Common Core Circles: Part I
How to Choose a Task

Developed by the CMC-S
CaCCSSM Committee

Outcomes

- Participants will
  - Learn how to choose appropriate math tasks to use with their students
  - Learn how to choose tasks that facilitate student thinking around common core mathematics standards.
  - Learn how to implement such tasks within their classrooms.
  - Receive information on submitting anonymous student work to be part of our study of this and other tasks.

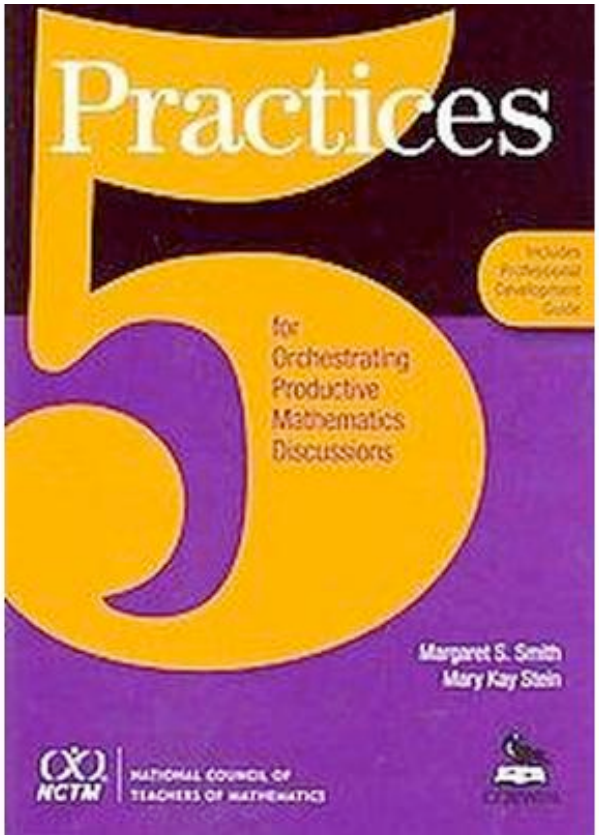
What is a Common Core Math Circle?

- Inspired by Math Circles
  - Student Math Circles
    - A social context for students to explore math
  - Teacher Math Circles
    - A social context for teachers to explore math and its pedagogy.

- Common Core Math Circles
  - A social context for teachers to explore Common Core Math Standards and related pedagogy.

http://www.mathteacherscircle.org/news.html

Math Circles Part II: Enacting a Task (Session 207, immediately following)



5 Practices

- 5 Practices for Orchestrating Productive Mathematics Discussions:
  1. Anticipating
  2. Monitoring
  3. Selecting
  4. Sequencing
  5. Connecting

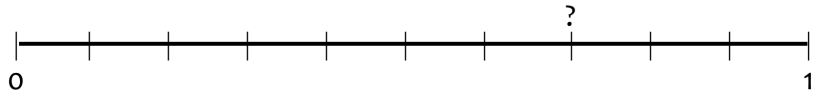
Performing the Task

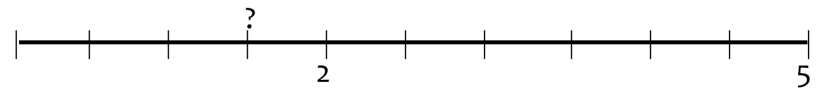
- By Grade Level:
  - Grades K - 2 Whole Number task
  - **Grade 3 - 5: Fraction Task**
  - Grade 6 & 7:
    - Decimal Task or
    - Integer Task
  - Grade 8 & High School: Real Number/Algebra Task

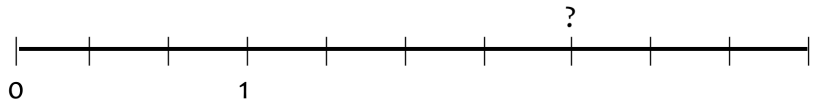
Labeling Numbers on the Number Line: Fractions

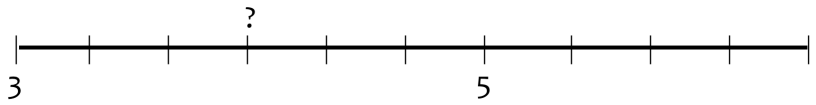
- Instructions:
  1. Solve the task as an adult learner.
  2. In your group, choose the task that you found to be the most challenging and the task that you found to be the easiest.
  3. Prepare a rationale for your rating.

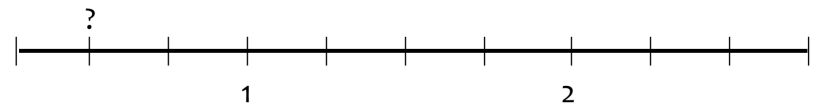
Instructions: Assuming the marks are equally spaced, what number corresponds to the point marked with the "?".

