

NEWS YOU CAN USE

THE CPM EDUCATIONAL PROGRAM NEWSLETTER

SEPTEMBER 2018: IN THIS ISSUE

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The TRC Takes on Manhattan

Ideas on debriefing and circulation

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HOW ABP CHANGED MY WORLD

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While completing some coursework for my Master's degree in curriculum and instruction, with an emphasis in mathematics, I stumbled upon CPM in one of my resources. Though I do not recall what the resource highlighted, I do recall investigating CPM a little bit further by exploring its website. Interested in improving my practice, the professional learning tab grabbed my attention. I noticed the link for the Academy of Best Practices (ABP), and I read through the summary. The words "We cover the cost of travel to and from Seattle as well as the room and meals at Seattle Pacific University" jumped out at me. With the motivation for a free trip as my new top priority, I quickly filled out my application and submitted my references.

Before continuing, it might be helpful to know a little bit about my background. I grew up attending a small Christian school, attended a small Christian college, and now teach at a small Christian school. I hesitate to call it a bubble, but to say the least, I had very limited experiences outside of my Christian community. Filling out the application, I wondered if CPM would even consider a teacher like myself, who could only influence such a small community of learners. Needless to say, I got the news that I had been selected to attend ABP. Unfortunately, the dates of ABP overlapped with my family vacation. Ultimately, my decision to attend became my decision to change my world.

My flight arrived much later than the rest of the group, as I had flown right from small town Minnesota, where my family had been vacationing. Fortunately, email communications allowed me to connect with another ABP participant at the airport and we made our way to Seattle Pacific University together. This connection sparked the beginning of many connections to come.

I woke up the next morning, greeted by my two apartment-mates, who had fallen asleep before I arrived. We made our way to breakfast together and then to the classroom. Once I was comfortable with the three people that I had met, I had planned on sitting with them in class. However, the ABP coordinators had better plans for me. As I walked in the classroom, I had to grab a card and find a table with a description that matched the image on my card. My card had an image of somebody who I did not recognize, but I used a process of elimination to put myself at the "royalty" table. It was here that I made connections with three new teachers. After lunch, it became clear to me that I would get to know every person in the group, as the ABP leadership team modeled another grouping strategy for us.

The greatest opportunity to get to know fellow ABP participants took place outside of the classroom. It would have delighted me to attend each of the after-hours adventures, but unfortunately I had other work to get done for my master's program. Some nights, however, I put aside my master's degree homework and attended social outings, such

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MORE MATH FOR MORE PEOPLE

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as kayaking along Lake Union with a beautiful skyline view or attending a Mariners game. Building these relationships helped me to see my colleagues as friends, which will make following up throughout the year a less intimidating task.

The entire week blew me away with more and more strategies that I can use in my classroom. Building effective teams of students, engaging students in productive struggle, utilizing algebra tiles, and implementing meaningful tasks stood out among the practices. However, the topic that I thought would have the least application to my own setting ended up changing my thinking the most: social justice and equity.

Our presenters, Nora Ramirez and Linda Fulmore, painted a picture for us of the inequities in the wealth gap. Coming from a conservative background, I heard the presentation with the mindset that those in the top 10% of our nation's dispersal of wealth have earned their way there and that those at the bottom deserve to be there because of the choices that they have made. When watching the presentation, I began to

think about my own perspectives. What once seemed fair to me now seemed unfair. I wondered how my students might respond to the same presentation, what discussions might arise, and about the value of incorporating social justice into the math classroom. Without pushing an agenda, the speakers caused me to challenge my own thinking. I want that same experience for my students.

We concluded the week in a whole-group circle, sharing our highlights and biggest takeaways from the week. To my surprise, my fellow ABP participants shared the same feelings that I did. Though mathematics stood as the focus for the week, many of us saw the relationships we established as more meaningful. Without the relationships that we built, our learning throughout the week would have meant nothing. We need relationships to share ideas, to challenge the thinking of others, and to hold one another accountable. Now we can change the world by developing this thinking in our students. Thank you to CPM for providing this wonderful opportunity. I now feel equipped to change the world.

ABP 4.0: TIME TO REFLECT

Jeff Connelly, Long Island, NY, jconnelly@ssdsnassau.org

During the month of May 2018, I found myself checking my emails a bit more than usual. I was eager to hear back from CPM as to whether or not I had been accepted into the Academy of Best Practice 4.0 program. When the email finally came with an invitation to join 31 other new teachers in Seattle, I was thrilled and extremely grateful for the opportunity. If anyone had asked me during June or July what I was most looking forward to, I responded by saying, "boarding my flight to Seattle." It is funny because I had no idea what to expect and hoped that it would not be anything like previous professional development programs I had attended. I certainly did not expect to form such powerful bonds with total strangers, as well as, be assigned a critical friend who I look forward to growing with as an educator. I also did not expect that this would become one of the best weeks of my life.

The arrival day was a smooth travel day from New York to my dorm room at

Seattle Pacific University, thanks to very clear instructions and communication from the people at CPM. I spent the day doing touristy things with someone who would become a great friend by the end of the week. The day ended with a meet and greet and an icebreaker that included the entire cohort.

The first day we were introduced to team roles and discussed the benefits of incorporating them into the classroom.

I started to consider all the ways mathematical content can be delivered in such a way that the students remain curious, engaged, and eager for more.

It was an impactful and appropriate first day activity because we put the newly framed skill to practice by spending the rest of the week assigned to different team roles. The highlight

of the day, though, was learning about algebra tiles—which is something I had only heard about previously. Diane Briars talked to us about the meaning of professionalism. I realize now that I am not only responsible for the learning in my own classroom, but for classrooms and mathematical learning around the world.

