Back

5	3	6
4	2	3

Left **Right**

Front

Blocks Transform
(Dynamic Version)
Enlightment Training Games

Tallest building
5

The 3rd one from left
4

3

Left

The 1st one from right
2

Right

3

Contents

Numbers Sticks

Montesorri mathematics and physics teaching
visualized cognition of figures and numbers

Figures are a kind of abstract conception for babies and it is hard to understand what one or two is. However, they can get easily physical memory of figures 1-10 through distinguishing different length and height by some simple visualized ways.

Let's play:

1. Build 5 sticks (1 block means figure 1, 2 blocks mean figure 2 until figure 5.) Put them on table from the shortest one to tallest one. Take out 1-5 figures cards and put in front of 5 sticks. Teach babies to know what one to five is and what relationship they are.

2. Take out two different heights sticks at random, and exercise which one is taller and which one is shorter.

Shorter?   Taller?
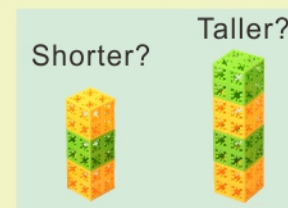
3. Mixed all the sticks on the table and make them a line and get closer each other. Ask babies to find the tallest one and put it on another side. And find the tallest one from the rest sticks and put it on another side. Do this way until five sticks finished.
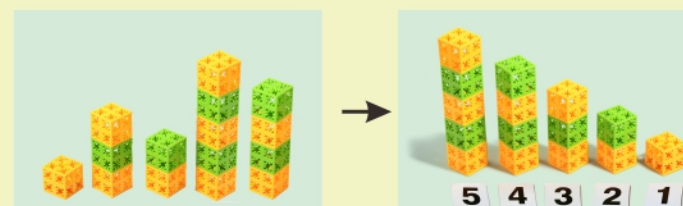
Select the tallest one every time and put them from tall to short order.

4. Separate all the sticks into single blocks. Invite babies to build the sticks from 1-5. Try to ask your baby which one he should do firstly.
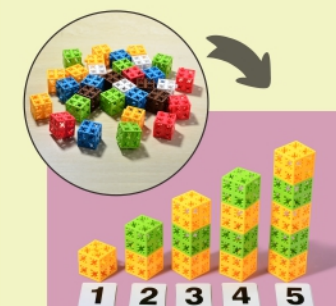
Notice: if the baby knows the sticks for the first time, it is enough for him to study 3 or 4 sticks only. When he is familiar with these figures, parents could teach the rest figures till 10 figures finished.
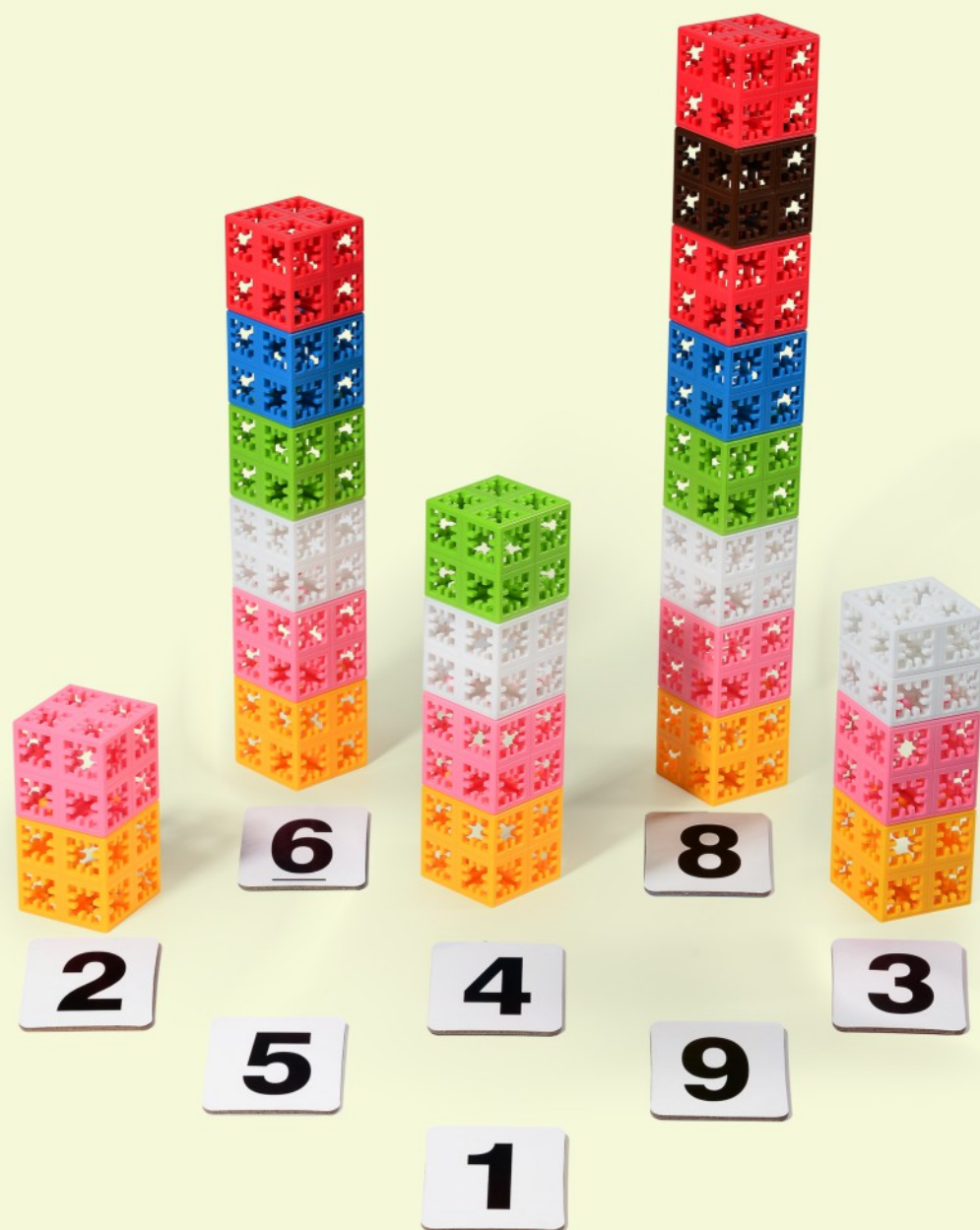
Numbers Sticks

Montesorri mathematics and physics teaching
visualized cognition of figures and numbers

◆ **Deeper practice:**

Mix all the sticks cards. Ask babies to match each stick and card correctly.

6

8

2

5

4

9

3

1

Plus and Minus

Build a stick with some same color blocks. Take the following green stick as an example. There is a stick consisted of 5 blocks. How to divide figure 5? Answer is 4 and 1, 3 and 2, 2 and 3 and 1 and 4. Parents can build the different blocks together to make a sum 5 so that babies can get more understand of 5. It is the same way for other figures.

	5
	4 + 1
	3 + 2
	2 + 3
	1 + 4

BabyFun has a lot of colors and shapes blocks. It is the best blocks to let babies to do classicication.

◆ Classify them according to colors

Let's play: Mix all the blocks together on the table, and ask babies to classify them according to colors and to say what colors they are respectively.
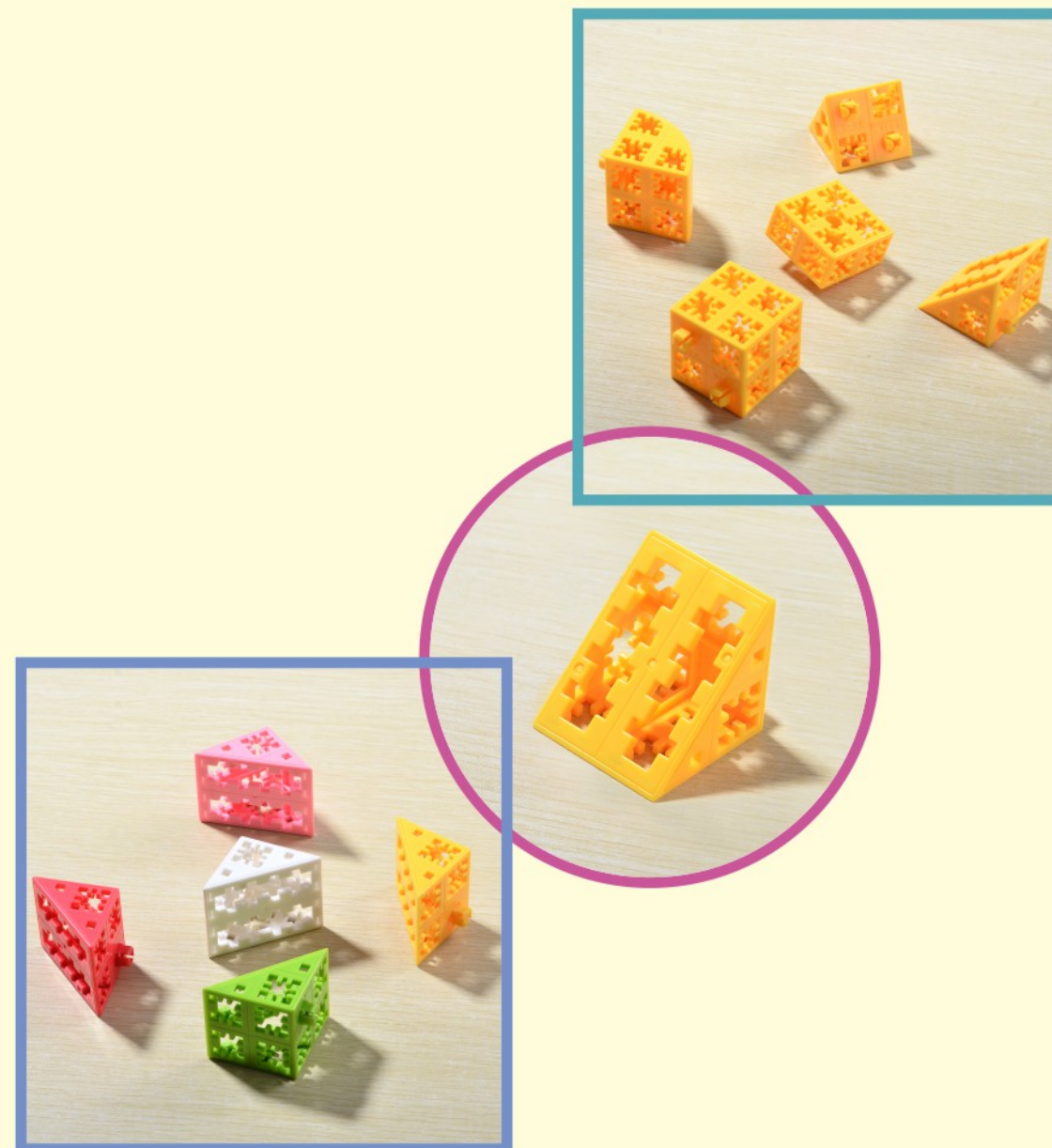
◆ Classify them according to shapes

Let's play: Mix all the blocks together on the table, and ask babies to classify them according to shapes and to say what shapes they are respectively.

◆ Find out a common block

Let's play: Take out 2 stacks of blocks, ask babies to find out a common block.

Have you ever share something delicious with your friends? Do you know how to share something equally? Let's practice it use blocks following.
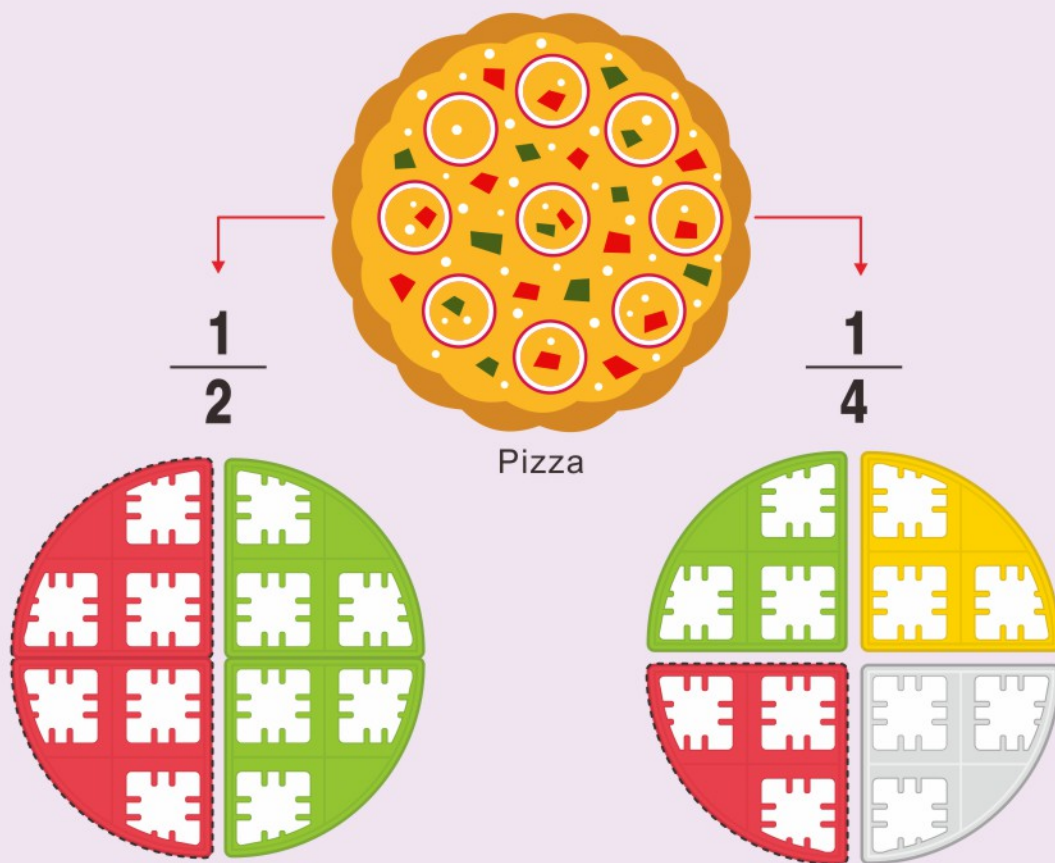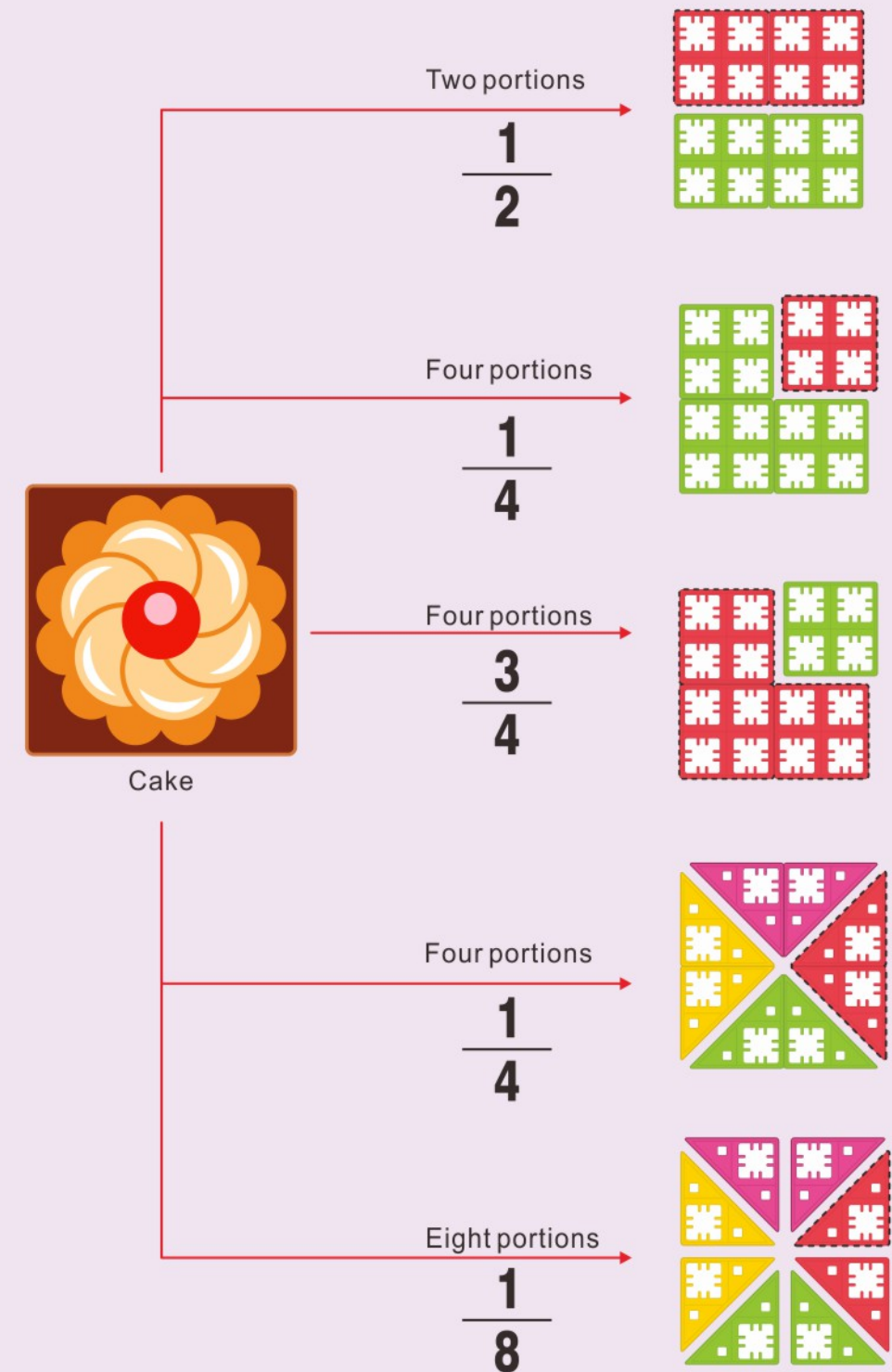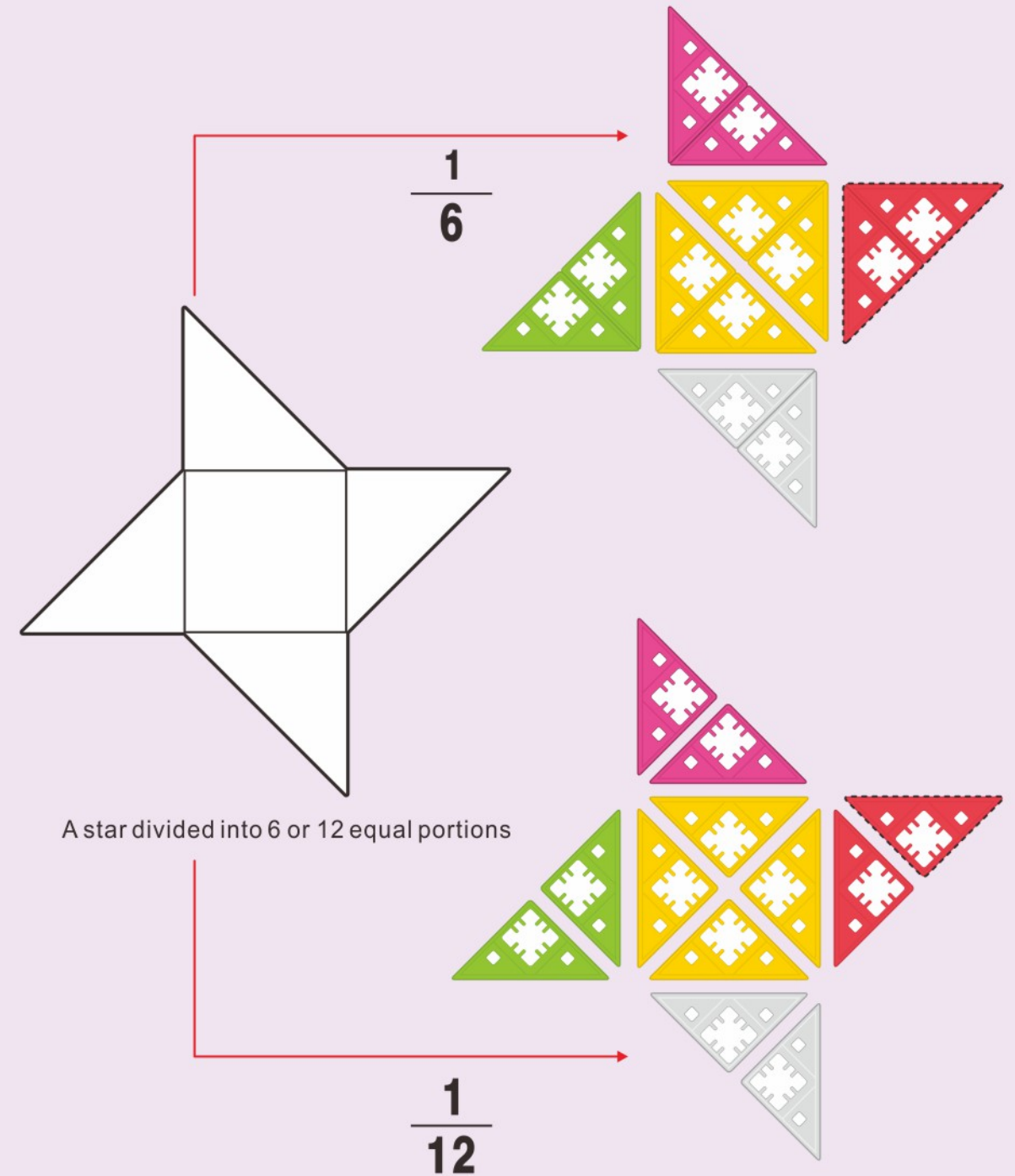
$$\frac{1}{2}$$

