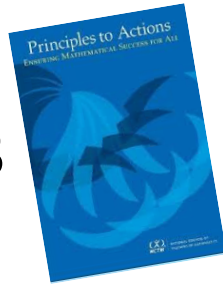


What are your top 3 strengths?

PtA Mathematics Teaching Practices



- ① Establish mathematics goals to focus learning.
- ② Implement tasks that promote reasoning and problem solving.
- ③ Use and connect mathematical representations.
- ④ Facilitate meaningful mathematical discourse.
- ⑤ Pose purposeful questions.
- ⑥ Build procedural fluency from conceptual understanding.
- ⑦ Support productive struggle in learning mathematics.
- ⑧ Elicit and use evidence of student thinking.

What are your top 3 Mathematics

Joe

Teaching Practice Strengths?

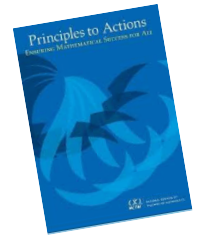


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Choose one Mathematics Teaching Practice Teaching Strength and describe how you know.
What is your evidence?

Joe



2. Implement tasks that promote reasoning and problem solving.

Joe

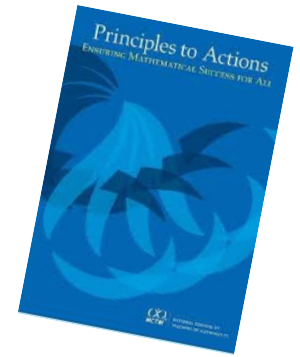
How do you know?
What is your evidence?

“Students say, ‘hey, this is really cool how we end up learning math. All of sudden we are learning and we didn’t realize it”



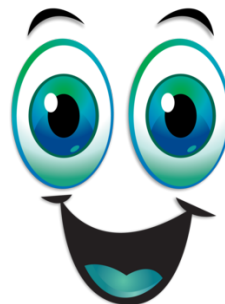
JOE

How do you know? What is your evidence?