The second day of class focused on cognitive demand, assessment, and

feedback. During our time with Aaron Brakonieccki we identified the features that a great story is comprised of. He spoke to us about how the sequence of events can impact the effect of a

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story. We connected these ideas to math stories, which is when my mind began reeling. I started to consider all the ways mathematical content can be delivered in such a way that the students remain curious, engaged, and eager for more.

After an exciting two days, we were all eager to see what the third day had in store for us. In the morning we focused on the idea of productive struggle and got to experience it for ourselves. We were led by one of our guests for the week, Tom Sallee, who presented us with one of his “Tom’s Problems.” We spent close to two hours working on this problem and part of that time included us participating in rough draft talk, which was something new to me. I enjoyed this approach to “Tom’s Problem” because it gave me the chance to brainstorm and share ideas without the fear of saying something wrong. It gave me time to process, make connections, and ask questions. This is one of the many things I will look to incorporate into my classroom. The captivation continued into the afternoon when we met with Dan Meyer, who has become somewhat of a celebrity in the math education world. Dan spoke to us about the element of surprise and its effect in the classroom. He led us through tasks and posed questions that hooked us immediately. We wanted to compare our predictions with others and were eager for Dan to reveal solutions. We were frustrated when our predictions were incorrect and celebrated when they were correct. This idea of mathematical surprise made great connections to the previous day’s focus on math stories.

Two major themes of the fourth day of class were equity and social justice. To lead us through these themes, we welcomed Nora Ramirez and Linda Fulmore into our classroom. Both presentations provided insight into major inequities that exist not only in mathematics classrooms, but in

society as well. As professionals, we are responsible for addressing gaps in mathematics achievement expectations for all student populations, providing each student access to meaningful mathematics experiences, and working collaboratively with our colleagues to get rid of inequities in student learning. Both presenters reinforced key beliefs that education should be about learning, not achievement, and that in the end we want our students to become good people.

Waking up in disbelief that it was day five of class, our final day, we made our way to the classroom. Being told that Eli Luberoff, founder of Desmos, was going to lead us through the power of technology evoked tangible energy in the room. With an audience whose knowledge of and experience using Desmos ranged from novice to advanced, Eli certainly had his work cut out for him. He led us through activities and demonstrated how powerful Desmos can be used as a bridge to connect ideas with understanding. He left us with the desire to learn more about the use of his technology and how it can be further used as an effective tool for instruction. Another significant moment for me during Eli’s presentation was when he spoke about math being universal and the need for us to attack ideas, not people. This left me thinking of ways that I will emphasize both ideas in my classroom. After Eli’s presentation, we continued, just as we had everyday since Monday, exploring the use of algebra tiles. Our experience with the tiles ended with the beautiful topic of completing the square. I will never teach this topic in the future without the use of these tiles. They allow such an abstract concept to become concrete, visible, and accessible to all students.

The highlight of the week was being a student and having Karen, Sharon, and Mark as teachers, and Mallory and

Lucy as mentors. What made this week so valuable was that we were not only introduced to and informed about best practices in education, but we got to experience them for ourselves. We got to feel what it is like to be in a classroom centered around the students. We were given a safe space to share our ideas and have them be challenged. We participated in activities and truly worked collaboratively with one another. As students who are all teachers, we got to observe how the best practices are developed in the classroom. As everyone shared takeaways from the week it became common to hear how energetic this experience was. It was one of the first times I have heard teachers say they are eager for summer to end and get back into the classroom. In the end, it became clear that we were ready to catalyze change.

Andrew,

It takes a special person to have a genuine impact on people and ideas. During our week in Seattle, that’s exactly what you did while in the presence of your 31 peers, two mentors, and three instructors. You enlightened us with your responses, challenged us with your questions, and made us laugh with your unique sense of humor. We will carry out your mission and your contributions to math education will never end. Keep rooting for the Mariners!

With all our love,
ABP 4.0

MY EXPERIENCE AT THE ACADEMY OF BEST PRACTICES FOR VETERAN CPM TEACHERS (ABP-V)

Shauna Brion, Mondovi, WI, sbrion@mondovi.k12.wi.us

Teacher of CPM for eight years, and still learning! I was fortunate to be chosen as one of the attendees for ABP-V 2.0 for veteran teachers held in Seattle, WA, July 30-August 3, 2018. I decided this was an opportunity that I could not pass up. The leaders of ABP-V are so friendly and knowledgeable. Our group of veteran CPM teachers was led by Cheryl Tucker, Bruce Brusoe, and Laura Lethe. They scheduled a week full of learning with great activities and great speakers.

The focuses for the week were on cognitive demand, math as a storyline, effective study teams, equity, technology, working with learners who struggle, goal setting, and time to communicate on questions and concerns that the attendees had in teaching mathematics. We received great information on cognitive demand and practiced identifying key words that led to low potential problems or high potential problems. We analyzed math problems and decided what level of cognitive demand they held. We looked at mathematics as a storyline and discussed the qualities of a good story. After brainstorming ways to bring “story” into our math tasks, we created stories for different chapters and considered the overall story in the CPM textbooks. The topic of “mathematics being fair and equitable for all” generated a great discussion and we used role playing to better understand it. We used the book *Principles to Actions* as a reference for our conversation on equity; I highly recommend it. We also met the creator of Desmos and learned new activities for incorporating Desmos into our classrooms.