Pizza

$$\frac{1}{4}$$

Two portions

$$\frac{1}{2}$$

Four portions

$$\frac{1}{4}$$

Cake

Four portions

$$\frac{3}{4}$$

Four portions

$$\frac{1}{4}$$

Eight portions

$$\frac{1}{8}$$

A triangle divided into 4 equal portions

$$\frac{1}{4}$$

$$\frac{3}{4}$$

A hexagon divided into 3 or 6 equal portions

$$\frac{1}{3}$$

$$\frac{1}{6}$$

$$\frac{1}{6}$$

A star divided into 6 or 12 equal portions

$$\frac{1}{12}$$
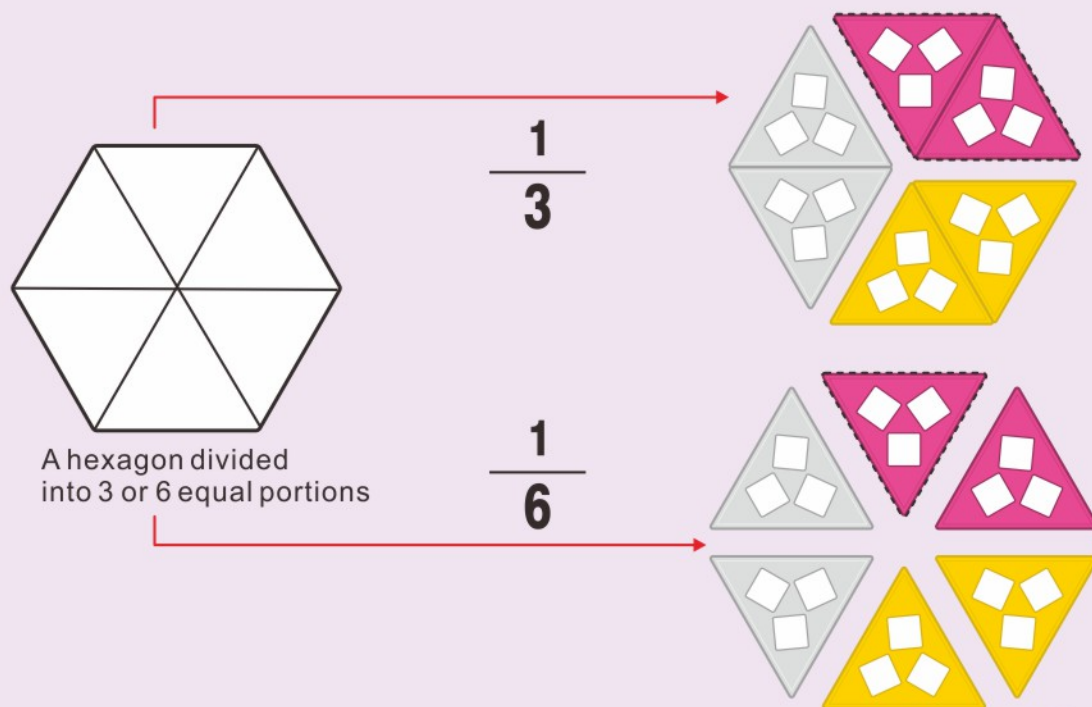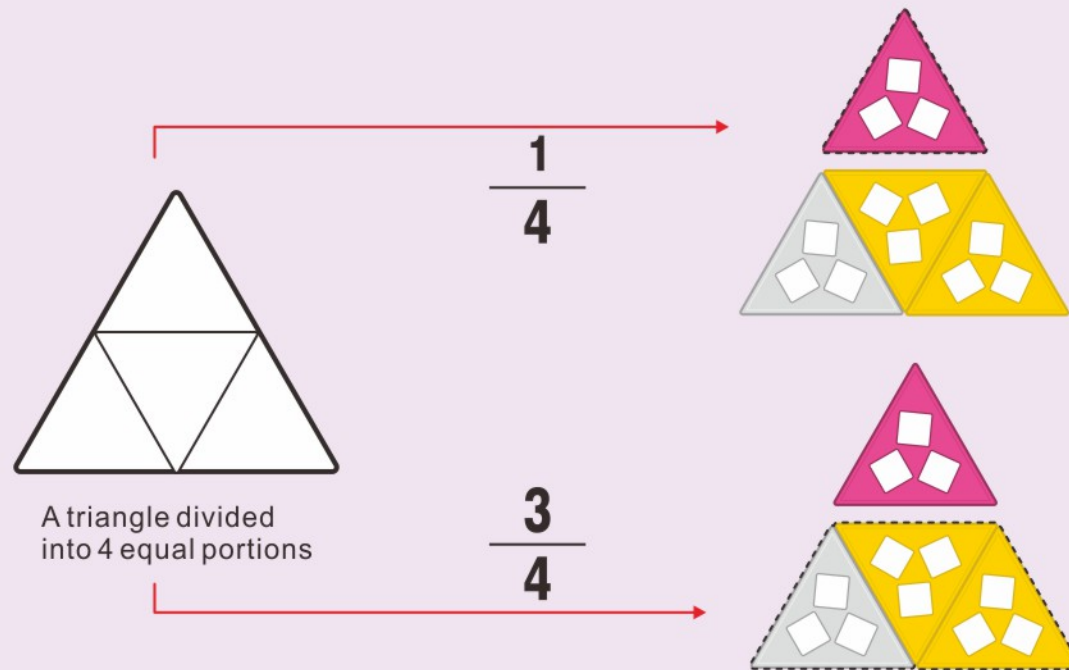
Parents could make some blocks a line with some rules as below and ask babies to continue putting blocks after that blocks to keep the rule integrated.

● **Rule of colors**

① ? ?

② ? ?

③ ? ?

④ ? ? ?

⑤ ? ? ?

● **Rule of colors and shapes**
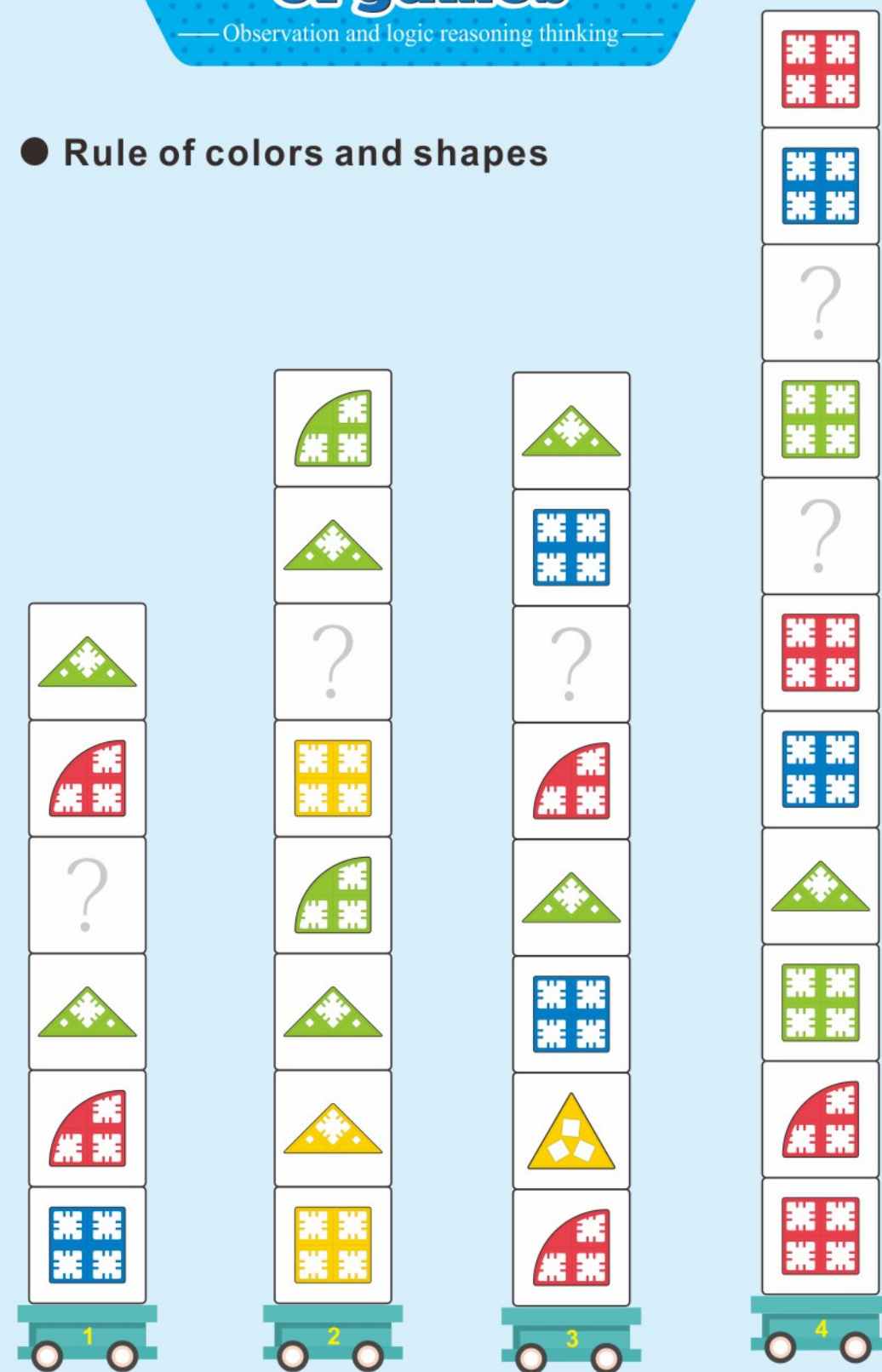
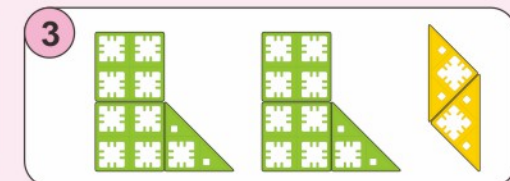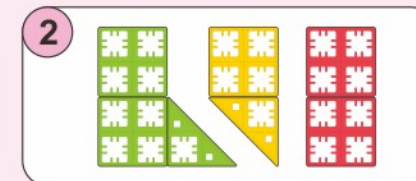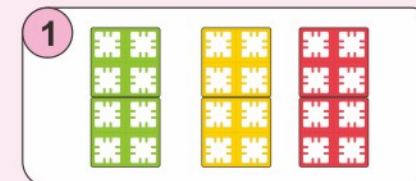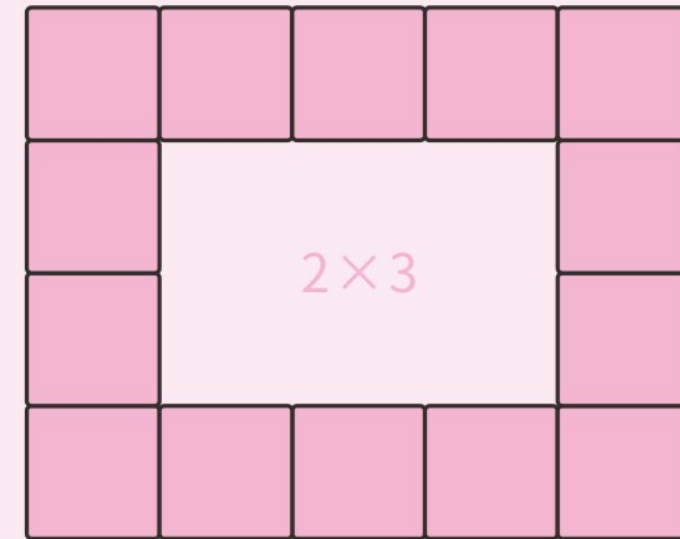## Fill specific blocks combination into a game area.

A、 Build an inner dimension 2X2 blocks game area as below. Ask babies to fill the blocks combination into the game area. (Colors are at random.)
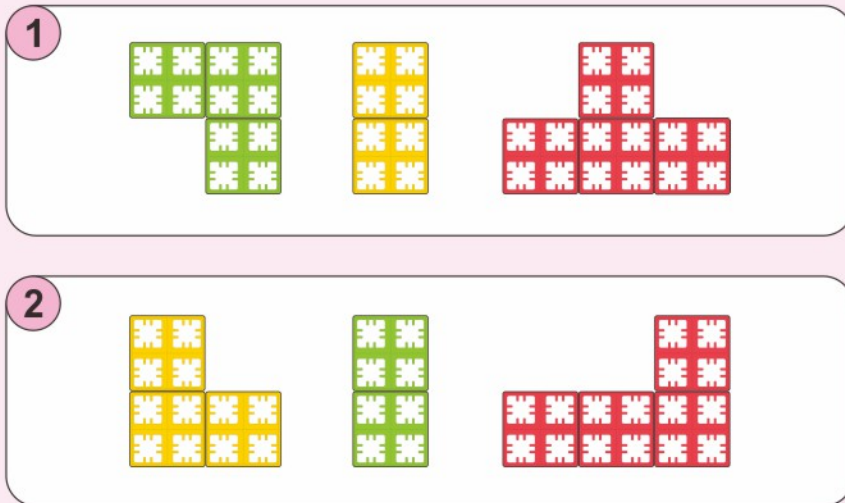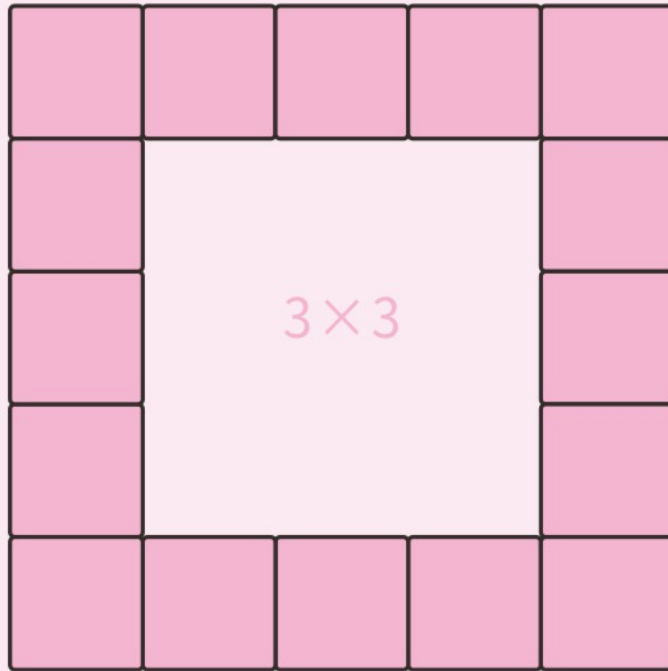
2×2

1

2
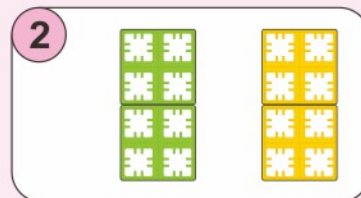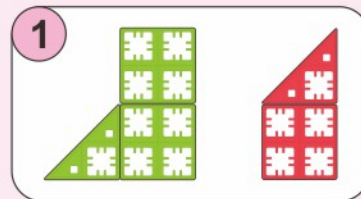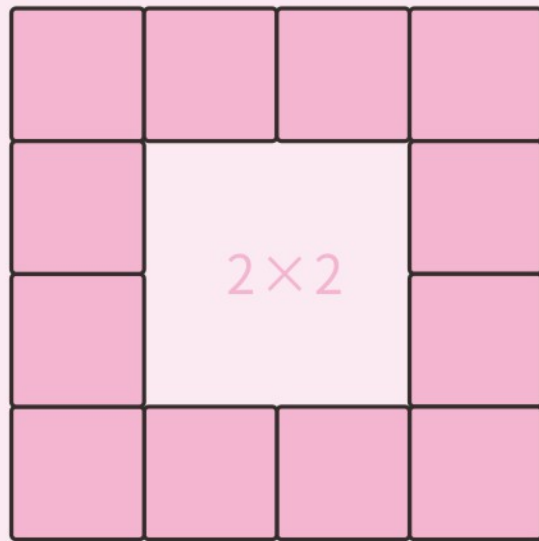
B、 Build an inner dimension 2X3 blocks game area as below. Ask babies to fill the blocks combination into the game area. (Colors are at random.)
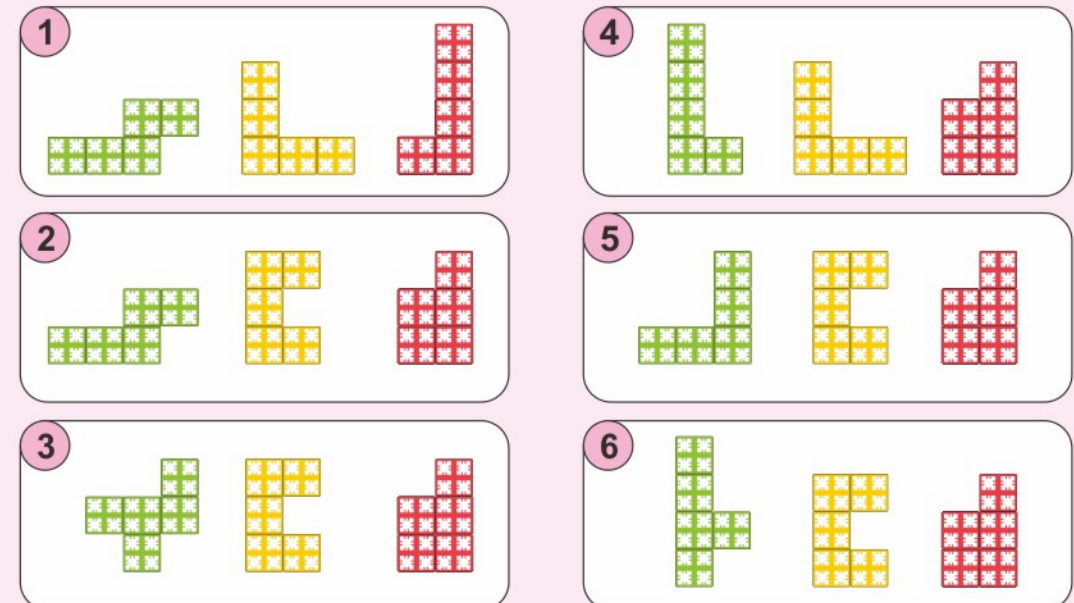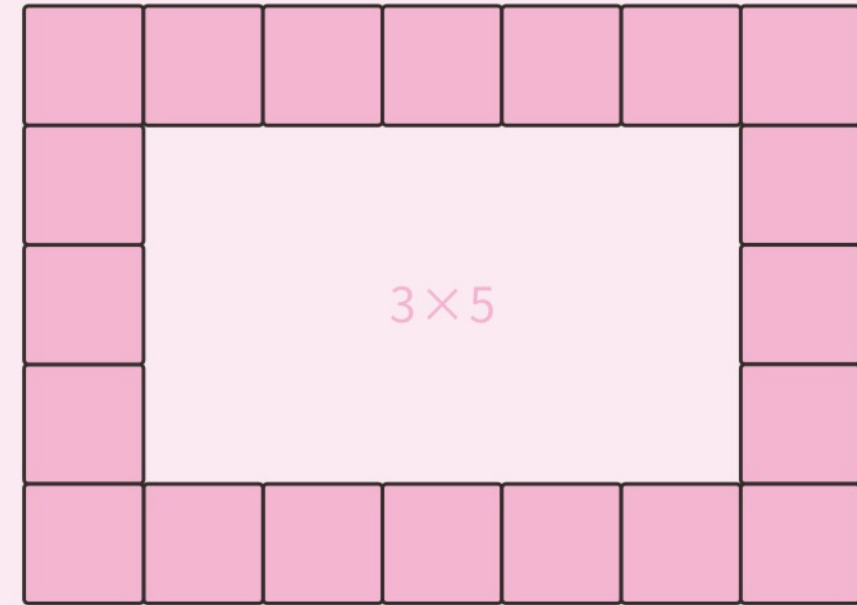
2×3

1

2

3

4

5
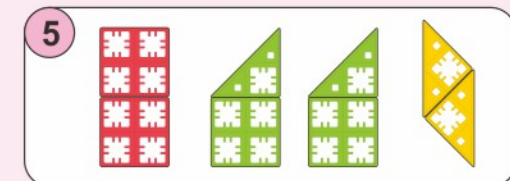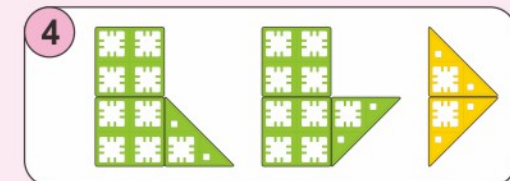
C、 Build an inner dimension 3X3 blocks game area as below. Ask babies to fill the blocks combination into the game area. (Colors are at random.)