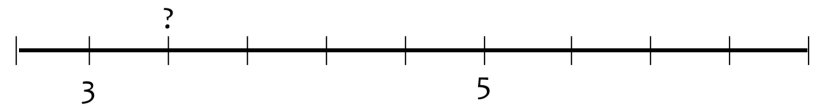
a) 

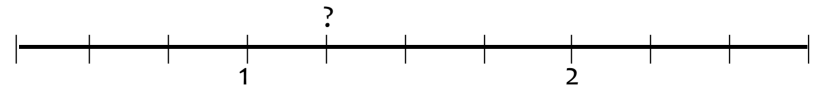
b) 

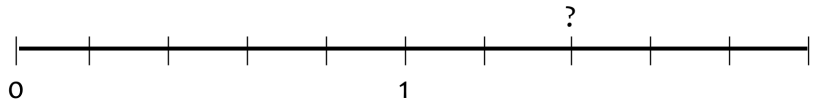
c) 

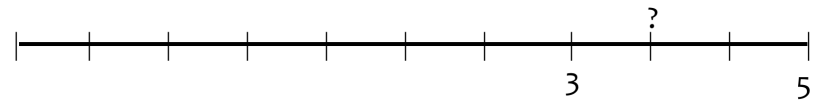
d) 

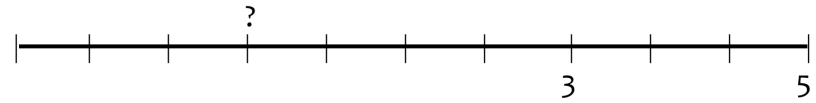
e) 

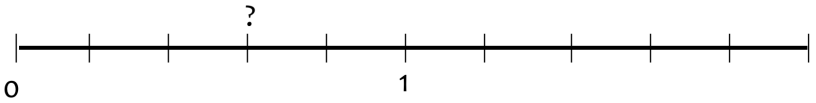
f) 

g) 

h) 

i) 

j) 

k) 

Share Solutions

- Come to consensus in your group of your choices of the least and most challenging problems.
- Be prepared to share your reasoning and justifications with the whole group.

Making Connections

- At your table, Reflect on the task:
  - What were similarities and differences in approaches to this task?
  - What mathematics were you engaged in while you worked on this task?
  - Was there any selection of least and most challenging that surprised you?
  - What did you learn from the discussion?
  - How might your experience today influence your pedagogy?

Copies of the Task at all grade levels

- By Grade Level:
  - Grades K - 2 Whole Number task
  - **Grade 3 - 5: Fraction Task**
  - Grade 6 & 7:
    - Decimal Task or
    - Integer Task
  - Grade 8 & High School: Real Number/Algebra Task

The Mathematics of the Task

- What domain or conceptual category is targeted by this task?
- What content standards?
- What standards for mathematical practice?
- What assessment claims are targeted?
  - Next slide
- What Depth of Knowledge Level?
  - Next slides

The Mathematics of the Task

- What assessment claims are targeted?
  - **Primary Claim 3:** Communicating Reason: Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of other.
  - S**econdary Claim 1**: Concepts and Procedures: Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency.
  - Other Claims include:
    - Claim 2: Problem Solving
    - Claim 4: Modeling and Data Analysis

The Mathematics of the Task

- What Depth of Knowledge Level?
  - If enacted at highest level: DOK Level 3: Strategic Thinking
  - If enacted at a lower level: DOK Level 2: Skills and Concepts
  - Other Levels include:
    - Level 1: Recall
    - Level 4: Extended Thinking

Task Evaluation

- On page 3&4 of the handout is a list of criteria for worthwhile tasks.
- The first 4 criteria are essential for every task.
- The others are recommended, but may not be possible in every situation.

Essential Criteria

- The task:
  1. Is built around Important, useful mathematics
  2. Requires higher-level thinking and problem solving
  3. Contributes to the conceptual development of students' thinking.
  4. Provides formative assessment opportunities

Did the number line task meet these characteristics? How?

Additional Criteria

- The Task:
  5. Allows for multiple entry points and solution strategies
  6. Allows for multiple claims for which evidence can be provided
  7. Encourages student engagement and discourse
  8. Connects to other important mathematical ideas and/or ideas in other disciplines

Did the number line task meet these characteristics? How?

Additional Criteria

- The Task:
  9. Promotes the skillful use of mathematics
  10. Provides an opportunity to practice important skills
  11. Displays sensitivity to and draws on students' diverse background experiences & dispositions
  12. Promotes the development of all students' disposition to do mathematics

Did the number line task meet these characteristics? How?

Choosing a Worthwhile Task

- Of the three tasks listed below, which one is the most worthwhile? Why?
  - To multiply or not to multiply?
  - Running to School
  - Making Cookies

- Discussion

Resources for Tasks:

- Illustrative Mathematics
  - For K-8:
    - http://www.illustrativemathematics.org/standards/k8
  - For 9-12
    - http://www.illustrativemathematics.org/standards/hs
  - For SMP
    - http://www.illustrativemathematics.org/standards/practice
- Inside Mathematics (K-12)
  - http://www.insidemathematics.org/index.php/mathematical-content-standards

Resources for Tasks

- NCTM Illuminations (K-12)
  - http://illuminations.nctm.org/Lessons.aspx
- Annenberg Learner
  - http://www.learner.org/resources/browse.html?discipline=5&grade=0
- Thinkfinity (K-12)
  - http://www.thinkfinity.org/community/thinkfinity-resources
- Questions?
  - CMC-S website (http://www.cmc-south.org/common-core.html)
  - Diane Kinch at dokinch@gmail.com

Strongly Disagree	Disagree	Agree	Strongly Agree
0	1	2	3

Send your text message to this Phone Number: 37607

poll code for this session

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Speaker was engaging and an effective presenter (0-3)

Other comments, suggestions, or feedback (words)

Speaker was well-prepared and knowledgeable (0-3)

Session matched title and description in program book (0-3)

Example: 38102 323 Inspiring, good content

Non-Example: 38102 3 2 3 Inspiring, good content

Non-Example: 38102 3-2-3Inspiring, good content