Throughout the week, the facilitators did a great job modeling the teacher’s role in the classroom. Each day they assigned different roles to each member of our team: Facilitator, Task

Manager, Recorder/Reporter, and Resource Manager. They demonstrated different Study Team and Teaching Strategies, started each day with new ice breakers, and modeled various ways to form teams. Watching how they used these important strategies throughout the academy really helped me understand how to use them myself in the classroom. In addition, we were fortunate to hear excellent speakers for each of these topics, including Dan Meyer, Eli Luberoff, Tom Sallee, Aaron Brakoniecki, Nora Ramirez, and Linda Fulmore.

Along with learning relevant, up-to-date, research-backed information to use with students in the classroom, I networked with veteran teachers and developed great friendships and relationships with the other ABP-V attendees from around the country. The evenings allowed us to make connections and build relationships as we spent time together exploring Seattle. The knowledge that our cohort of veteran teachers brought to the institute, the information that the leaders provided, and the insights that the speakers shared gave me invaluable tools that I will apply in my classroom. It is hard to put into writing everything I learned or fully capture the experiences I had; but without a doubt, ABP-V 2.0 inspired and re-energized me as a teacher. I would highly recommend attending the ABP if you are looking for knowledge that can be immediately applied in your classroom and an experience that you will not soon forget.

WHAT DO YOU WONDER?

Show your students the image at right and ask them “*What do you wonder?*” Encourage students to share their wonderings, and then have students discuss possible answers in their teams. How many paper clips are sold each year? Do schools buy more paper clips than any business? How many paper clips are unbent each year? How long does it take to make one paper clip? Are all the blue paper clips made, then the reds, then ...?



TRC TAKES MANHATTAN

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As a new school year begins to unfold, each one of us dreams about what our year will look like. We ponder all the possibilities and begin thinking about how those possibilities can become reality in our classrooms. Like thousands of other teachers, the group of Teaching Redesign Corps (<http://cpm.org/trc>) teachers did the same; however, last school year was a little different. Our classroom dreams and possibilities turned into reality and became contagious as we shared them on a bigger venue.

This past April, three TRC members (Ilene Kanoff, Penny Smits, Thor Tillberg) traveled to New York City to present their paper, “How Can A Growth Mindset Culture be Created That Increases Student Willingness to Investigate Mistakes as Opportunities for Learning? A Further Investigation” at the American Educational Research Association (AERA) conference. The conference entitled, “The dreams, possibility, and necessity of public education,” was the catalyst that brought 15,000 educators and researchers from around the world together to share their findings. It did not matter whether the speaker was a university professor, a classroom teacher, or a researcher, we all had a common goal: to do what is best for students.

According to their website (<https://www.aera.net/>) AERA’s mission “strives to advance knowledge about education, to encourage scholarly inquiry related to education, and to promote the use of research to improve education and serve the public good.” Founded in 1916, AERA has 25,000 members, both within the United States and internationally, who work in a variety of research areas. The goal of the organization is to provide a medium

for the dissemination of research and this annual conference serves as one way for this to be accomplished.

This was the first time a TRC group’s paper was accepted by AERA and only the second time a paper was submitted for consideration. For CPM, the paper and subsequent presentation represents a milestone, in that AERA is a recognized leader in the field of education research and its application.

At the conference, there were many avenues to share research, from presentations to roundtable discussions to even poster presentations. Our research was presented at a roundtable entitled “Constructing Learning Opportunities Through Teacher Research.” The setting was a large ballroom where multiple round table discussions were occurring simultaneously. At our roundtable, there were two other teacher researchers that were presenting their research like us along with observers that were listening to our findings.

Our presentation began with sharing a common occurrence that inevitably happens in many of our classrooms when a student makes a mistake. Students crumple up their paper, hide their mistakes in a folder, or discard them as if they never happened. Students do not like making mistakes; in fact they dislike it so much that in many cases they would rather not even try. The new mantra for some is that it is better to not try at all than to try and risk failure in view of their peers. Mistakes are viewed in these cases not as essential tools of learning, but as failures, something to cover up or discard. This view can be crippling in a math classroom where mistakes are inherent to the learning process.

In came the “possibility” to change this and our findings on growth mindset and mistakes.



Ilene Kanoff, Penny Smits, and Thor Tillberg all smiles after their talk at AERA in NYC.

Our group of TRC teachers set out to change not only how students felt about making mistakes, but also empower them with tools to handle mistakes once they were encountered. Our purpose was to create a culture that views mistakes as essential tools for learning by providing students with a variety of opportunities to productively learn from their own mistakes and the mistakes of others. We taught students about growth mindset and infused it into our classroom culture throughout the entire school year. When students were ready, we broached the subject of mistakes and created activities that helped students harness the power of mistakes to utilize them as a learning tool. This combination of growth mindset information and harnessing the power of mistakes transformed each one of our classrooms. No longer were valuable learning opportunities lost when students made a mistake. The possibility of transforming the classroom was no longer a dream, it was a reality. Students were embracing their mistakes and learning from them in a powerful way.

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Both during and after our presentation, many who heard our message about growth mindset and mistakes urged us to “get the word out” to other teachers and organizations such as the National Council of Teachers of Mathematics (NCTM), either through journal articles or speaking at their conferences.

The fellow researchers at our table communicated that our research delved into an important area for mathematical learning. Since then, Smits and Kanoff have submitted a proposal to speak about the paper at the 2019 NCTM national conference.

In addition, each of us attended sessions held throughout the various venues. In those talks, we learned about the work other researchers were doing and the impact on students. For example, one presentation that was attended was “What is the value of classroom talk?” presented by a researcher from the University of Melbourne. With each new session we attended, we were constantly reminded

of the possibilities in education that are still out there to explore in an effort to improve our teaching practice.

