

## Blowing Things Up: Facilitating Sorting Task Debates

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*What does it mean to BLOW UP a sorting task?*

**Big Idea:** Strategies to facilitate a full class debrief discussion after the class completes a sorting task in small groups that raises controversy, includes high levels of participation, and improves student discourse.

**Class Norms** that promote safe discussions:

1. Persist
2. Take Risks
3. Communicate Purposefully

### Launching the Discussion

- Provide a way for all students to speak in the first 5 minutes of the discussion.

#### Sentence Frames:

- "I agree with \_\_\_\_\_ because..."
- "I respectfully disagree with \_\_\_\_\_ because..."
- "I think \_\_\_\_\_ needs to move to \_\_\_\_\_ because..."

### Strategies for Increasing Student Participation: Class Expectations and Teacher Talk Moves

- Deliberately highlight positive risk taking, and move the ownership of students feeling safe to take positive risks onto the class as a whole.
  - Track participation privately, yet visibly.
  - Publicly and privately praise students for taking positive risks
- Use consistent sentence frames and have students practice talking to partners or small groups first.
- Use frequent Turn and Talks (We recommend between every 4 students who speak to the whole class)
- Mixing between calling on volunteers and non-volunteers
- Include non-verbal participation options, such as students placing an idea on the board

### Problems & Solution Strategies

1. Everyone in the class is convinced that they are correct... but they are ALL wrong!	2. The blown up cards go up, and everything is correct before you have had a chance to debate.	3. The class energy is low, and students do not want to participate.
<i>Have you tried...</i> <ul style="list-style-type: none"><li>• Teacher move: "I respectfully disagree with _____ answers on the board right now."</li><li>• Make a <b>CONTROVERSIAL ISSUES</b> section of the board and move cards over there.</li></ul>	<i>Have you tried...</i> <ul style="list-style-type: none"><li>• Teacher move: Create controversy yourself. "The last class said _____ about this card. Are they correct? Why did they say that?"</li><li>• Teacher move: "What misconception might someone have who thinks _____?"</li></ul>	<i>Have you tried...</i> <ul style="list-style-type: none"><li>• Teacher move: Ask for three responses from non-volunteers about what is up on the board.</li><li>• Teacher move: "This is a difficult problem. The last class did not come to an answer on it. Let's see if we can!"</li></ul>

Are you just getting started with sorting tasks? Try <https://www.map.mathshell.org/lessons.php> for sorting tasks and formative assessment lessons for grades 6 – 12 in all topics, organized by topic.

*How could you incorporate a blown up, large scale sorting task discussion into your next unit? What teacher talk moves or class expectations will you use?*

**Characteristics of Graphs – Sorting Debates**Discrete vs. Continuous

A **discrete** graph is a graph of isolated points. The values between each point on a discrete graph are not a part of the relationship. A **continuous** graph is a graph with no breaks in it. All the points in a continuous graph can be a part of the relationship.

1. Sort the graphs you cut out into two groups: those graphs that are discrete and those graphs that are continuous.

Use the letter of each graph to record your findings.

Discrete Graphs	Continuous Graphs

Increasing vs. Decreasing

2. Sort the graphs into four groups: those that are increasing, those that are decreasing, those that are both increasing and decreasing, and those that are neither increasing nor decreasing. Remember that when you are determining whether a graph is increasing or decreasing, you analyze the graph from left to right. Use the letter of each graph to record your findings.

Increasing Graphs	Decreasing Graphs	BOTH Increasing and Decreasing Graphs	Neither increasing nor Decreasing Graphs

Linear vs. Non-linear

A **linear** graph is a graph that is a line or a series of *collinear points*. Collinear points are points that lie in the same straight line. A **non-linear** graph is a graph that is not a line and therefore not a series of collinear points.

3. Sort the graphs into two groups: those that are linear and those that are non-linear. Use the letter of each graph to record your findings.

Linear Graphs	Non-Linear Graphs