Bansho in Action:

A Hands-On Exploration of Boardwriting in Lesson Study

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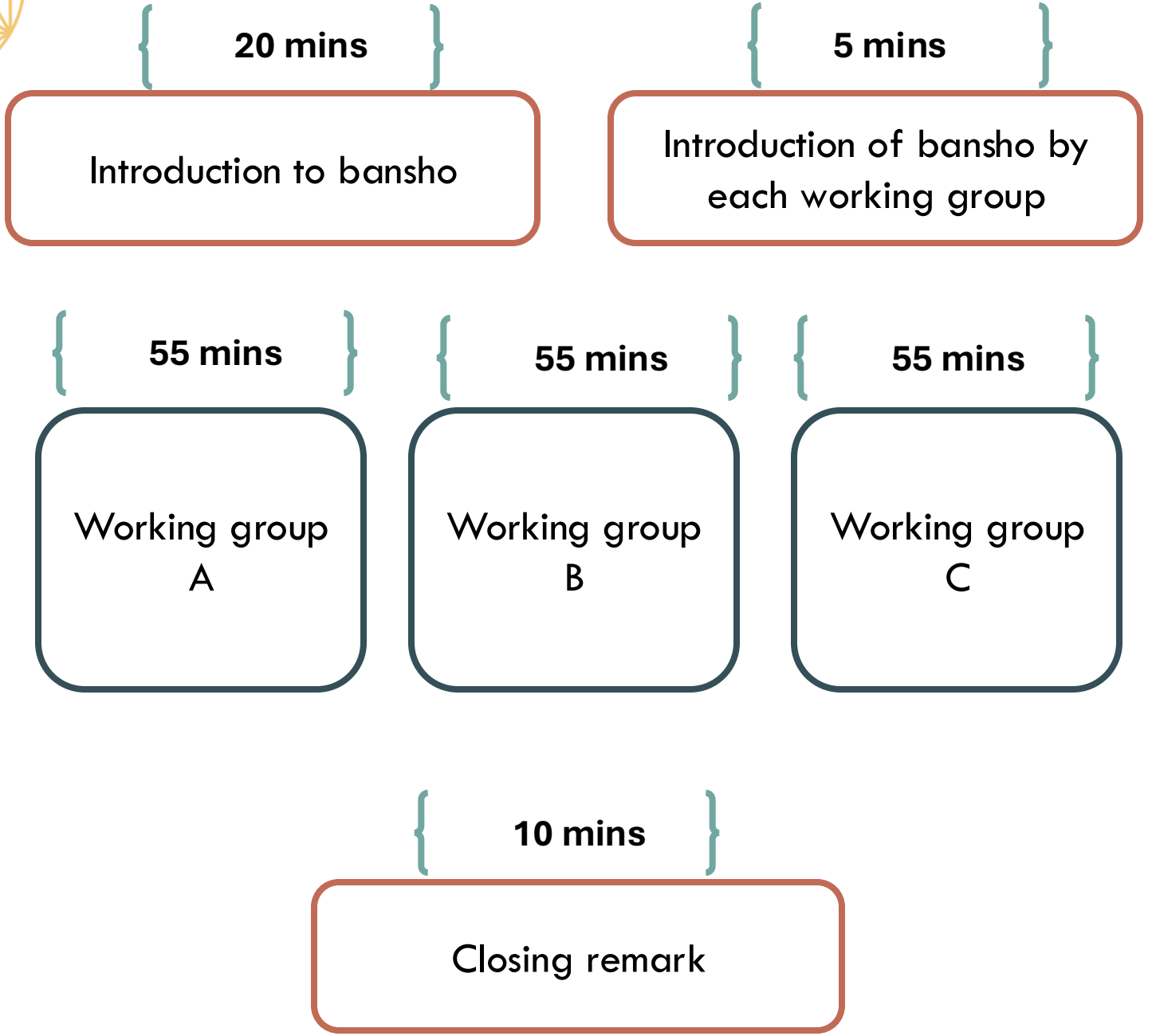

20 mins
Introduction to bansho
5 mins
Introduction of bansho by each working group
55 mins
Working group A
55 mins
Working group B
55 mins
Working group C
10 mins
Closing remark

How might information be useful in reducing the damage from natural disasters?

Received notifications on smartphones and televisions broadcast evacuation preparation notices

Watching the river rise in front of the house

In front of the school sports building

Emergency shelter during heavy rain

Where should I run to?

Feeling scared during typhoon

Evacuate from dangerous areas to safe locations.

river flood warning

surveillance camera

Alerting residents

Heavy rain, flood Typhoon etc.

When an earthquake strikes, you can immediately protect yourself.

BUT some disasters go beyond what was expected

Emergency Disaster Kit: what families need to prepare for evacuation and daily life

When each person understands disaster information and acts quickly, lives can be saved.

Learning task

How might information be useful in reducing the damage from natural disasters?

In front of the school sports building

Emergency shelter during heavy rain

Where should I run to?

Received notifications on smartphones and televisions broadcast evacuation preparation notices

Watching the river rise in front of the house

Feeling scared during typhoon

Disaster prevention information

National level

Weather information

Heavy rain, flood

Typhoon etc.

Early earthquake warning

When an earthquake strikes, you can immediately protect yourself.

Municipality level

Evacuation advisory

Evacuate from dangerous areas to safe locations.

Hazard Map

Alerting residents

BUT some disasters go beyond what was expected

What other disaster information can we find?

river flood warning

surveillance camera

⬇

river disaster prevention information

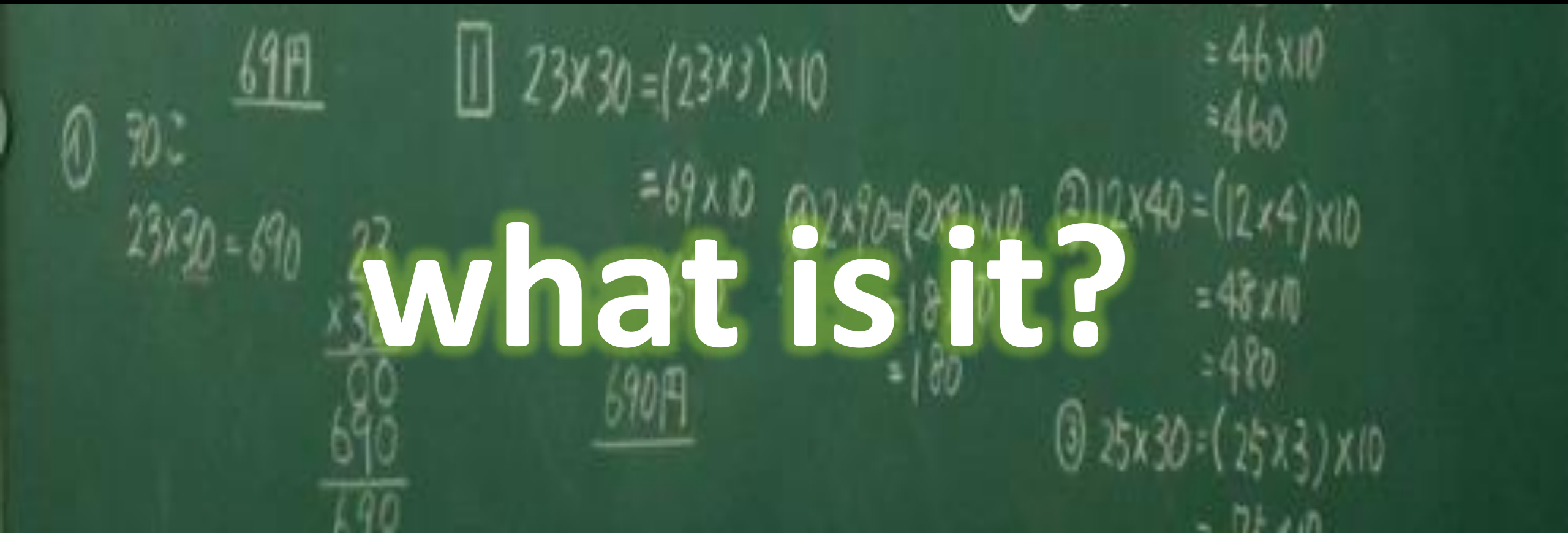
Emergency Disaster Kit: what families need to prepare for evacuation and daily life

Summary

When each person understands disaster information and acts quickly, lives can be saved.


BANSHO

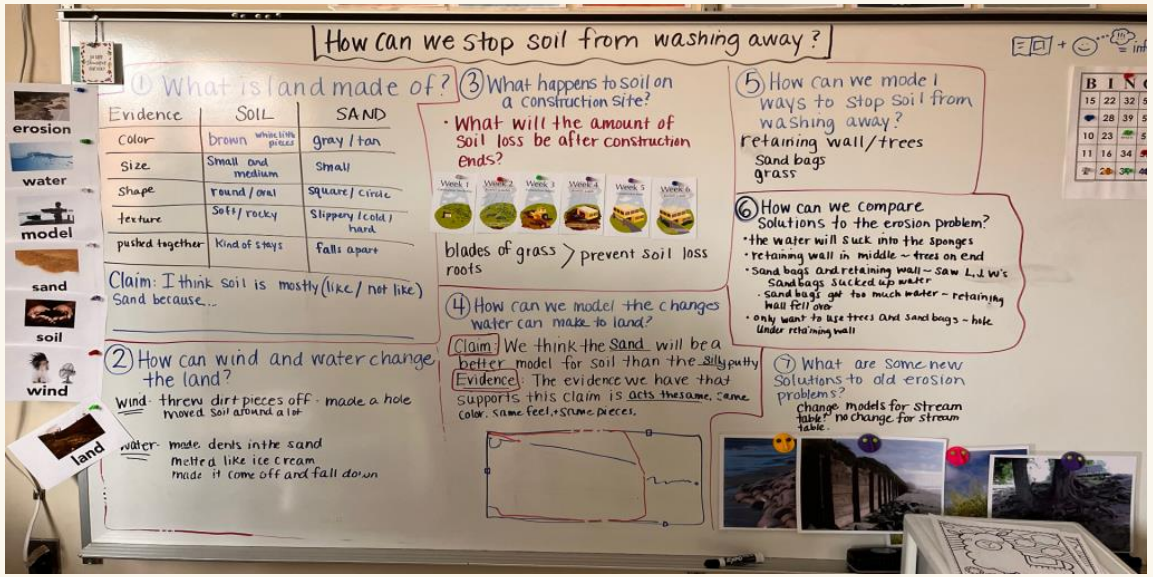
BANSHO

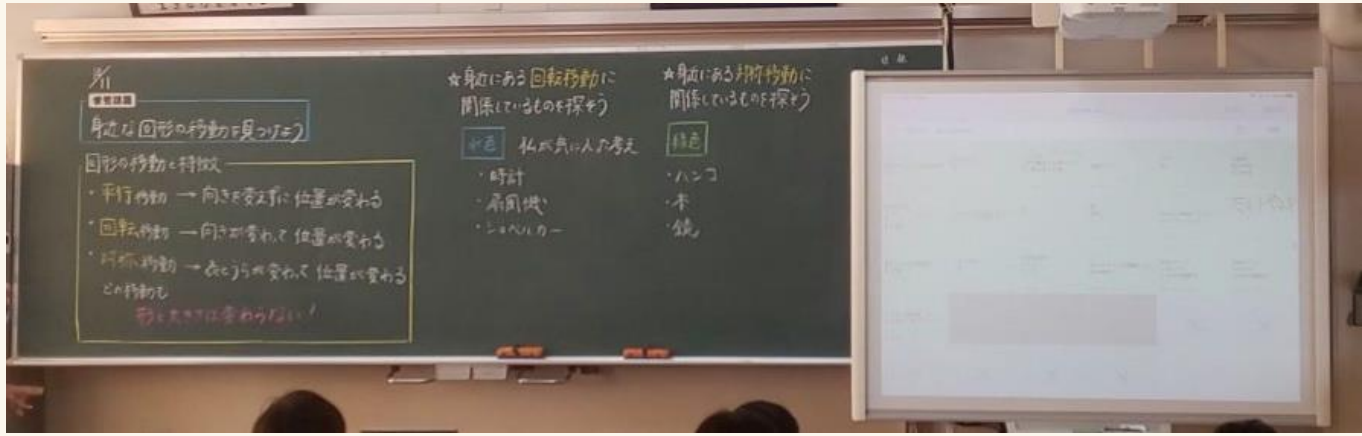


what is it?

Source	Definition
Dictionary of School Education (2014)	Refers to the action of presenting or the presentation of words or illustrations on a blackboard or whiteboard, for the purpose of displaying learning tasks and learning goals, explaining the thinking processes and working methods involved in learning tasks, and elaborating the learning content.
Dictionary of glossary terms for National Language Education (Tajika & Inoue, 2009)	The writing or the action of writing words, diagrams, symbols, sketches and the like, on the blackboard. The writer is usually the instructors, but the learners also write. The way to write the content varies depending on the purpose of bansho and the instructional views.
The research on the foundations of lessons (Matsumoto, 2012)	Bansho is the plan for a one-hour lesson and an object that allows learning footprints to be understood in a visual way.
Teacher's instructions: What to look at a bansho(Arita, 1986)	It is the object that puts children's responses together and represents them in a gathered form. Therefore, teacher's reaction towards children's responses expressed through the use of chalkboard is also defined as bansho.
Selection and structuring of bansho of social studies(Hatta, 1971)	Although blackboard is an opaque board, it could be a clear window that opens to the society. It also serves as the stage that portrays the variation of living society. Therefore, the use of blackboard (bansho) could provide a platform of a leap for children's thinking to be part of the outside world. Bansho could then serve as both an effective space for collaborative thinking and a tool.
Bansho: Board Writing (The Literacy and Numeracy Secretariat, 2011)	The term used by Japanese teachers to refer to the use and organization of the chalkboard. Such board writing is derived from and for the development of students' individual and collective mathematical thinking.
Developing effective use of the blackboard through lesson study (Yoshida, 2002)	Bansho is translated into English as "use or organisation of blackboard" or in a literal translation "board writing". Bansho is considered a critical teaching skill in Japan, particularly when conducting

板書 // bansho





1

process and product of producing words or illustrations on the board

2

effective use and organisation of the board

Why Bansho?