AERA was just the beginning of the “dream or possibility of what there is to come.” Long live the TRC as it has allowed us to continue to investigate teaching practices that are best for our students. It continues to let us dream of the possibilities, explore them and put them into practice. What an energizing platform to be a part of with others who share the same passion.

As all three researchers dream of the possibility for this upcoming school year, there is one common thread that will happen in our classrooms; the power of creating a classroom culture that involves a growth mindset and promotes mistakes as an opportunity to learn will continue to thrive in each of our classrooms. As you prepare for the upcoming school year, we challenge you to act on the dreams you have in store for your students and turn them into reality.

A special thank you to Mark Coté and Judy Kysh for their help in editing the paper so that it was AERA ready and accepted. You made the dream a possibility!

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Follow it for Mental Math Mondays, Fix It Fridays, articles, jokes, and a variety of other exciting tidbits!

Find us on 

2019 NATIONAL TEACHER CONFERENCE

Join us in San Francisco for the annual CPM Teacher Conference, Saturday and Sunday, February 23 and 24, 2019. From an inspiring keynote address to interactive sessions, this conference will offer you ideas and strategies to take back to the classroom and use right away. You will experience two days of sessions led by CPM authors, teachers, administrators, teacher-leaders, and others who will share their experience and expertise, providing insights into best practices in teaching mathematics.

The keynote speaker will be Dr. Christopher Danielson. Christopher leads the activity development for the Desmos activities that align to CPM’s *Core Connections, Course 1, Course 2, and Course 3* eBooks. He has taught math to learners of all ages, and now uses his Ph.D. in mathematics education to create books and toys to support children’s math learning. He is the author of *Which One Doesn’t Belong?*, *How Many?*, and *Common Core Math for Parents for Dummies*.

Are you interested in an intense, challenging day to deepen your understanding of assessment, coaching, or maximizing student engagement? Then plan to attend one of our pre-conference sessions: **Assessment, Coaching - for Leaders who support Teachers using CPM**, or **Study Teams 2.0: Maximizing Student Engagement and Achievement through Effective and Equitable Student Study Teams**. This pre-conference will be held Friday, February 22nd. Additional registration necessary.

Conference registration opens September 1st. For more information go to the [CPM 2019 webpage](#).

THE THREE PASS PROMISE: PROMOTING PURPOSEFUL CIRCULATION

Lorna Vazquez, Neillsville, WI, LornaVazquez@cpm.org

Whenever I set teams to work, after making sure the directions have been clearly stated and that students are all aware of the expectations for effective teamwork (team norms, roles, responsibilities, etc.), I promise myself that I will make the first three circulation passes purposeful by using what I like to call my three pass promise. Sticking to my promise helps me focus the lesson and stay on pace. However, one word of caution: there are some prerequisites that have to be in place for the promise to work. Those prerequisites are listed at the end of this article.

First Pass: I promise the first pass will be quick. I probably will not stop at any teams since I am just quickly following my pre-determined circulation route looking to see that the teams are focused on the right task or problem, with the required number of iPads or books, open to the correct page. I make sure that someone has been designated to read the problem or task and that they have started to do so. I am looking to make sure all students are starting together and paying attention to the reader, discussing their strategies, asking questions of one another, or beginning the Think-Pair-Share or other study team strategy requested. Finally, I want to know they are all ready to record or do whatever has been asked.

In other words, the first pass is a quick check-in just to see that the students are following the protocols for getting started as a team. During this pass, I will only answer clarifying questions, and then only if the whole team has the question. That is, if an individual student asks me, *“Are we supposed to write this in our notebook?”* I will simply ask the entire team, *“Can someone please clarify the expectations?”* When directions are clear this should be sufficient, and redirecting questions from individual students back to the team helps ensure that teammates will begin to pay attention to, and rely on, one another.

Second Pass: This pass is relatively quick as well. I am looking for points of confusion or hesitations and for any obvious false starts or processes that are totally misdirected. If teams have a question at this point, it is usually about what they are supposed to be doing rather than if they are doing it right. If it seems the directions are unclear to many, I may do a quick Huddle for clarification.

I look for teams that are off course and redirect where needed. At this point, most teams are just beginning to make progress and I do not want to interrupt the flow, so I am simply making sure that every team has an access point into the problem. I will also point out, usually with questions, any interesting approaches that I see and encourage students to

discuss. For example, I might say *“It looks like your team has multiple approaches. Have you talked about your strategies yet?”* This is also a time to encourage and invite conversation especially when you notice teams are not working together. I might say something such as, *“Great, it looks like two of you already have thoughts on a possible solution.”* Again, I am not stopping at teams for more than a quick 10 - 20 second period, I am just ensuring that teams are functioning, progress is being made, and encouraging math discourse and collaboration.

Third Pass: Only now, after the first two quick passes have assured me that progress is being made and teams are on task appropriately, will I look for processes and solutions that I want to have shared. This is where I begin to select and sequence the math that I expect students to be drawing out of the problem or task. This pass will take a bit more time, as I now want to stop at teams (no more than a minute though) and have students clarify their thinking or ask questions to uncover student thinking. This is the first truly formative assessment pass; I am trying to determine if the math behind the problem is coming through as I anticipated. I also want to use this pass to begin to draw a whole team’s attention to promising approaches, especially if I can draw attention to an approach used by a student who I know needs a boost in status.

I think it is helpful at this point to carry a clipboard with a team map on it, so I can record which teams I want to share and highlight once I bring the class back together to summarize the math. It is also a good idea to let teams know ahead of time that you will be asking them to share.

