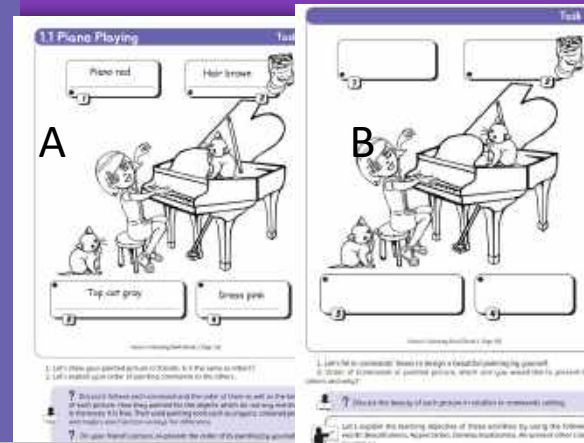
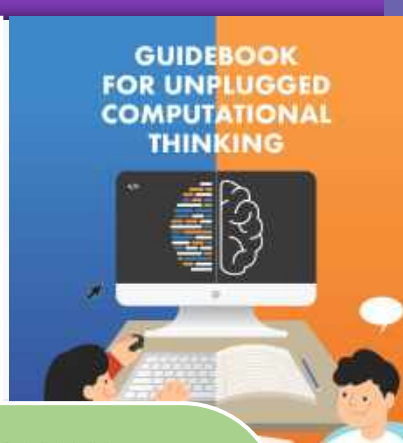




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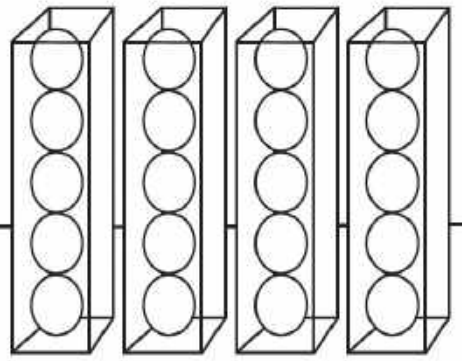


1.10 Ball Painting

Task 10A

Paint the dress green

1



In each box paint at least two blue balls

2

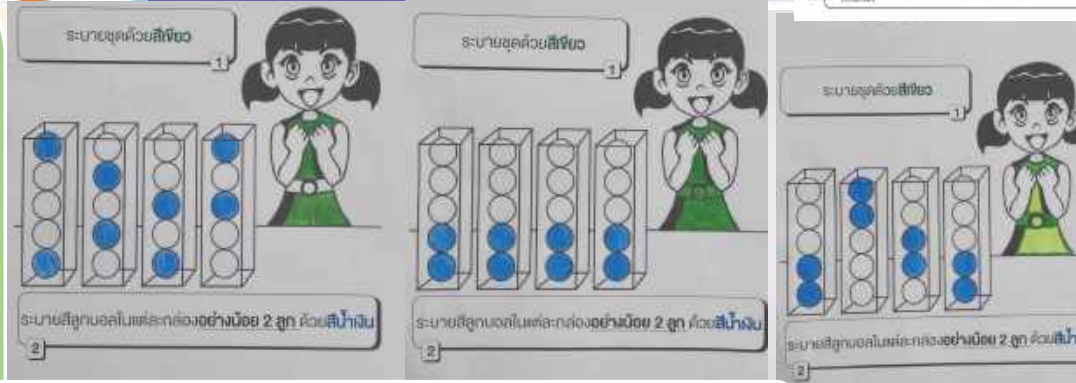
Source: Colouring Book [Book 1, Page 10A]

Student Learning Processes;

1. Let's design a beautiful picture on your unique painting based on the given condition. Then, present in to each other with an explanation.
2. Let's explain your unique manner without showing the original picture itself to your friends and the friends represent the picture based on your explanation. And compare your friend's picture with your original picture.

Suggestion for student Discussion

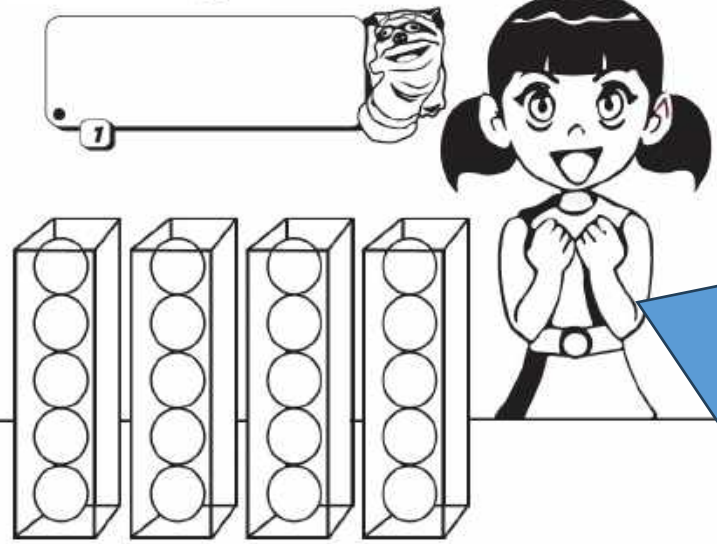
- Through the comparison with others, let's think whose explanation is most understandable for you and appreciate whose on is really beautiful or unique for you?
- How do you use the condition of "at least" in your painting?



At least two blue balls were interpreted to only paint two balls in blue.

Students expressed excitement by the diverse outcomes generated from the same set of conditions.