Long-term learning impact on students

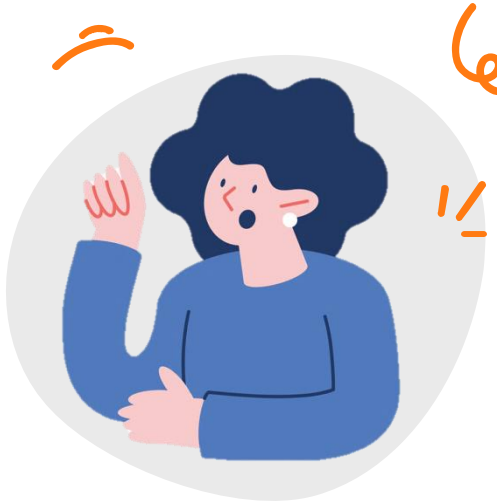
- develop not just a strategy for problem-solving but **a deeper level of thinking through the process** (e.g., Baldry, 2021; Bllman, 2018, Greiffenhagen, 2014; Tan, 2022).
- facilitate the **comparison of key points** and enhance **comprehension of the flow of ideas** (Okazaki et al., 2014)

Memory retention and metacognition

- watching the teacher write on the board (bansho) and copying lead to **better memory retention than reading from PPT slides** (Hayashi, 2023)
- Machida (2022): 64% of students felt they had more time to think in bansho-based lessons; 86% said they could concentrate better during bansho lessons
- bansho-based lesson has **the same active learning effect** as **experiments and fieldwork**

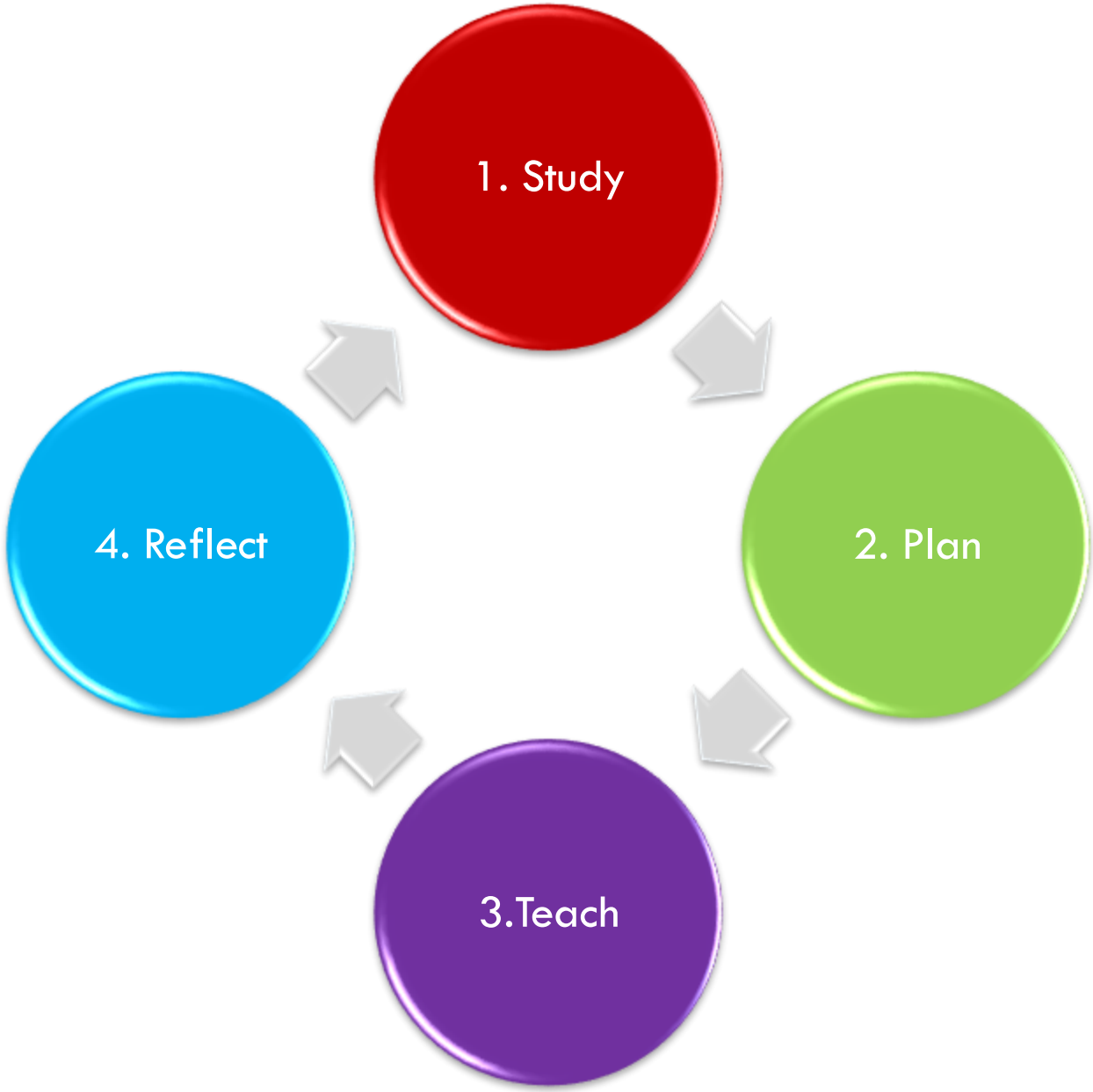
Sense of ownership

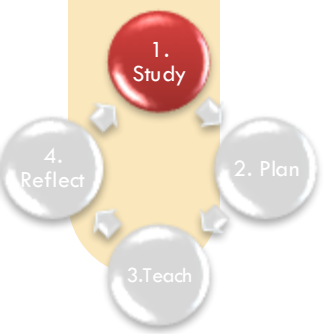
- each student's thoughts are **valuable and worthy** of acknowledgement (Tan, 2018)



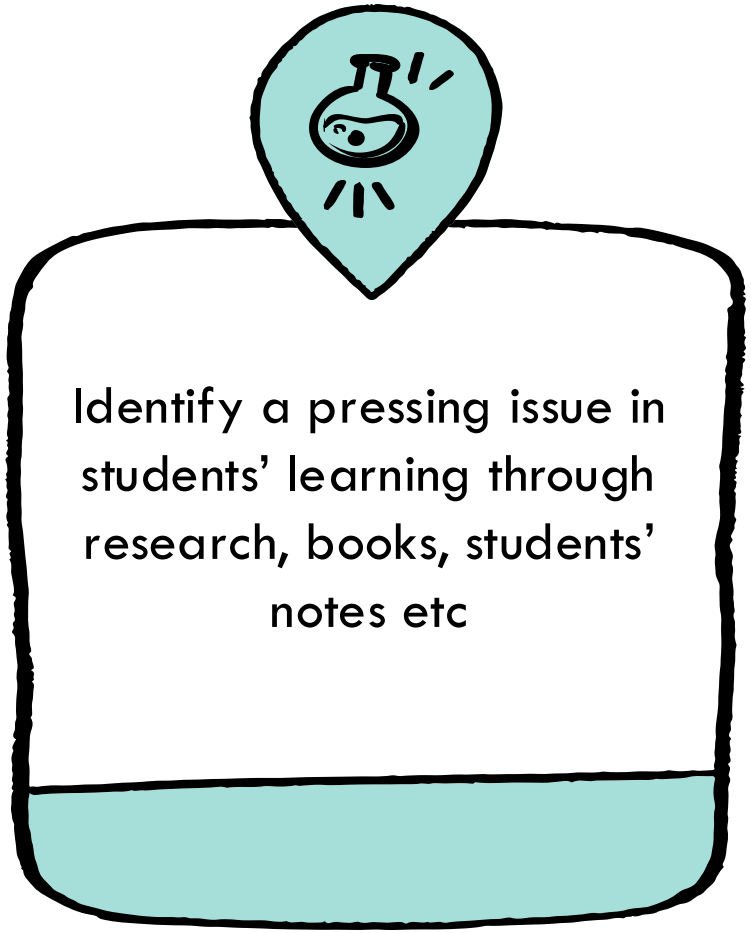
BUT, HOW

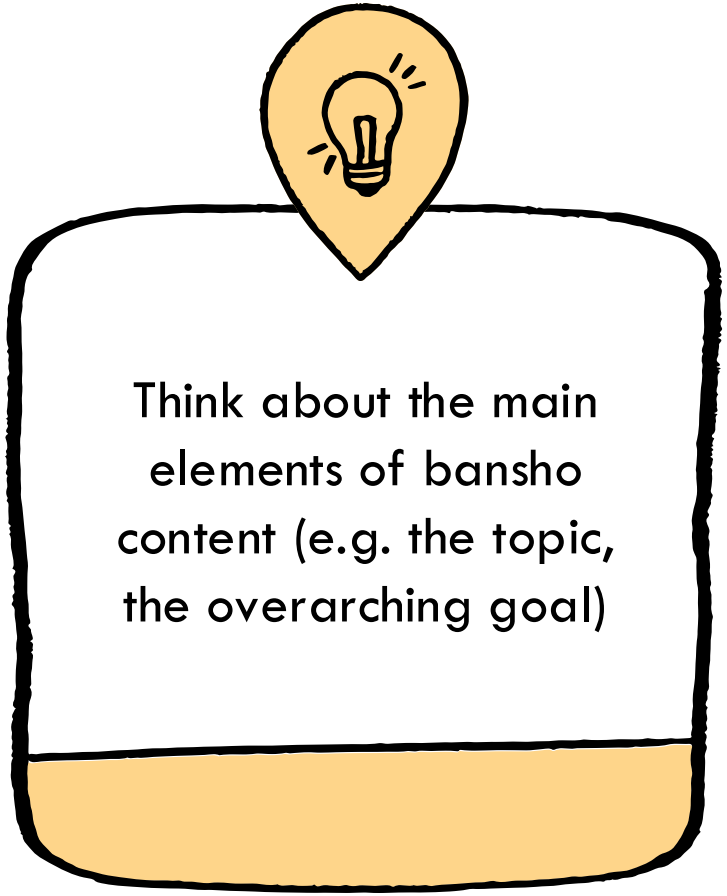
Bansho in Lesson Study





Bansho in Lesson Study





Bansho keikaku 板書計画

- Sample layout of the lesson
- Helps teachers visualise the flow of the lesson
- Layout of the lesson
  - ✓ What
  - ✓ When
  - ✓ Where
  - ✓ Size
  - ✓ Colour
- Tells a coherent story

01

Part of the lesson plan

02

Stand-alone lesson plan

Bansho keikaku 板書計画

01

Part of the lesson plan

Lesson stage	Question plan (T: teacher S: student)	Teaching material
Introduction (5 mins)	T: We had 3 typhoons in Hokkaido in August, and they caused a lot of damage. T: How do you think the town will change when there is heavy rainfall that could cause flooding? (S: Roads are flooded. It rains so hard that not many people walk outside.) T: In today's lesson, let's investigate how the town changes when it rains heavily and flooding occurs. Also, let's find out about the disasters that have happened in our region so far.	Show video of heavy rainfall on **digital board**

Bansho keikaku 板書計画

01

Part of the lesson plan

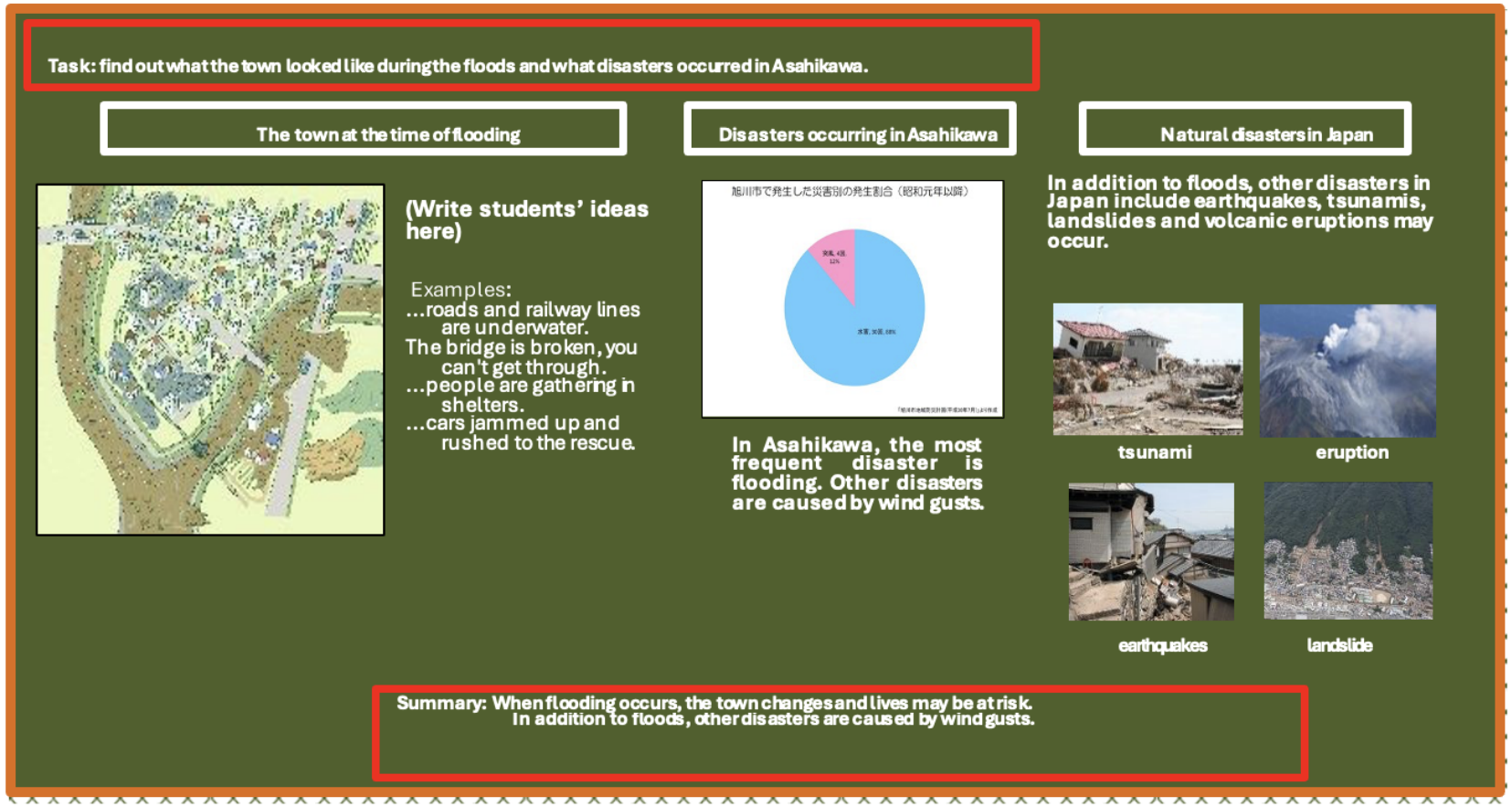
Development (30 mins)	T: How does the appearance of a town change when it is flooded? Let's use the worksheet to find out. T: Let's present the results of our research. (S: The roads and tracks are flooded. Bridges are broken and you can't get through. People are gathering in shelters. Cars are stuck in traffic and cannot get to the rescue.)	Distribute **worksheet 1** to students.  Display **document 2** on the **chalkboard** 	

