Orchestrating Discourse in the Math Class

Santa Maria-Bonita School District

Presented by: Melissa Canham

August 7, 2015
Today’s Objective

- Teachers will understand the importance of teacher moves that will increase the levels of student engagement.
### Levels of Classroom Discourse

<table>
<thead>
<tr>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students carry the conversation, Teacher only guides. Students to ask questions and direct engagement.</td>
<td>Teacher is at the front of the room and directs. Questions serve to keep students focused on correctness. Students provide short answers when asked.</td>
<td>Teacher is only questions. Teacher questions have little prompting from students. Questions serve to keep students focused on correctness. Students give short answers and ask for support.</td>
</tr>
<tr>
<td>Teacher questions are encouraging. Students are encouraged to ask questions and think for themselves.</td>
<td>Teacher questions are providing answers when prompted. Students are not focused on student thinking. Students believe that their ideas and thinking are important.</td>
<td>Teacher questions are providing answers when prompted. Students are not focused on student thinking. Students believe that their ideas and thinking are important.</td>
</tr>
<tr>
<td>Teacher encourages the sharing of math ideas. Teacher may probe student thinking. Students learn to create mathematical drawings to depict their ideas.</td>
<td>Teacher questions are providing answers when prompted. Students are not focused on student thinking. Students believe that their ideas and thinking are important.</td>
<td>Teacher encourages the sharing of math ideas. Teacher may probe student thinking. Students learn to create mathematical drawings to depict their ideas.</td>
</tr>
<tr>
<td>Students label their thinking. Students believe that their ideas and thinking are important.</td>
<td>Students label their thinking. Students believe that their ideas and thinking are important.</td>
<td>Students label their thinking. Students believe that their ideas and thinking are important.</td>
</tr>
<tr>
<td><strong>Mathematical thinking</strong></td>
<td><strong>Mathematical thinking</strong></td>
<td><strong>Mathematical thinking</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Building student responsibility within the community</strong></td>
<td><strong>Building student responsibility within the community</strong></td>
<td><strong>Building student responsibility within the community</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fig. 11, Levels of classroom discourse. From Hufford-Ackles, Fuson, and Sherin (2014), table 1.</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Orchestrating Classroom Discourse

- **Design of Instruction**: writing or selecting a problem or task
- **Anticipating** likely student responses to cognitively demanding mathematical tasks
- **Monitoring** students’ responses to the tasks during the explore phase
- **Selecting** particular students to present their mathematical responses during the discuss-and-summarize phase
- Purposefully **sequencing** the student responses that will be displayed
- Helping the class **make mathematical connections** between different students’ responses and between students’ responses and key ideas

Purposeful Pedagogy Model (TDG; Cognitively Guided Instruction) and Orchestrating Classroom Discourse (Stein et al.)
What strategies do you use to keep your students engaged during the share out?
While viewing...

Take note of:

- What questions/moves is the teacher doing to keep students engaged and to help students make mathematical connections?
- How do the students respond?
6 children want to share 8 brownies equally. How much brownie should each child get?

Adrian
What Did You Notice?
Your Turn

The zookeeper has 4 cups of frog food. His frog eats $\frac{1}{3}$ cup of food each day. How long can he feed his frog before the food runs out?
Anticipating Likely Student Responses

Considering a 4th grade class, how do you think students might approach this task?

◦ How might students interpret the problem?

◦ What strategies, both correct and incorrect, might students use?

◦ As a teacher, what strategies would you like your students to learn for this problem?
Number Yourselves 1 – 5

1. Teacher – practice asking questions to keep the students making mathematical connections
2. Student – you will explain the student strategy provided
3. Student
4. Student
5. Student
Reflection

What ideas from this session are you planning on implementing in your classroom?
Common Components of CGI Classrooms

- Problem solving is the focus of instruction; teachers pose a variety of problems.
- Many problem-solving strategies are used to solve problems. Children decide how they should solve each problem.
- Children communicate to their teachers and peers how they solved the problems.
- Teachers understand children’s problem-solving strategies and use that knowledge to plan instruction.
Thank You!

Melissa Canham: mcanham@dusd.net

DUSD CGI Website: www.dusd.net/cgi