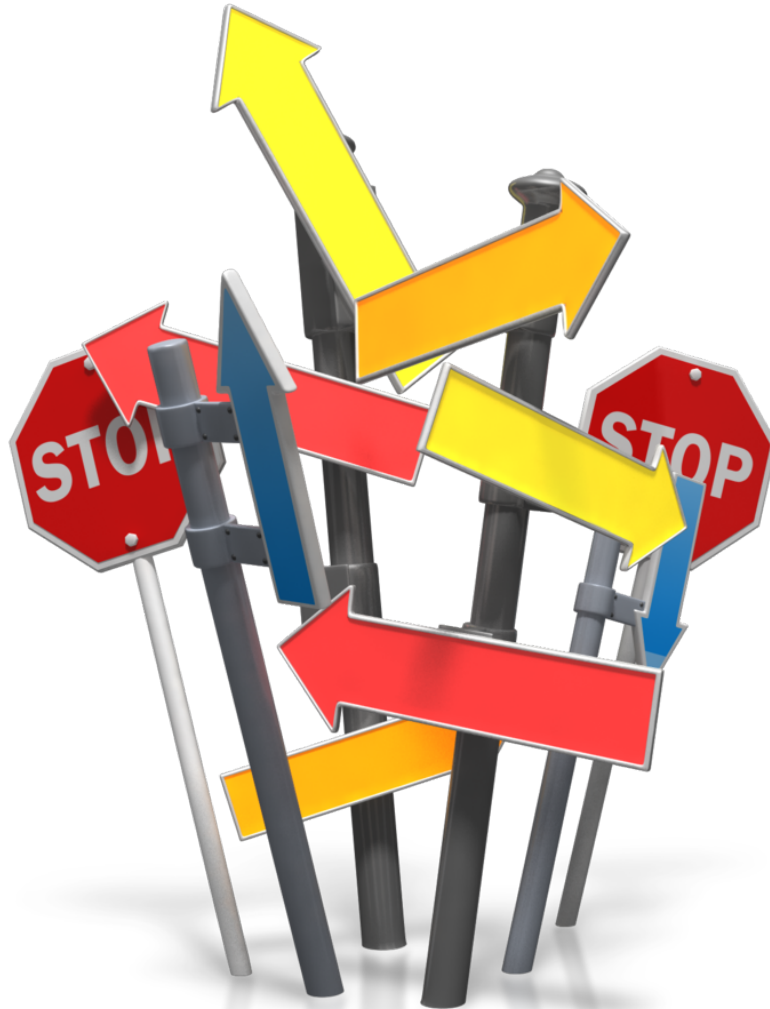


“It is the flow, you know when you look around the room and students are talking to each other, working on the task, and getting excited and proud of themselves.”

“I see all the connections the students make. I planned for one or two and they are going crazy making connections in the task.”



Now identify ONE challenge in your mathematics classroom.



How can you use your strength to solve your challenge? What do you need to do?

“Hmmm. I want to use a variety of assessments more. I could do this by posing the questions I usually ask as whole class discussions as individual questions. I think I could then collect data from that and get a better idea of how individuals understand the cont



JOE

The Power of Yet

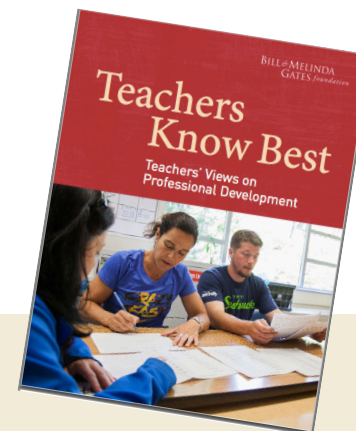


“A safe environment where I feel comfortable being a risk taker learning, sharing, and questioning.”



“We need time to talk...
process...reflect...we don't
need to be saved...let us
save ourselves” (Teacher
Interview, October, 2015).





COLLABORATION: CURRENT VS. IDEAL

Focus group question: Which images represent your current experience and the ideal state of collaborative professional development?

CURRENT EXPERIENCE	<p>Lack of engagement</p> <ul style="list-style-type: none"> • "Feels like I'm being held hostage" • "I would rather be somewhere else" 	<p>Poor use of time</p> <ul style="list-style-type: none"> • "Not another meeting" • "Not one more thing I have to do" • "Don't read PowerPoint presentations to me" 	<p>Poorly planned/executed</p> <ul style="list-style-type: none"> • "People might have good knowledge but the pieces don't fit together" • "Need an agenda and rules ... otherwise it's a social hour"
IDEAL STATE	<p>Energizing</p> <ul style="list-style-type: none"> • "Makes me feel fired up" • "Energized to go back to my classroom" 	<p>Supportive</p> <ul style="list-style-type: none"> • "Makes me feel supported" • "Feel accountable to show up to help each other" • "Bounce ideas off of each other" 	<p>Hands-on/scenario-based</p> <ul style="list-style-type: none"> • "Specific activities to do" • "Brainstorm solutions for a specific teacher" • "Gives me what I need in bite-sized pieces"

Source: Teacher focus groups, March 2014

What is Engaged
Professional Learning
Principle 4?

Engaged Professional Learning 4

Using our Strengths to Leverage our
Challenges.



FOR



Let's Look at Student Work

Protocol

What do you notice?

What are the strengths of the student (s)?

What are the potential misconceptions?

What might be your next instructional steps?

Protocol

1. What do you notice?
2. What are the strengths of the student (s)?
3. What are the potential misconceptions?
4. What might be your next steps?

$$\frac{9}{10} - \frac{0}{3} =$$
$$\begin{array}{r} \frac{9}{10} \\ - \frac{0}{3} \\ \hline \frac{9}{10} \end{array}$$
$$\frac{5}{6} - \frac{1}{2} =$$
$$\begin{array}{r} \frac{5}{6} \\ - \frac{1}{2} \\ \hline \frac{2}{6} \\ \frac{1}{3} \end{array}$$

Estimate $\overset{50}{49} \times \overset{10}{5} = \underline{\hspace{2cm}}$

$$\begin{array}{r} 49 \\ \times 5 \\ \hline 245 \end{array}$$

Strengths

Misconceptions

Next Steps

Strengths	Misconceptions	Next Steps

Focus on the STUDENTS

Using student work examples – Turns the focus on students, solves practical problems and uses student data.

