

CI Task Information

Ordering Numbers – Large Numbers

Task Title:	Ordering Large Numbers
Task Authors:	Marcy Wood (Adapted from task by Larisa Velasco & Marcy Wood)
Learning Goals	
Objectives (mathematical and/or pedagogical):	Use multiple strategies to compare quantities in the hundred thousands and millions.
Common Core Content Standards Addressed:	<p>4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.</p> <p>4.NBT.A.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>
Common Core Standards for Mathematical Practice Addressed:	<p>MP6 Attend to precision</p> <p>MP7 Look for and make use of structure</p> <p>MP3 Construct viable arguments and critique the reasoning of others</p>
Set up Information	
Specific Norms	<ul style="list-style-type: none"> • Everyone records (make sure everyone is writing and understands all of the strategies) • Explore until time is up. • Everyone takes turns.
Specific Roles	I've done this with and without roles
Multiple abilities	<p>In order to succeed at this task, your group will need to do the following:</p> <ul style="list-style-type: none"> • Logical reasoning • Visual reasoning • Making sense of pictures • Making sense of large quantities • Adding, subtracting, multiplying, dividing • Thinking creatively • Ordering based on quantity • Finding connections • Communicating ideas

	<ul style="list-style-type: none"> • Relying on others <p>None of us is good at all of these things, but we are each good at some of them. Together your group has the abilities you need to be successful.</p>
<i>Materials</i> to prepare	Copy and cut up number cards so that each group has one set Copy task cards – 2 for each group of 4 students
Task Enactment	
Launch	On 8.5 x 11 paper, I write three representations of smaller numbers: 30 x 10, 3 hundred + 10, 100 100 100 10 10 (written as separate quantities on one card). I ask two students to come up and write their names on the front of two cards. I then ask students which representation is greater and why. I write their strategies for comparing cards on a large piece of paper. I continue this conversation until I have recorded several strategies.
Closure	<p>Mathematics</p> <ul style="list-style-type: none"> • Compare numbers in standard notation • Solve using algorithm • Use place value reasoning • Use visual strategy • Use addition/ subtraction to reason <p>Groupwork</p> <ul style="list-style-type: none"> • Add to sentence strips • “What did people in your group do that helped the group work on the mathematics?” • Refer to the participation quiz to highlight moves that were especially productive
Any specific directions?	As participants engage in the task, be sure they are only moving cards with their names on them. Also watch to see whether there are groups in which one person has all of the cards in front of him/herself. Has this person taken over the task?
Possible variations – how might this task be adjusted for different content or grade level?	This task can be easily adapted for different content and grade levels. For example, the number cards can be changed so they are all fractions or unit fractions. Also, I have made a variation with multiplication expressions, but this can also be easily changed to work with small quantities for kinder or for addition expressions. There is also a variation that has fractions represented using flags.

Suggested Roles (Adapted from Amy McDonald)

<p style="text-align: center;">Facilitator</p> <p>Gets the team off to quick start Makes sure everyone understands the information on the task card. Organizes the team so they can complete the task Keeps track of time Substitutes for absent roles</p> <p>“Who knows how to start?” “I can’t get it yet... can someone help?” “We need to keep moving so we can...” “Let’s find a way to work this out.”</p>	<p style="text-align: center;">Resource Manager</p> <p>Makes sure the team is using all resources well, especially people. Calls the teacher over for a team question Collects supplies for the team Cares for and returns supplies Organizes clean up</p> <p>“I think we need more information here.” “I’ll call the teacher over” “We need to clean up. Can you... while I...?” “Do we all have the same question?”</p>
<p style="text-align: center;">Recorder / Reporter</p> <p>Gives update statements on team’s progress Makes sure each member of the team records the data Organizes and introduces report</p> <p>“We need to keep moving so we can...” “I’ll introduce the report, then...” “Did everyone get that in your notes?”</p>	<p style="text-align: center;">Reflection Leader</p> <p>Helps the group reflect on their work during the task and at the end. Asks questions about the group’s activity:</p> <p>“What strategies have we used?” “What worked?” “What isn’t working/didn’t work?”</p>

Ordering Large Numbers

Task Card

By Marcy Wood

Directions:

1. Hand out all of the cards. Each person must have at least one.
2. Write your name ON THE FRONT of your card(s).
3. You may ONLY touch or move your card(s). No one else may touch or move your cards.

TASK: As a group, arrange the cards so the quantities they represent are ordered from least to greatest. Find as many different strategies as you can for ordering the cards.

Individual Final Product:

Each person must describe *in writing* each strategy for ordering the quantities on the number cards.

After the cards are in order:

Create a number line using the cards.

Norms:

Explore until time is up.

Everyone takes turns.

Everyone records.

2,000,045

309 thousands - 1 hundred thousand

2 thousands x 100

100,000	1,000	1,000	1,000
100,000	1,000	1,000	1,000
100,000	1,000	1,000	1,000

100,000	100,000	100,000	100,000	100,000
100,000	100,000	100,000	100,000	100,000
100,000	100,000	100,000	100,000	100,000
100,000	100,000	100,000	100,000	100,000

309 thousands - 99,999

2000 thousands

Number of people in Tucson