

# NEWS YOU CAN USE

THE CPM EDUCATIONAL PROGRAM NEWSLETTER

## JANUARY 2017: IN THIS ISSUE

Homework ideas

More about number talks

What are teachers thinking?

And more!

## CPM IS GREEN! NEWSLETTERS ARE ONLY ELECTRONIC

CPM's newsletter can be found on our website, [cpm.org](http://cpm.org), and in your eBook. Once logged into your eBook, on the left, go to Teacher, then Teacher Support. At the top is a tab for Newsletter. Please let others know where to find the newsletter and that we are taking strides to cut back on our paper usage.



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**MORE MATH FOR MORE PEOPLE**

## HAPPY NEW YEAR!

Welcome to 2017! With the holidays over, this side of the school year seems to stretch out for miles! We hope that everyone had an enjoyable and relaxing break and is ready to jump back into the swing of changing students' lives.

Starting with this newsletter, we will be providing the email addresses of the article writers who are willing to hear your thoughts about their article, or for those who would like to continue the conversation. Email them! If you have an idea of an article for the CPM newsletter, please send your thoughts along to Karen at [karenwootton@cpm.org](mailto:karenwootton@cpm.org).

CPM is excited for our upcoming National Teacher Conference February 23 – 25 in San Francisco, California. The session titles and descriptions are enticing, and with Eli Luberoff, creator of Desmos, as the keynote speaker, the event will be wonderful. We hope to see many of you there.

This summer we will be releasing CPM's AP Statistics course and a revised Precalculus course, third edition, that aligns to the CCSS fourth year standards as well as California's standards for a fourth year course. Check [CPM.org](http://CPM.org) for details this spring.

Here's to a wonderful 2017. We hope the year brings you everything you wish for.

## OUR HOMEWORK SOLUTION

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Our math department has attended CPM summer workshops each of the last five summers. A common discussion topic among teachers at these workshops is, "What do you do about homework?!?" Our math department is always very excited to share what we do, as it works quite well for us. We have been surprised that many teachers will tell us that what we do will not work, even though it has been our department procedure for several years. Others are insistent that homework must be graded in order for students to value it even as they lament the low homework completion rate in their classes.

Our high school math department has not graded homework for several years. We believe that homework is practice and should not be assessed. We also believe that homework completion and homework discussion are essential for success in the CPM courses. If these two things are essential for student success, we must a) make sure that students complete the homework, b) give them time to discuss homework, and c) help them develop the skills to discuss it effectively. We feel that we have both a department-wide and school-wide structure in place to help students complete homework and discuss it effectively. The rest of this article explains the procedures that are in place and how we use them to facilitate student learning through homework completion and discussion.

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## HOMEWORK from page 1

In my classroom, students spend the first five to 15 minutes of a 65-minute class period discussing homework in their teams. (Our math classes meet for 65 minutes each day, but most only meet for 24 weeks of the school year.) Students are usually instructed to start with the questions that caused them trouble and then check every problem, if there is time. If they have different answers than their teammates, they are encouraged to have a deeper discussion about that problem to try to figure out the correct answer. I do not usually give them the correct answers unless their group cannot reach an agreement on their own, or unless I hear them agreeing to an incorrect answer. By not providing them with the answers initially, it leaves the discussion open-ended and encourages students to re-evaluate their work on all of the problems.

As we all know, there are days when we feel the lesson will take the majority of the class period. If I think time for homework discussion will be in limited supply, I might direct students to start their discussion with either problems that are key to understanding what we will be studying that day, problems that are review of key topics, or problems that provide an essential preview to upcoming topics.

While the students are discussing homework, I walk around the room and check to see if students have the work completed. If they have everything done, I record a “+” on the grade sheet for that day. If they have the assignment started, but not completed, I record a “-” on the grade sheet. If they do not have the assignment done, a “0” is recorded. If I just recorded this information and did not follow through, I doubt that students would be motivated to finish the homework; many students will choose whatever path is easiest. Therefore, our math department believes that we must make it harder for students to fail to complete the homework than it is for them to complete it on the day it is assigned. We require all students to have each assignment completed. They will be required to turn any – or 0 into a +.