Bansho keikaku 板書計画

01

Part of the lesson plan

Bansho plan 板書計画



Bansho keikaku 板書計画

02

Stand-alone lesson plan

Source: Batteau, V., & Clivaz, S. (2023). De la mise en commun à la mise en dialogue [From sharing to dialoguing]. *Revue de Mathématiques pour l'école*, 27–38. https://doi.org/10.26034/vd.rm.2023.3624

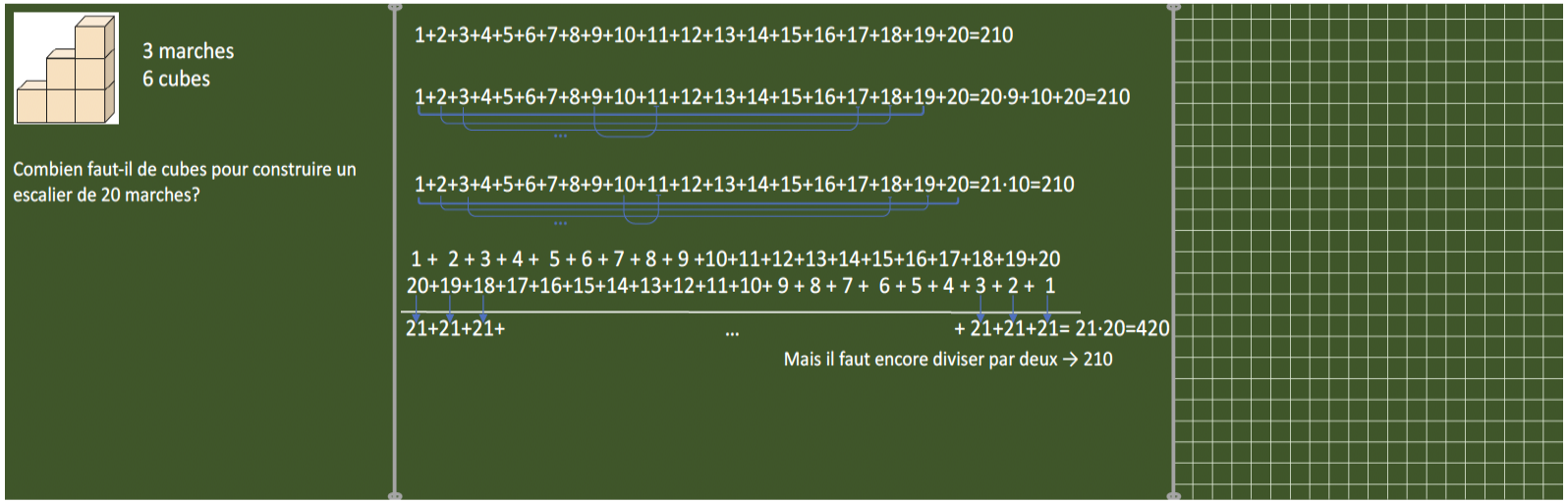
Time	Stage	Blackboard

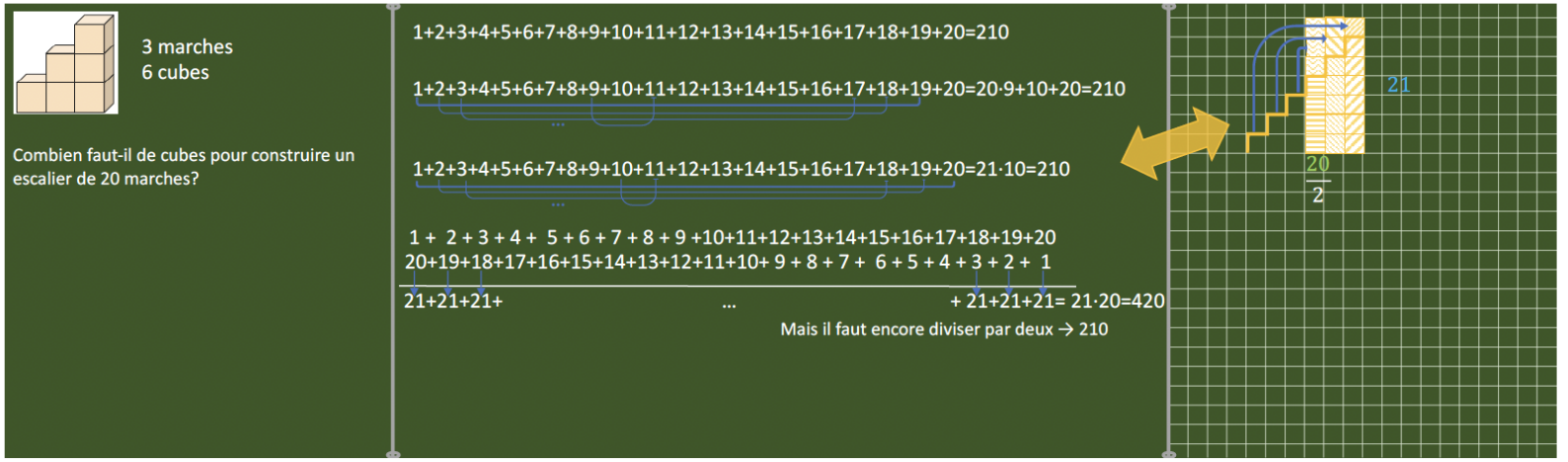
T	Étapes	Tableau noir
	Escalier de 3 marches Pour 1500 marches ?	 Affichage de l'escalier de 3 marches. *Écrire 3 marches, 6 cubes.* Écriture du problème pour 1500 marches
	C'est trop compliqué, on va d'abord chercher pour 20 marches. Travail individuel puis par groupes de deux.	 C'est trop compliqué, on va d'abord chercher pour 20 marches : effacer le 1500 et remplacer par 20. Indiquer que le travail s'effectuera sans calculatrice. Travail individuel puis par groupe.

same size as the actual board

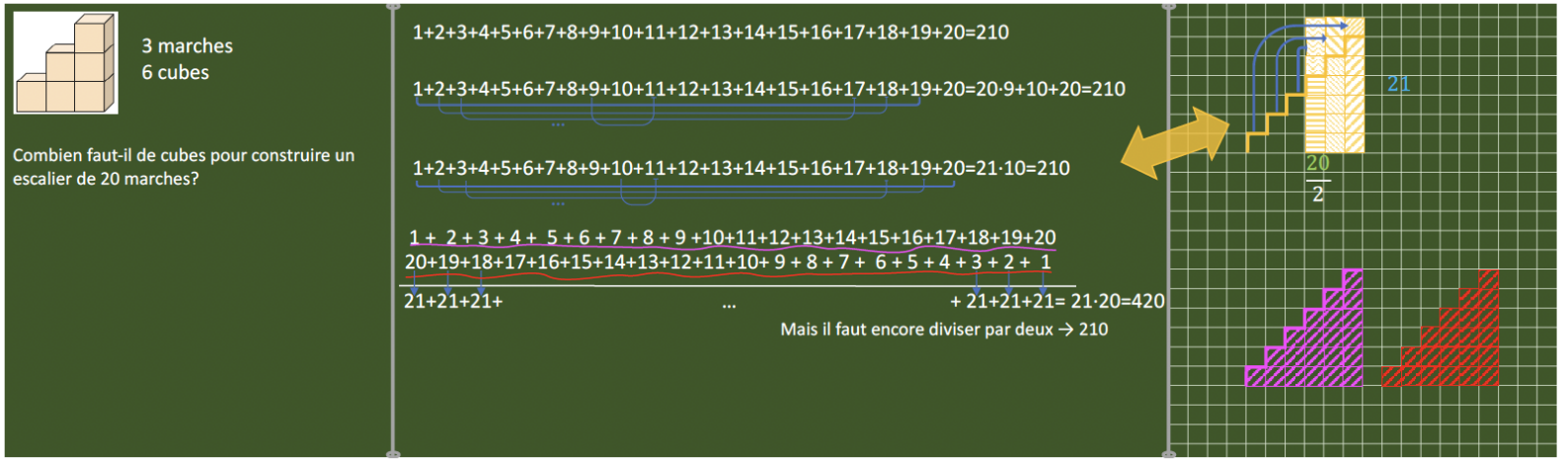
what teacher says or does
what students say or do

	Durant le travail de groupes :
	• Relever pour chaque type de solution quel groupe l'a utilisé
	• Relances possibles
	  ○ Proposer le papier quadrillé 1cm
	  ○ Proposer des Multi-cubes (2 groupes)

Mise en commun	 Choisir l'ordre des procédures pour correspondre à ↑. La représentation géométrique peut arriver avant ou après l'écriture arithmétique, soit en bloc soit en alternance. *Chaque procédure vient des élèves et peut soit être écrite par un·e élève (réécrire si trop peu lisible), soit par l'enseignant·e (sur dictée).*

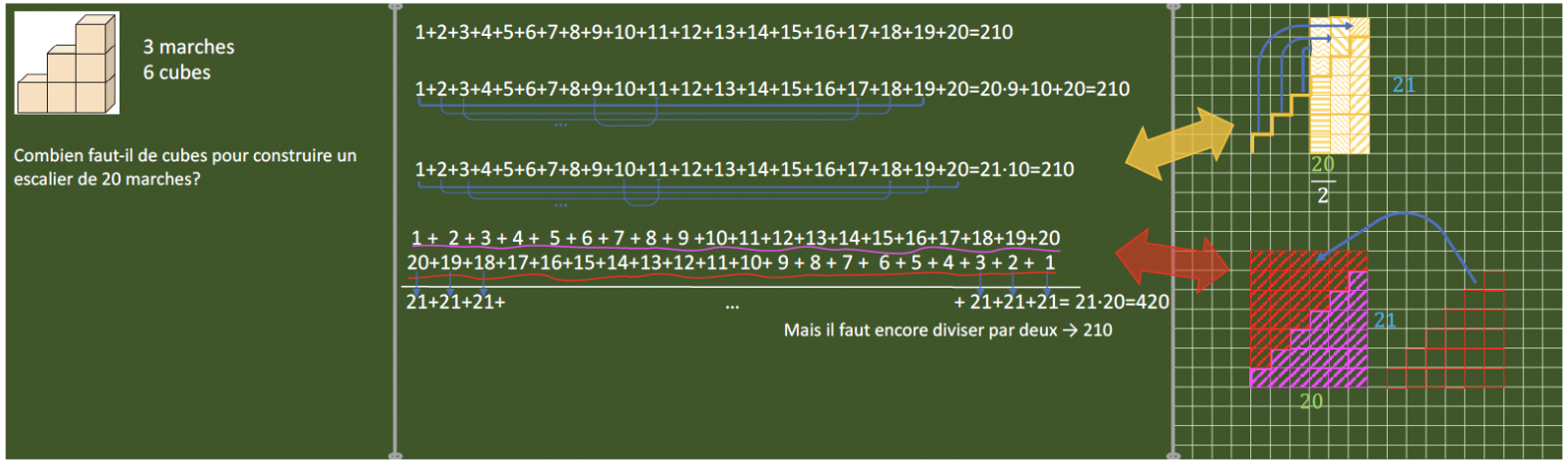
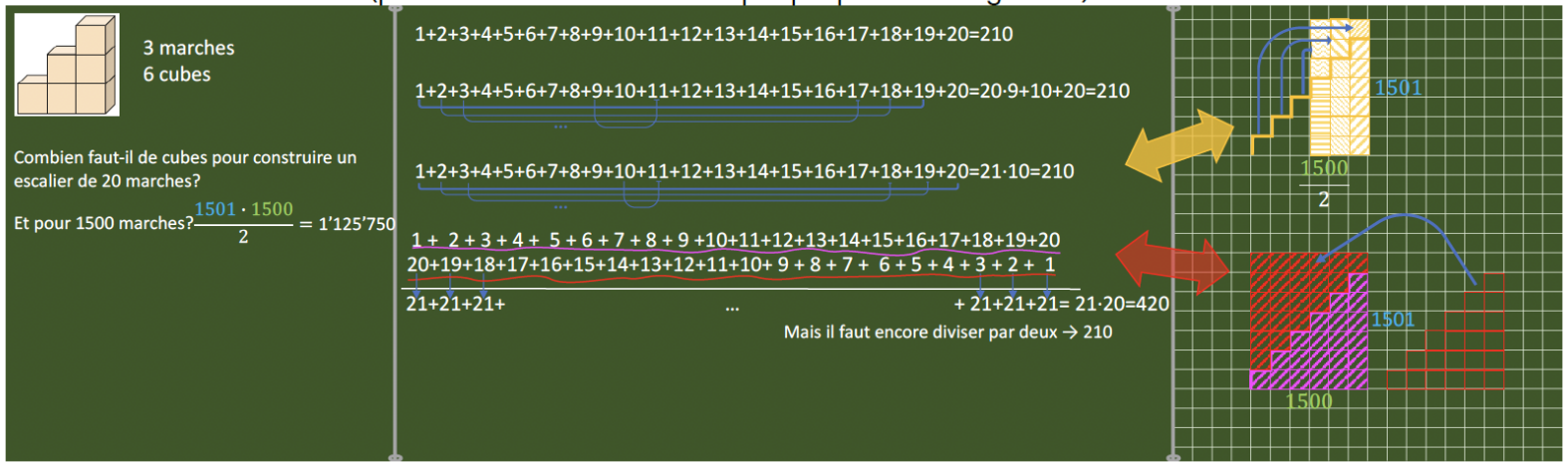


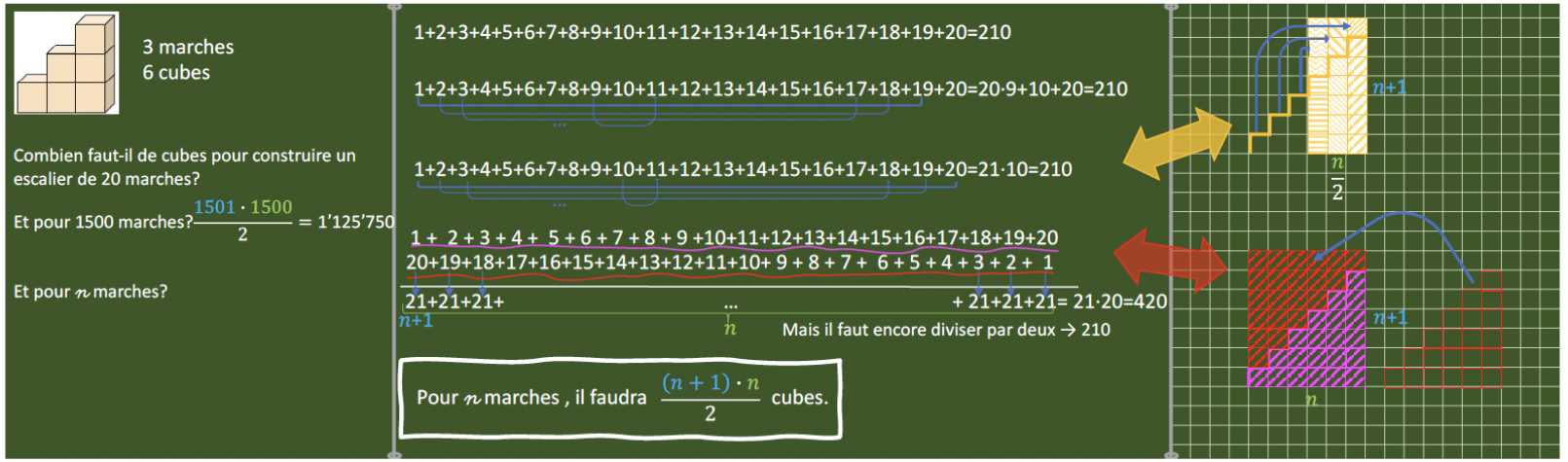
Préciser qu'on dessine 6 marches car pas la place pour 20, mais que c'est la même chose (discussion éventuelle)
Effacer les carreaux au fur et à mesure et les redessiner, ajouter une flèche à chaque fois.
Écrire les nombre 20/2 (ou écrire 10) et 21. Respecter les couleurs.