3×3

1

2

D、 Build an inner dimension 3X5 blocks game area as below. Ask babies to fill the blocks combination into the game area. (Colors are at random.)
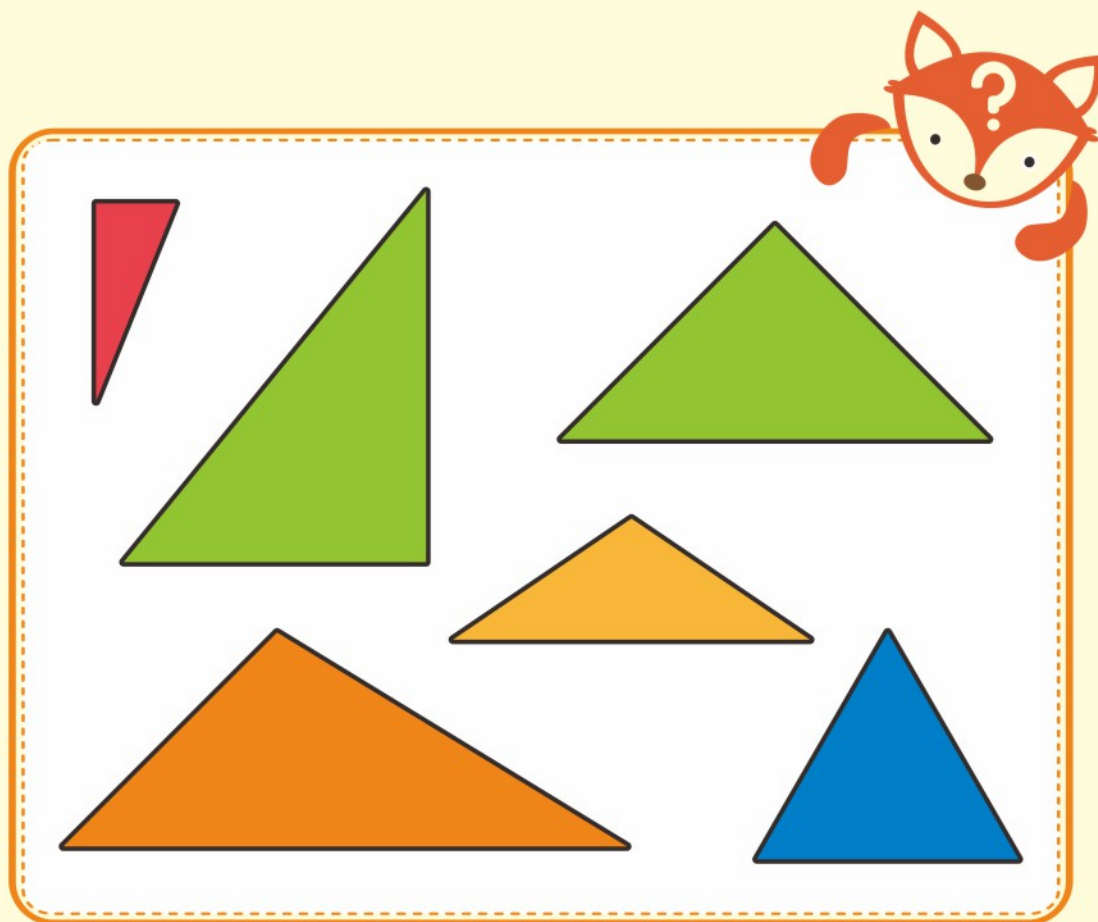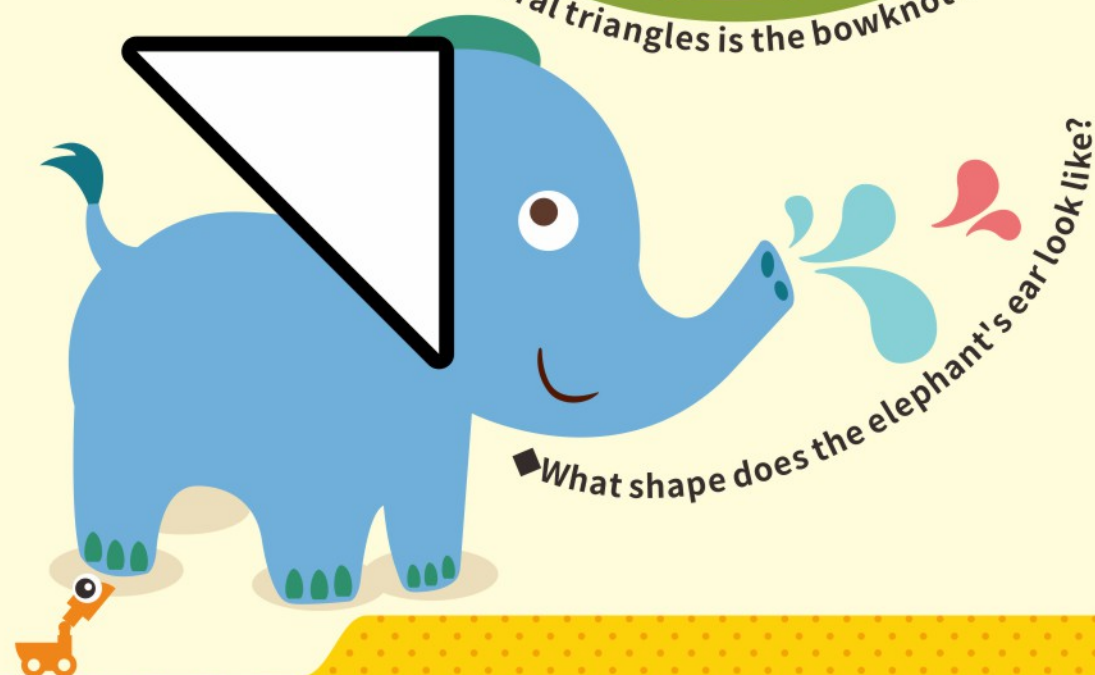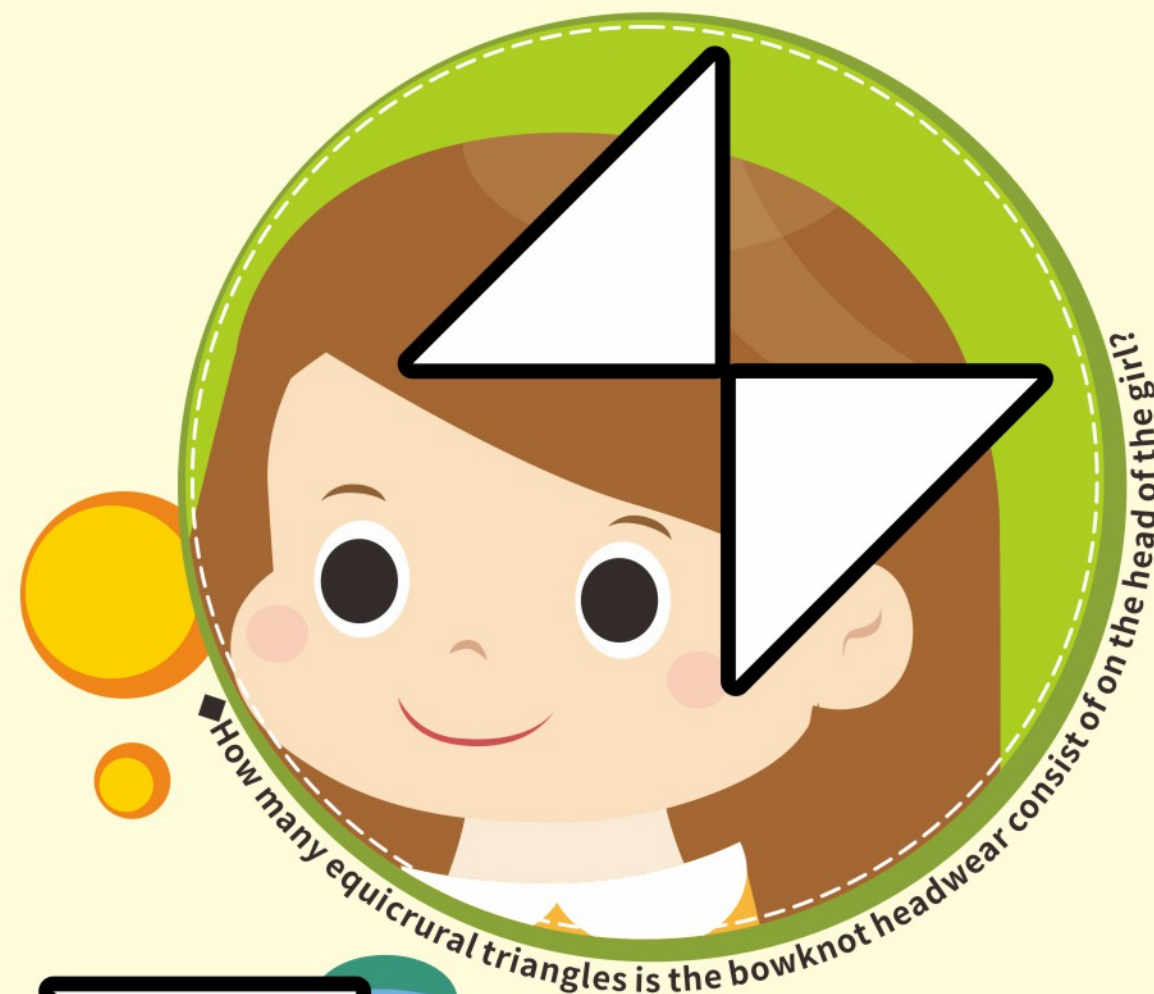
3×5

1

2

3

4

5

6

◆ Find out a block the same shape with " ▲ ".

■How many equicrural triangles is the bowknot headwear consist of on the head of the girl?

■What shape does the elephant's ear look like?

◆ **Different numbers of equicrural right triangles can build different sizes equicrural right triangles.**

Boys and girls, come and put some triangle blocks in these big triangles and observe how many small triangles can make these big triangles.

① ② ③
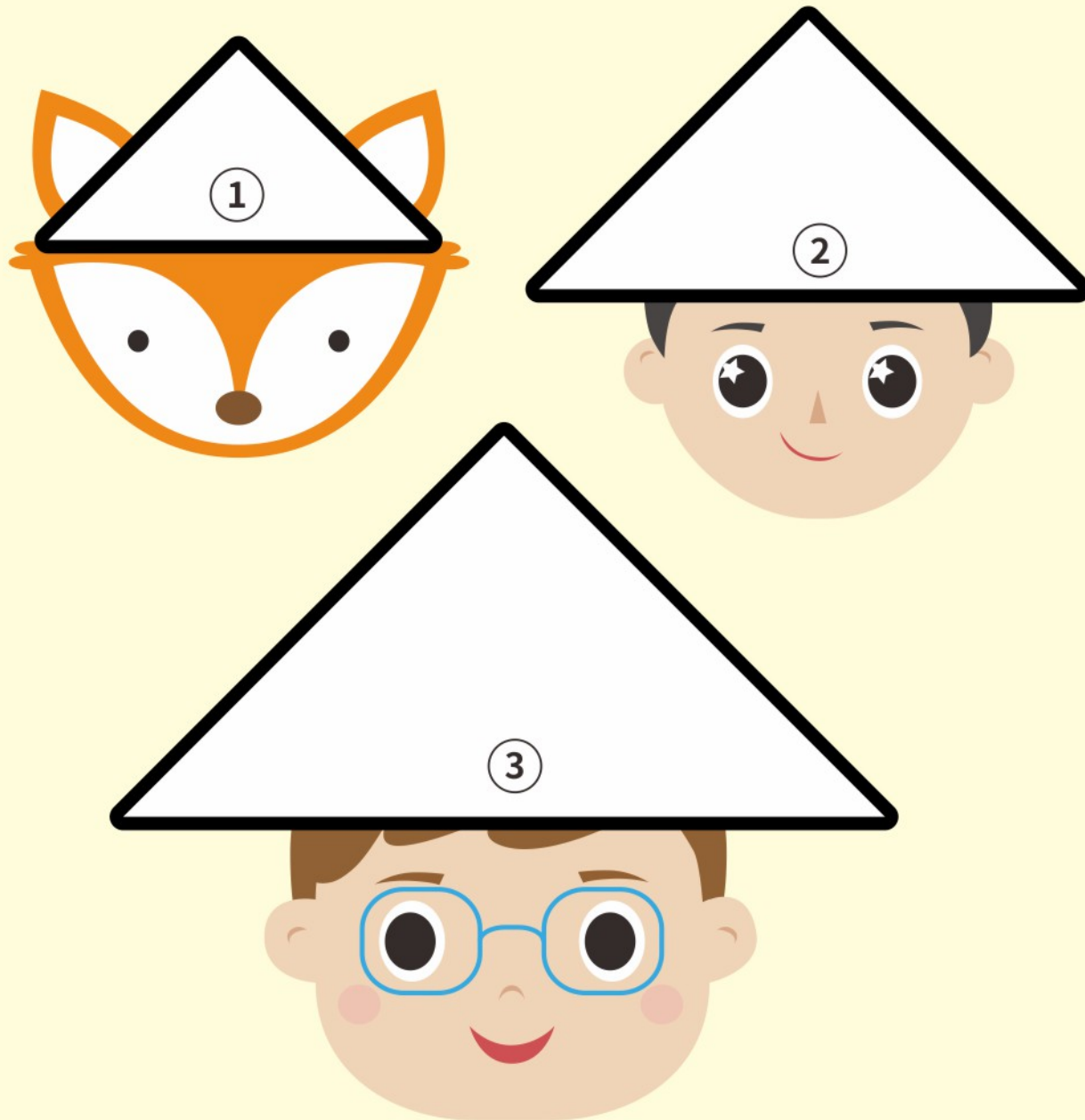
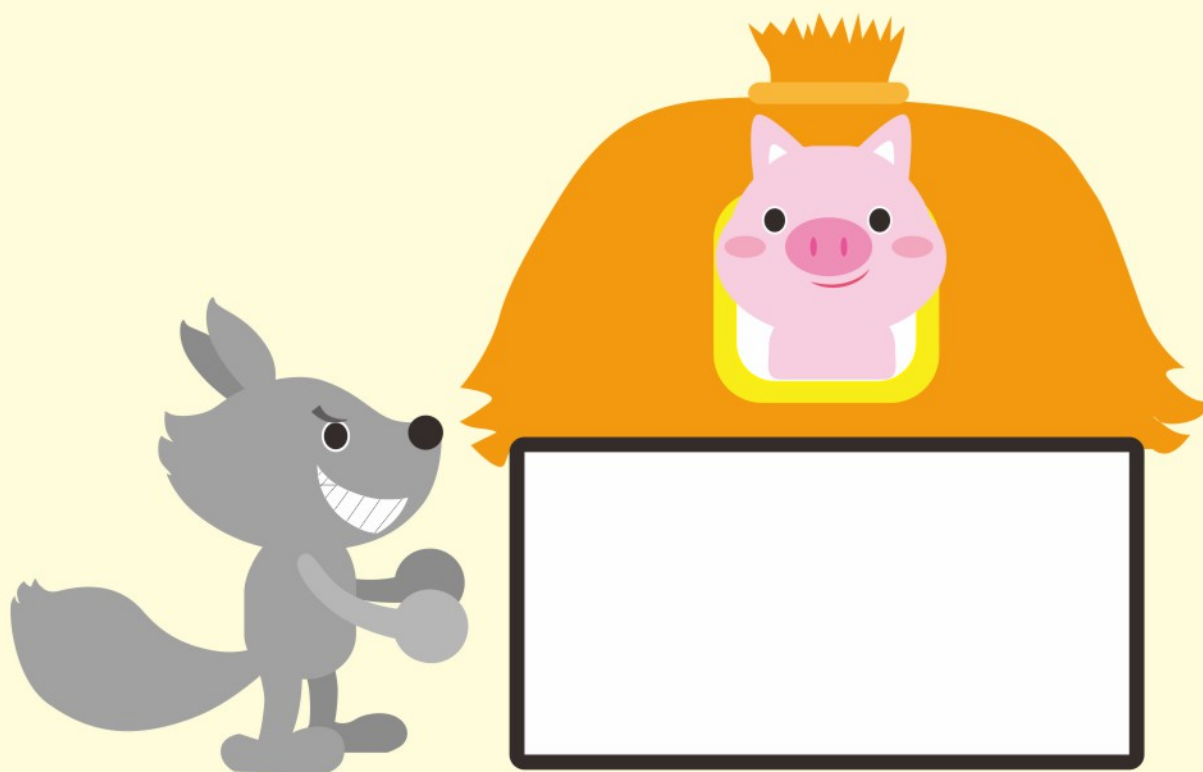◆ **The crown is not an equicrural right triangle, but it can be consist of many equicrural right triangles.**

Try to put all small equicrural right triangle blocks into the crown shape and observe how many triangles can make the big crown.

④

◆ **What shape is the little pig's house?**
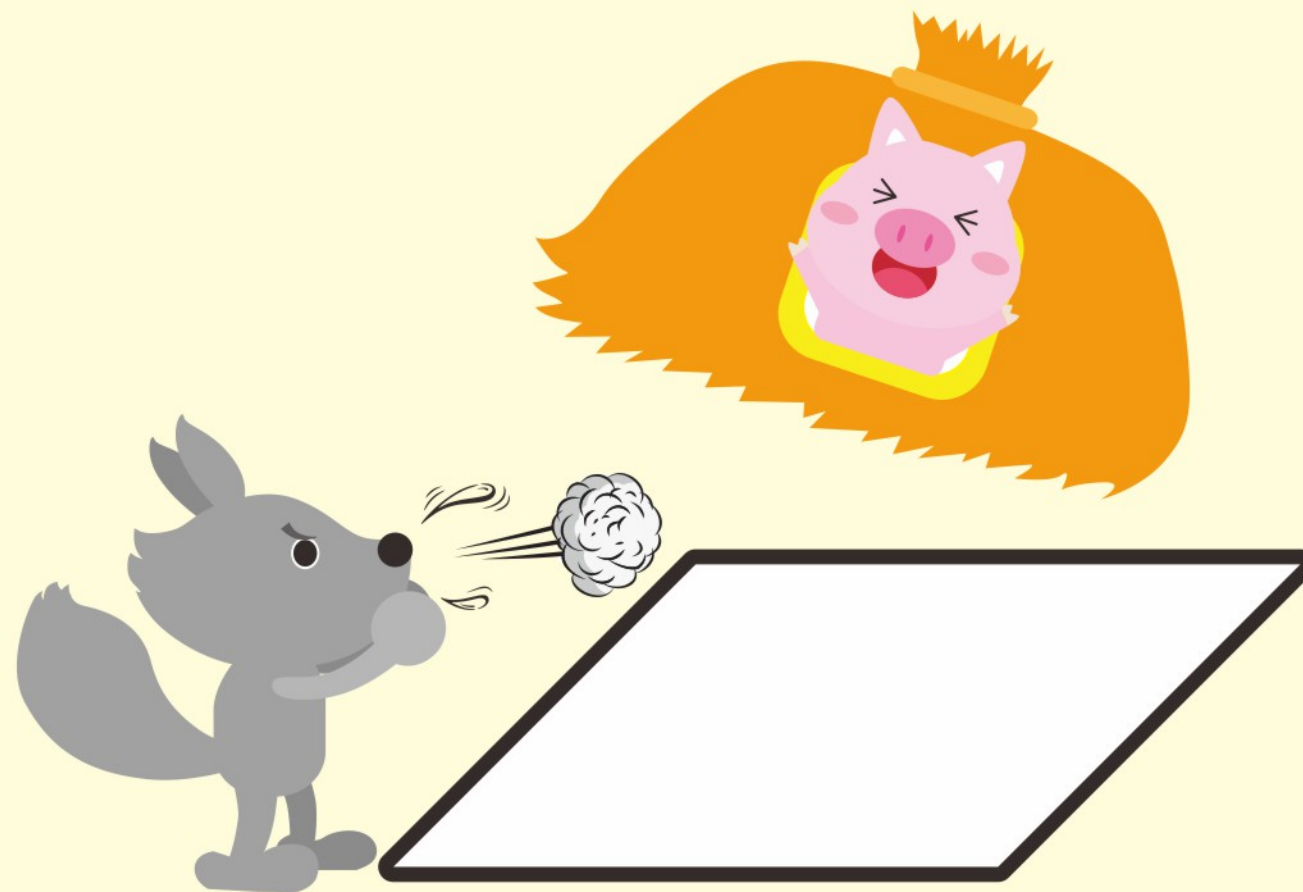
Can you fill the shape with some equicrural right triangles and squares?