This is where the structure of our school day helps. Our school uses a “5 + 1” trimester schedule. Students take five classes per day and have a 30-minute resource period at the end of the day. If students do not have homework completed, I request their presence in my resource period that day. If they finish the assignment during resource, I change their 0 or – to a + and all is well.

If they do not finish the assignment in resource (or do not

come to resource), they still have the option to show me the homework before school the next day. If they do not have the work done by the start of school the next day, they advance to our second tier of intervention. We currently have a 50-minute lunch period in our schedule. We consider this long lunch period to be a privilege earned by students for doing what they are expected to do each day. If they do not complete homework, they can be assigned to an Academic Loss of Privilege (ALOP) study hall that meets during the first 20 minutes of lunch. So, if students do not complete homework by the date it is due, and do not complete it in resource or show they have completed it by the next morning, then they are assigned to ALOP.

If they still do not complete the work, the cycle repeats the following day. Eventually, a student with missing work would be assigned to a Behavior Loss of Privilege study hall (BLOP) that meets during the first 40 minutes of lunch. They can also be requested after school for an hour as we have an academic

*When a student comes to class without work done, their teammates are usually quick to point out that they just made their lives more difficult and that they should have just done the homework in the first place. The encouragement/pressure from their peers is often far more effective than if I told them the same thing. In fact, I just asked my Algebra 2 students why they consistently have their homework done. One of the students said that the feeling of letting their teammates down and sitting awkwardly while the group discusses homework is a bigger motivator for them to complete their homework than the other levels of intervention.*

late bus that will take students home three days per week. If the teachers are consistent in following this system, the students quickly realize that it is much easier to complete the homework on time than it is to give up their lunch hour or time after school. When a student comes to class without work done, their teammates are usually quick to point out that they just made their lives more difficult and that they should have just done the homework in the first place. The encouragement/pressure from their peers is often far more effective than if I told them the same thing. In fact, I just asked my Algebra 2 students why they consistently have their homework done. One of the students said that the feeling of letting their teammates down and sitting awkwardly while the group discusses homework is a bigger motivator for them to complete their homework than the other levels of intervention.

I realize that students miss out on some great homework discussion and valuable learning time if their work is not done when it is discussed in class. To help with this, I always

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# IMPLEMENTING DAILY WRITING INTO A CPM CLASSROOM

April Bain, Los Angeles, CA, april.bain@gmail.com

I have been teaching high school students with the CPM curriculum since 2010. Through quite a bit of trial and error, I have established a few strategies that work for my inner-city, Los Angeles-based classroom. However, there are still a few areas where I continue to struggle: student learning from the homework, regularly conducting a closure activity, effectively using the Learning Logs, and supporting my students with capturing, synthesizing, and referencing their learnings from the classwork. I would like to share an easy-to-implement-strategy I have been trying this year to tackle the above mentioned obstacles.

This summer I had the privilege of being invited to work as a researcher with the CPM Teaching Redesign Corps (I highly recommend it to any teacher looking to collaborate with other innovative teachers: <http://cpm.org/trc/>). My team decided to investigate how providing opportunities for making revisions in class would improve student learning and promote a growth mindset. While each of us implemented a slightly different strategy around revision, my particular strategy focused on students writing about mathematics for the purpose of communicating and capturing their own ideas and discoveries.

I chose a focus on writing because over the years I have noticed that my student population wrestles with creating written explanations of their mathematical thinking. This was evident during presentations, group posters, and on test day but it was most evident in my AP Statistics class, which relies heavily on written explanations of inference. These students were mostly seniors and I was alarmed that we were sending them off to college and careers without having mastered the ability to communicate their ideas through writing.

