

## Overview of Session 6

- Considering the importance of public recording space in mathematics teaching
- Analyzing the use of public recording space
- Discussing a process for planning for and learning from the use of public recording space

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## Using public recording space

- An idea imported from the practice of Japanese teachers
- “Bansho”: the study of blackboard use
- “Public recording space”: whiteboard, chalkboard, pre-made posters, chart paper during class
- Principles for use of the board and connecting this to students’ opportunities to learn mathematics

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## Why attend to public recording space in mathematics teaching?

Teachers can use public recording space in classrooms to:

- Make the use of representations more effective
- Capture ideas across a lesson to make it possible for students to remember and revisit what has been discussed
- Model mathematical practices and the use of language
- Connect ideas and summarize lessons
- Make records from a lesson for subsequent use in later work

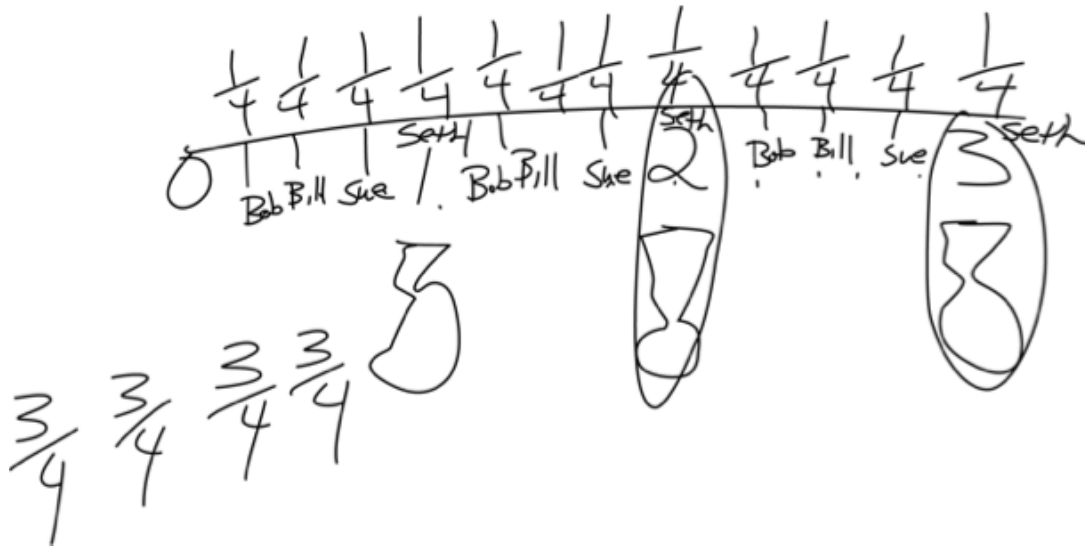
(ideas adapted from work of Makoto Yoshida)

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# Image 1:

I want to share 3 bottles of soda equally among 4 people.  
How much will each person get?

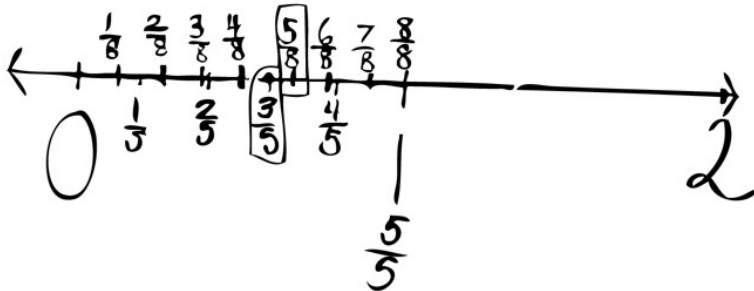
(also referred to as "the one from two weeks ago")



## Image 2:

Compare  $\frac{3}{5}$  and  $\frac{5}{8}$

$$\frac{3}{5} < \frac{5}{8}$$



## Analyzing images from teaching

Consider these questions as you examine images of public recording space in a classroom:

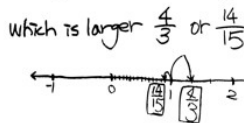
- What sorts of things are recorded?
- Who records? What proportions of the recording are done by the teacher and by students?
- What seems to be the mathematical focus of class work?
- What seems to be the purpose of the class work? Can you tell from the image? Why or why not?
- What else stands out to you when you examine the image(s)?

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# Analyzing images from teaching

Today's Topic: Comparing fractions through different methods

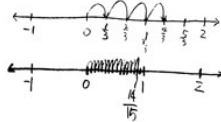
Representations used: number line area (rectangles)



Representations not used: sets of objects area (circles)

$$\frac{4}{3} = \frac{20}{15}$$

$$\frac{20}{15} > \frac{14}{15}$$

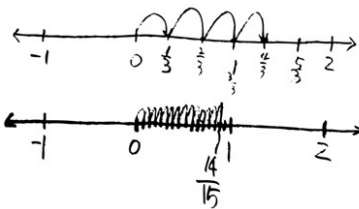


Which is larger:  $\frac{3}{4}$  or  $\frac{14}{15}$

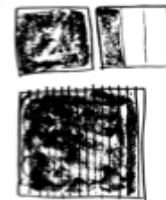
Findings:

- $\frac{4}{3}$  is bigger because it is more than 1 while  $\frac{14}{15}$  is a little smaller.
- Both of these fractions are 1 part away from 1
- Even though the denominator is really small that does not mean that the fraction is going to be smallest
- You can change  $\frac{4}{3}$  into a fraction with an equal value that is easier to compare with  $\frac{14}{15}$

Representations used: number line area (rectangles)



Representations not used: sets of objects area (circles)



# Planning for and learning from the use of public recording space

Main parts of the process we will use:

- Develop a plan for public recording space that is linked to steps of a lesson plan

<p>6:50-7:15 (25 min)</p> <p>Whole group individual</p> <p>To no fractis</p> <p>Goal: repre return sessic in 7%</p>	<p><b>Representations of 3/4</b></p> <p>Goals: to learn more about where participants are</p> <p>To set some norms about how to talk about mathematics and listen to others' reasoning;</p> <p>To set expectations about representation, talking, reasoning, questioning, revising</p>	<p>Let's expand our consideration of representations of fractions. Show slide with potential representations of 3/4. Slide #5-6</p> <p>Talk through the task, perhaps modeling working through one of the representations before individuals think through the rest of the representations.</p> <p>For each representation: Could this be a representation of 3/4? If yes, explain how it could be a representation of 3/4. If not, explain why it could not be a representation for 3/4.</p> <p>Participants work independently: recording their thinking about each representation with respect to the numerical prompt of 3/4.</p>	<p>See whiteboard plan for this section and the next. The plan will attend to what goes where on the whiteboard: topic written at the top, key ideas like "equal partitioning, attention to the whole" on the side, a working definition of fraction in the corner, space in the middle for people to record their ways of thinking about particular representations.</p> <p>See whiteboard plan</p>
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## Planning for and learning from the use of public recording space

The rest of the process:

- Enact the plan by encouraging students to represent and connect representations, and using what is recorded on the board or on chart paper in summarizing the lesson
- Reflect on the use of public space: representation of content, alignment with purpose, engagement of students, organization, and clarity

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## Summary

In this session, you:

- Considered the importance of attending to public recording space in mathematics teaching
- Analyzed records made in public recording spaces in order to begin to develop principles for the use of public recording space in your teaching
- Began to explore a process for learning from the use of public recording spaces
  1. Develop a plan for public recording linked to your lesson plan
  2. Enact your plan and capture images of public space
  3. Reflect on your use of public recording space drawing upon records of practice

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