⑤

◆ **His house was blown awry by big grey wolf. What shape is the house becoming now?**

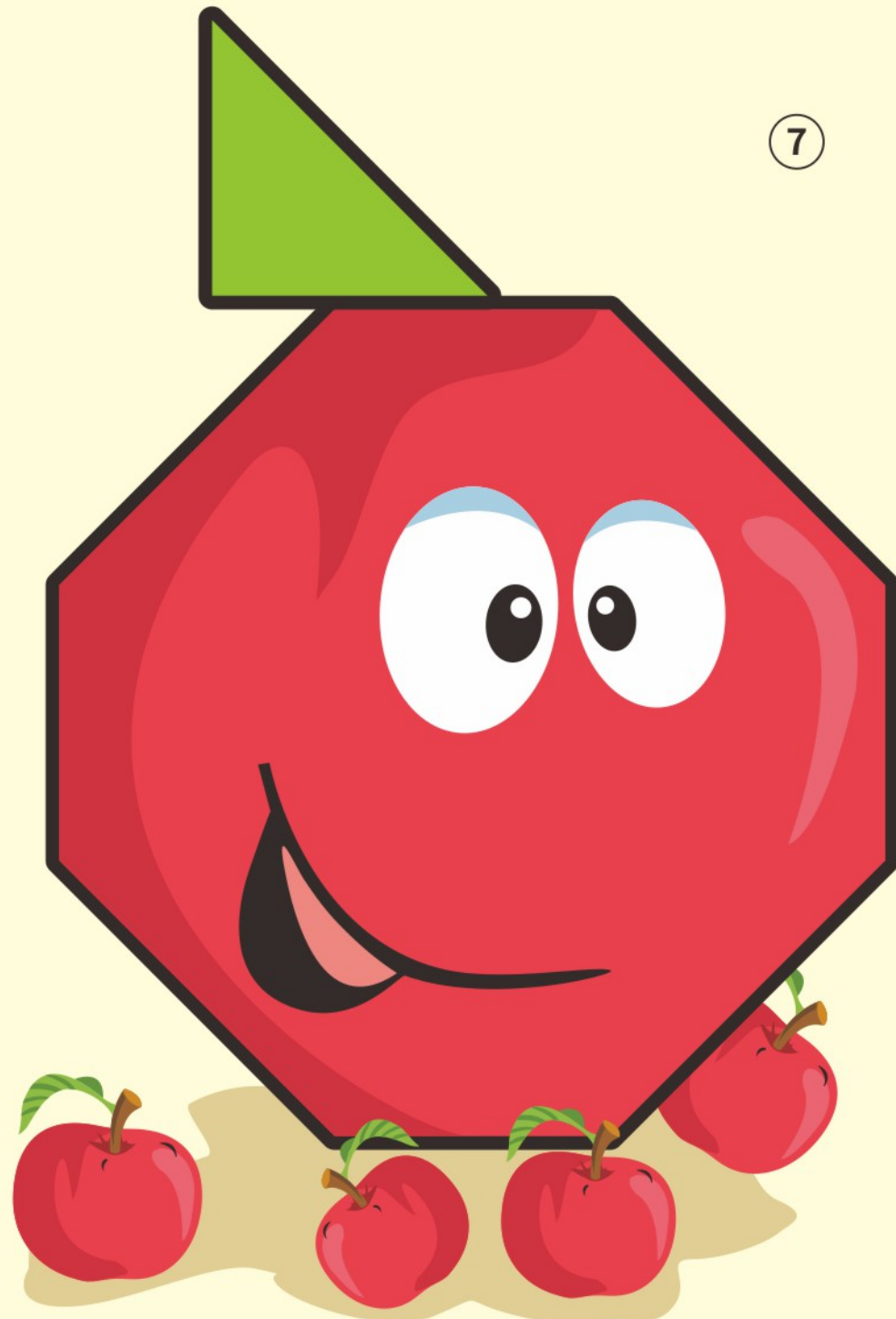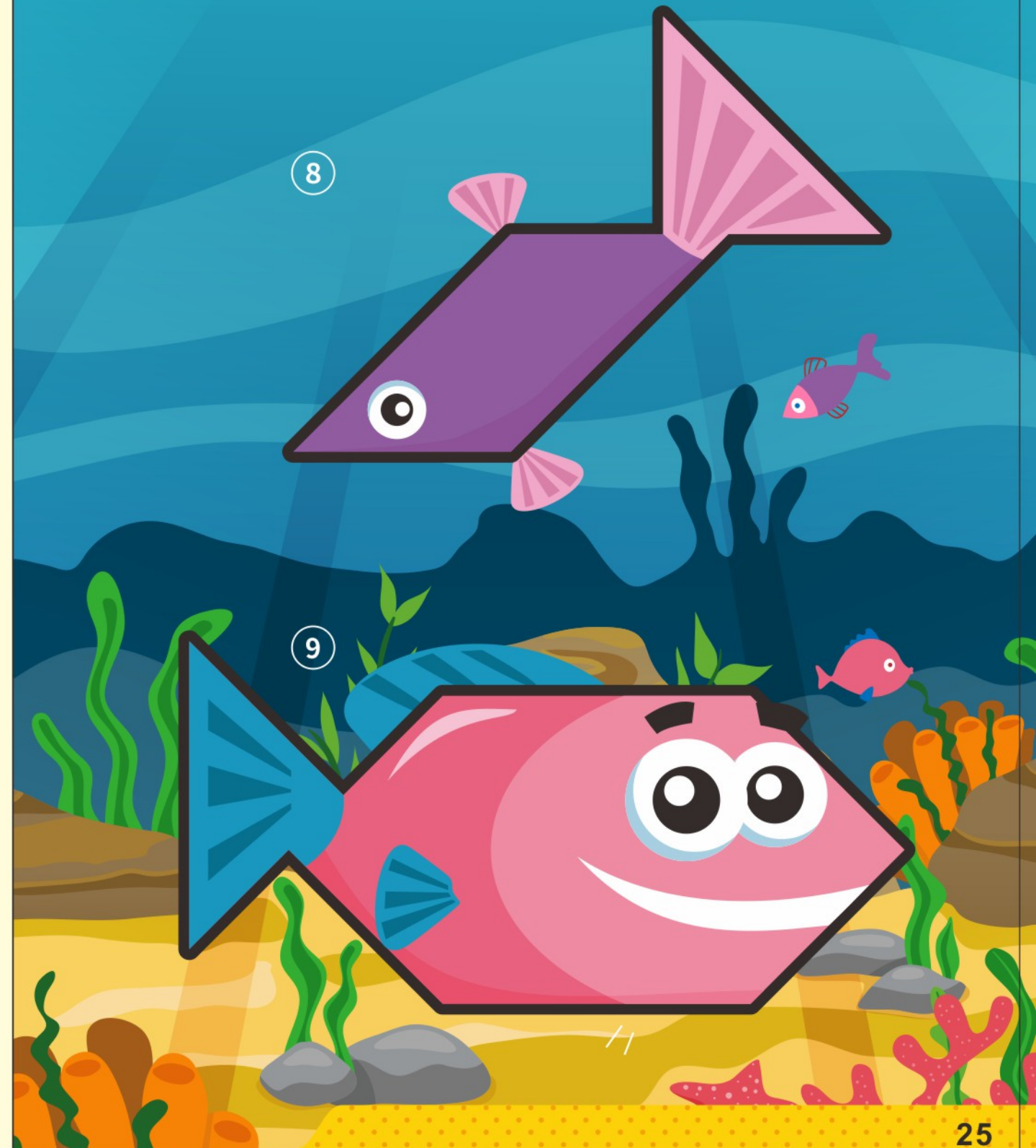Can you fill the shape with some equicrural right triangles and squares?

⑥

Can you fill these shapes with some equicrural right triangles and squares?

⑦

⑧

⑨

10

11

12

13

⑭

⑮

16

17
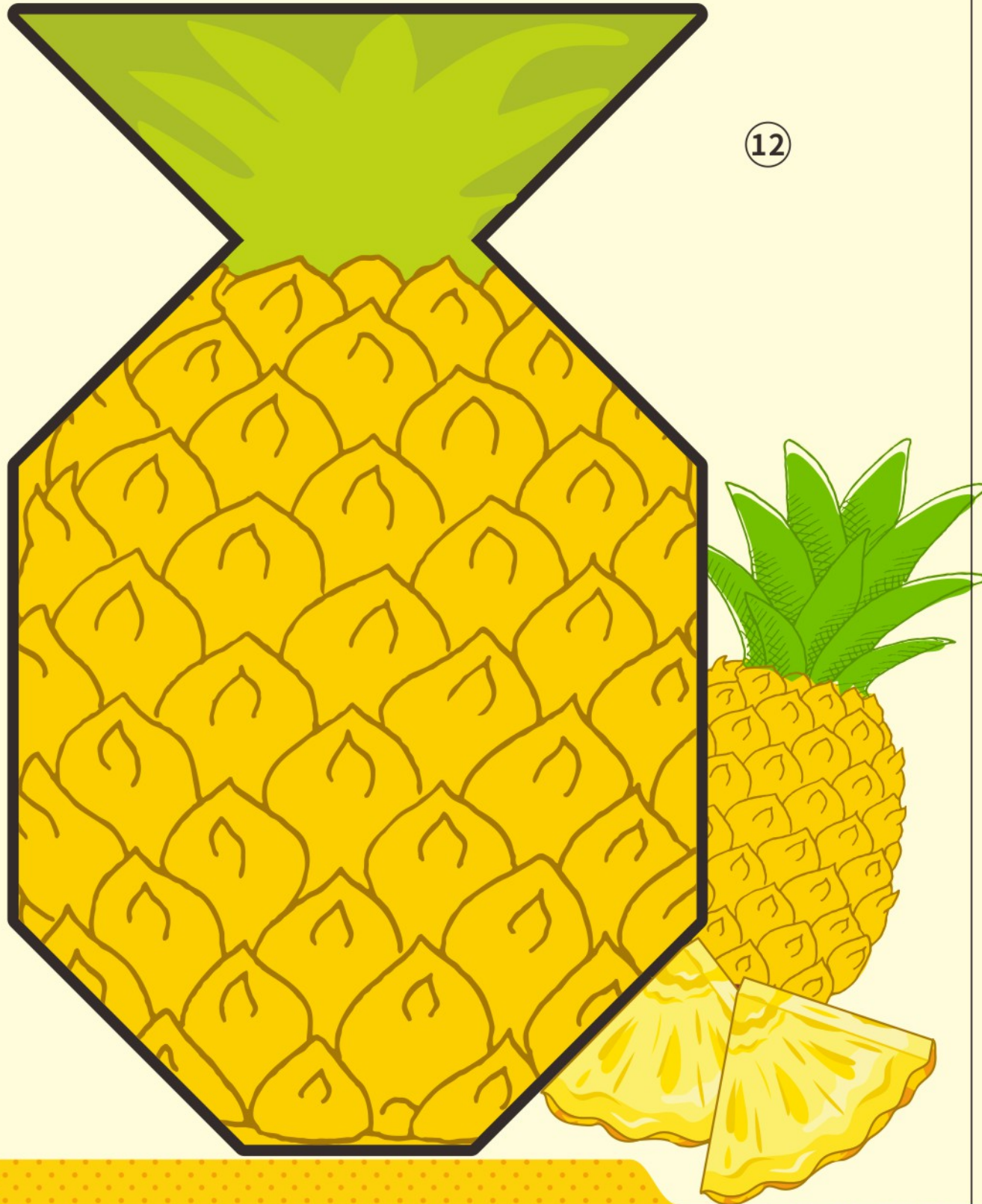
◆ **Fill the following modules into a game area.**

Players should take out all the square blocks. And select some blocks to make the 2 modules as below.

Setup

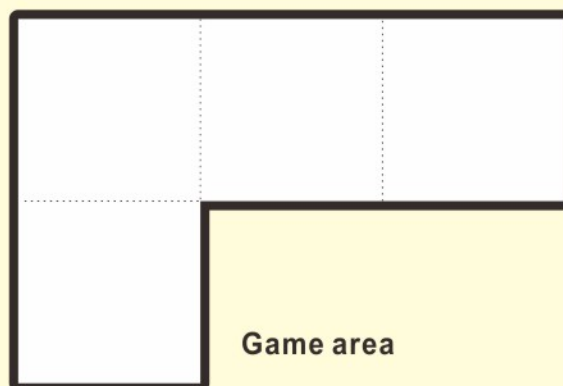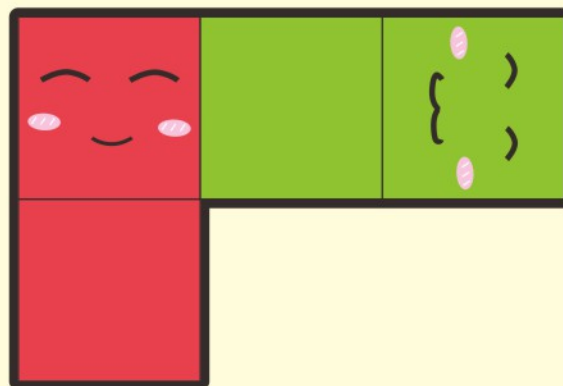How to get the 2 modules fill into the game area on the right?
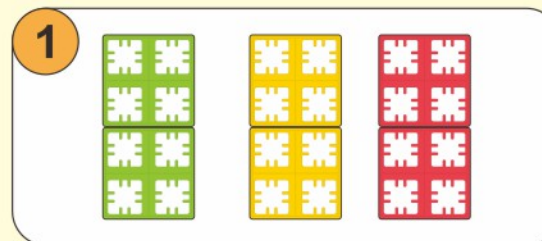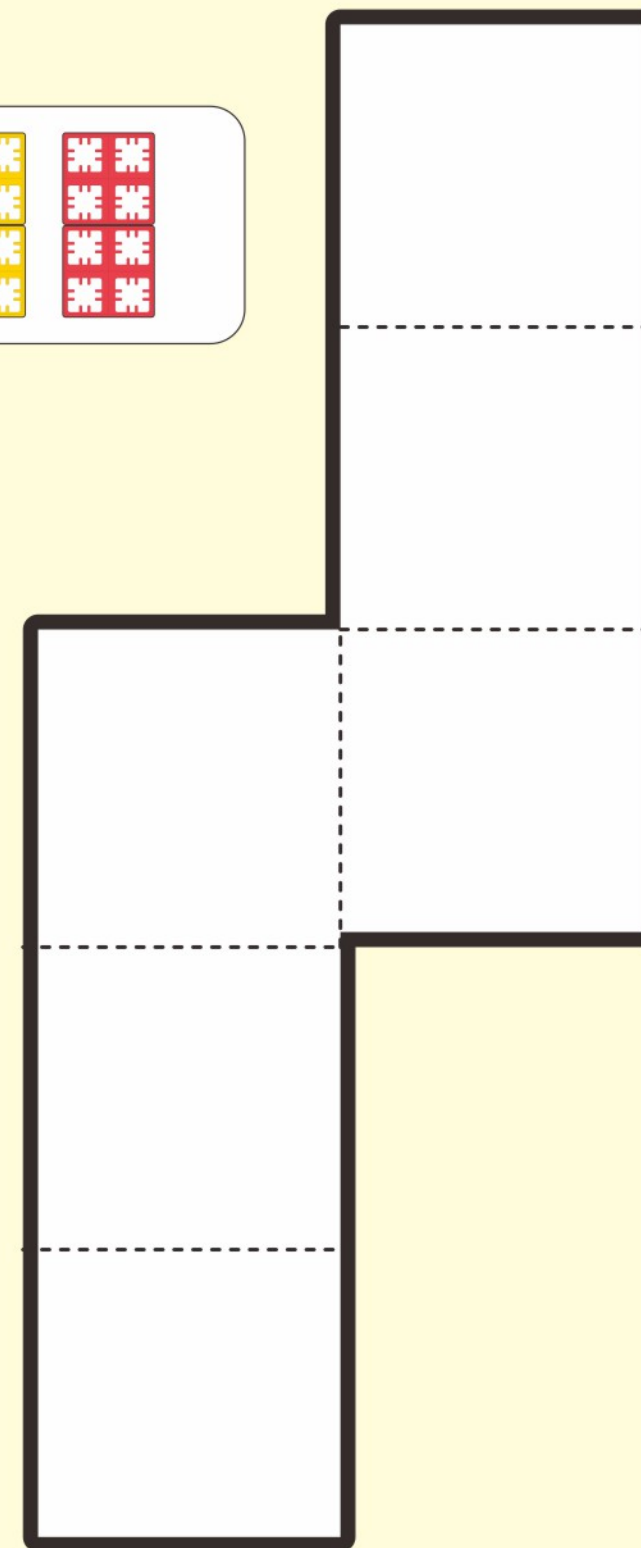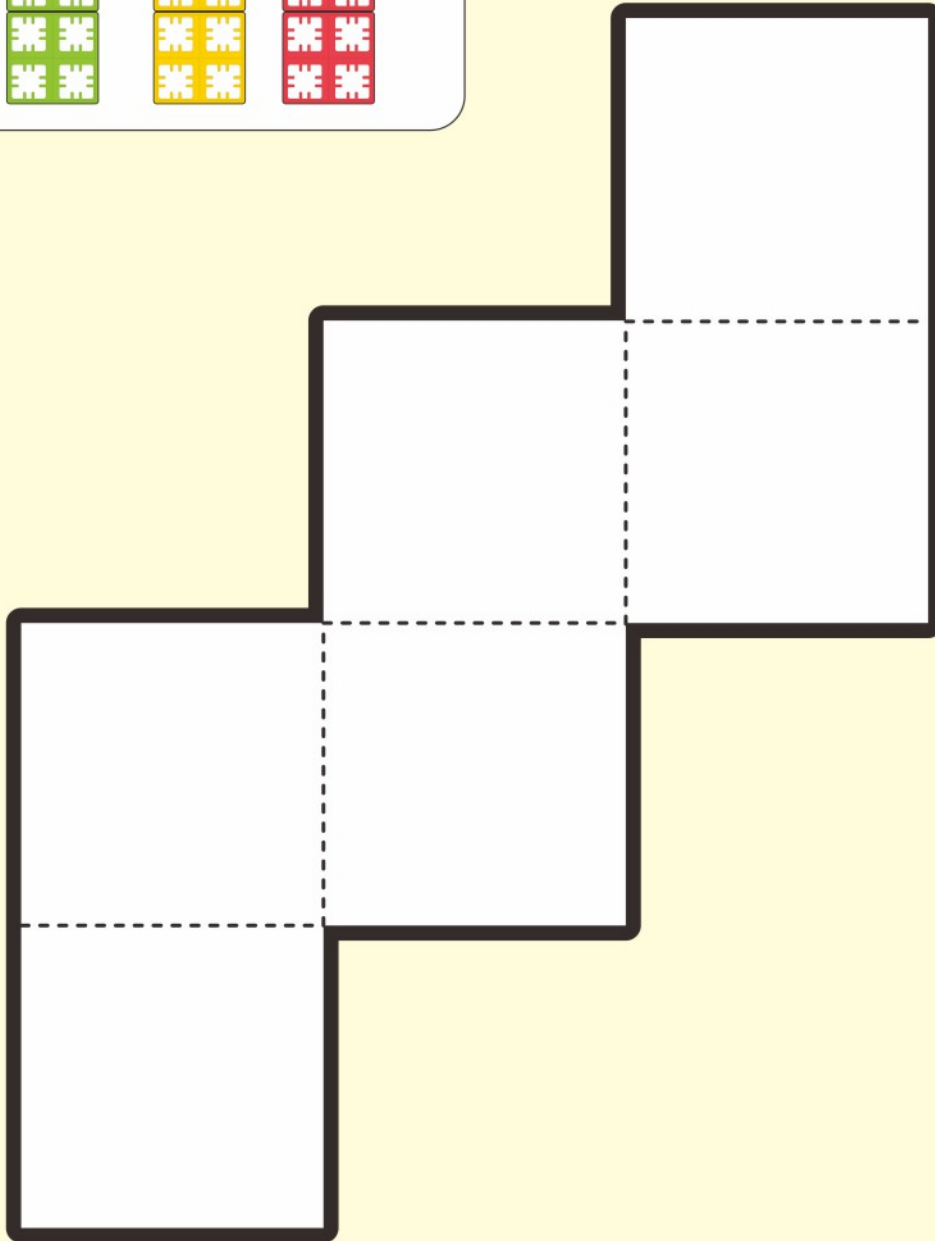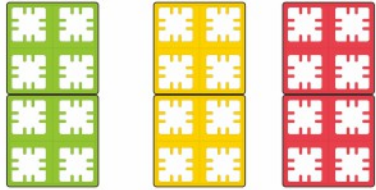
① ②