This is how my strategy looked in practice: students individually spent the final ten minutes of each lesson one of three ways: writing a response to a Learning Log, writing a response to a prompt I have selected, and/or revising a previously written response. My only requirement was that they were writing for the entire time. My incentive was that students were allowed one submission per Learning Log to be graded on an Effective Communication Writing Rubric and then be allowed to use it on any future assessment. The four-point rubric categories were as follows: *addresses the topic, organization, supporting details, mechanics, and communication*. To create time for this strategy, I essentially replaced my homework check/review time at the beginning of a lesson with this writing time at the end. My rationale was that students can check their homework answers online and if they are stuck on a particular problem, they can seek out tutoring or assistance outside of

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*At the very beginning the students were resistant to writing in math class, especially the freshman. However, the upperclassman that had taken a CPM math class before immediately appreciated the reflection time at the end of each lesson. I had someone from our administration team come up to me and ask about what I was doing because the students kept saying that they were finally able to put some ideas together at the end of each math lesson - which was one of the previous "negatives" to our task-based, discovery lessons where I always ran out of time for an appropriate closure.*

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class time. Furthermore, I have not experienced high student engagement with any homework check strategy I have tried.

I believed that four critical outcomes would occur when students were given the opportunity to re-read and revise their writing. First, if they have a difficult time making sense of their own writing, they would learn the importance

of proof-reading any type of writing before submission. Second, by reading what they knew of a previously learned concept (for example: solving a system of equations) on the first lesson, versus their knowledge after a few chapters of practice, they would realize how much learning growth they have experienced. Third, it would give them an opportunity to rely on their own notes and thoughts for studying, rather than the book - which is much more reflective of the realities of college and careers. And finally, I believed their overall ability to write in real-time for effective communication would improve, and their performance on all types of writing assessments would improve.

I am still collecting data on the outcomes, but there are a few anecdotal pieces of evidence I would like to share. At the very beginning the students were resistant to writing in math class, especially the freshman. However, the upperclassman that had taken a

CPM math class before immediately appreciated the reflection time at the end of each lesson. I had someone from our administration team come up to me and ask about what I was doing because the students kept saying that they were finally able to put some ideas together at the end of each math lesson - which was one of the previous "negatives" to our task-based, discovery lessons where I always ran out of time

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DAILY WRITING from previous page

for an appropriate closure. Secondly, I was able to informally provide feedback on students' writing as I circulated the room during the writing time and through the rubric. Students had a much better sense of my expectations for their writing when assessments came along and I witnessed an improvement on test scores. Additionally, an unexpected benefit was the chance to "reset" my classroom to prepare for the next class. While the students were writing, I would circulate the room and

collect group folders, finish grading classwork or homework, or just set up the materials for the next group. The students were writing and it created a more stable and conducive learning environment to end each lesson.

In short, the daily writing time gave my students a chance to re-read and revise their own written reflections of learning. In a student-centered classroom, it is all about giving students the opportunity to experience the

learning themselves. I am looking forward to reviewing the data on how their written communication of mathematical ideas will improve as the school year progresses. If you would like to hear more about this strategy, my lessons learned, and the big impact it is having on student learning, come see my presentation at the CPM Teacher Conference in San Francisco.

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## NUMBER TALKS

Angela Kraft, Oconomowoc, WI, [angelakraft@cpm.org](mailto:angelakraft@cpm.org)

Do you have students who still struggle with memorizing multiplication facts or still use their fingers to find quick calculations? Or, have you ever had a student struggle to explain their thinking by saying, "Well, I know how I got it, but I can't explain it." While finger counting has its place in the math classroom, so does helping students to visualize calculations and patterns mentally. As a participant in the Teacher Redesign Corps (TRC) 3.0 I have been implementing number talks as often as possible with my 7th graders. My goals during these short sessions are to help students build mental calculation strategies and develop effective articulation of processes.

With effective communication among peers being the heart of CPM's design, students need to be able to effectively explain their thinking to solve problems, as well as be able to listen and understand someone else's ideas. In their book *Making Number Talks Matter*, Cathy Humphreys and Ruth Parker stress the importance of allowing the students to do the thinking rather than the teacher listing strategies for students to imitate. They explain in detail how to implement number talks and why they are so important. In short, number talks are quick problems that can be infused in any part of a math lesson.