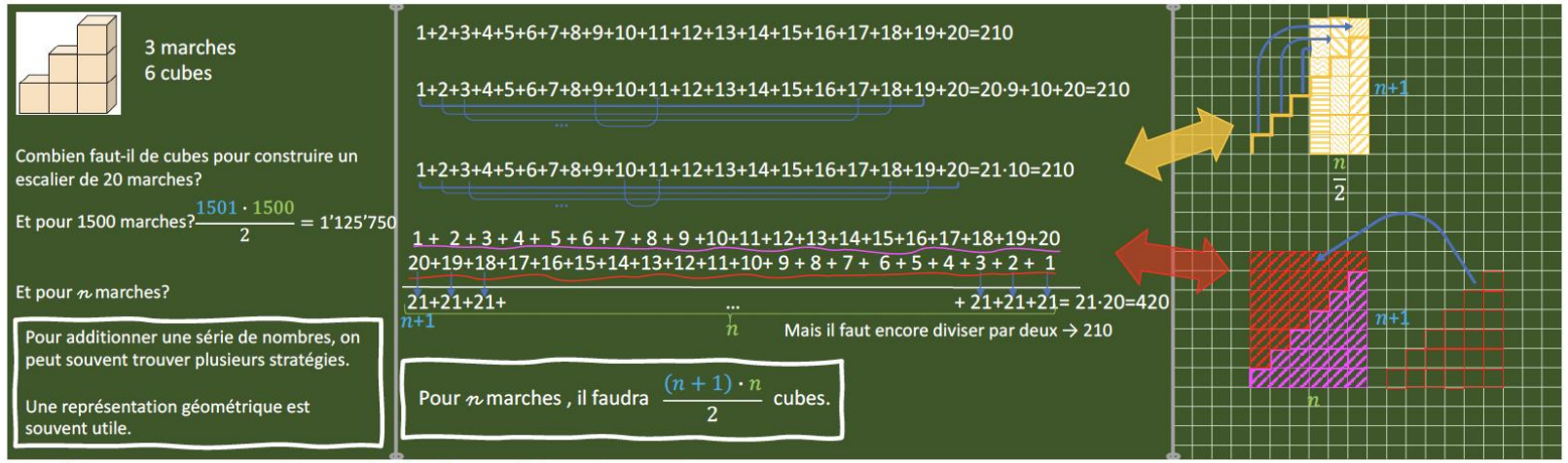


En lien entre l'écriture arithmétique et algébrique (couleurs) dessiner deux escaliers

colour-coding
(pink underlines = pink grids)

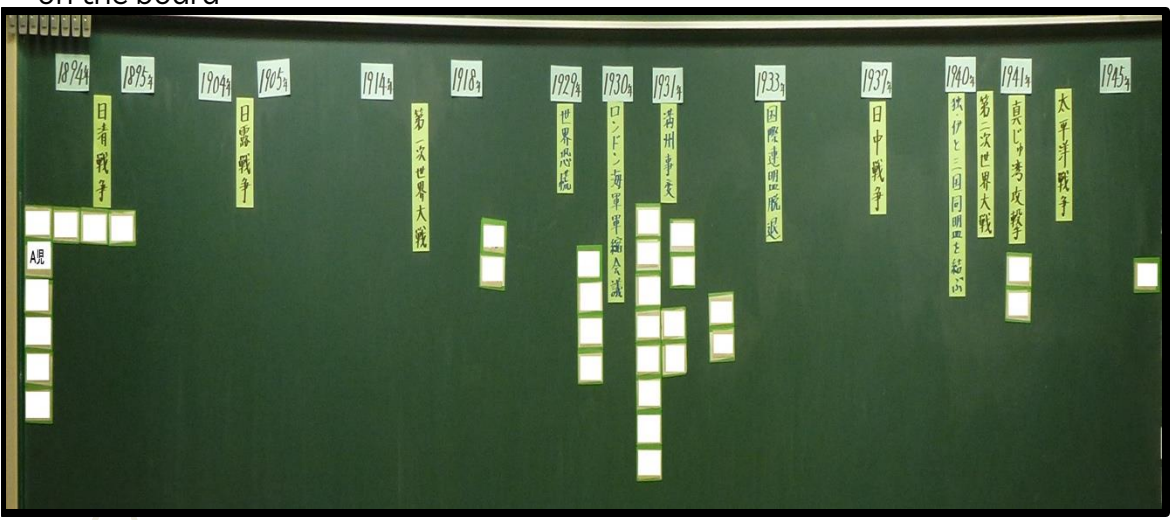
	 *Monter avec deux jeux de Multi-cubes (si possible pour 20 si deux groupes les ont construits, ou pour 6)* *Effacer (à moitié), redessiner, mettre la flèche. Mettre les nombres (respecter les couleurs).*
Pour 1500 Travail par groupes	Écrire la question ↓ et mettre les élèves au travail par groupes.
(Mise en commun)	Mise en commun éventuelle (peut avoir lieu en même temps que pour le cas général)  *Effacer les nombres pour 20 et les écrire pour 1500 sur la version double.*

	Éventuellement (si demande des élèves uniquement) les écrire pour la version simple. *Écrire la solution (couleurs)*
Pour n Travail par groupes	Écrire la question pour n ↓ Travail de groupes éventuel (peut être groupé avec celui pour 1500)
Mise en commun	 *Effacer les nombres pour 1500 et écrire n et n+1 sur la version double (couleurs).* *Écrire n et n+1 sur la version double arithmétique (couleurs).* *Éventuellement (si demande des élèves uniquement) les écrire pour la version simple.* *Écrire la solution (couleurs), l'encadrer*

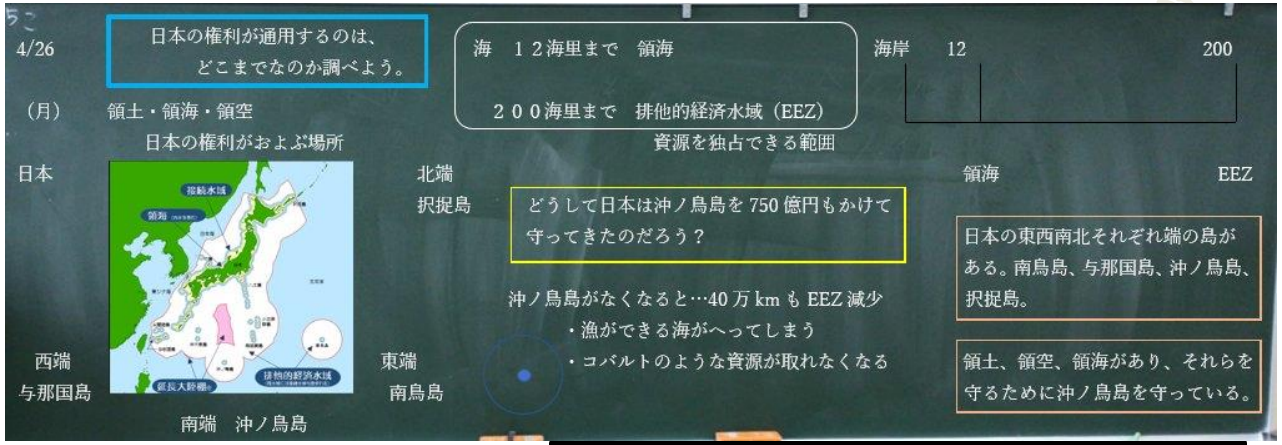
Synthèse	 *En dialogue avec les élèves, écrire la synthèse, l'encadrer.*

Bansho keikaku 板書計画- Where?

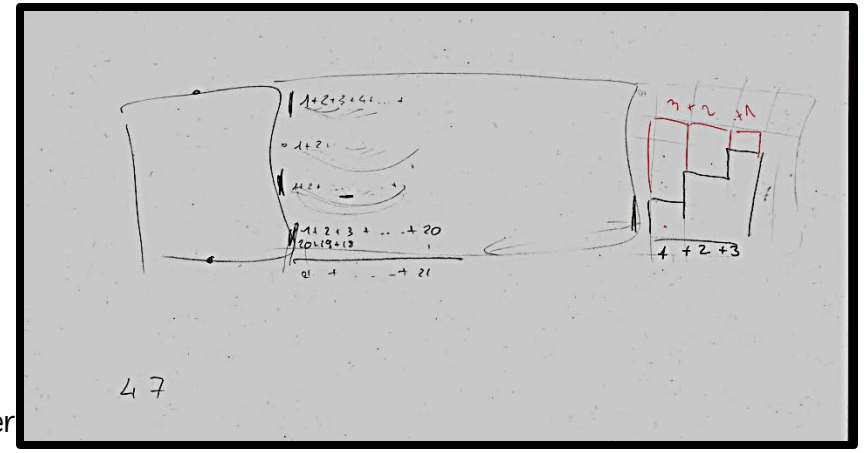
on the board



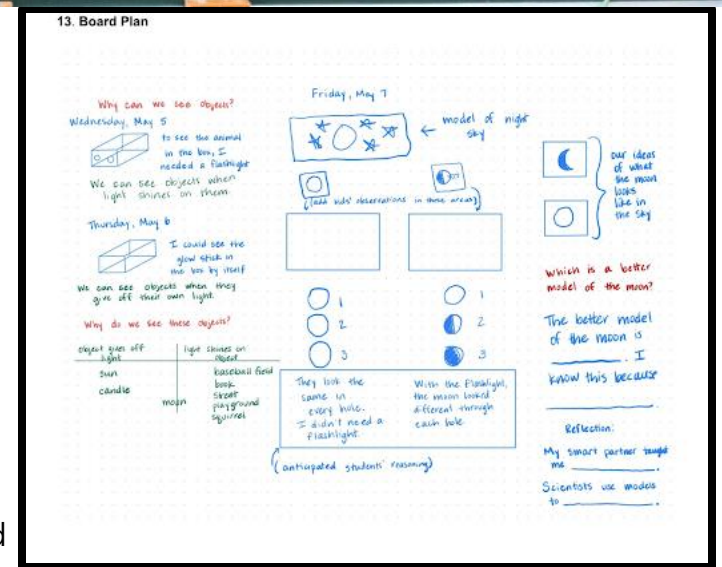
on Powerpoint slide

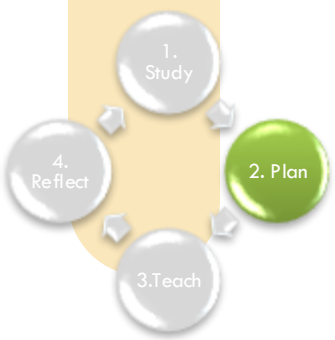


on the paper



online collaborative whiteboard

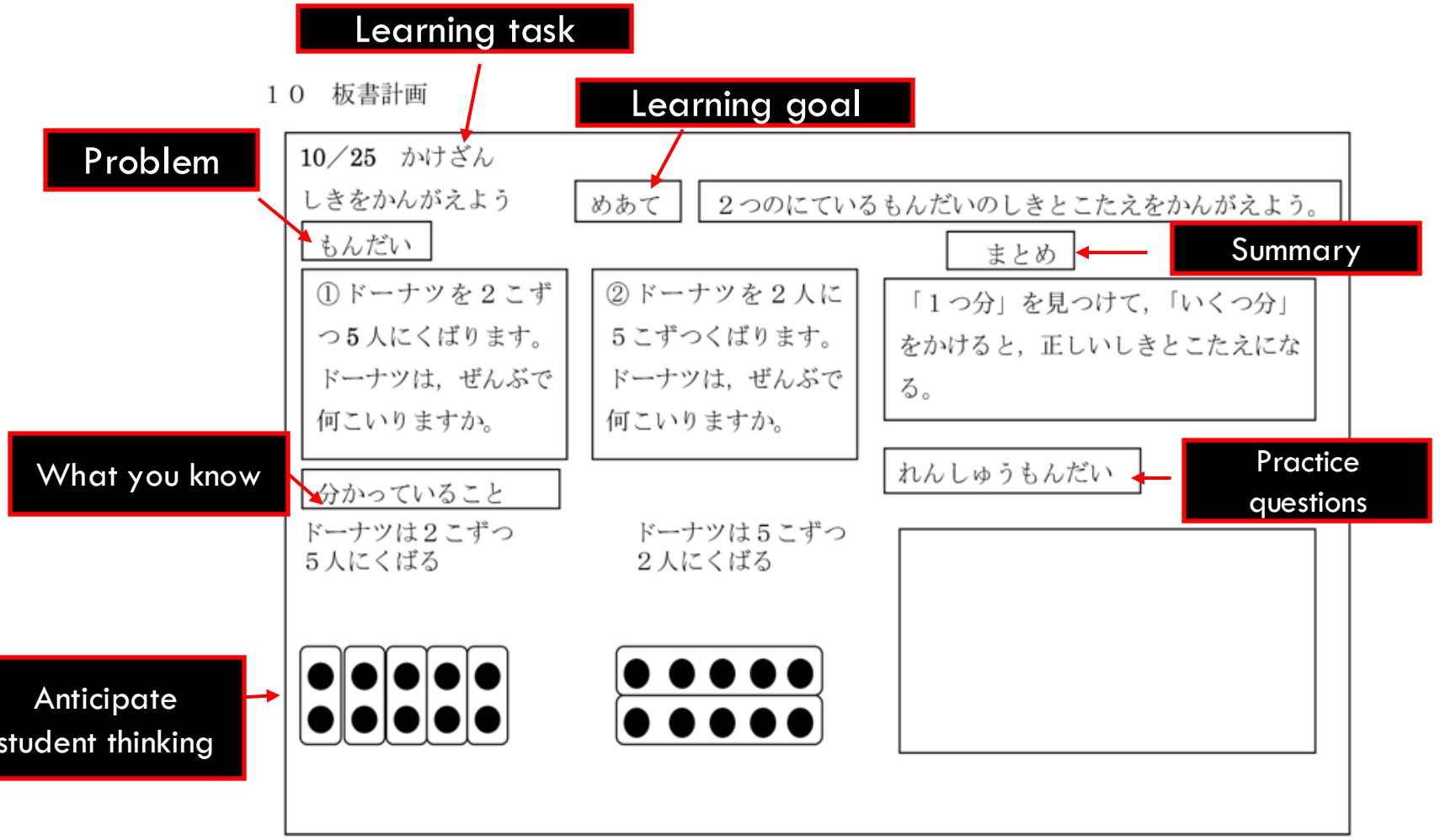




Bansho in Lesson Study

Bansho keikaku (boardwork plan)

- Part of lesson plan
- Layout of the lesson
  - ✓ When
  - ✓ What
  - ✓ Where
  - ✓ Size
  - ✓ Colour
- Tells a coherent story



BANSHO

Balance

Attention-grabbing

Nameplate

Space

Highlighter

Order

Tan (2023)
Tan, Kaskens & Goei (2024)

1

date

p.6

Let's compare the number of pupils in 3 schools

2

School A
412 people

School B
398 people

School C
465 people

3

Question

Which school has more pupils?

