Building Relationships and Community in the New School Year

NCTM Webinar
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Thank you
Mission Statement

The National Council of Teachers of Mathematics advocates for high-quality mathematics teaching and learning for each and every student.
NCTM Grants and Scholarships
Mathematics Education Trust (MET)

• 35+ grants, scholarships, and awards available to NCTM Members

• $150,000 annually in funding to teachers, schools, and organizations

• Awards for:
  □ Coursework and Scholarships
  □ Professional Development
  □ Research
  □ Conference Attendance

<table>
<thead>
<tr>
<th></th>
<th>Winter Cycle</th>
<th>Summer Cycle</th>
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<tbody>
<tr>
<td>Opens</td>
<td>August 1</td>
<td>February 1</td>
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<td>Due</td>
<td>November 1</td>
<td>May 1</td>
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<tr>
<td>Notification</td>
<td>February</td>
<td>July</td>
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www.nctm.org/grantsaward

Apply for a Grant!
More than $100,000 in funding available
nctm.org/grants
3 Big Ideas

• Building Relationships
• Building Student Identity
• Building Community
8 Effective Mathematics Teaching Practices

• Establish mathematics goals to focus learning.
• Implement tasks that promote reasoning and problem solving
• Use and connect mathematical representations
• Facilitate meaningful mathematical discourse
• Pose purposeful questions
• Build procedural fluency from conceptual understanding
• Support productive struggle in learning mathematics
• Elicit and use evidence of student thinking
Establish mathematics goals to focus learning

Implement tasks that promote reasoning and problem solving

Build procedural fluency from conceptual understanding

Facilitate meaningful mathematical discourse

Pose purposeful questions

Use and connect mathematical representations

Elicit and use evidence of student thinking

Support productive struggle in learning mathematics
Largest ever score declines in mathematics

**GRADE 4**

- Compared to 1990: Up 23 pts
- Compared to 2019: Down 5 pts

**GRADE 8**

- Compared to 1990: Up 12 pts
- Compared to 2019: Down 8 pts
Establish mathematics goals to focus learning

- Implement tasks that promote reasoning and problem solving
- Build procedural fluency from conceptual understanding

Facilitate meaningful mathematical discourse

- Pose purposeful questions
- Elicit and use evidence of student thinking
- Use and connect mathematical representations
- Support productive struggle in learning mathematics
Building Relationships

IT'S THE RELATIONSHIPS, STUPID
BUILDING RELATIONSHIPS WEEK 1 WITH
Name Tents

www.saravanderwerf.com
What are some of your favorite ways to develop relationships?
Building Student Identity
What is identity?

Mathematics identity is the disposition and deeply held belief that people develop about their ability to participate and perform effectively in mathematics.

(Aguirre, Mayfield-Ingram, and Martin, 2013)
5 Equitable Practices

• Going deep with mathematics
• Leveraging multiple mathematical competencies
• Affirming mathematics learners’ identities
• Challenging spaces of marginality
• Drawing on multiple resources of knowledge (math, culture, family, community)

(Aguirre, Mayfield-Ingram, and Martin, 2013)
9 Equitable Teaching Practices

• Draw on students’ funds of knowledge
• Establish classroom norms for participation
• **Position students as capable**
• Monitor how students position each other
• Attend explicitly to race and culture
• Recognize multiple forms of discourse & language as a resource
• Press for academic success
• Attend to students’ mathematical thinking
• Support development of sociopolitical disposition

Create an emoji for when you...

• think about math
• do math
• encounter a challenge
• overcome a challenge
• figure out something in math
• would rather be doing something else
• are proud of yourself
• are proud of yourself in math
I feel happy because math is fun and we learn in math!!!
I don't know what we are. I don't know what numbers are gonna come.

When I think about math...
What does their emoji tell you?
Mathematics Learning Biography

• How do you feel about learning math?
• How do you think you compare to others in your class?
• What is the best thing that has ever happened in math?
• What is the worst thing that has ever happened in math?
Beliefs Inventory/Survey

- Early in the year
- Quarterly
- Beginning/end of year
- Using scales or smiley faces

<table>
<thead>
<tr>
<th>Younger Math Student Survey Questions</th>
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<tbody>
<tr>
<td>I like math.</td>
</tr>
<tr>
<td>I can do math.</td>
</tr>
<tr>
<td>It's OK to ask for help.</td>
</tr>
<tr>
<td>I like to add, subtract, and work with numbers.</td>
</tr>
<tr>
<td>I like working with math by myself.</td>
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<tr>
<td>I like working with others during math.</td>
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<tr>
<td>I like to talk with my friends about math.</td>
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<tr>
<td>It's OK to make mistakes in math.</td>
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<tr>
<td>I keep trying when math is hard.</td>
</tr>
<tr>
<td>I like answering questions in math.</td>
</tr>
<tr>
<td>I like to use tools in math.</td>
</tr>
<tr>
<td>I am good at math.</td>
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</table>
Beliefs Inventory/Survey

• Early in the year
• Quarterly
• Beginning/end of year
• Using scales or smiley faces

Older Math Student Survey Questions

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>I am sure that I can learn math.</td>
</tr>
<tr>
<td>My teachers have been interested in my progress in math.</td>
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<tr>
<td>If I can’t do a problem, I keep trying different ideas.</td>
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<tr>
<td>Certain people are naturally better at math.</td>
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<tr>
<td>Math is hard for me.</td>
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<td>In mathematics, you are rewarded for your efforts.</td>
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<td>I get a sense of satisfaction when I solve a math problem.</td>
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<td>I’ll need math in my future.</td>
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<tr>
<td>Math is worthwhile.</td>
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<tr>
<td>I can do well in math.</td>
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<tr>
<td>I prefer to work with others when doing math.</td>
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<tr>
<td>My teachers think I’m the kind of person who could do well in math.</td>
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</table>
What are some of your favorite ways to develop student identity?
Building Community
Identity and Community

Community is a collection of identities that interact with one another in supportive or destructive ways.

Norms are created, reinforced, and updated.

Built and maintained norms for productive struggle.
Establishing Norms

Take risks!

- share my ideas even if I'm unsure
- ask classmates about their ideas
- be OK if someone asks me a question about my thinking

- calling or yelling out
- having to be first
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<th>Expression</th>
<th>Result</th>
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<td>9</td>
</tr>
<tr>
<td>4 4 4 4 4 4</td>
<td>10</td>
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</table>
4 4’s

• \[4 + 4 + 4 / 4 = 3\]
• \[4 + 4 + 4 / 4 = 9\]
• \[(4 + 4 + 4) / 4 = 3\]
How many dots do you see?
How do you see it?
How many dots do you see?
How do you see it?
How many dots do you see? How do you see it?
How many dots do you see?
How do you see it?
How many dots do you see?
How do you see it?
About what is the value of the bowl of pennies?
About what is the value of the bowl of nickels?
Which one doesn’t belong?

9   16
25  43

Wodb.ca
Classroom Videos

Brains Grow and Change

The Importance of Struggle

Believe in Yourself
What are some of your favorite ways to build community?
Accountability Partner