A number talk can be implemented very easily and quickly. Simply post a problem you would like your students to mentally calculate. For example  $18 \times 5$ . Ask students to place a fist on their chest and raise a thumb when they have a solution. During your wait time, encourage students to try and solve the problem in more than one way. Students can indicate this by raising fingers from their fist as well. Once most

students have arrived at an answer, ask a volunteer to share their solution. I find it helpful if you ask for all answers before asking students to explain their strategies. Then ask volunteers to explain their thinking on how they arrived at their answer. This can be the tricky part. As they explain, you, as the teacher record their strategy on the board being careful to not fix mistakes in the explanation or finish the strategy for the student. If a student is struggling, provide wait time to see if he/she can find the correct words to complete the explanation or ask probing question to assist the student along.

I have become such a fan of these quick number talks that I now implement them weekly, Number Talk Tuesday! My students look forward to these each week and I am amazed at how well my students have evolved at articulating their strategies. I have even begun to see this transfer to their daily teamwork where students have been much better communicators. They are also able to build number sense, recognize patterns in mathematics, and be exposed to the multitude of representations students use to mentally calculate problems. As a matter of fact, I had one class of 24 students be able to provide 12 different strategies for solving  $18 \times 5$ ! Why not give one a try today!

# EMBRACING THE ELEPHANTS

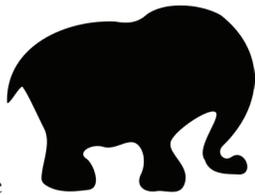
Denise Dedini, Kingsburg, CA, denisededini@cpm.org

**Elephant #1:** First year teaching middle school math, Lesson 2.4. Today's topic: Properties of Numbers (Commutative, Associative, and Identity). Pacing guide: one 45-minute class period. Expectation: mastery.

**Elephant #2:** Designing a classroom environment reflective of the "Four C's of 21st Century Learning" (collaboration, creativity, communication, and critical thinking) when the seats are filled with students carrying the burdens of modern life - lack of motivation, broken homes, poor attendance, overstimulated environments, and social pressure, to name a few.

**Elephant #3:** Assumptions teachers often make, students know how to study for tests, set and monitor goals, furnish a productive critique of another's work, and provide justification of one's own thinking.

Undoubtedly, the list of common "elephants" in today's educational system could fill up an entire page. What initially appears to be a laundry list of complaints, however, holds the power to positively transform a classroom culture.



For many teachers, a common instructional strategy is to teach to the middle in hopes of providing an education to the broadest student group possible. Unfortunately, the *elephant* resides in the classroom. What about those who struggle? How about those who need a challenge? For students, working in collaborative teams provides its own unique challenges, another elephant in the room. "I want to be in the 'smart kid's' group," "He talks too much," "She is absent all the time." We know the elephants are there, but do we acknowledge them? Can we learn to embrace them?

Over the past several months, I have served as a teacher researcher with CPM's Teacher Redesign Corps (TRC). Our group is researching the topic, "Using Goal Setting to Develop a Culture of Investigation." One prominent theme emerging from my research is that of "the elephant." These elephants frequently surface as topics we often brush to the side, ignore, or worse, deny their existence. Through the course of my research, I am finding the act of facing and, in fact, embracing the elephants provides a productive, fertile ground for growing a positive culture. For my classroom, the foundation for this idea began early in the school year with the start of our "Mindset Mondays." Students were guided through an activity that asked them to explore one of the most obvious elephants in their lives. This activity, "The Hateful Task," begins with the teacher leading a discussion

about common chores for which we are responsible around the house, particularly that *one chore* that we simply cannot stand, also known as "the hateful task." Students were asked to close their eyes and imagine themselves performing this despised deed. "What are you saying or thinking to yourself as you accomplish this task? How do you feel as you complete it? What expression do you imagine lingering on your face as you face this chore? Now open your eyes and quietly take the next two minutes to make a sketched stick figure drawing of you performing your hateful task. Make sure to include a talk- or thought-bubble of what you are saying or thinking to yourself as you complete this task." As I strolled through my classroom over the next two minutes, I quickly realized how engaged my students were. Not only were they facing one of life's dreads, they were enthusiastically embracing the opportunity to acknowledge their hateful task.