4

5

	hundreds	tens	ones
A	4	1	2
B	3	9	8

6 412 is bigger than 398.
School A has more pupils than B.

7

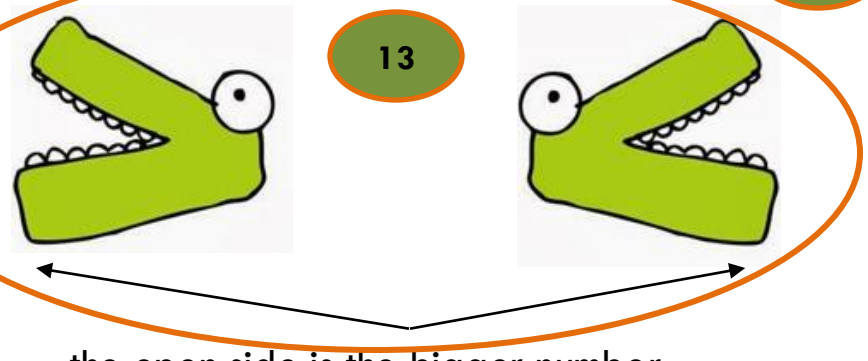
	hundreds	tens	ones
A	4	1	2
C	4	6	5

8 412 is smaller than 465.
School C has more pupils than A.

412 > 398 10

412 < 465 11

13



the open side is the bigger number

Task

9

Use symbols to represent if a number is bigger or smaller than another.

Name

Name

Summary

12

- For "412 is bigger than 398"

I can use the symbol >

So it can be represented as 412 > 398

- For "412 is smaller than 465"

I can use the symbol <

So it can be represented as 412 < 465

Practice questions

14

1) 398 is smaller than 412

398 ☐ 412

2) 465 is bigger than 412

465 ☐ 412

15

1)

i) 389 ☐ 387

389 is bigger than 387

ii) 259 ☐ 261

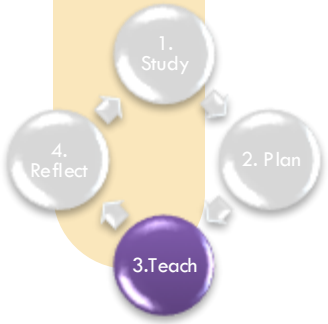
.....

iii) 94 ☐ 103

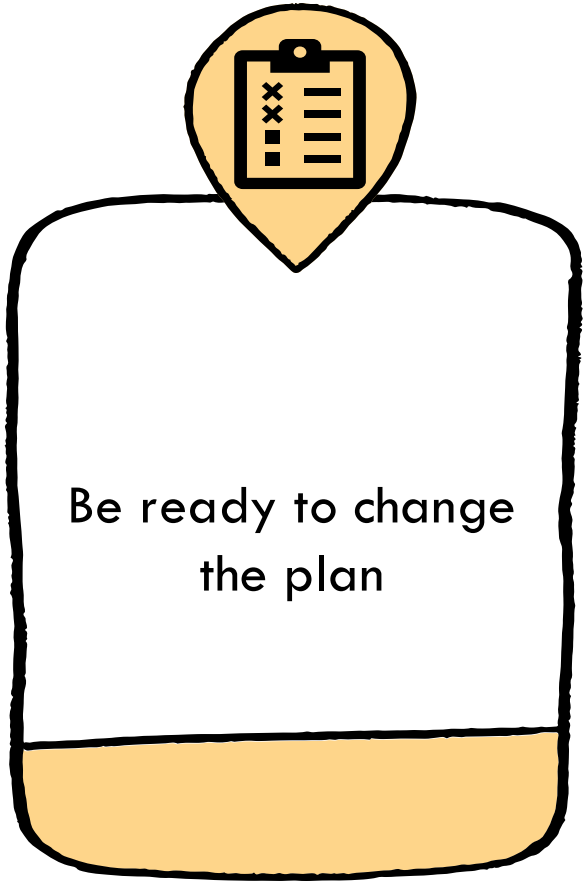
.....

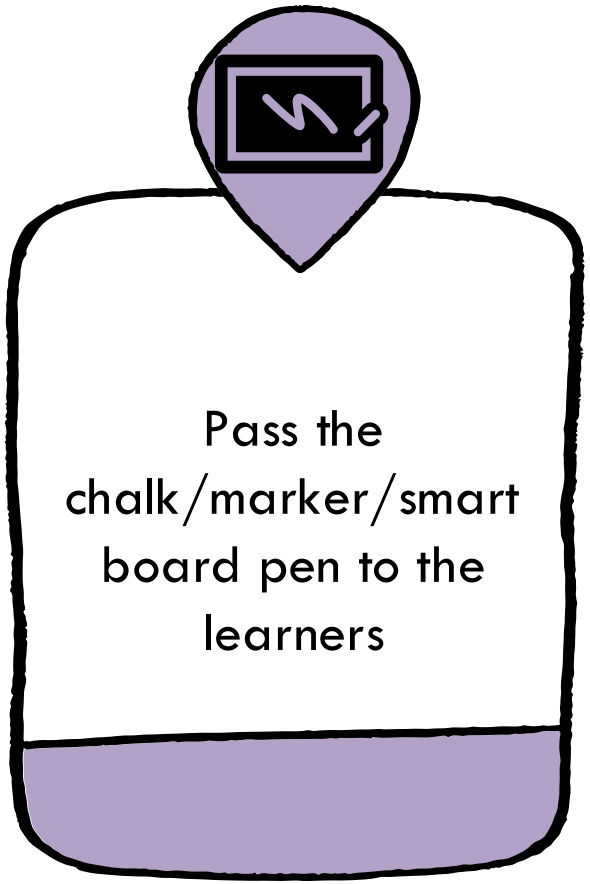
line
circle
colour

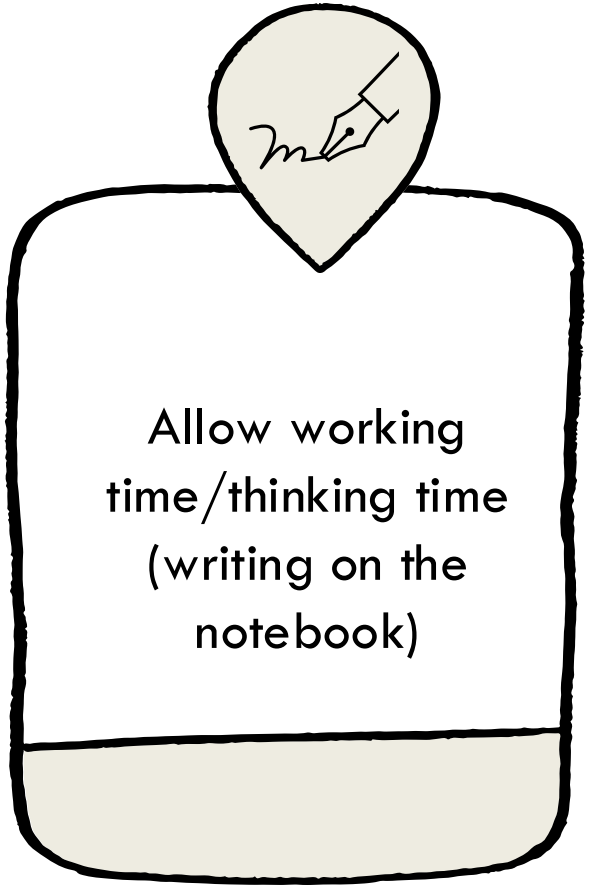
Adapted from Ninomiya & Kamoda (2012)