Following Passes: Continuing passes are used to formatively assess whole class progress and determine when to call a halt, when to step in, when to redirect, when it is necessary to call the class together to summarize, etc. On any pass, be aware of how much time you spend at any one team. If a team seems to need more help than you can supply with some good questioning, then consider using a study team strategy such as I Spy or Swapmeet to move the whole class forward.

Prerequisites for the promised passes to work:

1. Students need to have a clear understanding of what you expect them to be doing in teams. Team norms need to be well established, posted, and understood. Role responsibilities need to be met.
2. The problem or task assigned for teams to work on collaboratively has to be team-worthy. In most lessons there are problems that are team-worthy, as well as

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some that may be best done individually. For example, problems designed for review, or to quickly connect to previous learning, may best be done individually so students and you can formatively assess and clarify misconceptions. A good way to strike a proper balance between individual and team work is with the Think-Ink-Pair-Share study team strategy which provides time and structure for students to pause and think individually before being asked to collaborate. It is a good go-to study team strategy for many occasions.

3. A predetermined circulation route for this work is invaluable. I believe it is really helpful to be completely transparent with your students when you do this. Show

them the route(s) you will use. Explain to them that you believe they are capable of quality teamwork and tell them specifically what you are looking for at each pass. Explain that if the entire team has a question, the Resource Manager should designate a person to raise their hand and you will be sure to stop during the next pass. In other words: stick to the route with purposeful passes and always engage with the entire team rather than individual students.

Do this, and my promise to you is this: your students will begin to learn to rely more on their teams and team resources and will become more successful and more self-regulated learners.

CHANGE TAKES TIME

Karen Wootton, Director of Curriculum & Assessment, KarenWootton@cpm.org

I am one of the lucky few that attends CPM's Academy of Best Practices each year, in the role of a facilitator for the cohort of new teachers. "Newbies" I call them. Each year we look at the new group and think, "*Wow! Are they getting younger? They don't even look old enough to be out of college!*"

When meeting the newbies, I cannot help but reminisce about my first few years of teaching. Oh, the mistakes I made! I had successes too, but reflecting on some of the mistakes I made, I cringe. Grading notebooks? Was I crazy? I ask, "*Why would I do that?*"

Because I did not know better. That is the simple answer. I went through a teacher credential program that threw us into the classroom right off the bat. We got a week, maybe two, to observe our master teacher's classes, getting to know the students informally before the teacher started giving us pieces of the class to teach. By the end of the first semester, we *were* the teacher. Second semester, we were assigned classes at a different school, and in my case, if there was a master teacher on record, I never saw the person. The point being that I did not have a lot of guidance in how best to teach.

Luckily, in my early years of teaching, I was not far from the Asilomar conference grounds, so every year, I attended the California Mathematics Council - North (CMC) conference held there. This conference is hosted the first weekend in December on the beautiful Asilomar grounds in Pacific Grove, California. That is a beautiful time of year to be on the beach, and despite the fact that this weekend was in the midst of the holiday season, I eagerly spent the time in conference sessions. It was there that I began my re-education on the best teaching practices, learning about NCTM and its publications, and meeting people who would become guides to better teaching.

Fast forward to 2018. At this year's Academy of Best Practices, Diane Briars, past president of both NCTM and NCSM, was our first guest speaker. Diane talked to the newbies about professionalism in the math ed world. She said something that struck me: "*How many teachers do their first year of teaching for thirty years?*" Certainly, over the years, teachers improve. Classroom management is typically not a problem for a veteran teacher, nor is paper management, meeting management, parent management, etc. But, how many

teachers are really doing the same thing in their classes that they did their first year? How many teachers actively seek to improve their teaching practice?

Every teacher should make a commitment to continuously improve their practice. Invest money and time to attend conferences so that you can learn how the latest research is informing math instruction. Read journals to learn what is being done in other parts of the country. Follow #MTBoS, the MathTwitterBlogosphere, to see the questions teachers are asking, and the answers provided by involved math educators. Commit to learning and then to trying something new so you are not doing that first year of teaching for thirty years. Change can be difficult, but with time and support, it leads to better teaching and better learning for students.

BUSY SUMMER FOR CPM'S PROFESSIONAL DEVELOPMENT TEAM

Wow - where has summer gone? It was a busy summer for CPM Teacher Leaders and Regional Coordinators. June started off with three leadership institutes in which these CPM leaders learned about a new Implementation Progress Tool, examined the Phase Two workshops in more depth, and learned about the exciting new CPM *Inspirations & Ideas* course.

CPM has offered over 500 workshop series for Phase One, Phase Two, and Phase Three to more than 4000 educators. If you are looking for more learning opportunities, or follow-up workshops for the 2018-2019 school year, be sure to visit cpm.org/workshops.

Residential Workshop: CPM hosted its third annual residential workshop on the beautiful campus of the University of Utah in July. Nearly 100 educators joined us to participate in workshops including topics on Phase One Implementation, Phase Two, Coaching, Leadership, and *Inspirations & Ideas*. If you are looking ahead to next summer, you are invited to join us for one of these workshops in Utah. Visit cpm.org/workshops for more details to come.

Academy of Best Practices: For the 4th and 2nd year, both new teachers and veteran CPM teachers spent a week in Seattle engaging in learning about improving instructional practices. Participants had the opportunity to hear from guest speakers throughout the week. It was a great time for participants to collaborate, network, and renew their commitment to the education profession. For more details, or if you are interesting in applying for next year visit cpm.org/abp. To read reflections from attendees, see the additional articles in this newsletter.