At the two-minute mark, the task continued. "Now take a moment to share your artwork, hateful task, and thoughts with your elbow partner." Again, throughout the classroom there was apparent unanimous student buy-in. Students painted vibrant word pictures for their partners as they held up their stick-figure sketches, all the while commiserating over their shared hateful tasks. The next stage of this task was the mindset shift, originating from a teacher-led discussion on the futility of negative thoughts while performing their task. "Will these thoughts change the task that must be performed? What words or thoughts could replace these ideas that might assist you in accomplishing this task with a more positive outlook?"



After a quick team brainstorm, then whole-class share, the class quickly constructed a nice list of replacement thoughts. Once again, students were directed back to their drawings to complete the alternate sketch. This time, their stick figure would have a talk- or thought-bubble expressing the new, positive thought as they performed their hateful task. As I walked by each team, I noticed the striking contrasting difference a single positive thought made as we collectively faced and embraced our elephants! The stick figures' faces

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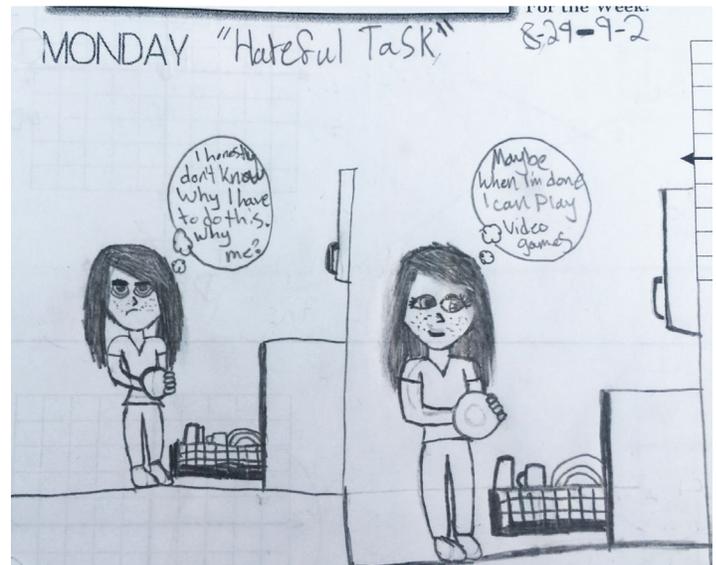
ELEPHANTS from previous page

were transformed from discouragement to determination, from anger to hope, from hopelessness to anticipation. Simply bringing a topic to the surface and challenging a shift in thinking provided a foundation upon which we could build our classroom culture and prepare to tackle tough topics together as teams, and as a whole class.

Since that activity early in the year, these students have faced and embraced other noteworthy elephants as they have surfaced:

- *How do I study for a test?*
- *What do we do about difficult team members?*
- *What are common obstacles students face in math class?*
- *How do I set a SMART goal?*
- *How can we encourage each other toward our goals?*
- *What does “stand-alone” work look like?*
- *How can I ask questions as one who is critiquing rather than a criticizer to help a classmate?*

While my TRC team originally embarked on our research journey with the focus of student goal-setting, I arrived at the quick realization that goal setting does not come naturally to a large percentage of the clientele I serve. This led us to our elephant adventures where I, as a teacher and role model, found the most relevant way to lead these students through the goal-setting process in a meaningful way, and that is to acknowledge the elephants in real-time and allow students to have a voice in tackling these issues as they arise. Not only does our class enjoy a higher level of student engagement and



buy-in, together we are building a culture of interdependence. Although still a work in progress, we no longer avoid, ignore, or push aside our elephants as they arrive. Instead, we face them head on and, in most cases, actually embrace them as threads that bind our community of learners together. Now that, dare I say, is a highly valuable by-product of our goal-setting research!