Modules

Game area

Answer

1

2

3

4
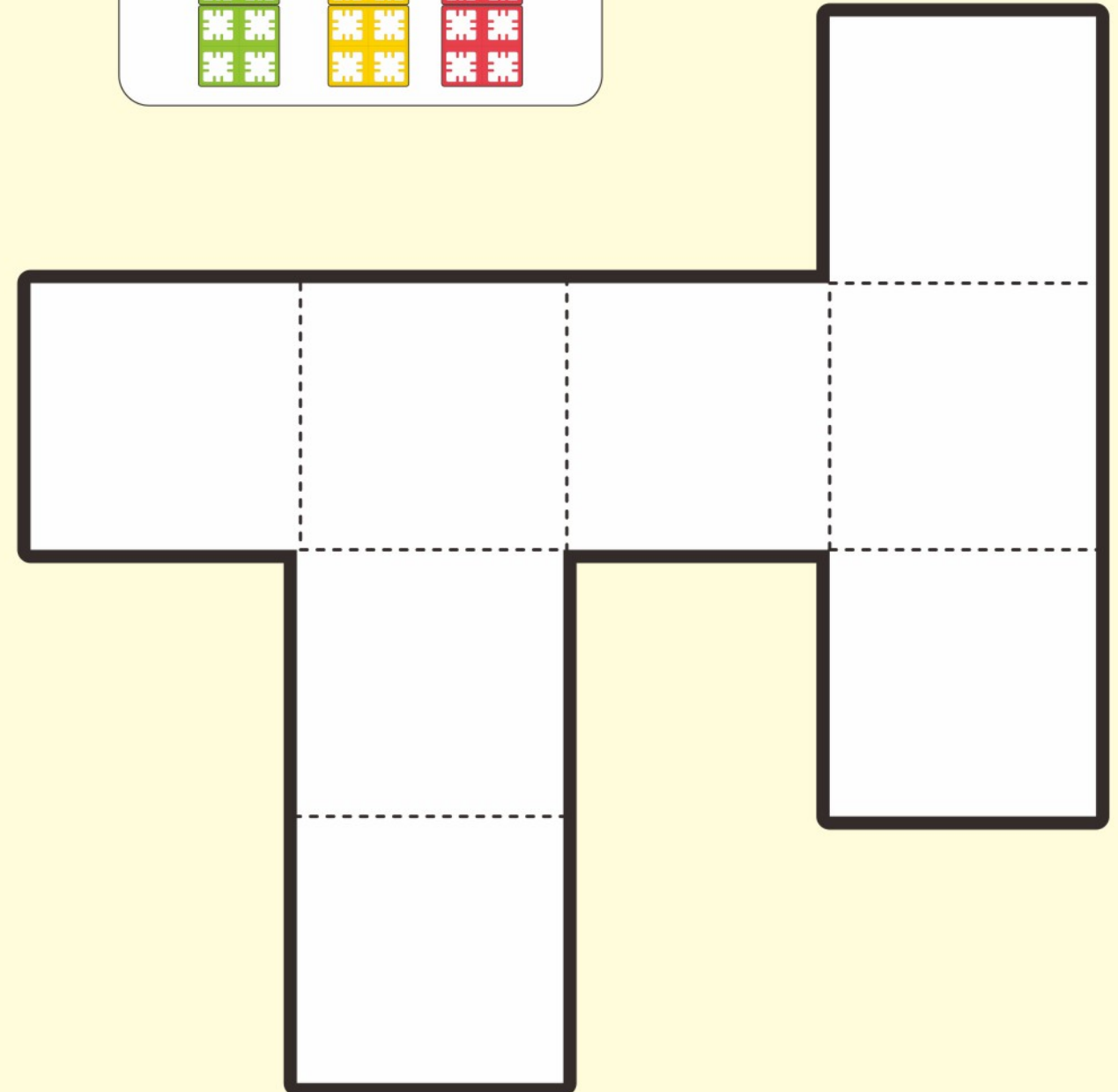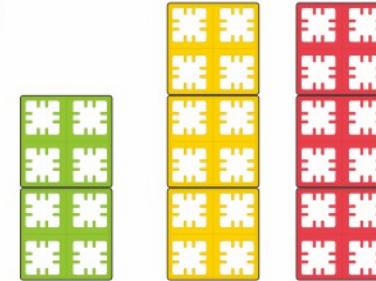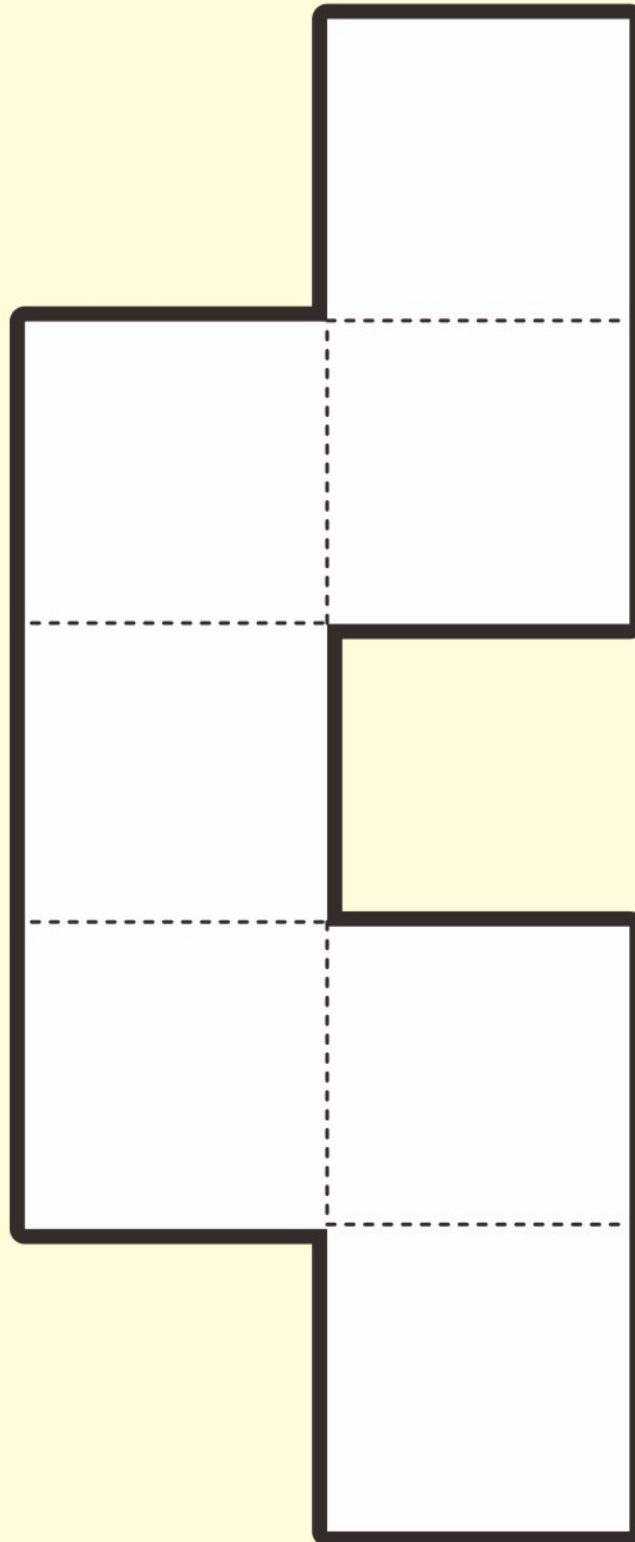
5
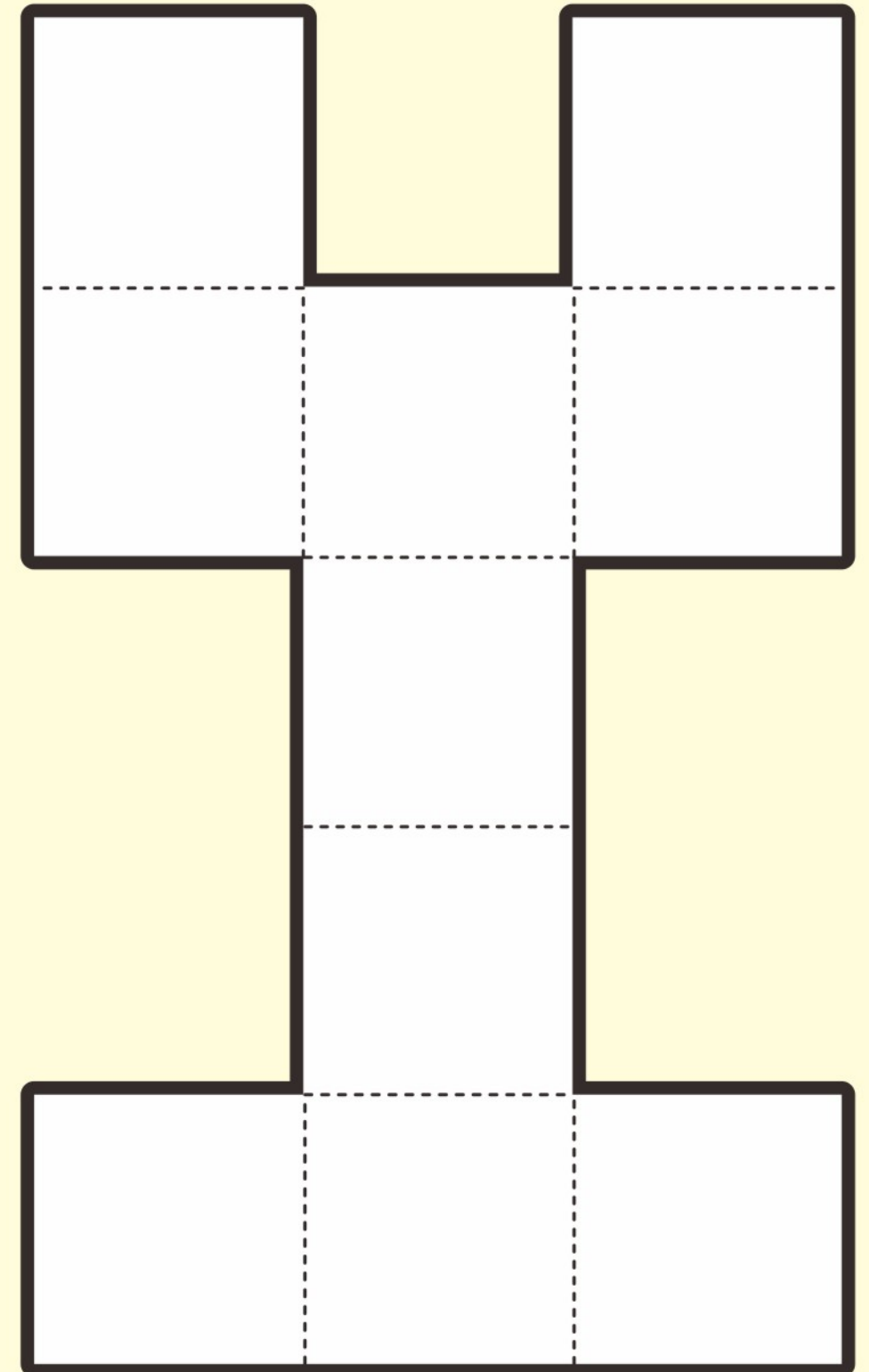
Let's play squares
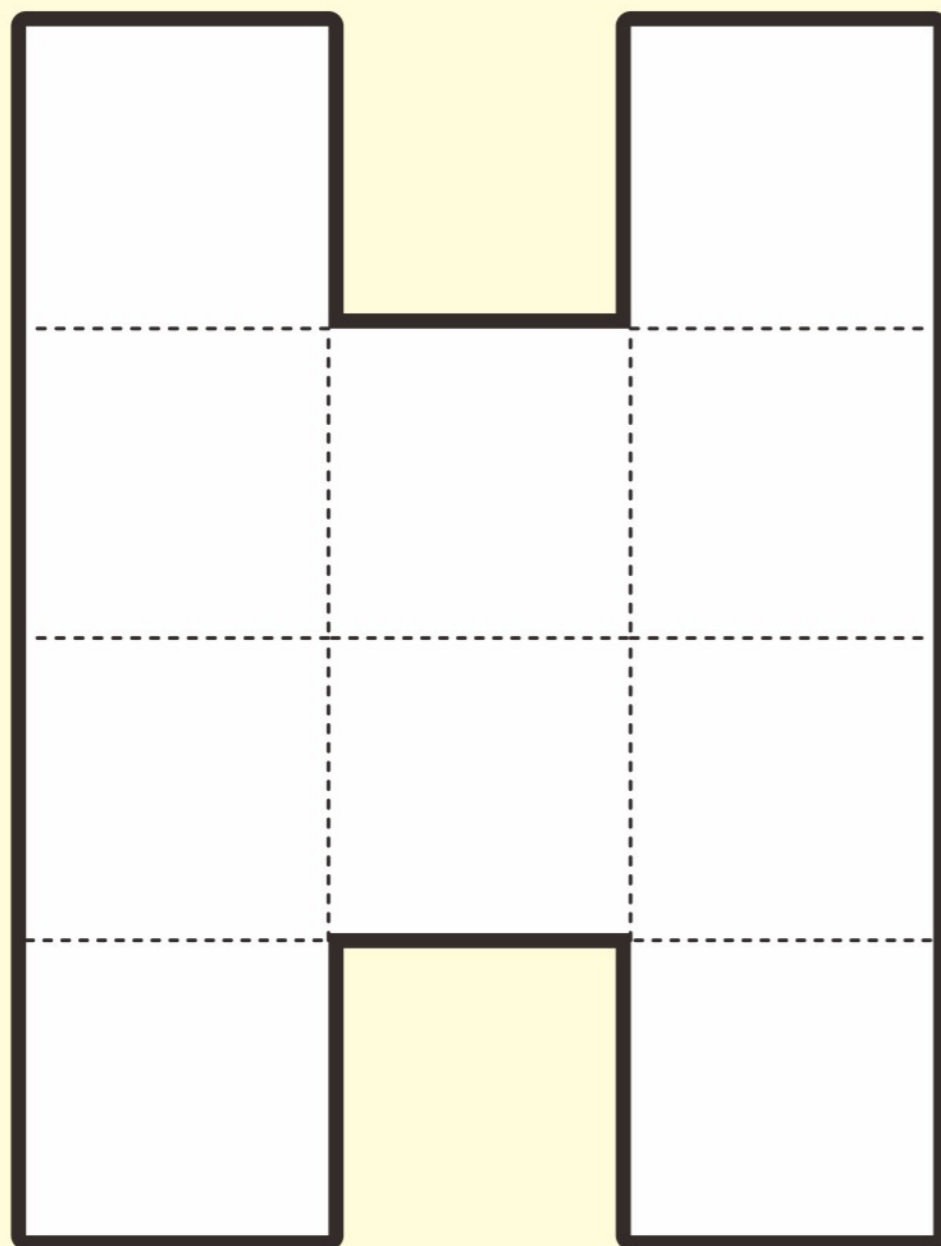
Build a square cube

Spatial thinking

◆ There are 3 module groups as below, and each group can build a 2X2X2 square cube. Just have a try one by one!
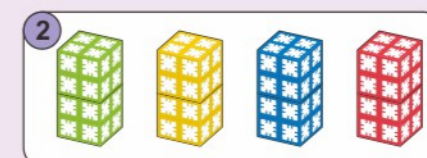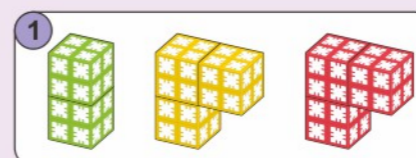
What other cube models can you create with above modules?

◆ Build a 3X2X2 cubes with different module groups.

◆ Build a 4X2X2 cubes with different module groups.
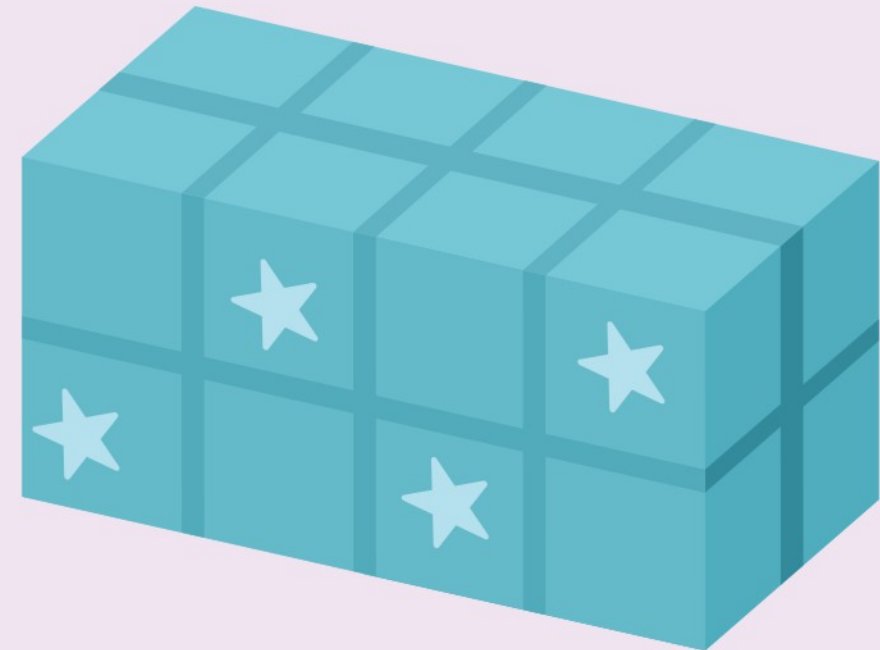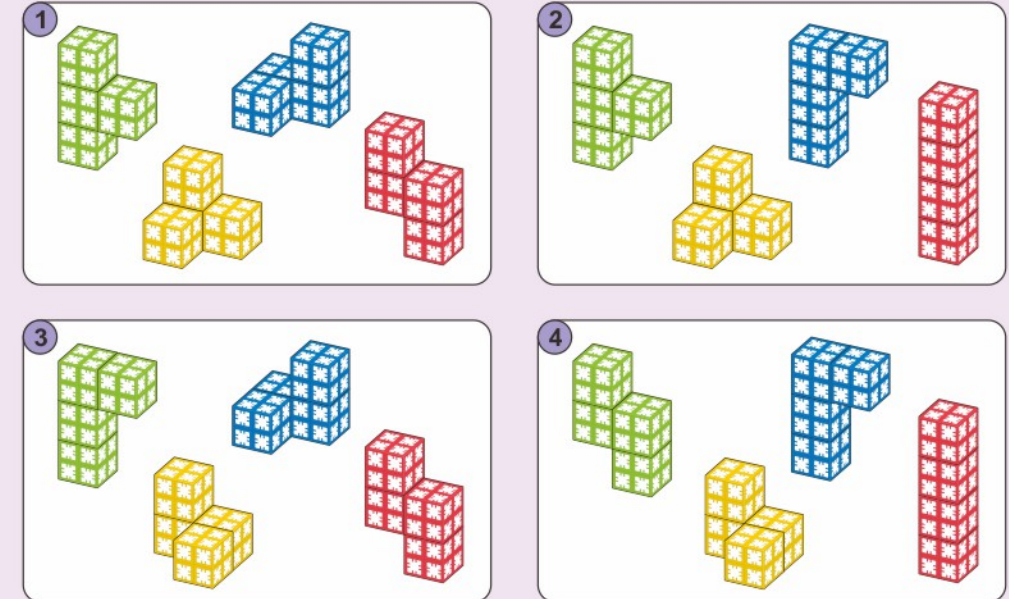
◆ Little architect, let us to create some colorful buildings.

◆ A building is consist of floors and roof.

Example:

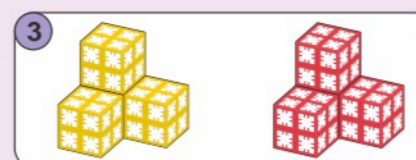| Roof				
Floor	2	1	3	2

Answer:

Roof

Floor: 2 green square blocks

Roof

Floor: 1 red square block

Roof

Floor: 3 blue square blocks

Roof

Floor: 2 yellow square blocks

Roof	Floor
	2
	3
	4
	2

1

Roof	Floor
	3
	4
	1
	2

(2)

Roof	Floor
	2
	4
	4
	3

(3)

Please build correct buildings according to floors and other indicated conditions. 4 buildings are respectively red, yellow, white and green.

Example:

Left | **3** | **5** | **4** | **2** | Right

Indicated conditions:

1. Red building is the 3rd one from left.
2. White building is the 1st one from right.
3. Green building is the tallest one.