Coaching: Coaching assignments are ready to get started with the school year. As of mid August, CPM has 38 coaching contracts arranged, working with 60 schools, in 12 different states, utilizing 26 coaches and comprising 630 total days of scheduled coaching. That is a lot of impact on math instruction in schools using CPM!

CPM coaching is based upon a transformational coaching model advocated for and developed by Elena Aguilar. When a CPM coach works with teachers at a site, the coach first assists each teacher in developing a powerful SMARTE goal - one that focuses on teacher actions that can improve student learning. Then the coach and the teacher use the goal to guide a collaborative lesson planning session, data collection and observation by the coach during the delivery of the lesson, and a debriefing conversation that follows it. This “coaching round” may be repeated three to four times within the school year. CPM coaches work to support teachers to become better versions of themselves so that when the coaching cycle is completed, the teachers feel empowered to move forward on their own with new tools, confidence, and a vision for their classroom.

To find out more about CPM coaching for your site contact coaching@cpm.org.

So you might think it is time to slow down. Not exactly. Site visits, implementation support, follow up workshops, and coaching are just getting started for the school year. Be sure to reach out to your Regional Coordinator or local Teacher Leader with questions about learning opportunities available with CPM.

THE DEBRIEF

John Hayes, Eagle River, WI, JohnHayes@cpm.org

What if all your students were engaged in every lesson? What if they were excited to be in class? What if they were invested in their math learning? What is preventing those things from happening to their fullest in your classroom? It might be your debriefs.

It took a while, but I now know that CPM lessons are carefully crafted and designed with a larger purpose in mind. Because CPM lessons are purposefully planned and placed, changing the lessons will not promote deeper student learning. It also took a while for me to understand that the first problem of a lesson is often used to create more questions from students than answers. It is often a hook, to allow students to fail in the comfort of their well-managed team, and then wonder why they failed. While failing can cause tension and frustration, it is my job to support students in productive struggle so that the tension and frustration do not develop into a bigger problem. If I can pull that off, I know they will become curious, engaged, excited, and invested in math learning, provided my interruptions are carefully managed. In other words, when I interrupt their learning, it should be as unobtrusive as possible. Maybe the most obtrusive thing I can do during a lesson, is the debrief. In this article, I am defining the debrief as the practice of using whole class discussion to explain problems in the lesson as students progress through the lesson. Using my definition of “debrief”, there are three variations of the debrief that I have used in my classroom: post, pre, and during.

The most common variation is the post-debrief model. Usually the teacher sets an arbitrary pacing timer during classwork. I use the word *arbitrary* because many times we truly misjudge how long a problem will take our students to complete, so we just make up an arbitrary time or wait to see how long the students spend on the problem. When the pacing timer goes off, we begin the debrief of what the student should have learned in that problem. One issue with this approach is that the pacing timer may create stress that can actually slow down students’ thinking. Another problem is that we know that all our teams do not process in an identical amount of time. I would wager that there is a small population in each class that are always victims of the pacing timer. When the timer goes off, we can turn their excitement in the challenge of the problem into a disappointment that they were not able to complete it. There is a place for timers during a class period, but maybe not for each problem.

Another variation is the pre-debrief model, where we explain what is going to happen in the problem before the students are allowed to try it. The intention is good, “*I want my students*

to experience success.” However, not only have we removed most of the cognitive demand by doing this, we may have also removed the excitement of experiencing the math storyline for the first time. In this variation students move through the problem more quickly, because we have already given them hints at the solution. Then students sit idle waiting for us to explain the next problem. Students can end up confused about what to write down when the pre-debrief model is used, as the solution is obvious and requires no justification.

While failing can cause tension and frustration, it is my job to support students in productive struggle so that the tension and frustration do not develop into a bigger problem. If I can pull that off, I know they will become curious, engaged, excited, and invested in math learning, provided my interruptions are carefully managed.

“*I just wrote down what you said,*” students might say. In addition we have significantly reduced the productive struggle the students might experience and thus negatively impacted their abilities to tackle unfamiliar problems later on.

A third variation is the during-debrief model. It is often initiated with a shout through the room, “*OK, pencils down.*” This variation usually happens because the teacher has seen a common math error in two or three teams, so stops all the teams, and a debrief occurs in the middle of the problem. It is difficult to get students to re-engage after this interruption and again, the students lose their investment in understanding the mathematics of the lesson.

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Myths of the debrief:

Myth 1: *“A debrief gives students valuable insights.”*

We work hard to get our students working well in their teams. It is challenging to get quality discussions started in our classrooms and it seems like the debrief will give them valuable insight into the next problem. The reality could be our debrief has interrupted their discussions and now we will need to rethink how to get students talking again. This uses time and interrupts a team’s investment in the learning they are doing as a team.

Myth 2: *“A debrief refocuses our students on the math.”*

It is difficult to keep our students on task and focused on math. We hope that our debrief provides them with more focus. The reality could be that the debrief gave them permission to stop thinking about math because we are doing that thinking for them. Certainly this may reduce their engagement.

Myth 3: *“The debrief enables teachers to demonstrate the best solution.”*

It seems like it is important to model the math so students know the best method to work through a concept. What if some of our students thought of an alternative method? Will they automatically discard their method because they have more faith in the method we teachers cling to? The reality might be that our debrief has inadvertently made their method invalid. Could this then reduce the excitement they feel about their own solution? If students are not excited about their own solutions, how can they be excited to come to class each day?

Myth 4: *“The debrief speeds up learning and therefore the lesson.”*

It seems like it is just quicker to debrief a problem and get our students on the straight and narrow. In reality it might be more challenging for students to get back on task after a whole group discussion. They may be more likely to be off task after a debrief, and less likely to re-engage with their teams. After three to four debriefs in a period, some students may decide they do not want to re-engage at all.