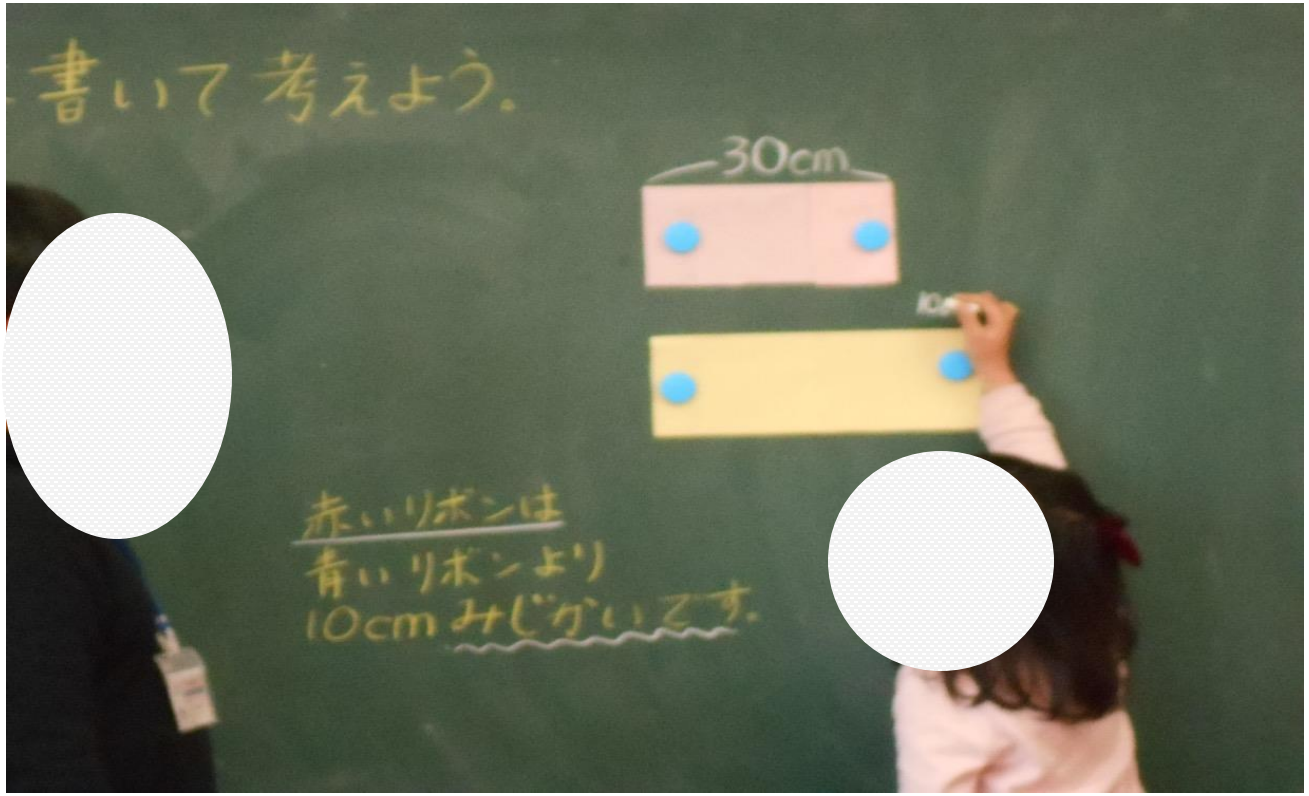


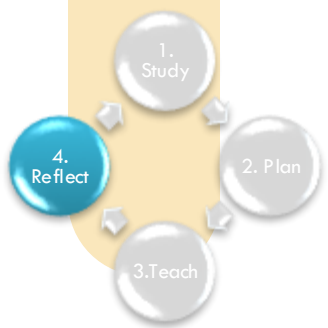
Bansho in Lesson Study





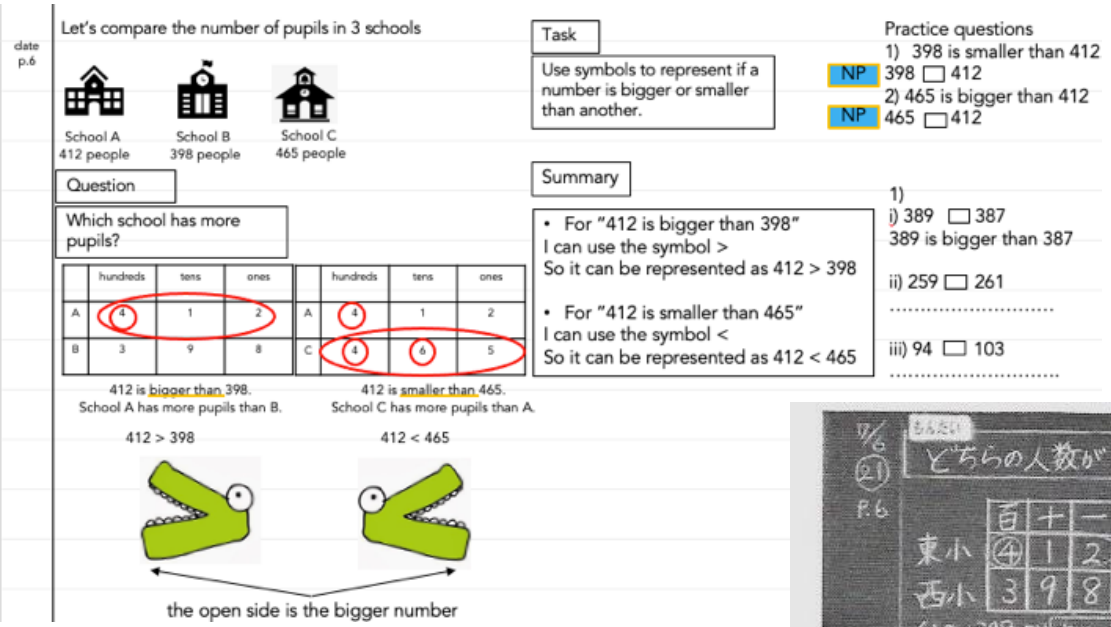


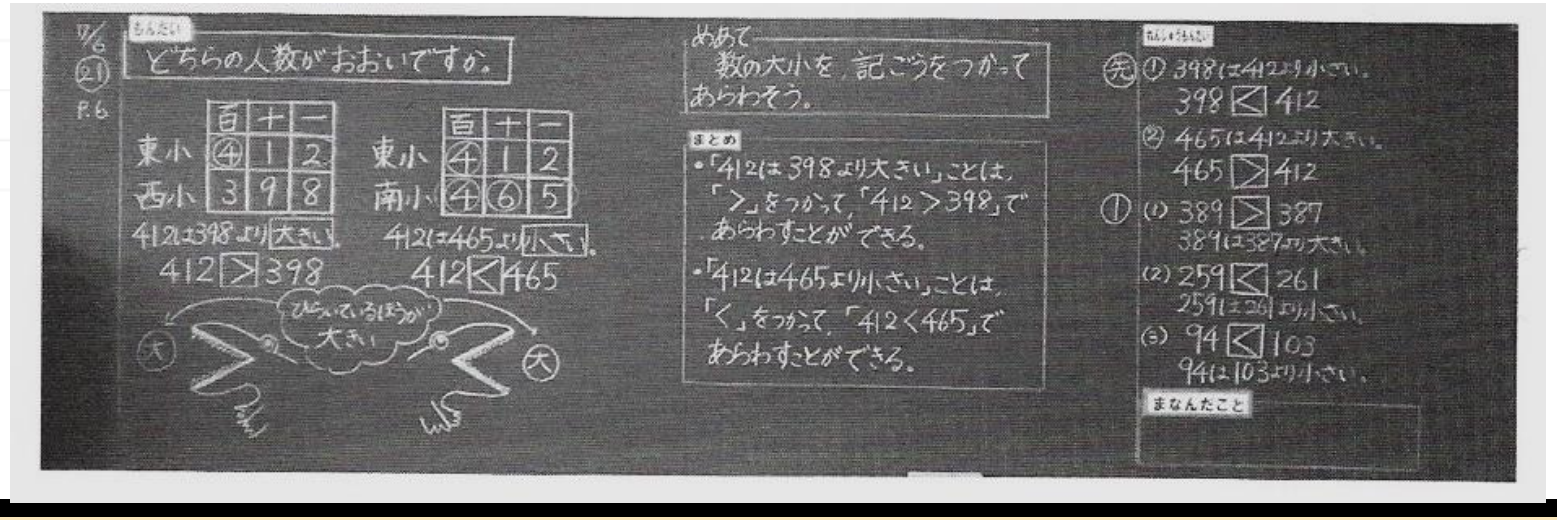

書いて考えよう。
30cm
赤いリボンは
青いリボンより
10cm みじかいです。

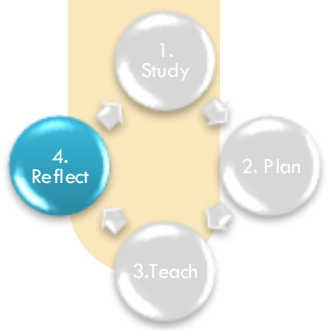


Bansho in Lesson Study

- Photographs
- Compare bansho plan with actual bansho- Why?

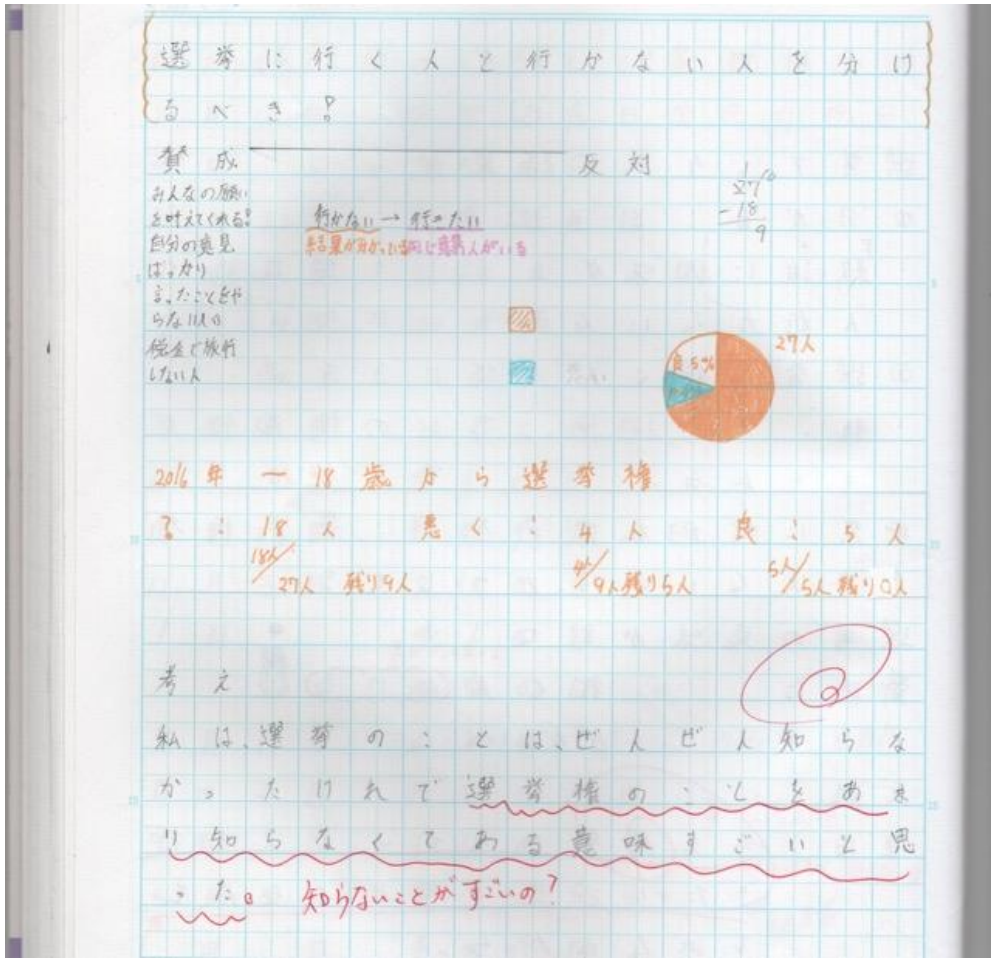


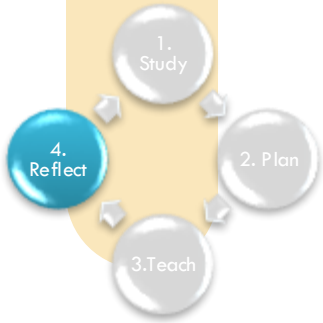




Bansho in Lesson Study

- Compare actual bansho with students' notes





Bansho in Lesson Study

- Photographs of bansho from every lesson
- Reflection tool, a database of lesson record
- **Board photo book** as a reflection tool (Uchiyama & Kubota, 2018)
  - ❑ easy and effective reflection tool
  - ❑ highly effective in the aspect of “pupil’s learning” and “teacher’s instruction”
  - ❑ development of the unit and the relationship between the preceding and following lessons.
  - ❑ useful in recalling the details of the lesson
  - ❑ look back on pupils’ activities and the composition of the board from the pupils’ perspectives

Bansho around the world

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Examples of Bansho

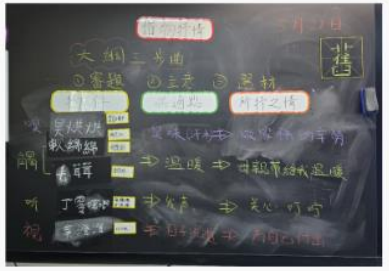
Discover examples of bansho from various fields implemented in diverse classrooms.

Mathematics | Languages | Sciences | Social Studies

Languages Bansho

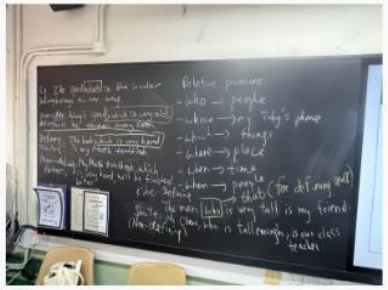
Japanese language, grade 3

Chinese Language, grade 7

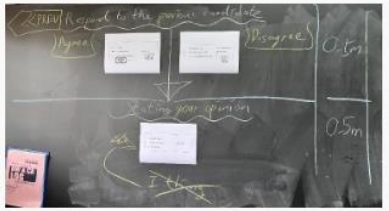


Chinese Language, grade 10

English, grades 7-8



English, grade 10



Shirley Tan and Stéphane Clivaz

Latest Research Works

Call for Contributions

If you are uncovering insights into bansho/board writing, we'd love to feature your work in this section. Please contact us here.

Search

Publication	Brief description	Language	Year
Knight, R. (2025, May 2). Crafting mathematical learning journeys for children: The power of board work. Primary Education Network. https://blogs.nottingham.ac.uk/primaryeducationnetwork/2025/05/02/crafting-mathematical-learning-journeys-for-children-the-power-of-board-work/	A blog post for local teachers on the reflections on bansho, by a group of educators from the University of Nottingham.	English	2025
Batteau, V., Miyakawa, T., & Ryu, M. (2025). Collective problem-solving in Japanese primary mathematics lessons. Educational Studies in Mathematics, 119(3), 421-443. https://doi.org/10.1007/s10649-025-10400-5	This study investigates the characteristics of Japanese primary school mathematics lessons that adopt a problem-solving approach. Within this broader investigation, the practice of bansho emerged as one of the key aspects examined. The analysis revealed that bansho plays a crucial role in developing mathematical knowledge across three dimensions: topogenesis, mesogenesis, and chronogenesis. Japanese teachers intentionally organize the blackboard to represent the lesson's progression, students' thought processes, and the collective construction of knowledge.	English	2025
How, R. P., Zulnaidi, H., & Rahim, S. S. (2024). Development and Validation of a Teaching Module based on the Traditional Approach of the Japanese Bansho Plan Towards the Mastery of Quadratic Equations. International Journal of Information and Education Technology, 14(3), 411-425. https://doi.org/10.18178/ijiet.2024.14.3.2062	This study, conducted in Malaysia, developed and validated a Bansho Plan-Based Teaching Module aimed at enhancing students' Higher Order Thinking Skills (HOTS) in learning quadratic equations. The module consists of six interactive lessons that connect mathematical concepts to real-life applications.	English	2024
Tan, S., Clivaz, S., & Sakamoto, M. (2023). Presenting multiple representations at the chalkboard: bansho analysis of a Japanese mathematics classroom. Journal of Education for Teaching, 49(4), 630-647. https://doi.org/10.1080/02607476.2022.2150538	Focusing on the role of bansho in Japanese mathematics classrooms, the research explores how multiple representations (MRs) are incorporated into bansho content.	English	2023
Canizales, J. R. (2023). Impact of Applying Visual Design Principles to Boardwork in a Mathematics Classroom Brigham Young University]. Brigham Young University.	This study applies visual design principles to boardwork in a mathematics classroom, demonstrating that students have strong opinions on what constitutes effective boardwork, and that the application of design principles significantly impacts both students and teachers.	English	2023
Batteau, V., & Clivaz, S. (2023). De la mise en commun à la mise en dialogue [From sharing to dialoguing]. Revue de Mathématiques pour l'école, 27–38. https://doi.org/10.26034/vd.rm.2023.3624	After solving a mathematical problem, the moment when pupils share their procedures, ideas and results is difficult to manage, both in terms of collective knowledge building and organisation. We develop and illustrate how primary school teachers and secondary school teachers bring pupils' procedures into dialogue with each other in order to	French	2023

Bansho as a mindset

How can I plan my lesson and present the information so that my students' thinking is visible?

How can I record students' ideas so that they can build and improve their understanding?

How can I make this lesson useful for my students at this moment with the resources I have?

How can I make students feel like their voices are heard in the class?

Bansho as a mindset

How can I plan my lesson and present the information so that my **students**' thinking is visible?

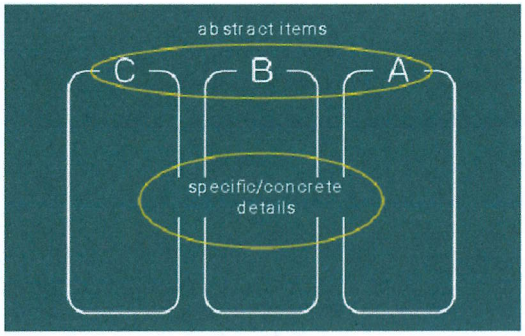
How can I record **students**' ideas so that they can build and improve their understanding?

How can I make this lesson useful for my **students** at this moment with the resources I have?

How can I make **students** feel like their voices are heard in the class?

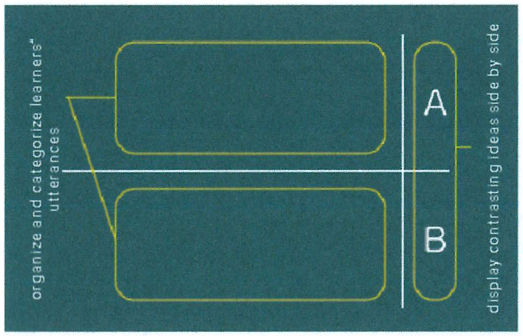
Models 1-10 originate from the ten variations of interconnected thinking bansho by Numata, 2020, as rendered in English by Shirley Tan.

