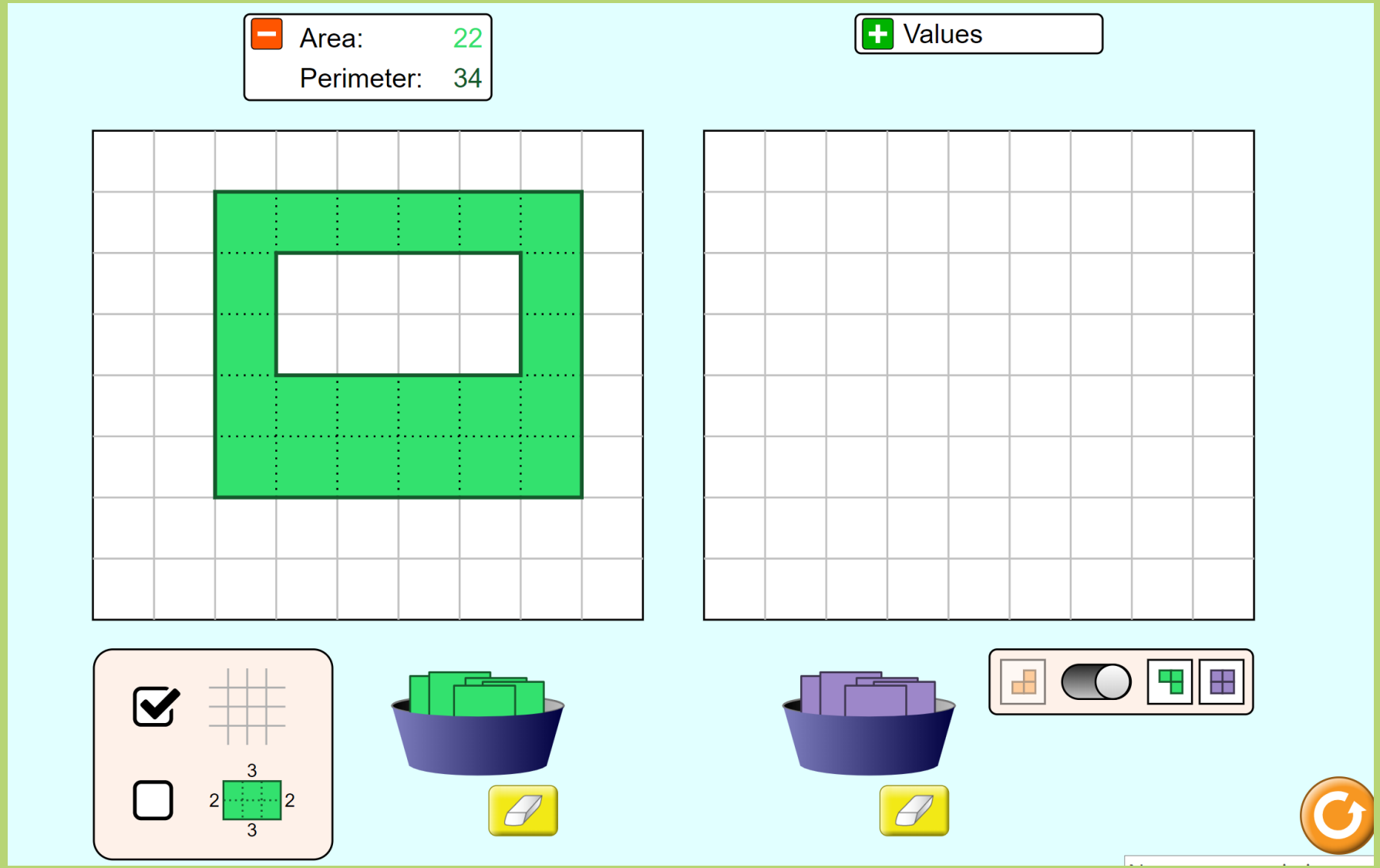




..... enhances engagement and ownership.

Development of Ideas in Exercise Design (3.2)

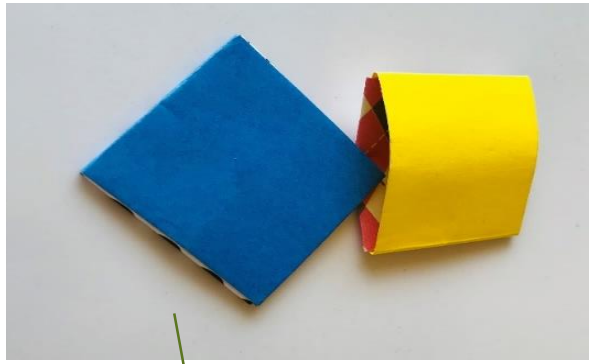
Interactive Simulation

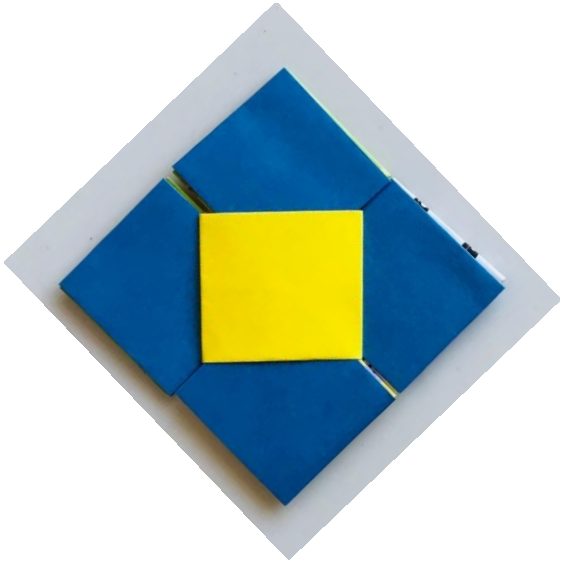


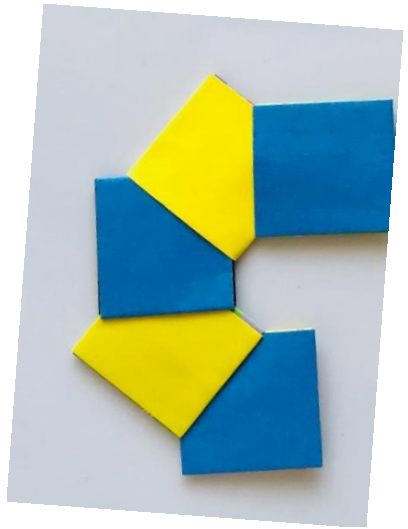
https://phet.colorado.edu/en/simulation/area-builder

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