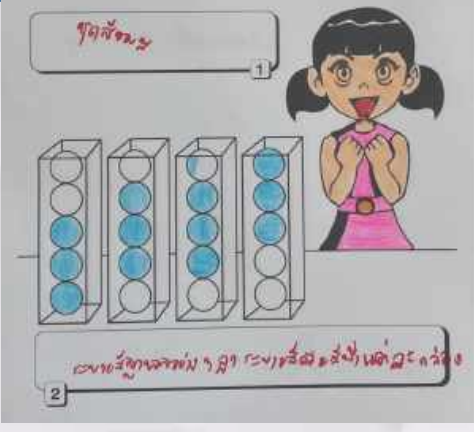
Let's feel in the blanks by yourself



10B is the open task, which provides the opportunity to reflect on the 10A and utilize their learned how to.



1. Paint the dress red
2. In each box, paint at least three orange balls.



Students pose questions by changing the condition from green dress to pink. Changing at least two blue balls to at least three blue balls.



This group modified the condition to paint the balls in the order of red, orange, yellow, and green. The order was distinguished by colors. Beautifulness comes from the ordering activity.

2

- 1) Let's set new conditions for painting that produce beautiful pictures for you.
- 2) Let's inform the others, and what do you find after comparing your one with others products.

Could you imagine your students work based on their experience in 10A?

1. Paint the dress pink.



This group used what they learned in 10A, "The Two Balls Colored." They try to show two balls in red and the other in yellow with a design. They used color to design; this is a kind of stem activity.

- 1) How do you change the questions written on the picture on Task 10A? If you learned from others, please refer who's ideas you influenced.
- 2) How your meaning of beautifulness has changed through these activities?

2. Paint the balls in the box with orange and yellow.

Students found it challenging to color according to their peers' conditions. The resulting works led to discussion about conditions, order, and position.

For Teacher. Let's explain the learning objective of these activities by using the following words: Position, ordering, pattern, algorithm, and change condition.





10 A

Within the framework of SEA BES-CCRLS in Mathematics, this activity find to foster Mathematical Values, particularly in appreciating beauty. It promotes mathematical idea such as pattern.

10A Activity 1: 4 boxes of 5 balls each. Panel 1: 2 blue balls in each box. Panel 2: Slope pattern of blue balls (1, 2, 3, 4).

What pattern do students find or use to paint the balls?

In 10A, students learned about slope. They then continued to use the idea of a slope pattern in 10B. The slope pattern is beautiful.

10B Activity 2: 4 boxes of 5 balls each. Panel 1: Slope pattern of blue balls (1, 2, 3, 4). Panel 2: Slope pattern of yellow and orange balls (1, 2, 3, 4).

**Mathematical Values, Attitudes and Habits for Human Character**

<b>Mathematical Values</b> <ul style="list-style-type: none"> <li>Generality and expandability</li> <li>Reasonableness and harmony</li> <li>Usefulness and efficiency</li> <li>Simpler and easier</li> <li>Beautifulness</li> </ul>	<b>Mathematical Attitude</b> <b>Attempting to -</b> <ul style="list-style-type: none"> <li>See and think mathematically</li> <li>Pose questions and develop explanations</li> <li>Generalise and extend</li> <li>Appreciate others' ideas and change representations for meaningful elaborations</li> </ul>	<b>Mathematical Habits of Mind For living -</b> <ul style="list-style-type: none"> <li>Reasonably and critically while respecting and appreciating others</li> <li>Autonomously and socially</li> <li>Creatively, innovatively and harmoniously to develop citizenship</li> <li>Judiciously in using various tools</li> <li>With empowerment in predicting the future through lifelong learning</li> </ul>
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**Mathematical Thinking and Processes**

<b>Mathematical Ideas of:</b> Set, Unit, Comparison, Operation, Algorithm, Fundamental Principles, Permanence of Form, Various Representations and Translation, Pattern, Recursion and Invariant, Ordering, Maxima and Minima Symmetry.	<b>Mathematical Ways of Thinking:</b> <ul style="list-style-type: none"> <li>Generalisation and Specialisation</li> <li>Extension and Integration</li> <li>Inductive, Analogical and Deductive Reasoning</li> <li>Abstracting, Concretising and Embodiment</li> <li>Objectifying by representation and symbolizing</li> <li>Relational and functional thinking</li> <li>Thinking Forward and Backward</li> </ul>	<b>Mathematical Activities:</b> <ul style="list-style-type: none"> <li>Problem Solving</li> <li>Exploration and Enquiry</li> <li>Mathematical Modeling, Mathematical and Programming</li> <li>Conjecturing, Justifying and Proving</li> <li>Conceptualisation and Proceduralisation</li> <li>Representation and Sharing</li> </ul>
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**Contents**

<b>Key Stage 1</b> <ul style="list-style-type: none"> <li>Numbers &amp; Operations</li> <li>Quantity &amp; Measurement</li> <li>Shapes, Figures &amp; Solids</li> <li>Pattern &amp; Data Representations</li> </ul>	<b>Key Stage 2</b> <ul style="list-style-type: none"> <li>Extension of Numbers &amp; Operations</li> <li>Measurement &amp; Relations</li> <li>Plane Figures &amp; Space Figures</li> <li>Data Handling &amp; Graphs</li> </ul>	<b>Key Stage 3</b> <ul style="list-style-type: none"> <li>Numbers &amp; Algebra</li> <li>Relations &amp; Functions</li> <li>Space &amp; Geometry</li> <li>Statistics &amp; Probability</li> </ul>
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Figure 1. Revised CCRI S Framework in Mathematics



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