1 Classification



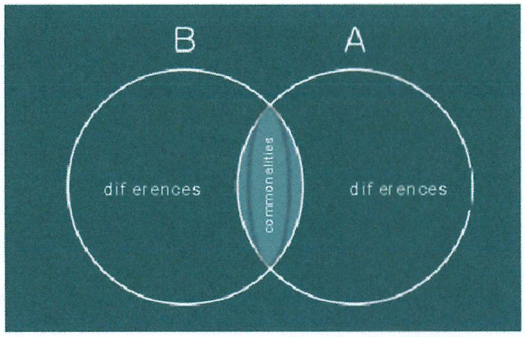
comparison and classification
Develop the ability to think about concrete-to-abstract relationships

2 Contrast



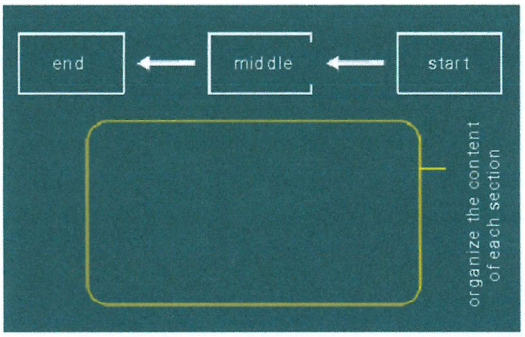
comparison and classification
Develop the ability to think in relation to and compare information

3 Venn diagram



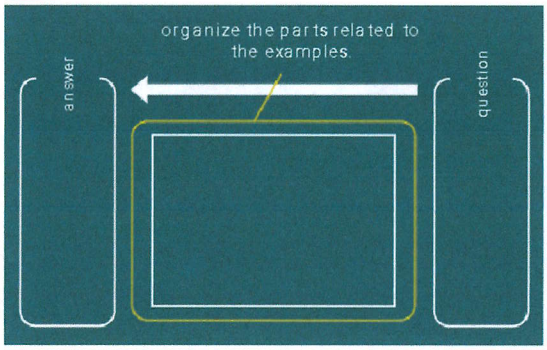
association
Develop the ability to find commonalities as well as differences

4 Structural embedding



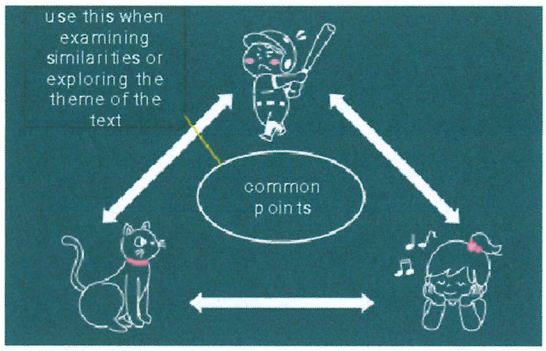
association
Develop the ability to think while linking learning content and structure

5 Dialogic Question-and-Transformation



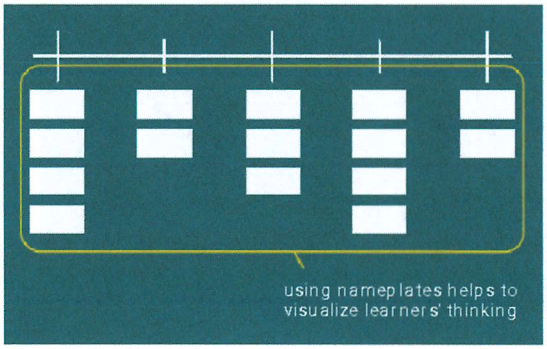
 association
Develop the ability to read texts logically, focusing on the first and last points of a literary work

6 Character Relationship Diagram



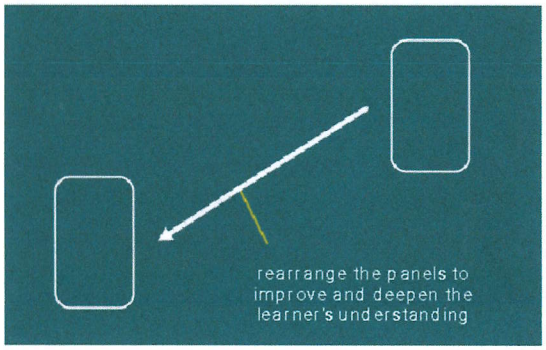
 association
Develop the ability to visualize the connections between characters and to understand the text as a whole.

7 Scaling



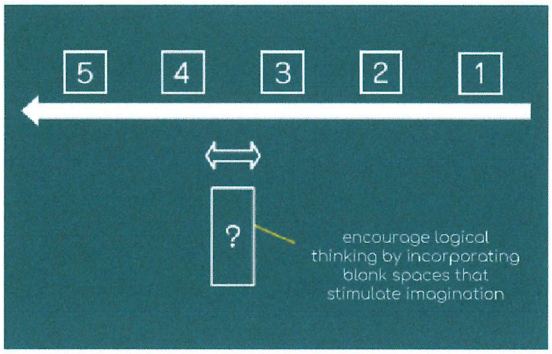
 association
Develop the ability to identify shared themes in various interpretations

8 Shifting



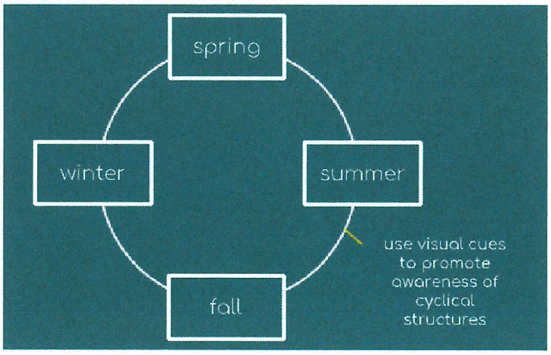
 association
Develop the ability to view things from different perspectives and connect incidents or events

9 Gap-filling



➢ **analogy**
Develop logical thinking skills by making analogies about what is not explicitly stated

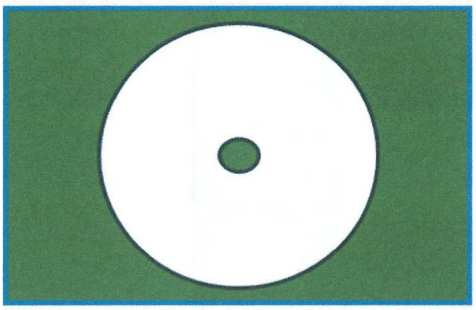
10 Cyclic



➢ **analogy**
Develop the ability to think analogically by discovering connections between things

Models 11-18 are Thinking Maps (Hyerle and Alper, 2011) expressed as boards.

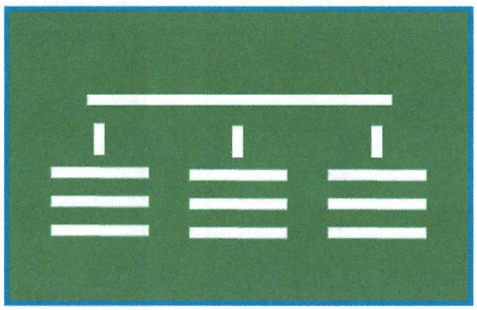
11 Circle



- For defining

All relevant content is collected within the circle to develop clear understanding

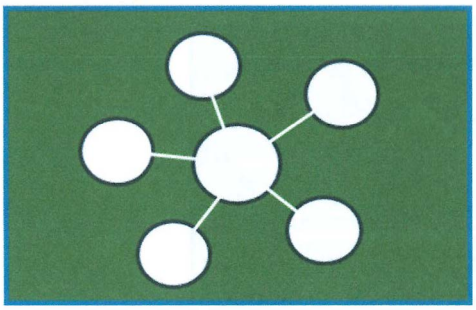
12 Tree



- For classifying

Help to segment information, plan context into sections under subheading etc.

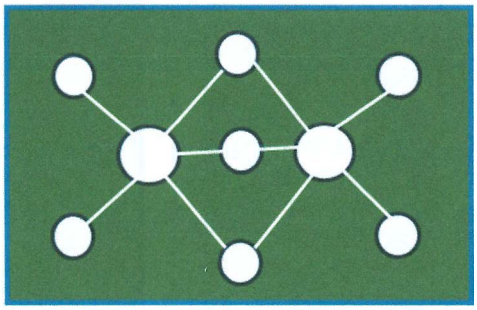
13 Bubble



- For describing

Characteristics and subgroups to a concept can be identified and explored.

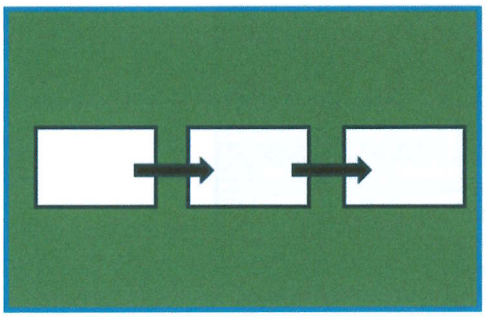
14 Double Bubble



- Forcomparing

Helpsidentify characteristics that are similar and different between two concepts

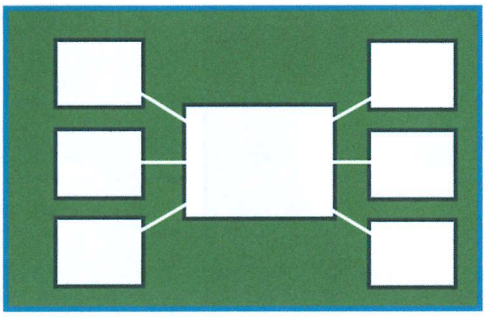
15 Flow



- For sequencing

Placing ideas or concepts in a order or planning for and order.

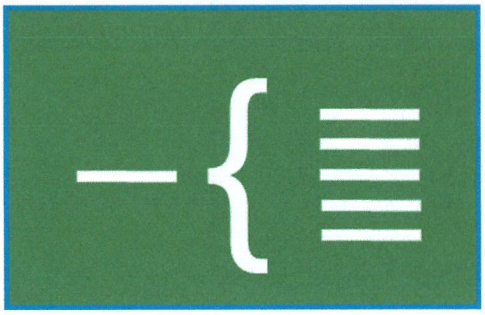
16 Multi-Flow



- For cause and effect

Looking at reasons for an event and the consequences of that event.

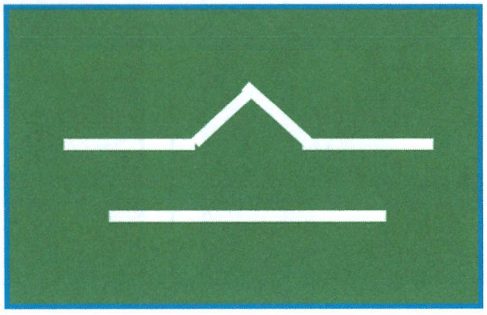
17 Brace



- For parts and whole

Identifying concepts and how they can be made up of smaller concepts

18 Bridge



- For analogies

To compare of develop ideas further

Shirley's reflection (English Group)

Beth-Ann and I worked on the Gruffalo story, and with the helpful planning from John Paul Mynott, we split the group into two parts: during the first half, the participants took on the role of pupils, and in the second half, they became teachers planning how to continue the lesson. According to the attendees, this change in perspective really helped them see how the bansho shaped pupils' learning and then how that learning could be taken further and deeper. I was intrigued by some of the pupils' responses in the first half. For example, one "pupil" picked the snake as the scariest animal because it has a long tail, which wasn't from the story but seemed more like a personal feeling, and I found myself wishing I had asked more about why. Another "pupil" chose the owl as the scariest because it was hiding on the last page, looking like it might attack the mouse, and that actually drew the other "pupils" back to the story to take a closer look. The simple scale on the board, ranking animals from scariest to least scary, gave pupils a way to share their thoughts and reasons, mark their spot with a nameplate, listen to their classmates' opinions, and even change their minds, which felt like an important message: that it's okay to rethink and revisit your ideas. Looking ahead to future workshops, I really hope to have a proper board that can gather everyone's attention at the front, and I'd like the second half's idea-sharing to be more organised, maybe by projecting the ideas so everyone can follow along easily.

Designing a board plan

Draft One
10/31/22
Sharon Dotger

Early questions I asked myself

- What does the teacher guide say?
  - Main ideas of the lesson
  - Relationship of the lesson to what came before and what comes next
  - Suggestion for how long each lesson step should take
    - The suggested time allotments for the lesson give us a sense of how important they are, relative to each other, and therefore, the amount of real estate we should grant them on the board

Make a draft

- Think of all the possible elements of what could go on a board
- Caution - try not to think of this like building a slide deck. Every idea or word uttered doesn’t have to go on the board or be in the notebook. We’re not stenographers. We’re trying to capture the most critical ideas.
- The slide after next is my draft - I’m not worried yet about exactly what will go in each section

How to read these slides

- I’m trying to make these like I’m in the room talking to you. The “new ideas” will initiate in blue and will then go to black text in subsequent slides. My notes about what I’m doing in the draft are included in the speaker notes.

Date

What we know about bacteria…

What we know about aphids…

Questions we still have

Date

What we know about bacteria…

What we know about aphids…

Questions we still have

Initial Ideas: Model Organisms

Date

What we know about bacteria…

What we know about aphids…

Questions we still have

Initial Ideas: Model Organisms

The population changes because there is a shift in the distribution of traits in the population over time.

Date

What we know about bacteria…

What we know about aphids…

Questions we still have

Initial Ideas: Model Organisms

The population changes because there is a shift in the distribution of traits in the population over time.

Patterns to look for in other populations:

Date

What we know about bacteria…

What we know about aphids…

Questions we still have

Initial Ideas: Model Organisms

The population changes because there is a shift in the distribution of traits in the population over time.

Patterns to look for in other populations:

Date

What we know about bacteria…

What we know about aphids…

Questions we still have

Initial Ideas: Model Organisms

The population changes because there is a shift in the distribution of traits in the population over time.

Patterns to look for in other populations:

Question (heritable trait variation in population):

Question (changes in the environment):

Question (environmental change/survival):

Question (reproduction & variation):

Model organisms

Criteria

Closing thoughts for today

- Hold on, Sharon. If you can mock up a board plan in google slides, why not use google slides in the first place?
  - Well, I hope your board is bigger than your smartboard. If you typed all the answers I hope you'll get in slide 10, the font would be so small it wouldn't be readable.
- This is a draft, not a contract.
- You don't have to make literal boxes on your board. I do it when mocking up the board digitally so that I'm more accountable to the amount of space I actually have.
- If you have to make anything smaller, reduce the size of the ideas in the first column.
- This is a lot to keep up with - make an interval timer like this one:

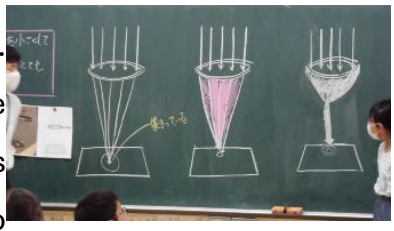
https://www.intervaltimer.com/timers/11397764-lesson-14-junco-intro

Sharon’s reflection (Science Group)

I was so happy with the attendance overall, and it felt really good to see so many people interested in the workshop. Of the four people in my group, only one had prior knowledge of bansho, so while he was able to draft a board when it came time to do that, the others really struggled. They had so many questions that we ended up spending most of our time answering those questions rather than actually drafting board plans. I keep thinking that I wish I had done a better job recording their questions and our group conversation in response; in retrospect, it would really have helped to have a notetaker. I’d love to do more of this at future conferences, but I think it would work even better if we had more time (doesn’t everyone always say that?!). Part of what makes bansho decisions effective is having a deep understanding of the instructional task and the instructional moves you want to make to develop students’ knowledge of the content embedded in completing that task, and that just takes time. It also takes a certain readiness to draft and share your thinking out loud with colleagues, and it takes people a while to warm up to that; it’s hard to admit what you don’t know, especially at a professional conference when it feels like everyone else knows more than you do. I wish we could have shared more at the end between the groups, because I’m so curious about what people took away from the math and language arts examples. I also feel strongly that we need actual boards, or at least extended paper like Shirley thought to bring. After the research lesson at the conference, I found myself really wanting a conversation about color, and I also wished we could have had a team conversation about his bansho—not to judge it, but to break down all the decisions he made as he developed that board, so we could understand and shed more light on the internal thinking of teachers.I

Sachko's reflection (Science group)

- Four participants in the science group had many questions about bansho. I list three of them here:
    - ✧ How do you display students' thinking on the board? >> We said that students' ideas could be shown in language, drawings, or anything. We showed the picture of the students' ideas about how light goes through a magnifying glass. We also explained how the visual representation on the board helped students think about the mechanism.