Tallest building **5**

The 3rd one from left **4**

3

Left

The 1st one from right **2**

Right

— Colors of buildings

Right

| 2 | 6 | 4 | 3 |

④

Left

—Colors of buildings
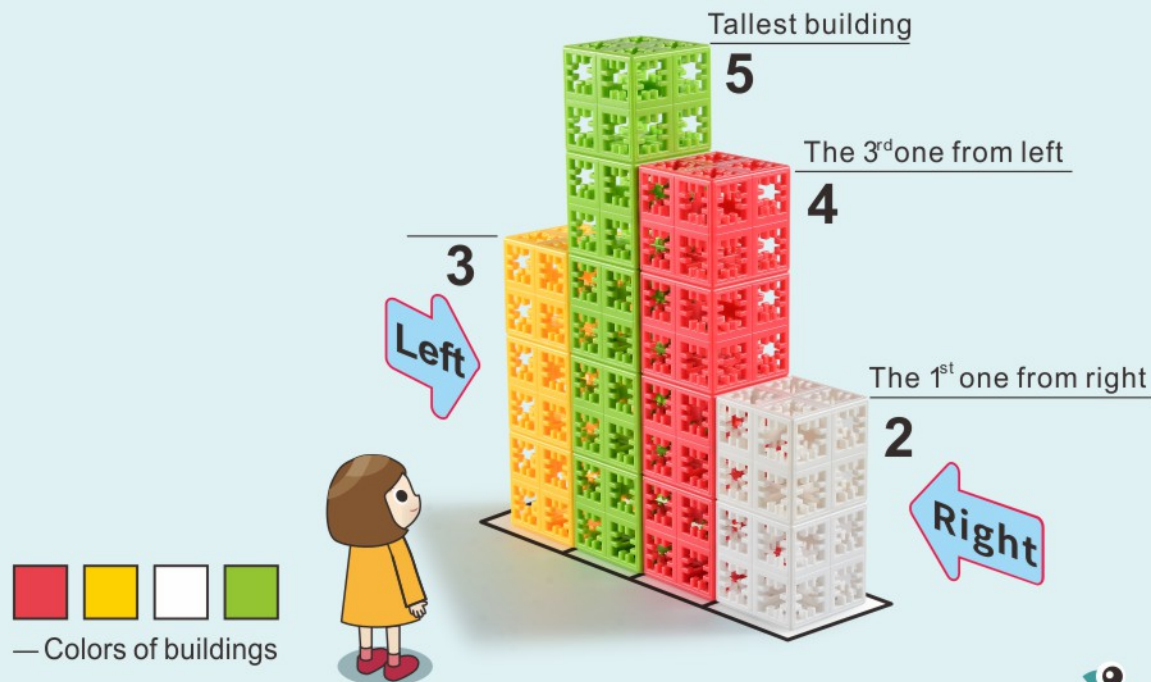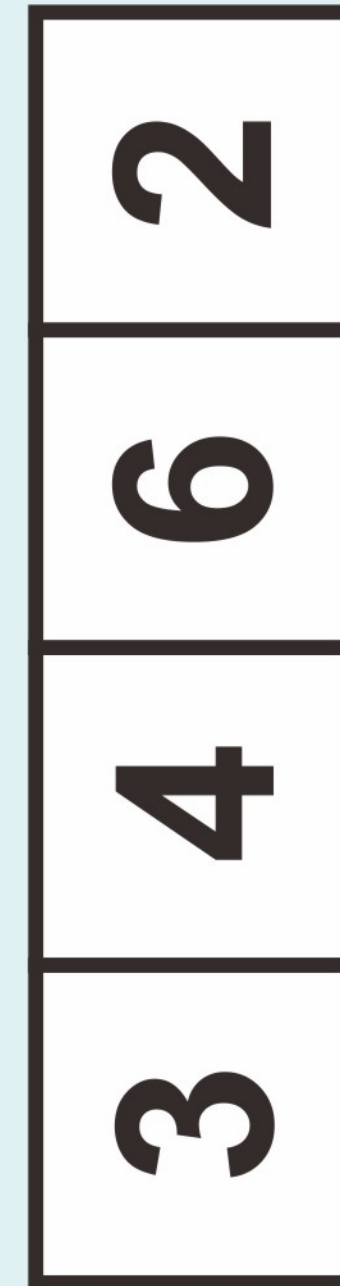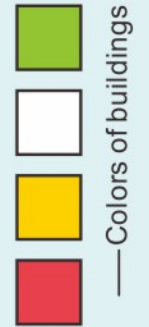
1. Yellow building is the 2nd one from left.
2. Red building is on the right side of yellow building.
3. White building is not the shortest one.

Notice: in this game, red building is on the right side of yellow building means the adjacent right.
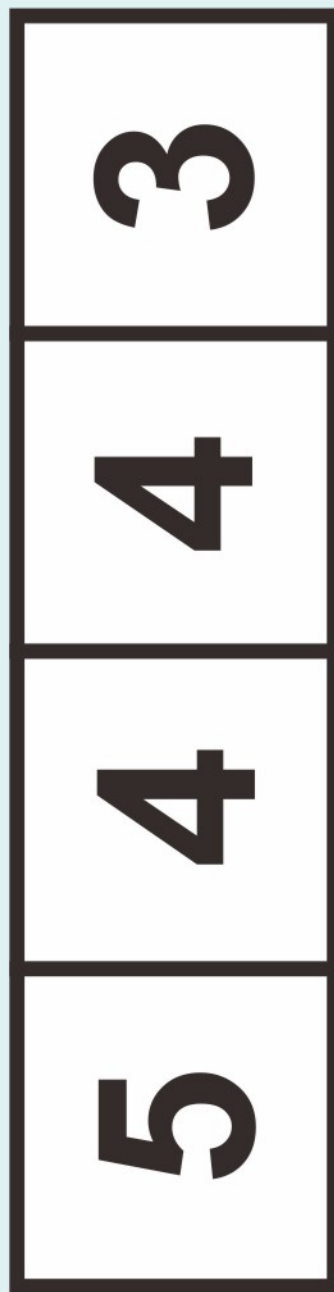
Right

3	4	4	5

Left

⑤

—Colors of buildings

1. Yellow building is the same height with green building.
2. White building is on the right side of green building.

Right

6	4	5	2

Left

⑥

—Colors of buildings
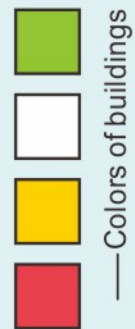
1. Yellow building is on the right side of the shortest building.
2. Red building is on the left side of the tallest building.
3. Green building is not adjacent to red building.
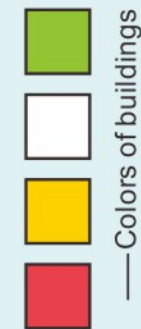
Right

(7)

3	4	5	6

Left

—— Colors of buildings
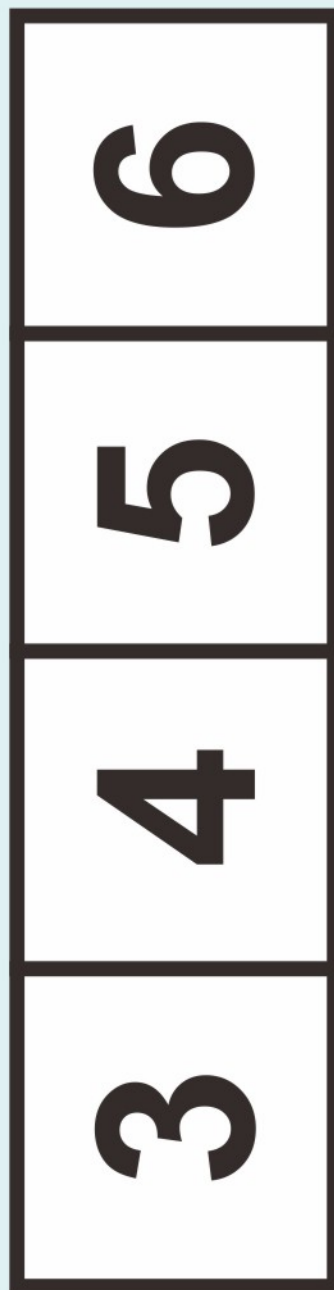
1. Yellow building is one floor taller than red building.
2. White building is on the left side of red building.
3. Green building is not the shortest one.
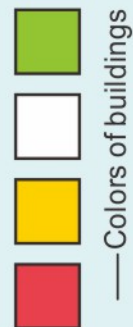
Right

(8)

2	5	4	3

Left

—— Colors of buildings
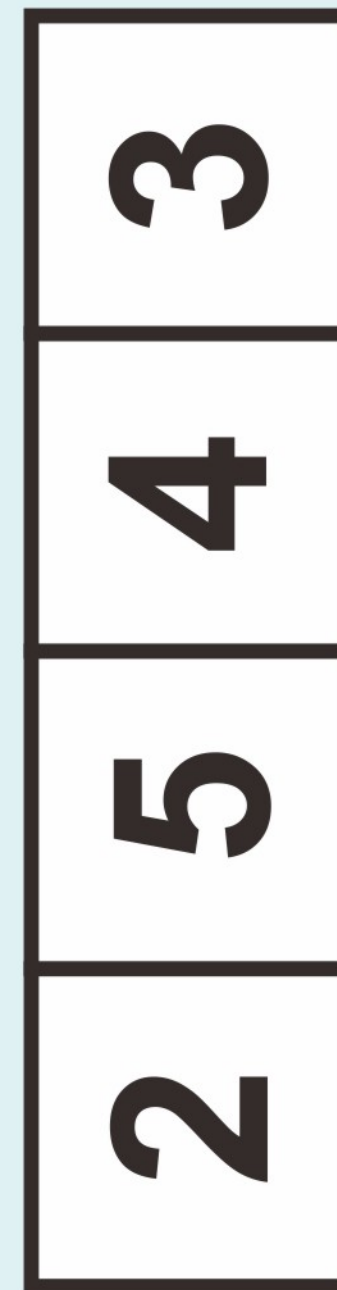
1. Yellow building is on the right side of red building.
2. White building is one floor shorter than yellow building.
3. Green building is not adjacent to white building.
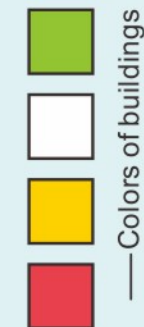
Right

| 5 | 2 | 4 | 3 |

Left

(9)

—Colors of buildings
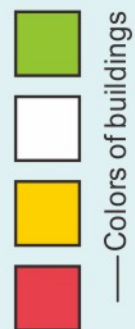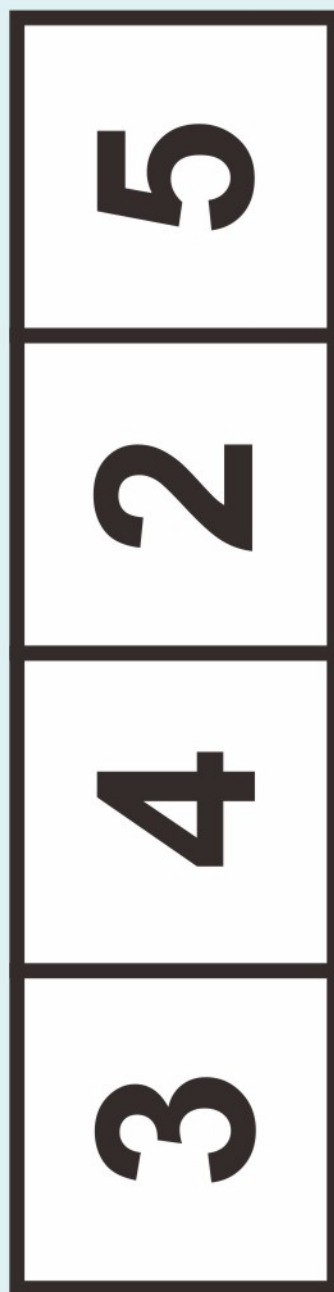
1. Yellow building is adjacent to the shortest building.
2. Green building is on the right side of yellow building.
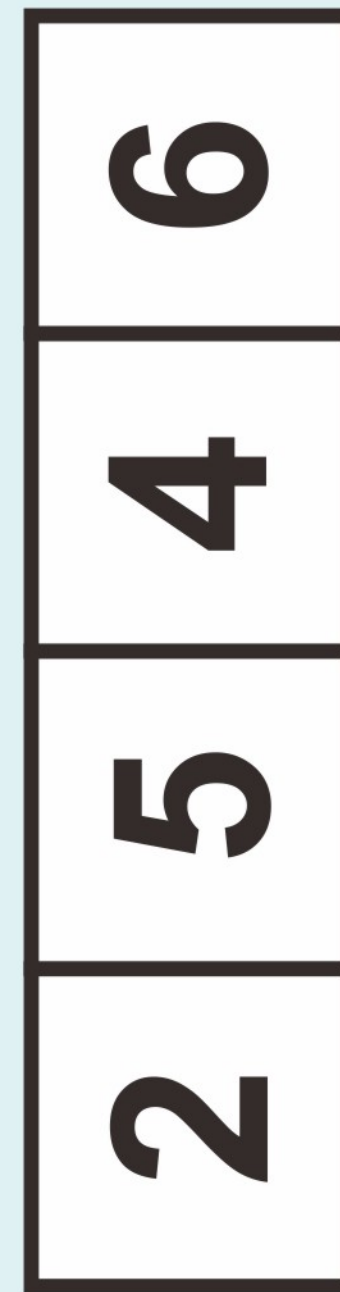3. White building is not the tallest building.
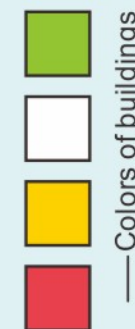
Right

| 6 | 4 | 2 | 3 |

Left

(10)

—Colors of buildings

1. Red building is one floor taller than green building.
2. White building is on the left side of red building.

Right

3	5	5	2

Left

⑪

—Colors of buildings
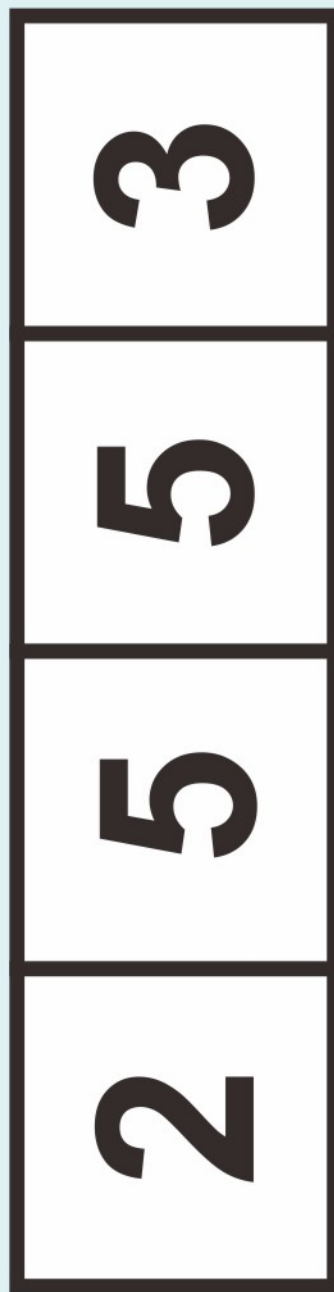
1. Green building is adjacent to red building.
2. White building is on the right side of green building.
3. Yellow building is shorter than red building.
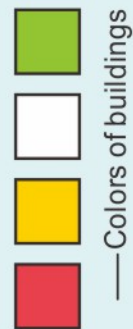
Right

2	4	5	3

Left

⑫

—Colors of buildings
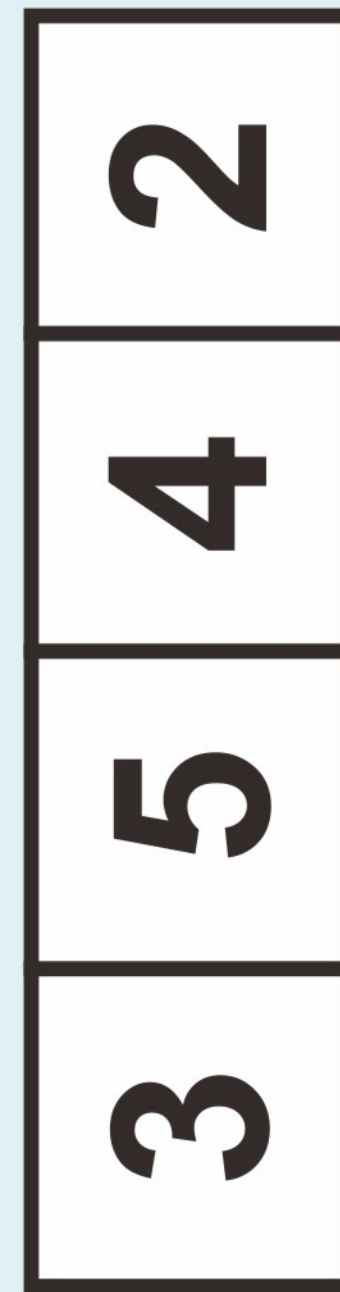
1. There is another building between yellow building and red building.
2. Red building is neither the tallest one nor the shortest one.
3. White building is on the left side of red building.
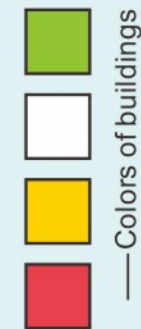
Right

| 3 | 4 | 5 | 4 |

Left

⑬

Colors of buildings
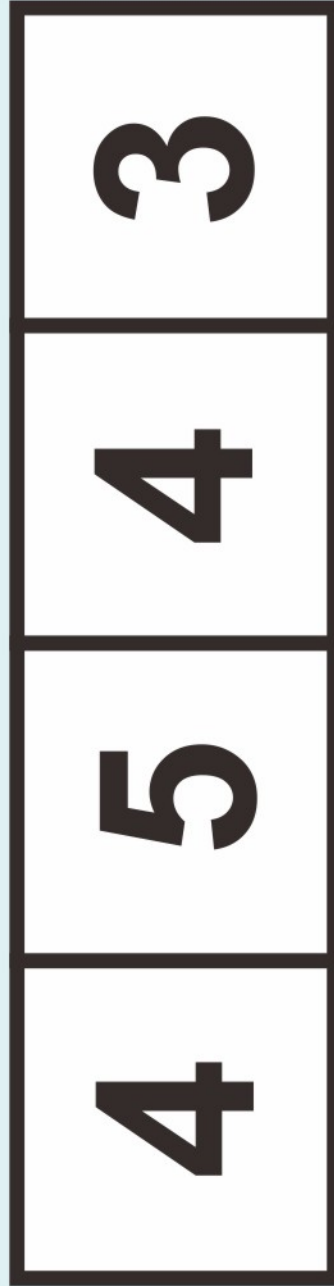
1. Green building is on the right side of yellow building.
2. Red building is taller than green building.
3. White building is not the 1st one from left.
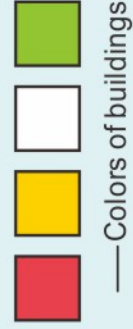
Right

| 3 | 3 | 4 | 6 |

Left

⑭

Colors of buildings

1. There is another building between yellow building and green building.
2. Red building is the same height with green building.
3. Yellow building is not the tallest one.

This game has 6 buildings and it is more difficult than previous. The numbers in the tablet mean the floors for each building. Please build correct buildings according to the numbers and some indicated words.

Example:

5	3	6
4	2	3

Finished buildings:

Indicated conditions:
1. The tallest building is white.
2. Blue building is in front of the tallest building.
3. The shortest building is not adjacent to yellow building.
4. Red building is in front of green building.

Back

5	3	6
4	2	3

Left   Right

Front

Colors of buildings

Back

3	2	5
4	4	6

Left   Right

Front

(15)

1. Blue building is the same height with green building.
2. The tallest building is on the right side of blue building.
3. White building is behind the tallest building.
4. The shortest building is on the right side of red building.
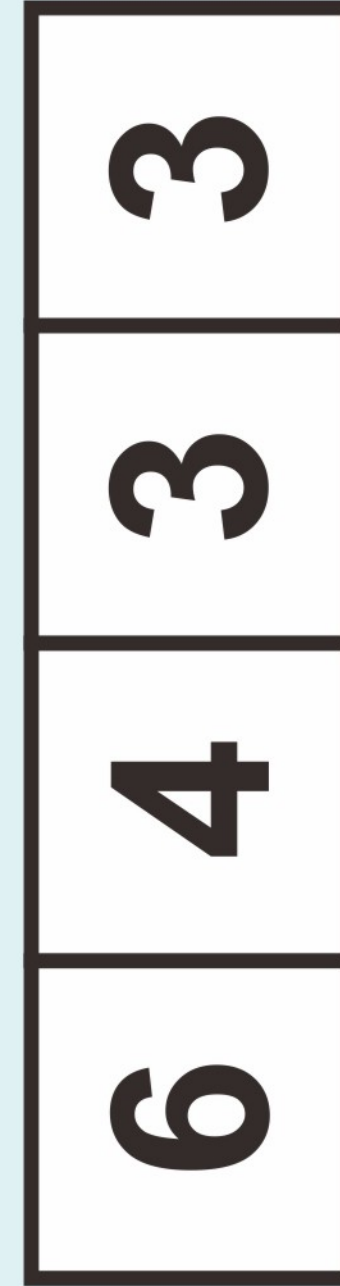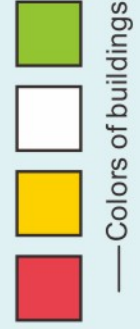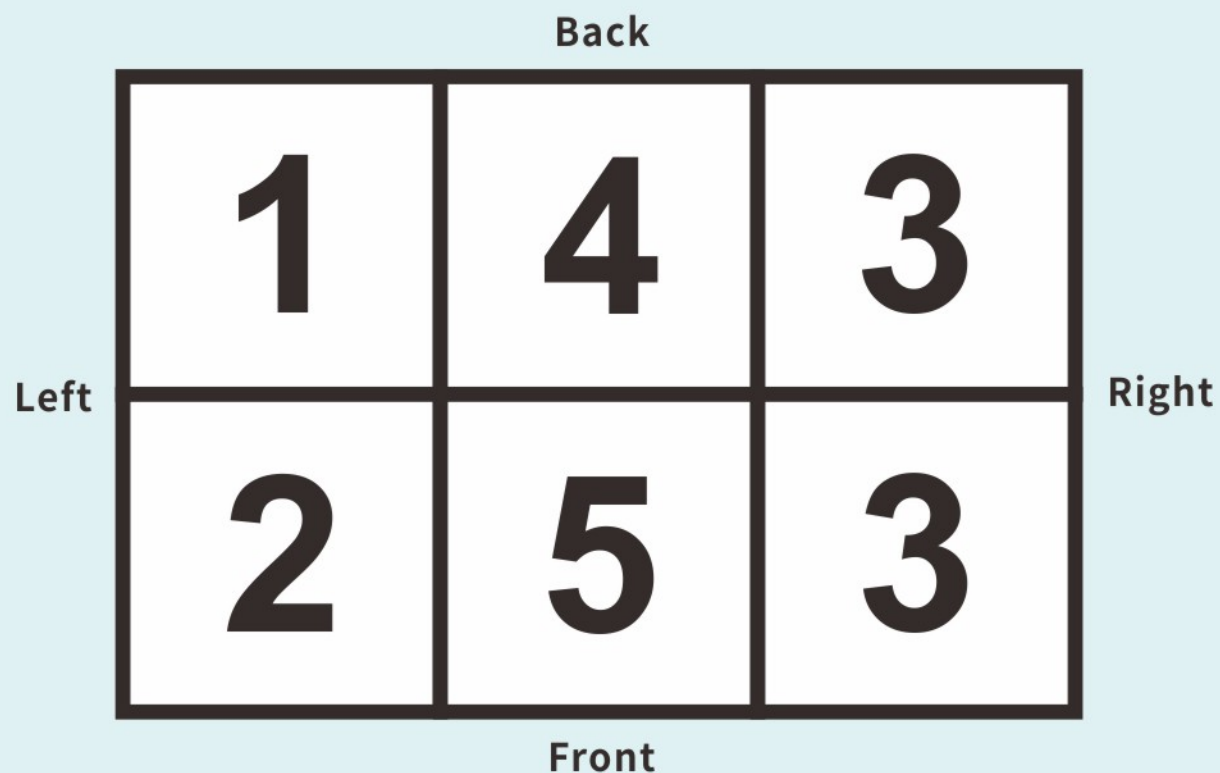5. Yellow building is not adjacent to red building.

