

Mathematics Education to Develop Students Agency
Part III: Pattern and Data
Data Handling and Visualization of Data

Finding and utilizing **Invariant** is the nature of mathematics

To show pattern by Table, Graph and Expression.

What you believe as function is really functional thinking?

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Topic	Date
13. Functional Thinking: How to find the pattern	August 20 th - 2022
14. Data Handling and Visualization of Data	August 27 th - 2022
15. Various Meaning of Probability	September 3 rd - 2022

Beautiful?

• What is the beautifulness of things?

Pythagorean used to represent numbers by figure arrangement and explained harmony of the world by natural number.

Mathematical Values:
 Generality and Quantity
 Simplicity
 Efficiency and Easier
 Simplicity and Easier
 Beautifulness

Review: Part 1 Lesson 2

Various Visualization of Data: Strange?

Exploring How Many

Thinking about How to Calculate

What are difference among graph, diagram and place value model?
 Representation rule for Block model follows the base ten place value system.
 What is the representation rule for pictogram?

What is good things?

Arrangements of pictogram: Can compare without counting!

They lined up the cards on the blackboard.

What is the most popular food?
 What is the second popular food?

Let's talk about something you observed.

Why skip 4th?
 Ordering of arranged pictogram: Make an order at once.

IMAGINE THE FUTURE

1 The tables below are records of breakfast of what children of Makoto's class ate last Sunday.

Makoto's Table

Kind	Number of children
Rice	10
Bread	5
Cereal	5
Other	5
Total	25

Mia's Table

Kind	Number of children
Rice	10
Bread	5
Cereal	5
Other	5
Total	25

2 Bar Graphs

1 Makoto and Mia made the following graphs of the number of children from the tables in the previous page.

Makoto's Graph

Mia's Graph

3 Compare!

Sunday's Breakfast

Monday's Breakfast

4

IMAGINE THE FUTURE

SOLO taxonomy: Biggs, John B., Collis, Kevin F. (1982)

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