Evidence should:

- Provide a window into students' thinking;
- Help the teacher determine the extent to which students are reaching the math learning goals; and
- Be used to make instructional decisions during the lesson and to prepare for subsequent lessons.

Formative Assessment

“Effective formative assessment involves using tasks that elicit evidence of students’ learning, then using that evidence to inform subsequent instruction” (NCTM, 2014, p. 95).

What is the Engaged Professional Development: 5

Engaged Professional Learning 5

Build an inquiry community by examining evidence and data.

Use a protocol support

What are the themes?

What are the themes?



Teacher
Centered

What are the themes?



Teacher
Centered

Focus on
STRENGTH
S



Discourse

What are the themes?



Teacher
Centered



Focus on
STRENGTH
S



Discourse

Application

What are the themes?

Teacher
Centered

Focus on
STRENGTHS

Thank you!

Questions?

I wish you the best!

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References

Birman, B. F., Desimone, L., Porter, A. C., & Garet, M. S. (2000). Designing professional development that works. *Educational Leadership*, 57(8), 28-33.

Cooperrider, D., & Whitney, D. D. (2005). *Appreciative inquiry: A positive revolution in change*. Berrett-Koehler Publishers.

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915-945.

Gates Foundation. (2014). *Teachers know best: Teachers' views on professional development*. Retrieved from <https://s3.amazonaws.com/edtech-production/reports/Gates-PDMarketResearch-Dec5.pdf>

Guskey, T. R. (2003). What makes professional development effective?. *Phi Delta Kappan*, 84(10), 748.

Hill, H. C. (2009). Fixing teacher professional development. *Phi Delta Kappan*, 90(7), 470.

Ingvarson, L., Meiers, M., & Beavis, A. (2005). Factors affecting the impact of professional development programs on teachers' knowledge, practice, student outcomes & efficacy.

National Council of Teachers of Mathematics (NCTM). (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA: Author.

Pink, D. (2009). *Drive: The surprising truth about what motivates us*. New York: Riverhead Books.

How will the teacher communicate expectations for reasoning, thinking, and collaborating while problem solving?

How will the teacher engage the students in the learning (so that the students are as equally engaged as the teacher?)

What explicit connections should be made from the task to mathematical understanding?

What are three things that will happen in the closure of this task?

What questions might the students ask?

Which math practices should students exhibit?

Kobett, NCTM, 2015

How might the arts connect to this task?

How might you extend this lesson if a group finishes before other groups are done?

What questions might you ask while students are working?

How might you support students persevering through the task?

How might you motivate a struggling learner?

How might you differentiate the task for differing student populations?

Select an individual student and imagine how the student will respond to the task.

How do you envision students will work together?

What questions might students pose while working on the task?

How might you support student collaboration?

How might you support students in exhibiting SFMP 3? (Critique the reasoning of others?)

How might you differentiate the task for differing student populations?

How will the teacher facilitate student collaboration? What specific teacher moves might you observe?

What facilitating questions will be used to open the lesson?

What does the teacher look like and sound like during this lesson?

What type of environment must the teacher develop for students to engage in this task? What does this look like?

How does the teacher organize the physical space for this lesson? Does this look different than other lessons? How/why?

How does the teacher establish an environment for students that signifies respect and rapport?

How will the teacher close the task?
What does this look like?

How will the teacher select groups to share? What order?
Why?

What explicit connections should be made from the task to mathematical understanding?

What are three things that will happen in the closure of this task?

How will the teacher ensure the students understand the point of the task?

What happens tomorrow?