WELCOME!

RISK TAKING IN THE MATHEMATICS CLASSROOM

Karen Togliatti
In an IDEAL math classroom......

“Students will take an academic risk and rely on their own thinking and the thinking of other students.”

“Listen and ask questions to each other to clarify information; respectfully challenge ideas; make conjectures.”

“Explain their reasoning; construct viable arguments and critique the reasoning of others.”

“Communicate using appropriate mathematical language both orally and in writing.”

“Work well in a variety of grouping structures.”

Instructional Practices Inventory https://mathsolutions.com/ipi/
What does it mean for a student to take a risk?

Risk taking is “the preparedness of a student to attempt to answer a question when not certain of the result.” – Atkins, et. al

Goals of this session:

- Reflect on approaches to tackling difficult problems.
- Examine language that supports development of a classroom environment supportive of taking mathematical risks.
- Discuss teacher moves and practices that enable students to engage in mathematical risk-taking.
Deep breath…jump in!

How many different triangles can you make on a circular pegboard that has nine pegs?
Reflection: When you’re working on a difficult math problem….

<table>
<thead>
<tr>
<th>What supports your learning?</th>
<th>What is not helpful?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Think time</td>
<td>• When someone shouts out an answer</td>
</tr>
<tr>
<td>• Working with a partner</td>
<td>• When someone says, “This is easy!”</td>
</tr>
<tr>
<td>• Time to work alone</td>
<td>• Telling me how to solve the problem</td>
</tr>
<tr>
<td>• Talking out loud</td>
<td>• A time limit</td>
</tr>
<tr>
<td>• Drawing pictures</td>
<td></td>
</tr>
</tbody>
</table>
Activity: Obedience vs. Risk Taking

- Given a set of teacher comments, sort into two lists: one in which the comment supports an “obedient” math student and the other in which the comment supports a “risk-taking” math student.
- Compare your lists to others at your table.
- Reflection: How can you incorporate more “risk-taking” comments in your teaching?
• Students praised for their intelligence were more likely to avoid difficult tasks and had adverse reactions to failure.

• Students praised for their effort were more likely to attempt difficult problems and work at them longer.

• Students who are more likely to avoid risk-taking have a performance orientation (seek social affirmation rather than content understanding).

• Teachers need to do more than just praise effort. These words need to be supported by the teacher’s actions.

• "You can't just declare that you have a growth mindset. Growth mindset is hard. Many educators are trying to skip the journey.‘‘ – Carol Dweck
Everyone Can Learn Math to the Highest Levels.
Mistakes Are Valuable.
Questions Are Really Important.
Math Is about Creativity and Making Sense.
Math Is about Connections and Communicating.
Depth Is Much More Important Than Speed.
Math Class Is about Learning, Not Performing.
## Discussion:
What teacher moves....

<table>
<thead>
<tr>
<th><strong>SUPPORT RISK-TAKING</strong></th>
<th><strong>SUPPRESS RISK-TAKING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Mind Mining</td>
<td>□ Acknowledge product over process</td>
</tr>
<tr>
<td>□ Elaborate</td>
<td>□ Value speed as measure of student success</td>
</tr>
<tr>
<td>□ Divergent Blast</td>
<td>□ Demonstrate methods that students reproduce</td>
</tr>
<tr>
<td>□ Think-Pair-Share</td>
<td>□ Teach students to accept rules, procedures, and methods without question</td>
</tr>
<tr>
<td>□ “What, So-What, Now-What”</td>
<td></td>
</tr>
<tr>
<td>□ Pre-Briefing</td>
<td></td>
</tr>
<tr>
<td>□ Model Mistakes</td>
<td></td>
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</tbody>
</table>

https://affectiveliving.com/2015/06/22/7-ninja-moves-for-increasing-academic-risk-taking/
Chase Mielke
Do the one thing you think you cannot do. *Fail at it.* Try again. Do better the second time. The only people who never tumble are those who never mount the high wire. *This is your moment. Own it.*

~Oprah Winfrey
Resources

Moodle
(in five minutes)
Where do I go?

learning.imsa.edu
How do I login?

If you already have a Moodle account, use this login. Enter your username (email address) and password (you remember this, right?).

If you are a new teacher, you will follow this process to set your password, and then login using the system to the right.

Users (class participants): For username enter the full email address that you registered with. E.g. "joe.schmoe@ips101.net".

Before logging into this site for the first time you must first set the password for your account:
1. Visit the self-service password reset page, enter your email address there as the username, and submit. This must be the email address that you used when registering for a course. That email address becomes your username here.
2. Read your email and look for a message from IMSA Helpdesk about IMSA Password Reset. Follow the link in that message and enter your desired password on the page that comes up. Close that page when done.
3. Login on this page using the password that you just set.

You only need to do steps 1 and 2 once as long as you remain enrolled in a course here.

IMSA staff and residential students: For username enter your usual IMSA username, not email address. I.e., do not include "@imsa.edu".
What do I use this for?

- Access all meeting resources (PowerPoints, handouts, lesson plans, etc.)
- Post follow-up questions or suggestions for other specialists by meeting date
- Share cool things you’ve seen in the PLC Sharing Space
- Post any events at your school in the News section