Myth 5: *“Students enjoy math more when the teacher validates their solutions during a debrief.”*

Think about the last time your students lost track of time doing math. The period ends and they say something like, *“Is the period over already?”* Who was doing the math when this happened, you or the students? The reality is that our students may embrace the challenge of the problems in the lesson if we let them.

Debriefing every problem can contradict CPM’s problem-based learning pillar. Here is an excerpt from the Problem-Based Learning (PBL) Tab in the eBook. “Furtak et al. (2012) has done a comprehensive meta-analysis of various studies in science education, concluding that *social interaction* (some form of cooperative learning or with a tutor) is an important component of problem-based learning, a finding echoed by

DeCaro & Rittle-Johnson (2012), which emphasized the role of teacher control of activities. (Note: ‘teacher control’ in this context means that the teacher is responsible for ensuring that students are working well and on the mathematical topic—not that the teacher is telling the students what to do.) The same results were found in an extensive German study of 100 mathematics classrooms at the eighth grade level.”

So what do we do instead of debriefing every problem? One alternative is to allow the students to fail without rescuing them with the debrief. The caveat with allowing students to fail and wrestle with uncertainty is to structure “teacher controlled” time to check in with students. If we do not allow students to check for understanding outside their team periodically, we may end up on the opposite end of the debrief spectrum which is to tell students *“Go do these problems and if you struggle just ask your teammates.”* Provided students are writing solutions, a Proximity Partner or Swapmeet study team strategy can be a great structure for students to gain confidence with their solutions. Another alternative is to have a Huddle, but allow the students to do the talking in the Huddle. Your job may be to guide them to take good notes during the Huddle, but not do all the talking. You may even take a chance with a Huddle that you do not attend. *“I’d like the Resource Managers to have a Huddle in this back corner to discuss problem 9-20,”* and then you just keep circulating.

As teachers we are compassionate people and we want to rescue our students from their math difficulties. We also love explaining math and dazzling our students with our mathematical super powers. It is thrilling for us, but that might be the problem. Debriefing is only thrilling for us. The reality is that our students may be thinking, *“When is Mr. Hayes going to stop talking so we can work on our problems?”* There is a great place for a daily debrief in your lesson: it is called the closure. An easy closure is to have your students reflect on what they learned through writing, and then to check for understanding by asking them to share what they wrote. Writing during a lesson launch and during closure helps hold students individually accountable to the learning and allows them to engage with the material at a deeper level. Another simple closure might be to ask them to reflect for one minute with their neighbor about what they learned today. Then follow up that conversation by asking them to reflect for one minute with their neighbor about what they still do not understand or even what they might wonder. Engaging in conversation about your students’ closure reflections can be a very powerful way to make connections and to formatively assess their understanding, without worrying about whether you are interrupting their learning. In addition, it is an opportunity to use your teaching super powers to raise the status of students that have made amazing connections by letting those students provide the debrief.

A BUCKET LOAD OF QUESTIONS

Gail Anderson, Lansdale, PA, GailAnderson@cpm.org

Every school year, I start off anew with fresh enthusiasm to teach my students team roles and get them questioning their way through the exciting world of mathematics. Inevitably, however, I begin to notice that they only question each other when I have just gone through a lesson on questioning and have given them sample questions to use. It is as if they cannot come up with their own questions and would not think to do so on their own.

Well, it is hard to know the questions to ask sometimes, isn't it? Questioning and talking to our peers does not always come naturally and often takes effort. When a student is focusing on a problem, or deep in thought, it can be hard to notice that someone else is very quiet and it is easy to forget that they might have something valuable to share. The quiet person might just need to be asked.

I was spending a lot of time hanging posters, showing the students questions on the front screen, or passing out question cards or table mats. The problem with the posters is that not all students can see them from their seats, the PowerPoint® slides are temporary, and the question cards tend to get lost in the sea of backpacks and notebooks. Last year, I finally found the perfect location for the questions, a spot right under the students' noses.

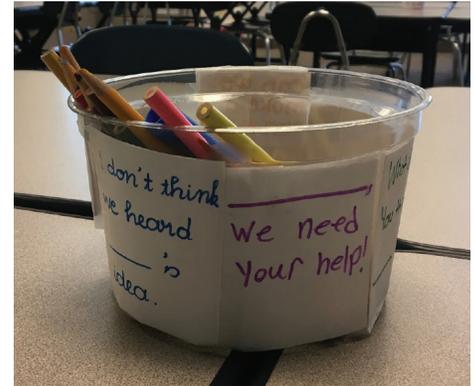
I use repurposed plastic ice cream buckets (and other plastic containers, such as quarts of yogurt or sour cream) to hold a collection of colored pencils and markers at each table. (By the way, having the markers and highlighters at each team table is a great way to support students' habit of highlighting things in their notes during class or correcting their own homework in red to highlight areas they need to work on.) These containers were ugly, just crying out for some creative decoration.

One day, at the beginning of a new unit, when several of my classes were in need of some teamwork skills-refreshers, I decided to devote about ten minutes at the beginning of each class to this topic. We talked about why they should be questioning each other, why they should each be actively involved in the discussion. We brainstormed strategies to get all team members involved, and discussed how it feels to be the one left out of the discussion. We acknowledged that it can be hard to speak up when we are not sure if we have a great idea or a silly one. I then projected a list of questions (listed at the end of this article) on the screen.