Colors of buildings

Back

Left

1	4	3
2	5	3

Right

Front

(16)

1. The shortest building is blue.
2. Yellow building is not adjacent to the tallest building.
3. Red building is adjacent to blue building.
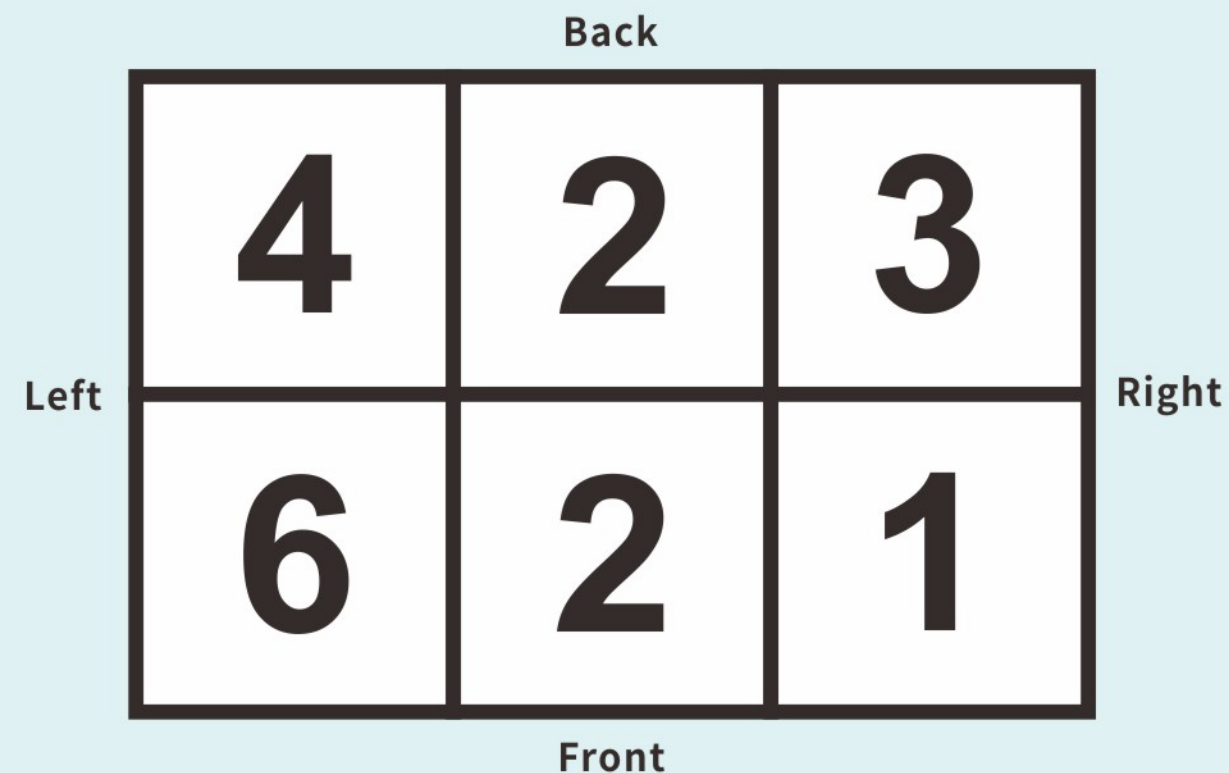4. Pink building is in front of green building.

—— Colors of buildings

Back

Left

4	2	3
6	2	1

Right

Front

(17)

1. The tallest building is yellow.
2. Blue building is behind the shortest building.
3. Red building is the same height with green building.
4. Red building is not adjacent to blue building.
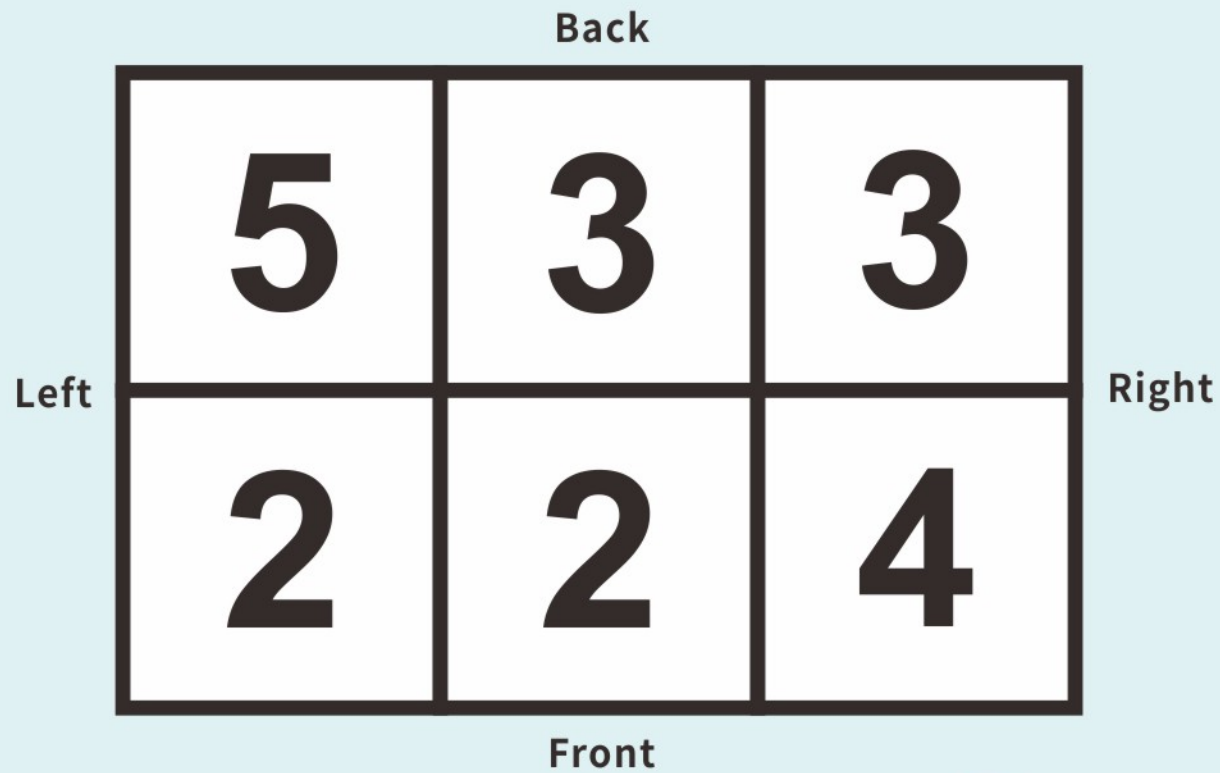5. White building is on the left side of green building.

—— Colors of buildings

Back

5	3	3
2	2	4

Left   **Right**

Front

(18)

1. Red building is the same height with blue building.
2. White building is the same height with green building.
3. Green building is in front of blue building.
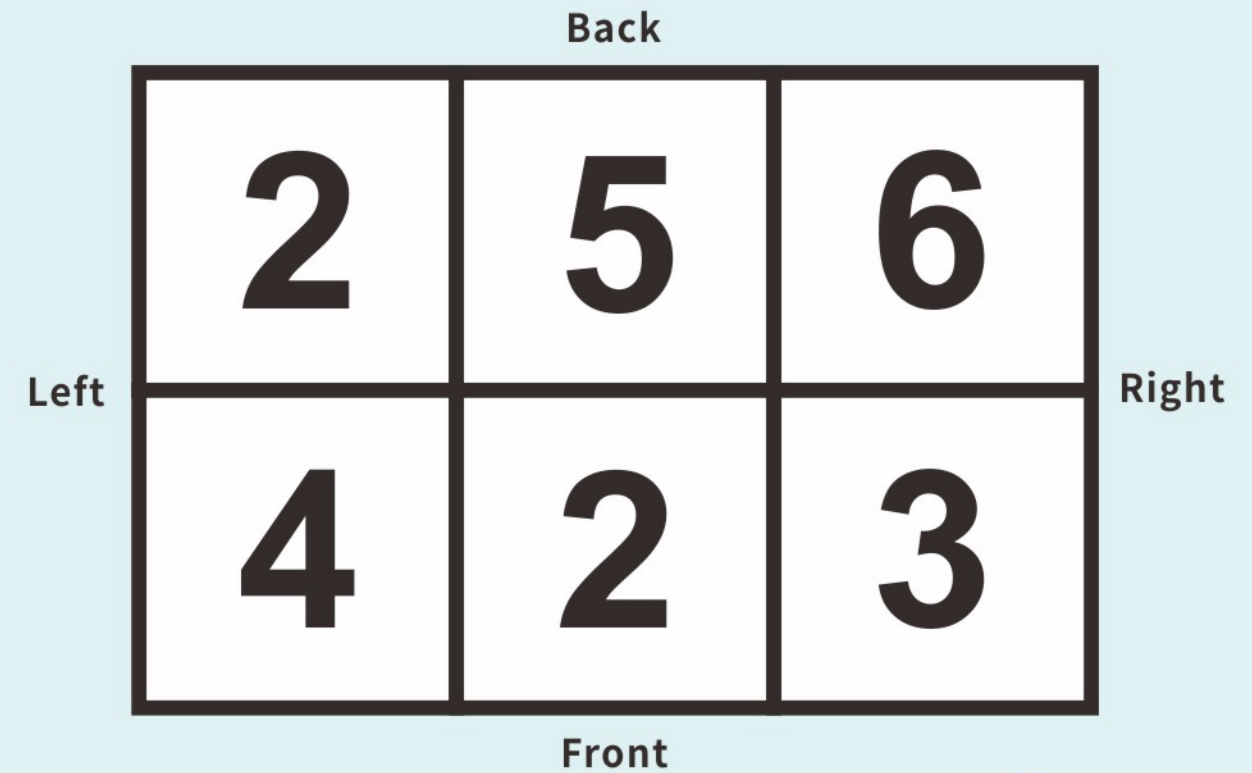4. Yellow building is adjacent to white building.

—— Colors of buildings

Back

2	5	6
4	2	3

Left   **Right**

Front

(19)

1. Pink building is adjacent to both the two shortest buildings.
2. Green building is adjacent to one of the shortest buildings, but not adjacent to another the shortest building.
3. Yellow building is in front of blue building.
4. Pink building is taller than yellow building.
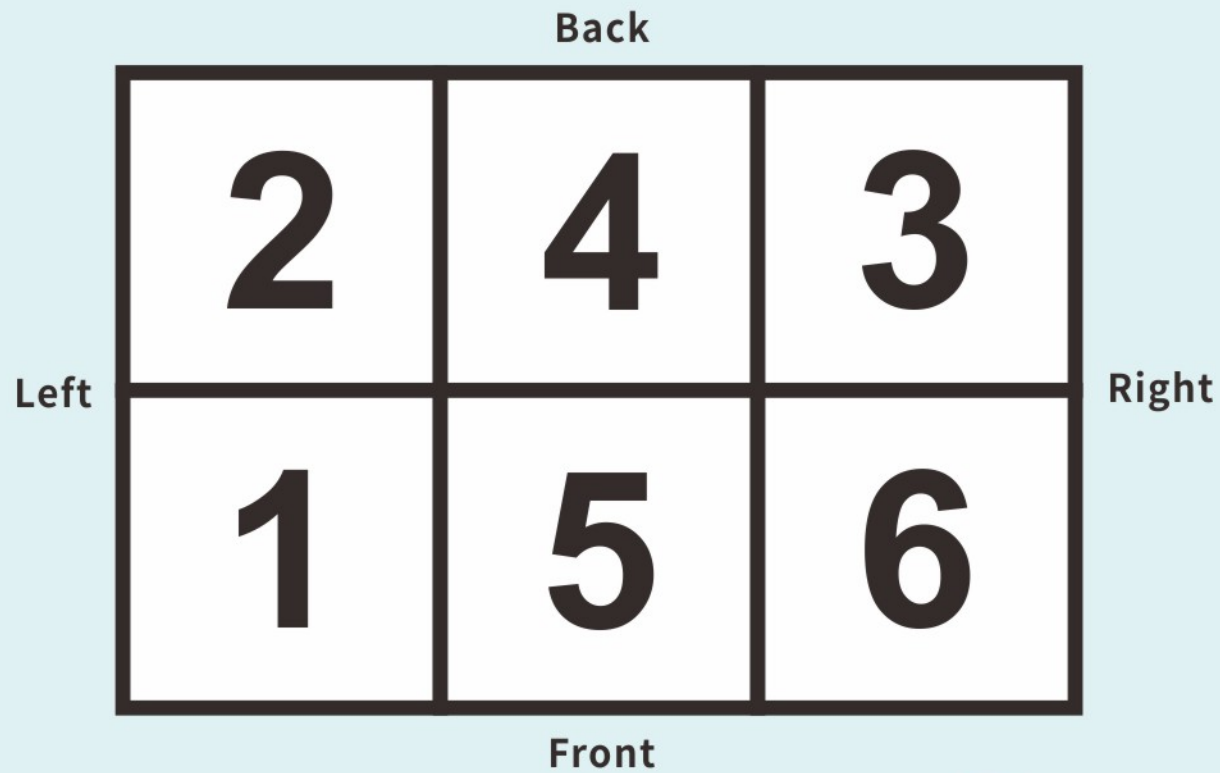5. White building is not same height with other buildings.

—— Colors of buildings

Back

2	4	3
1	5	6

Left   Right

Front

(20)

1. Red building is taller than the one on its right side.
2. Red building is not adjacent to pink building.
3. Green building is on the left side of pink building.
4. Yellow building is shorter than the one in front of it.
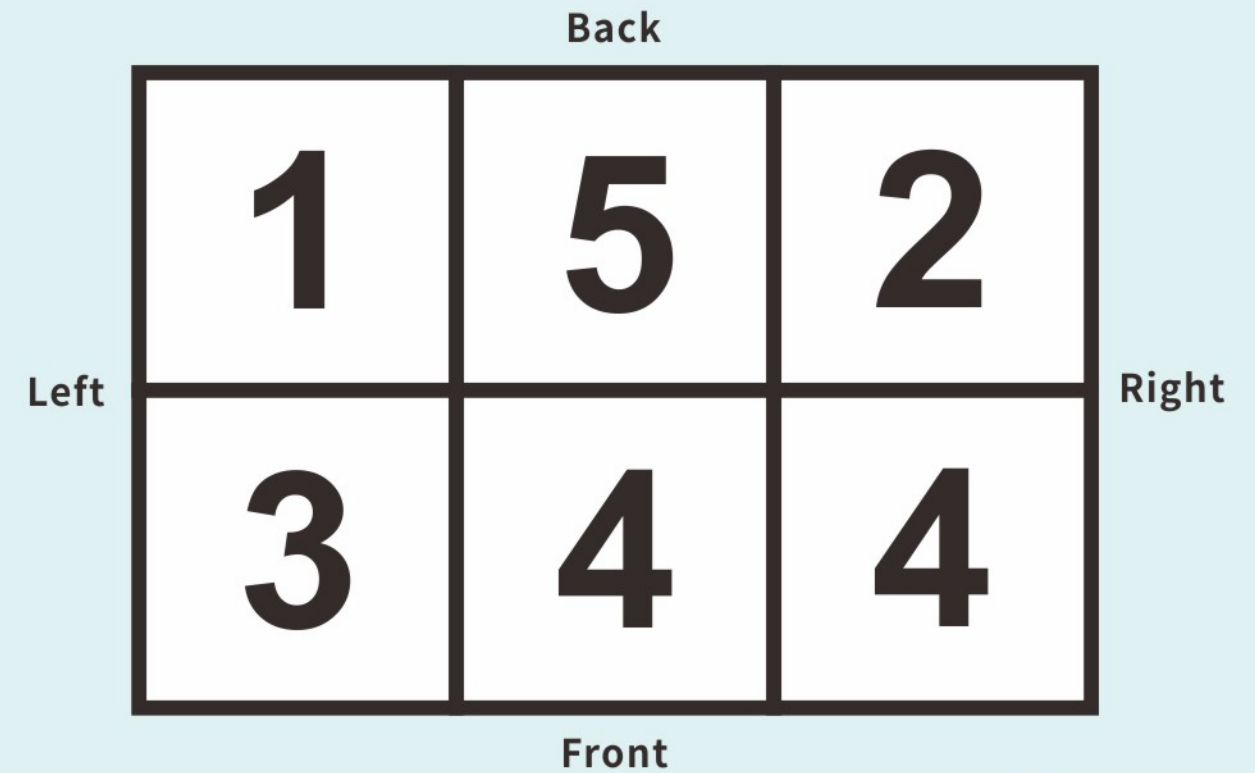5. Blue building is not the shortest one.

—— Colors of buildings

Back

1	5	2
3	4	4

Left   Right

Front

(21)

1. There is another building between yellow building and white building.
2. Blue building is one floor shorter than white building.
3. Red building is not the shortest one.
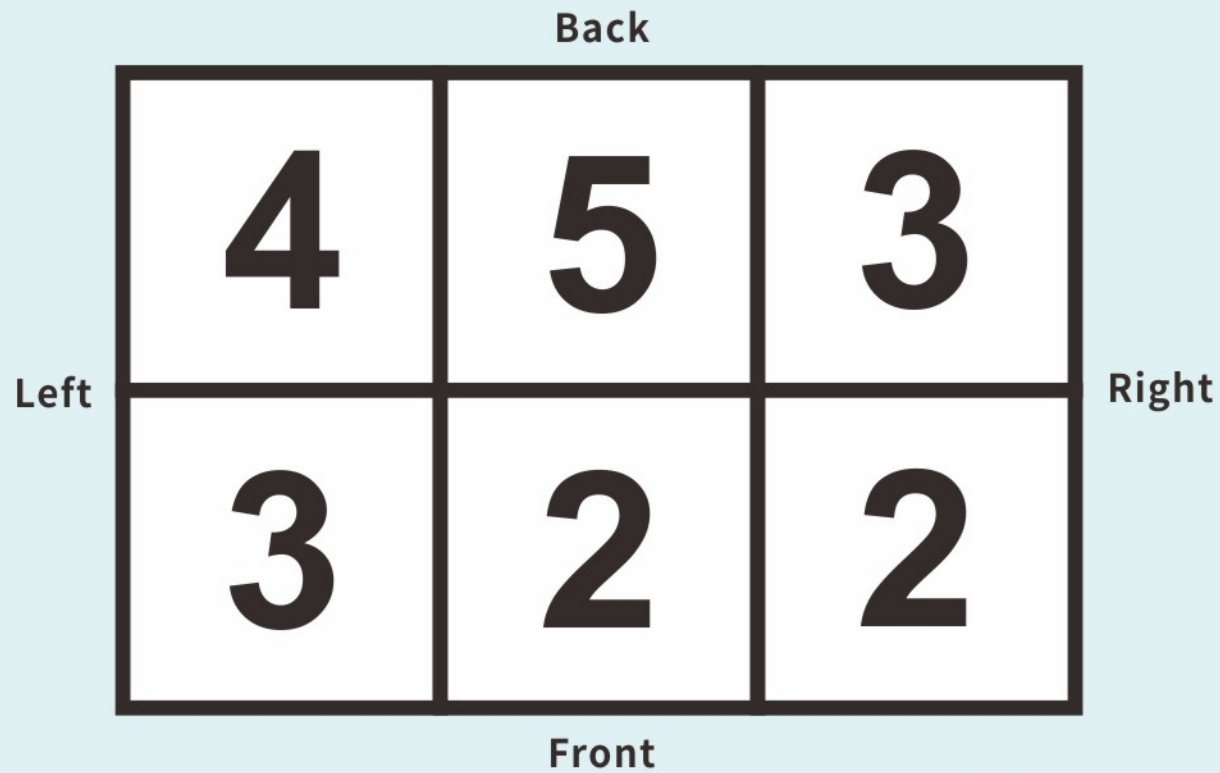4. Red building is not adjacent to pink building.

