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## Number Talks How-To Guide

Number Talks is a daily component of mathematics instruction aimed at building number sense. Number sense is a student's ability to manipulate numbers as students are visualizing problem solving, performing mental math and flexibly applying mathematical strategies.

MP1: Make sense of problems and persevere in solving them.

**Accuracy:** Demonstrate a deep understanding of mathematics.

**Efficiency:** Ability to produce an efficient, appropriate strategy.

**Flexibility:** Ability to use number relationships with ease.

### Key Components of Number Talks (5-10 minutes max)

- A. Present the class with a problem.
- B. Give thinking time.
- C. Call on a student.
- D. Offer the strategy to the class.
- E. Invite other students to share their strategy.
- F. Come to a class consensus.
- G. Reflect on the process and the strategies used.



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### At-a-Glance: Number Talks

<b>Learning Environment and Community*</b>	<ul style="list-style-type: none"><li>● Safe, academic risk-taking environment</li><li>● Culture of acceptance</li><li>● Mutual respect</li></ul>
<b>Classroom Discussions*</b>	<ul style="list-style-type: none"><li>● Display a problem</li><li>● Provide students with thinking time.</li><li>● Encourage students to think through multiple strategies</li><li>● Students share answers</li><li>● Students defend answers and provide reasoning</li></ul>
<b>Teacher's Role*</b>	<ul style="list-style-type: none"><li>● Facilitate conversation amongst students</li><li>● Focus on important math</li><li>● Listen and learn from students' natural thinking</li></ul>
<b>Mental Math*</b>	<ul style="list-style-type: none"><li>● Number relationships</li><li>● Rely on what they know and understand about numbers</li></ul>
<b>Purposeful Reasoning*</b>	<ul style="list-style-type: none"><li>● Craft problems that guide students to focus on math relationships</li><li>● Design "just right" problems for students</li></ul>

\*Incorrect answers are welcome! Ask students to reason through their strategy and listen to reasoning from their peers. Use wrong answers to unearth misconceptions. Community co-constructs the most efficient and sound strategy for determining the solution.

### Sharing and Discussing Strategies

1. Students do the heavy lifting.
2. Students clarify their own thinking about community understanding.
3. Students consider and test other strategies to see if they are mathematically logical.
4. Students investigate and apply mathematical relationships.
5. Students build a repertoire of efficient strategies.
6. Students decide on efficient strategies for specific problems.
7. Teachers serve as facilitators and guides. Thinking through critical questions:
  - a. How are students using number relationships to solve the problem?
  - b. How would you describe the classroom community and environment?
  - c. Which strategies show accuracy, efficiency, and flexibility?



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d. How are the students' strategies similar to or different from your strategy?

### Question Stems for Facilitators

1. Who would like to share how they got their answer?
2. I heard you say\_\_\_\_\_.did I hear correctly?
3. Did anyone use a different strategy?
4. Can someone explain\_\_\_\_\_’s strategy in their own words?
5. Can you find a similar strategy?

### Zoom Practice Ideas

- Share problems on your screen.
- Read the question.
- Have students put a thumb up, or another indicator when they are ready with a response and a strategy.
- Students share their answers.
- Students share their strategy.
- Have students use consistent materials (notebook, pencil for responses).
- Preset your breakout rooms, share all materials necessary and prepare your simple note taking sheets for breakout rooms.
- Keep a system/folder for notes to live in, to be referenced at the end of the cycle to help inform student progress.

### Data Collection

1. Scribe student responses on the board as students state them.
2. Use a note taking tool to capture misconceptions.
3. We base number talks on math concepts previously taught.
  - a. Gather data from individual students to push forward the conversation.

### How to Advance Equity with Number Talks:

1. Ensures all students have a deeper, richer understanding of mathematics.
2. Students make connections within mathematical content by associating prior knowledge with new content.
3. Students use thinking and talking time to use their known experiences to connect to mathematics.

### Math Language

- Stimulate students' reasoning and cultivate formal math language.
- Purposeful discourse.
- Increased use of math vocabulary.



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- Allow for verbal exploration.
- Access prior knowledge.
- Use of multiple languages to make meaning.

### **Student Discourse**

- Scribing student responses validates their thinking and motivates them to engage in classroom conversations.
- Teachers support student thinking by building on their responses.
- Students support or dispute responses by using reasoning to support their thinking.

### **Additional Resources**

[Secondary Number Talks](#)

[YouCubed](#)

[Number Talk Ideas](#)