    - ✧ How do you decide which one to use, bansho or slides and screen? >> It depends on what the teacher wants. If the teacher wants to show a lot of information, slides might work better. But for the purpose of including student work and showing the process of the development of the lesson, we recommend bansho. Many teachers use both ways in the classroom, blackboard in front and a screen on the side.
    - ✧ How does the teacher organize bansho? >> If the teacher wants students to write or draw their ideas on the board, the teacher can specify the place on the board. As for preparing a bansho plan before the lesson, teachers can use a format for science board planning that includes steps of inquiry such as question, hypotheses, experiments, and conclusion.
- As a workshop with three different subject groups, we needed more time and space. I had small dry-erase boards for each of the participants to simulate bansho. Although we could not use them, I think individual boards for the participants would help them explore more about their own ideas about bansho.

Workshop Bansho in Action
A Hands-On Exploration of Board Writing in Lesson Study

Hiroshima · 10-12 NOV 2025

Stéphane Clivaz
Edon Gashi

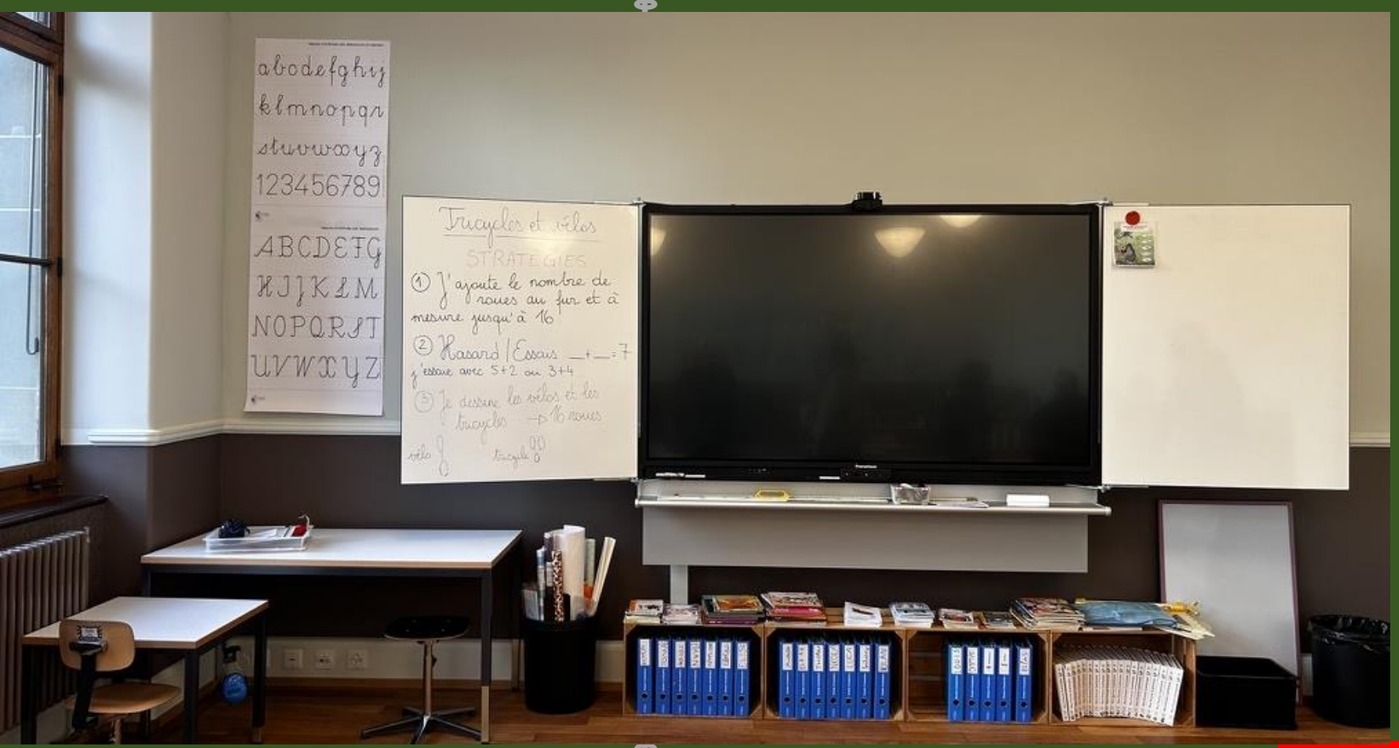
Lausanne Laboratory Lesson Study
Switzerland

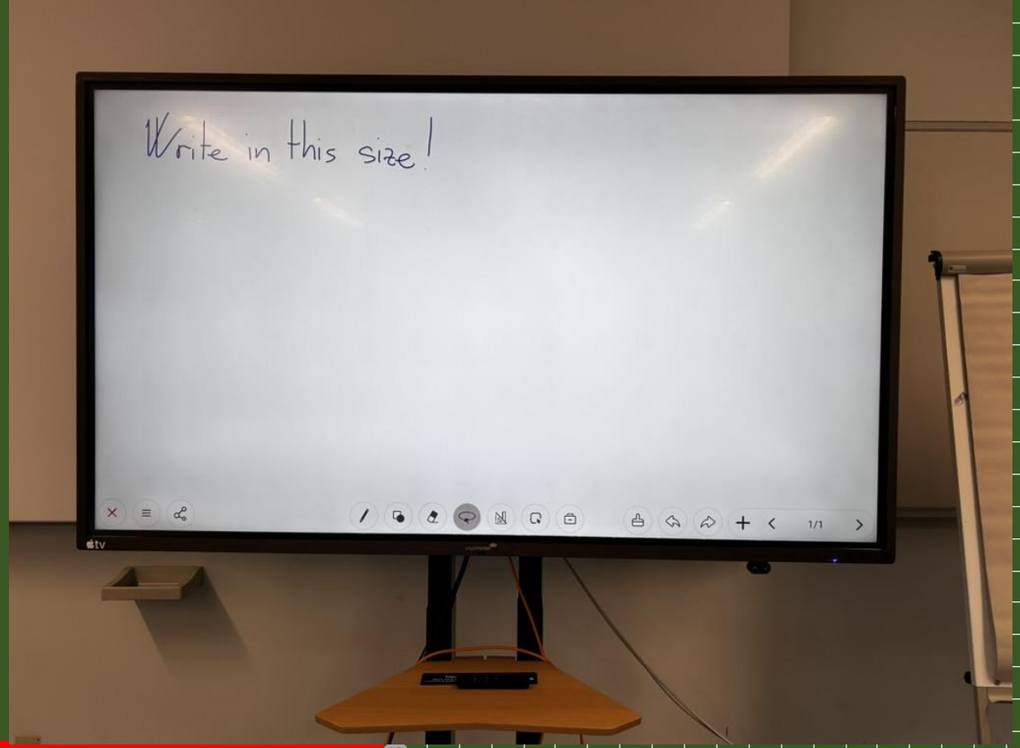
A bansho in mathematics
From blackboard to interactive white board

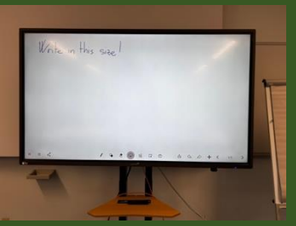
Our work today:

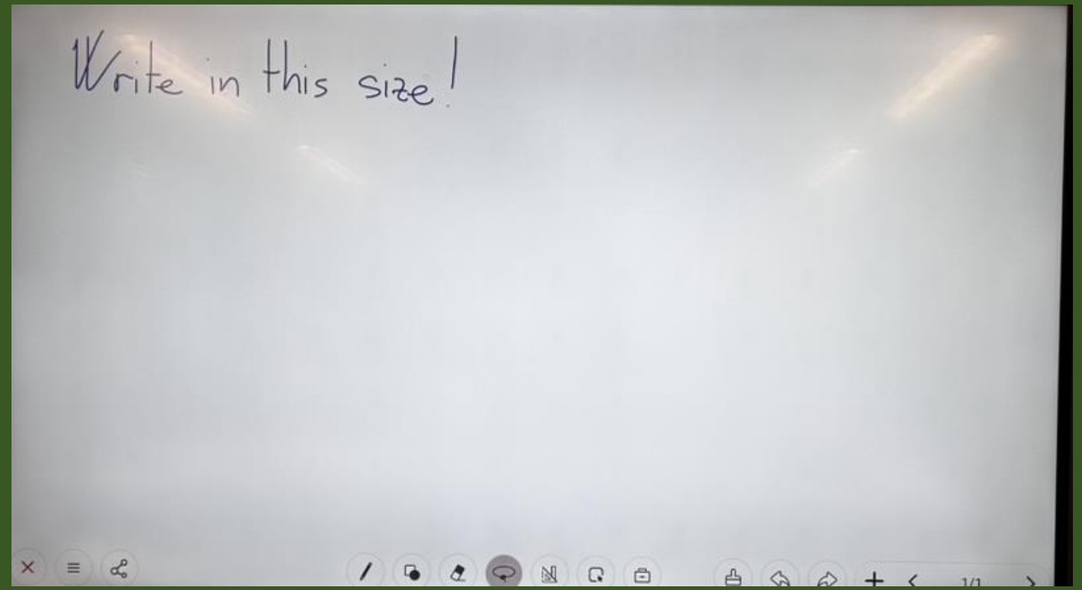
- Goal of our workshop
- Presentation of a blackboard bansho
  - Planning
  - Realisation
- Group work: how to do it on an interactive whiteboard?
- Discussion: what we gain, what we lose

1m


abcdefghij
klmnopqr
stuvwxyz
123456789
ABCDEFG
HIJKLM
NOPQRST
UVWXYZ
Tricycles et vélos
STRATEGIES
① J'ajoute le nombre de roues au fur et à mesure jusqu'à 16
② Hasard / Essais _+_=7
j'essaie avec 5+2 ou 3+4
③ Je dessine les vélos et les tricycles → 16 roues
vélo
tricycle


Write in this size!
1/1





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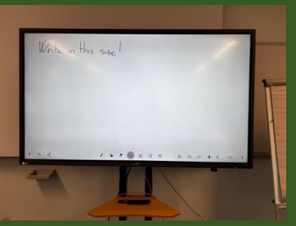
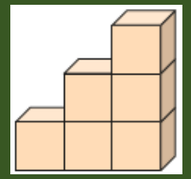

Write on this side!


1m

The blackboard planification

Grade 8
Introduction lesson about pattern, pre-algebra
Learning goal: Find a rule, express it in different ways



3 steps
6 cubes

How many cubes are needed to build a staircase with 20 steps?

$$\frac{21 \cdot 20}{2} = 210$$

And for n steps?

To add up a series of numbers, we can often find several strategies.

A geometric representation is often useful.

1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+17+18+19+20=210

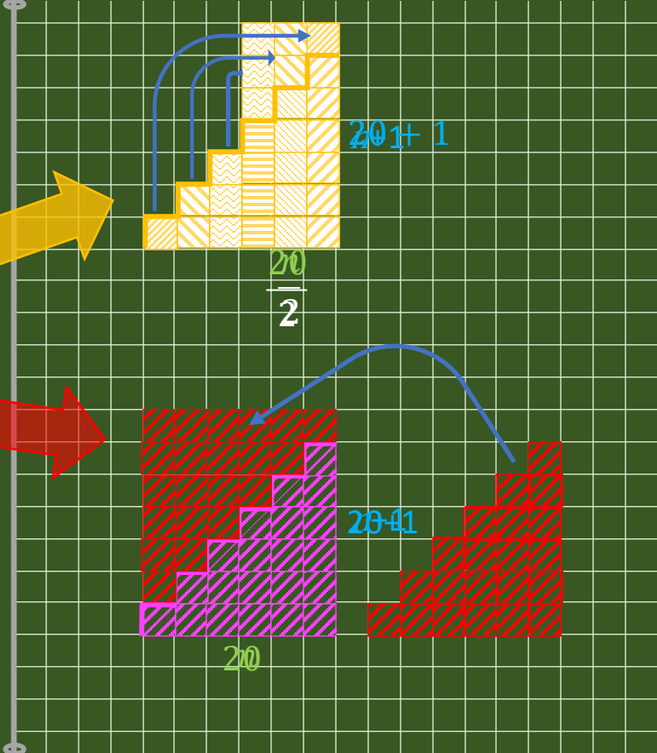
1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+17+18+19+20=20·9+10+20=210

1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+17+18+19+20=21·10=210

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 +10+11+12+13+14+15+16+17+18+19+20
20+19+18+17+16+15+14+13+12+11+10+ 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1
21+21+21+ … + 21+21+21= 21-20=420
+1
n

But you still need to divide by two → 210

For n steps, you will need $\frac{(n+1) \cdot n}{2}$ cubes.



The

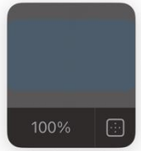
WALS2025 Bansho Workshop

How to plan an interactive white board so that…

- We can show the links between the procedures?
- Those links favor the construction of the mathematical knowledge (finding a “rule”)?

Going from traditional board to interactive…

- What do we loose?
- What do we gain?



Let’s do it!

Edon's and Stéphane's reflections (Mathematics Group)

The idea of actually *doing* bansho really connected with many people, including a significant number of graduate students. The mathematics subgroup in particular attracted many participants, and they were all very eager to try their hand at bansho, with a particular twist: Trying to transpose an already constructed bansho from the blackboard to an interactive white board.

This approach, while challenging, really helped everyone consider how *bansho* differs from other ways to convey information. For instance, one group started to think in terms of 'frames', projecting different things one after the other in a chronological pattern. This planted a seed for later. Indeed, one strength from interactive white boards is that they are, well, interactive, and this means that one can take one of the frames, set it aside, and then start anew.

This idea emerged in the post-workshop discussion and only grew from there. New ideas came one after the other: animating things, enlarging and shrinking images, projecting last week's *bansho* at the start of the lesson, etc. This kneading and polishing of ideas (*neriage* in Japanese) really made for an interesting discussion where everyone could share and learn together.

Unfortunately, this is also when the workshop had to stop. We all would've wanted a bit more time to more thoroughly explore our ideas and especially share them with other groups. The enthusiasm from the participants was clear. Hopefully, this can lead to other productive sessions like this, be it in workshop form or else.

Understanding a bansho (let alone making one) requires time and focus. Because this was a collaborative project with multiple groups, they first had to learn about the task and the various strategies the students solving it would use. This naturally led to a lot of conversation regarding the mathematical task itself, and from there time was spent discussing which parts of the bansho should be kept. This is where more time would have also been useful.

Overall, we all learned a lot from this workshop and the participants seem to have liked it judging from the conversations we had after the workshop is over.