—— Colors of buildings

Back

4	5	3
3	2	2

Left   **Right**

Front

22

1. Yellow building is not same height with others.
2. Red building is adjacent to yellow building.
3. Red building is one of the shortest buildings.
4. Blue building is the same height with white building.
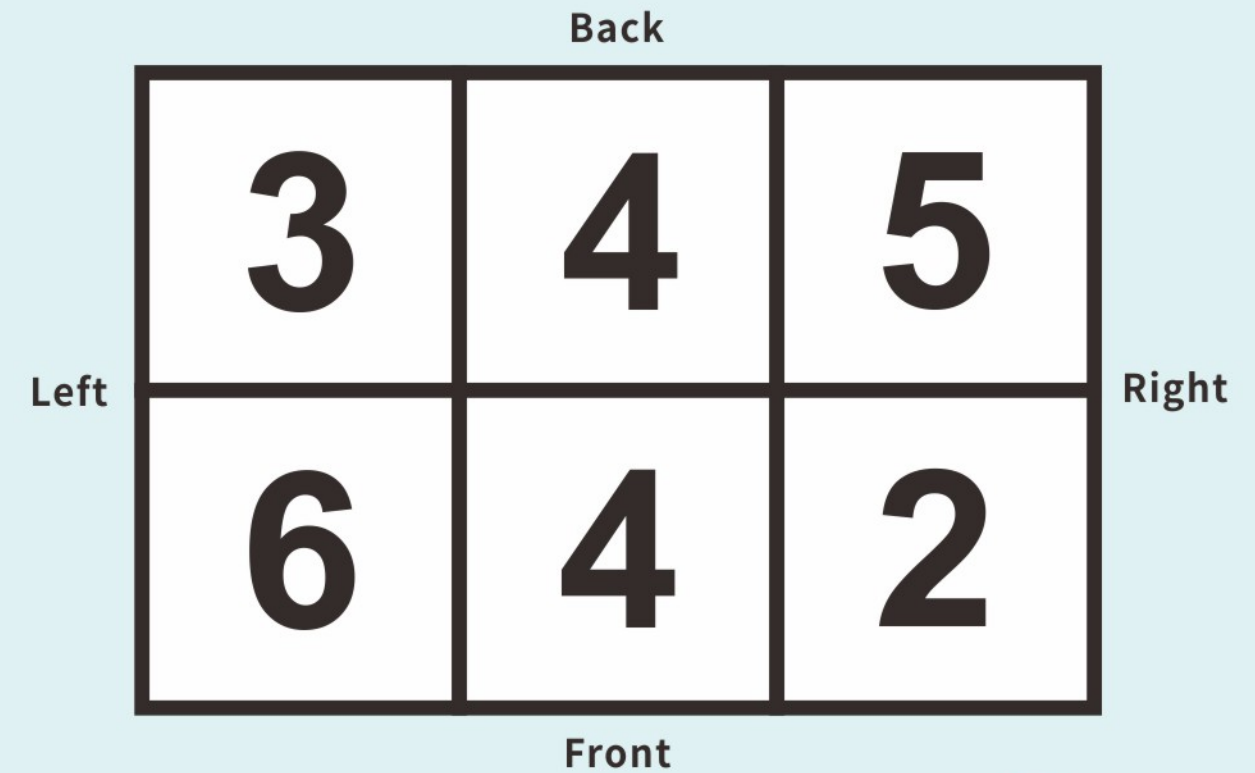5. Green building is behind blue buildings.

—— Colors of buildings

Back

3	4	5
6	4	2

Left   **Right**

Front

23

1. Blue building is adjacent to green building.
2. Red building is in front of blue building.
3. White building is on the left side of red building.
4. White building is not the tallest one.
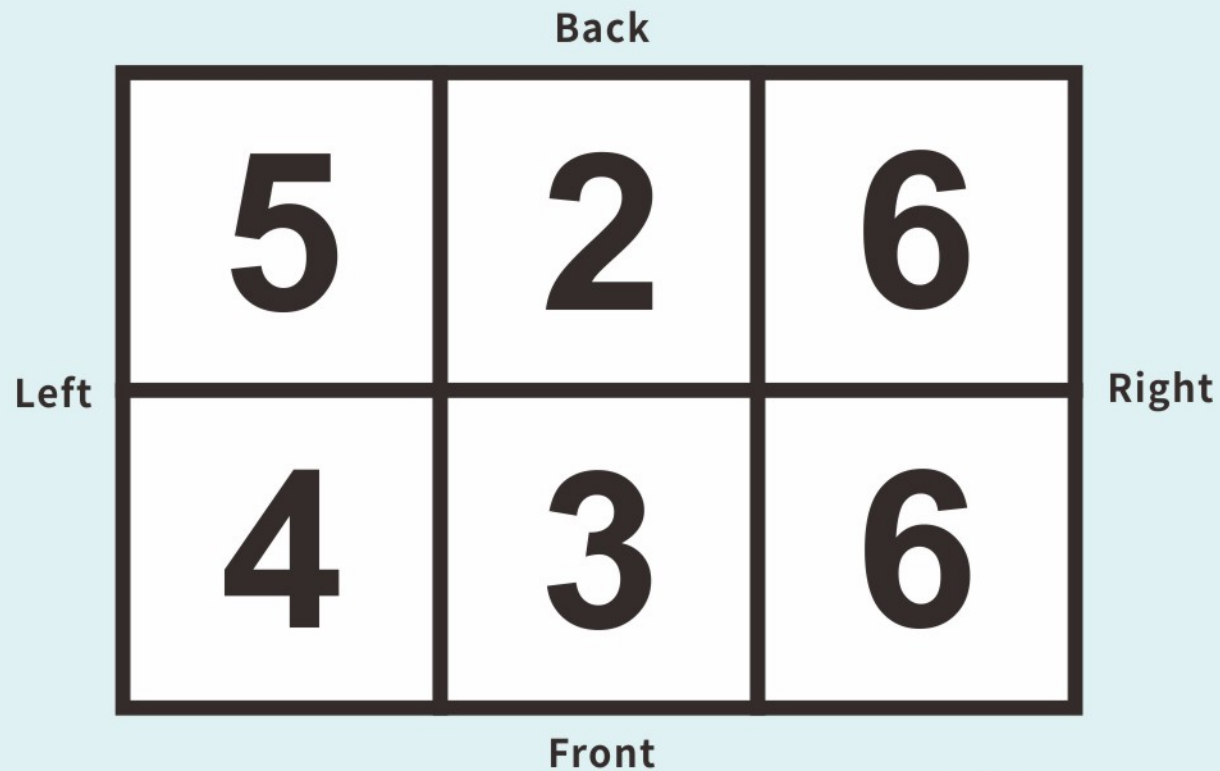5. Pink building is not adjacent to green building.

—— Colors of buildings

Back

5	2	6
4	3	6

Left

Right

Front

(24)

1. Red building is behind pink building.
2. Red building is at same level with blue building.
3. Blue building is neither the shortest one nor the tallest one.
4. Blue building is not adjacent to red building.
5. White building is taller than green building, but shorter than yellow building.
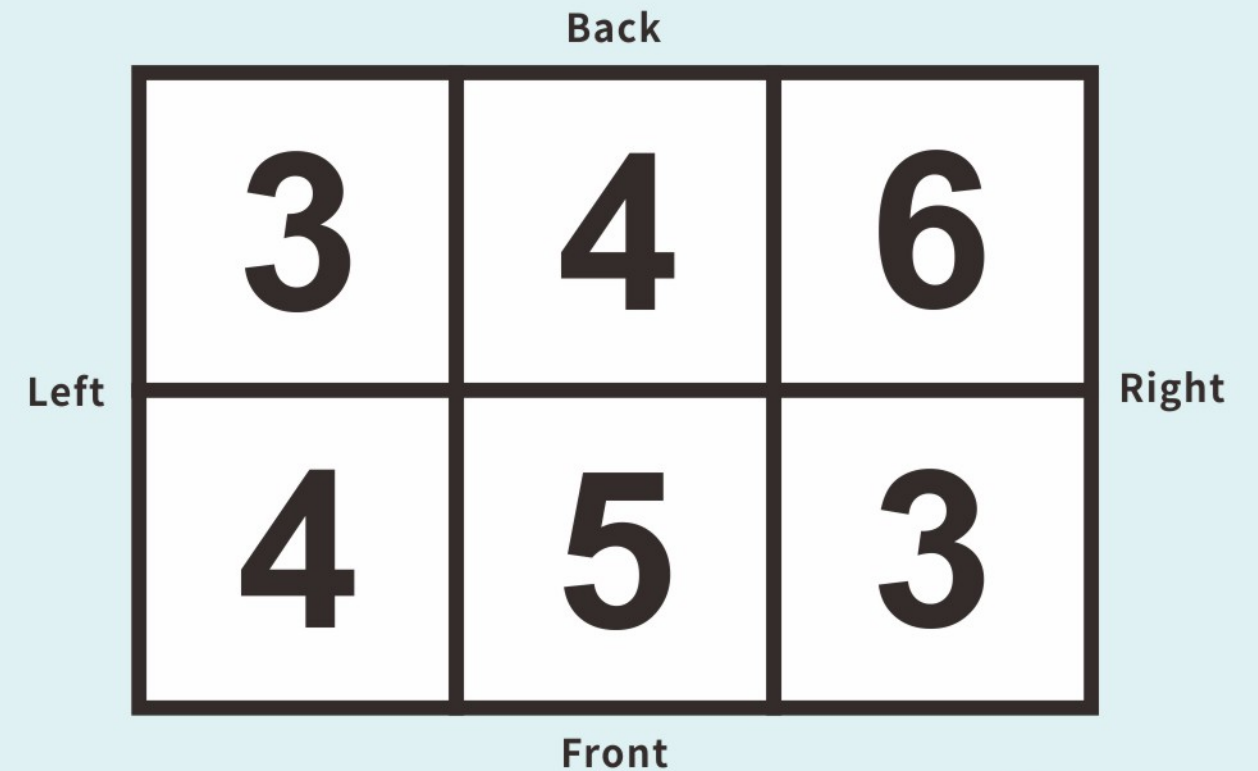
—— Colors of buildings

Back

3	4	6
4	5	3

Left

Right

Front

(25)

1. Yellow building is one floor taller than green building.
2. Yellow building is not adjacent to green building.
3. White building is one floor shorter than green building.
4. White building is in front of red building.
5. Blue building is not adjacent to red building.

—— Colors of buildings

Back

6	4	5
5	2	3

Left

Right
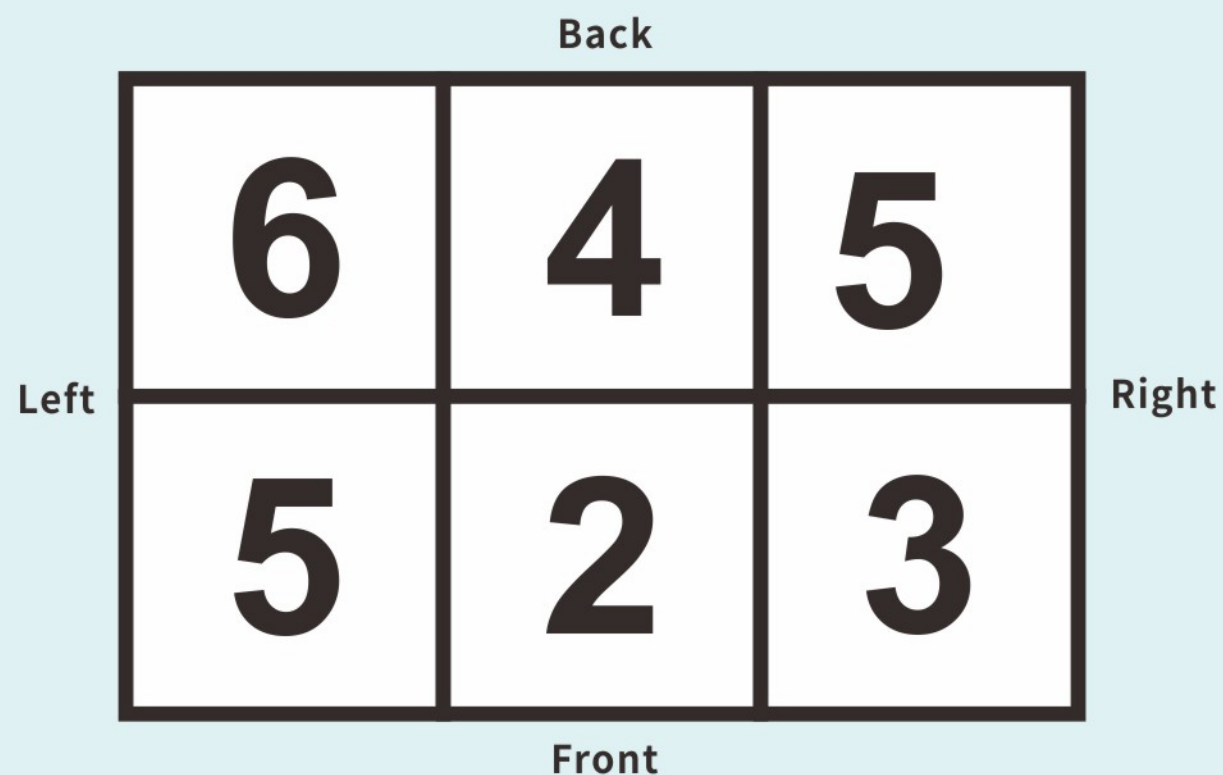
Front

(26)

1. Neither red building nor yellow building are shortest one.
2. Red building is in front of blue building.
3. White building is not adjacent to the shortest building.
4. Red building is not the same height with white building.
5. Pink building is taller than the one on its right side.

—— Colors of buildings

REFERENCE ANSWERS

◆ **Find out the rule of games**

(1) Rule of colors

Rule: Red→Blue

1

Rule: Red→Green→Yellow

2

Rule: Red→Yellow→Yellow

3

Rule: Red→Yellow→Yellow→Green

4

Rule: Yellow→Green→Pink→Yellow

5

(2) Rule of colors and shapes
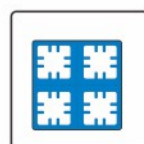
Rule:
Green right triangle
↑
Red sector
↑
Blue square

1

Rule:
Green sector
↑
Green right triangle
↑
Yellow right triangle
↑
Yellow square

2

◆ **Find out the rule of games**

Rule:
Green right triangle
↑
Blue square
↑
Yellow equilateral triangle
↑
Red sector

3

Rule:
Blue square
↑
Green right triangle
↑
Green square
↑
Red sector
↑
Red square
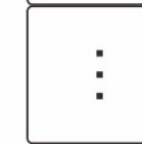
4

◆ **Fill blocks in a game area**

A
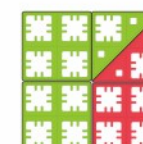
1
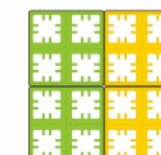
2

B
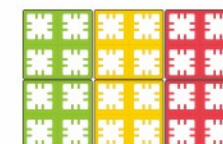
1
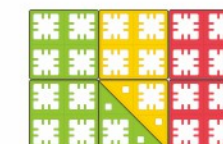
2
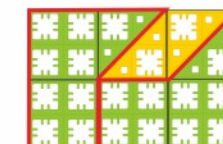
3
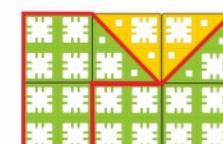
4
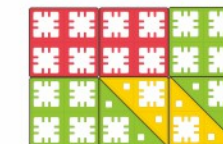
5

◆ **Fill blocks in a game area**

C
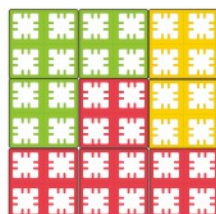
1
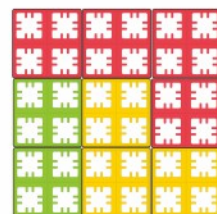
2

D
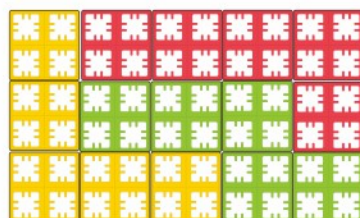
1
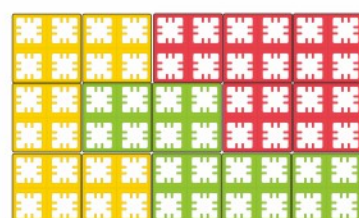
2

3
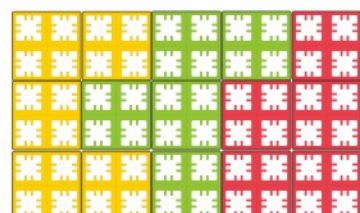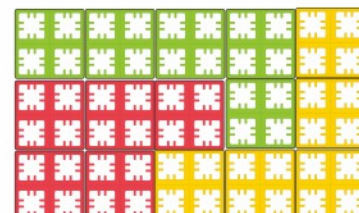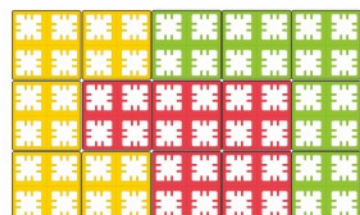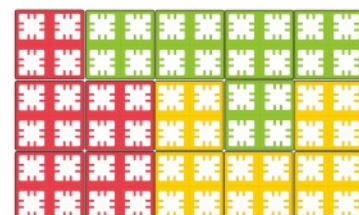
4

5

6

◆ **Let's play triangles**

1

2

3

4

5

6

7

8

9

10
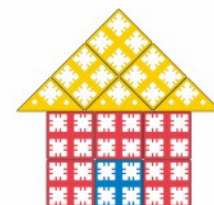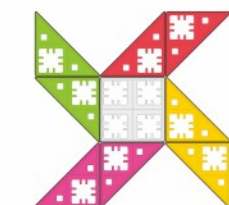
11

12

13

14

15

16
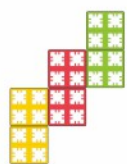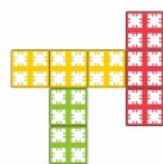
17

◆ Let's play squares

1
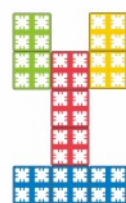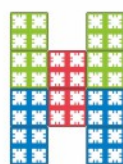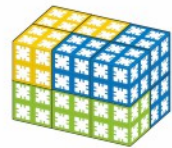
2

3

4

5

6

◆ Build a square cube

2X2X2 cube

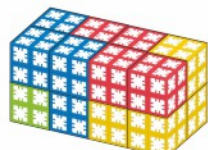

1

2

3

3X2X2 cube
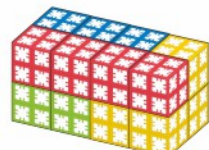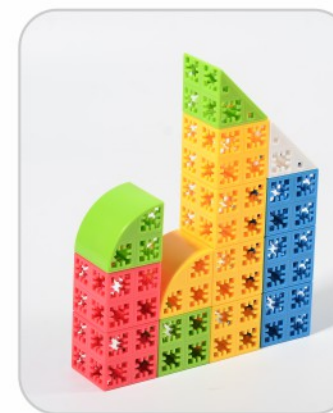

1

2

3

4

4X2X2 cube

1

2

3

4

◆ Build tall buildings Ⅰ

1

2

3

◆ Build tall buildings Ⅱ

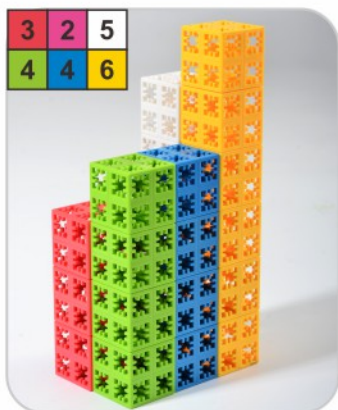4

5

6

7
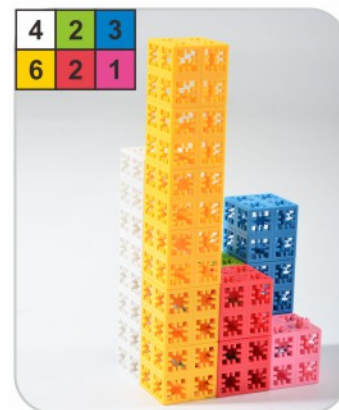
8

9

◆ Build tall buildings Ⅱ & Ⅲ

10

11

12

13

14

3	2	5
4	4	6

15

1	4	3
2	5	3

16

4	2	3
6	2	1

17

◆ Build tall buildings Ⅲ

5	3	3
2	2	4

18

2	5	6
4	2	3

19

2	4	3
1	5	6

20

1	5	2
3	4	4

21

4	5	3
3	2	2

22

3	4	5
6	4	2

23

5	2	6
4	3	6

24

3	4	6
4	5	3

25

6	4	5
5	2	3

26