I handed out small (about 2 x 2 inch) slips of paper. Double the papers, or use colored index cards cut in half, so that you cannot see through the paper. Each team had to choose two or three different questions and write them with a different color (welcome embellishments, decorations, and creativity!). Classes later in the day needed to examine their bucket and then choose questions which were not already on their bucket (thereby getting them to read more of them!), and also designate someone to be the "taper," who uses plenty of tape to secure the edges and corners of all of the questions to the bucket. By the end of the day, all 11 questions were securely attached on each of the buckets.

The questions brightened the tables, made the recycled containers much more presentable, and gave my sophomores something to giggle at together; how silly the questions seemed to them. For the next few class periods, I heard plenty of sarcastic versions of the questions: "So, Harry, what idea do you have?" But, you know what? "Harry" always answered! In fact, months later, I watched a group who was stuck on a problem and quite silent, suddenly become revitalized and

refocused when a girl absentmindedly read one of the questions aloud. The named student answered, and that is just what the team needed to get the productive mathematics conversation started. As I circulate, I occasionally lean over and point to or read a



question from the bucket to get the conversation started. I then walk away as the team takes ownership of the problem again.

My list of questions started with a list I found in the Curriki Teacher's Plan at <https://www.curriki.org/oer/Selling-Geometry-65639/>. This is a nice resource for team skills and project-based learning, however, the site is not kept up to date so many of the links no longer work. I added some from the CPM Team Roles "placemats," and you likely have favorites of your own to add. Best wishes as you start a fresh new year, helping students learn to work together!

"Can we make a plan so everybody has something to do?"

"_____ has a good idea."

"What do you think, _____?"

"Does everybody agree with that?"

"_____, we need your help."

"I don't think we heard _____'s idea."

"I noticed that..."

"Why did you ...?"

"This reminds me of ...?"

"Did anyone else get...?"

"How do you think we should start, _____?"

POWER OF PLANNING

Sharon Rendon, Director of Professional Learning, SharonRendon@cpm.org

When teachers are pressed on all sides and time is at a premium, the first part of the professional practice that seems to disappear is the commitment to planning. The planning routine may too quickly become a glance through the teacher notes and the problems, but not an investment of concentrated planning time. Do not let that become the case for you this year. Set aside time to intentionally plan, preferably with colleagues, at least once a week.

The CPM Phase Two workshop spends a significant amount of time looking at how to incorporate different instructional strategies into lessons through the lens of planning. The CPM Phase 2 [Lesson Planning Guide](#) is a good tool to support your efforts toward intentional planning. This resource gives you space to record the questions you plan to purposefully use to assess and advance student thinking as you are circulating. Start with an attainable goal to collaboratively plan at least one lesson every two weeks with your colleagues.

Facilitating discussion about the complex tasks found in CPM textbooks requires a commitment to preparing for the conversation. The book, *Five Practices for Orchestrating Productive*

Mathematics Discussions, by Smith and Stein, is another great resource for supporting you in this work of planning. “The premise underlying the book is that the identification and use of a codified set of practices can make student-centered approaches to mathematics instruction accessible to and manageable for more teachers.” You can think of the five practices, (anticipating, monitoring, selecting, sequencing, and connecting) as a roadmap for the whole team conversations you want to conduct based on the identified math goal for the lesson. These five practices occur both before and during instruction.

In the May newsletter, John Hayes, a CPM coach and Teacher Leader, shared an article, [Purposefully Planning a CPM Lesson](#). I would encourage you to reread it and spend some time reviewing the six steps for planning that he has found success with in his work with teachers.

Make it a goal to stay committed to the practice of planning this year, even when time gets short.

MASSIVE ETOOL REVISION PROJECT

Carol Cho, Director of Technology, CarolCho@cpm.org

Last year, several teachers reviewed all of the problems containing eTools in the nine *Core Connections* eBooks. They reviewed the problems based on:

- Working as designed without bugs
- Ease of use
- Clear directions
- Effectiveness for student learning, allowing students to explore, investigate, and do the thinking

As a result, the tech team is revising about 90% of all of the eTools. Some of the changes you may notice are:

- The problem and parts are now regularly included in the eTools. (Students need not go back and forth between the textbook and the eTool.)
- Most of the construction folders are now hidden. (Answers are not unintentionally given away within the folders. Students can now focus better on the pertinent parts of the eTool. Unfortunately, not all construction folders can be hidden.)
- Labels have been improved within the eTool for better clarity.
- Many of the eTools have been totally reworked so that the interaction between the student and the content is improved.

- The eTools in the Homework Help are also being revised, improving the quality of Homework Help. Teachers may find that homework eTools are helpful to model math concepts during class. Check them out!
- eTools are labeled with the chapter number followed by the problem number for better consistency as shown in the following examples:
 - + 11-50 Student eTool (Student eTools are linked in the eBook lessons, the [CPM website](#), and [Student eTool Tutorials](#) for students to use in class.)
 - + 3-81 HW eTool (Homework eTools are linked in the eBook homework section and at the [Homework Help Site](#).)
 - + 8-5 Answer eTool (Answer eTools are linked in the Teacher Notes tab for lessons in the eBook and at the [Teacher eTool Tutorials](#).)
 - + 6-103 Teacher eTool (Teacher eTools are linked in the Teacher Notes tab for lessons in the eBook and at the [Teacher eTool Tutorials](#).)

This is an ongoing project. Most of Chapters 1 through 3 of all nine *Core Connections* courses are complete. We are completing about two chapters each month and should be ahead of most classes during the year. If you see any errors or issues, please report these by emailing support@cpm.org.

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Contact us via email by using **FirstnameLastname@cpm.org**. We look forward to hearing from you.

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