Overview of Session 10

- Analyzing and narrating a fraction-of-a-set task
- Identifying teaching moves that support the class in understanding representations shared by classmates
- Summarizing teaching moves that support students in understanding representations shared by classmates

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Supporting and using student representations

This teaching practice:

- Scaffolds student opportunities to engage in a crucial mathematical practice
- Provides the teacher with examples of student thinking
- Models interest in the thinking of others
- Helps the class to make sense of the ideas and their relationship to the mathematics of the lesson

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Video clips from a fifth-grade lesson on fractions

- Entering 5th graders (10 year-olds)
- Two week summer program (7th class session out of 10)
  - The class generated, and had been refining over several class sessions, a working definition of a "fraction"
  - They had been examining fractions with –
    - Drawings (rectangles, circles)
    - Cuisenaire rods
    - Sets of objects as the whole
    - Number line
  - They had started mapping one representation onto others
- Students came with a wide range of mathematical skills and varying degrees of interest in mathematics

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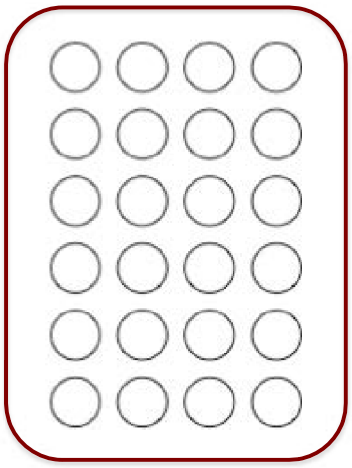
One-eighth of 24 circles

Show what one-eighth means in each of these:



The video clips focus on the class discussion of one-eighth of 24 circles

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Focus questions

- What does the teacher do to support the students' recording?
- What does she ask as the students record? What purpose might the teacher have for those prompts?
- How does the teacher use another student's thinking to help the class make sense of the mathematics?

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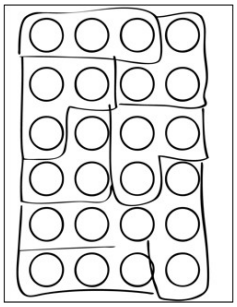
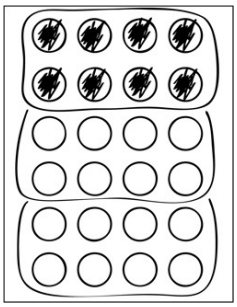
Connecting and summarizing

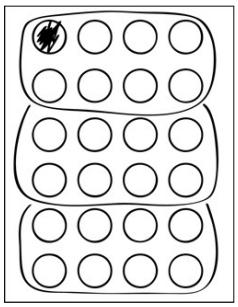
Sean



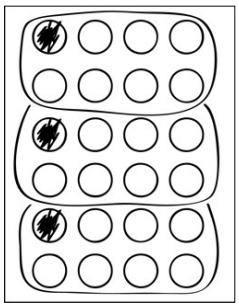
Rebecca



Autumn



Paige



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Making connections with representations

- Between student(s) thinking and a representation
  - Explanation related to a particular aspect of a diagram
- Within representations of the same type
  - Rectangular area models
- Across representations of the same type
  - Rectangular area and circular area
- Across representations of different types
  - Measurement model and area model
- Between representation and the problem statement
  - Checking on the correspondence of what a problem asks and features of a representation
- Connecting mathematical language and ideas to representations
  - Using subject matter terminology and ideas to name and describe aspects of representations

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Focus questions

- What connections does the teacher make in the summary?
- What key mathematical points are made?
- What purposes do those connections and key points seem to serve?

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Supporting the class in understanding making use of representations shared by classmates

What is the work of teaching?

- Requesting recording (to capture a method/way of thinking, clarify something that is unclear)
- Probing student thinking in relation to what is recorded and the mathematics of the task
- Restating student thinking and checking on its accuracy
- Connecting representations
- Inviting comments/thinking from the class
- Summarizing status or progress of the work

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Module summary

What are you taking from this module in terms of:

- Mathematical ideas
  - Definition of fractions, representations of fractions, comparing, and equivalence
- Using representations in teaching
  - Connecting, narrating, using public recording space
- Student thinking about fractions
  - Strategies, ways of explaining and representing
- Ways of learning from your teaching
  - Studying records of your use of public recording space

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