## WHAT DO YOU WONDER?

Most people think of snow as drifts and piles at the side of the road, or clumps falling from the sky. When it is really cold however, snow can come down as crystals that actually look like the snowflakes we have all made in grade school as we neared the winter break. By folding paper and cutting pieces away, children make symmetric works of art. This time of year, refrigerators across the country display many students' own original snowflake.

Capturing the beauty of real snowflakes is a talent. The photographer needs a macro lens to show the tiny work of nature. If the temperature increases while the photographer tries to capture the image, the flake melts away. High quality photos of snowflakes are not easy to come by!

Show this photo to your students and ask “What do you wonder?” Get students thinking about the math that is evident in the snowflake. If students suggest interesting ideas, can you investigate them further?



# HOW CAN A TEACHER FOSTER A CULTURE OF INVESTIGATION OVER ANSWER-GETTING IN STUDY TEAMS?

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**Disclaimer:** *CPM is glad to share the findings from the Teaching Redesign Corps investigations, but these are just ideas. It is expected that teachers will rely on their knowledge of their students, the mathematics they are teaching, and the circumstances surrounding their specific teaching assignment when modifying their own behavior and selecting appropriate instructional strategies. A given strategy may have a positive effect on student learning in some situations and a negative effect in others. Please use your own best judgment as you continue to improve your teaching practice.*

All too often, students perceive the goal of mathematics instruction as answer-getting – racing through an assignment by giving each problem a superficial read, recording an answer, and not giving a second thought to accuracy or deeper understanding. Our study sought to change this behavior by developing a culture of investigation where students would thoughtfully engage in problem-solving, use feedback to make sense of the situation, seek to clarify their understanding, try a different approach, and extend their thinking beyond simple answer-getting. In order to create such a climate of learning, we realized we needed to educate our students about growth mindset to set the groundwork for the entire year. Our initial phase focused on classroom norms, embracing mistakes to analyze where a student's current thinking was and how to move that forward, and how to positively critique each other's thinking in order to foster learning rather than answer-getting.

## Norms and Mindset

To create classroom norms, we combined videos and lessons from Jo Boaler's *A Week in Math* with a number pattern activity. We selected a number pattern problem that appeared to be easy to figure out at first, but no team got it correct. As we circulated and talked with our teams, we focused on using positive, growth mindset language. We said, "Your team doesn't have it correct yet, but if you continue to work hard, like you are, I am sure you will eventually get the answer. Keep working." The number pattern was difficult for everyone and required all teams to engage in productive struggle, even those who were not used to being challenged. This placed every student on a level playing field. After several failed attempts at solving the pattern, a small number of students figured it out and shared their solution with their teams and the class. We then discussed how failing made them feel and made connections with the content from the video. Next, each team of four was asked to discuss and write down things that they liked when working in teams and things that they did not like

when working in teams, based on their experiences the day before and in previous classes. As a class, we created one large t-chart of what they liked and did not like when working in teams; each team voted on their top three to five choices. The top three choices from one of our classes were: (1) Our brain grows when we make mistakes; (2) Everyone's ideas are valued; and (3) Everyone can be good at math if you work at it. These became our classroom norms.

In classes where growth mindset was a focus at the start of the year, students seemed to be more willing to take risks and try new things. We think that it is critical to set classroom norms at the start of the year to foster this culture of investigation. We found it difficult, if not impossible, to change the culture without first addressing many of the negative feelings associated with mathematics instruction that students harbor. Without this foundation, students will not embrace investigation or the mistakes that come with it. While establishing norms, we learned the following:

- The time spent focusing on growth mindset during the year was well worth it and had positive outcomes for most students.
- Positive outcomes may not necessarily be in the forms of grades, but can be reflected in observable student behaviors. We noted improvements in perseverance, the acceptance of mistakes as opportunities for growth, the development of a sense of resiliency, more risk-taking, and an increase in the willingness to accept challenges.
- Some form of parental education in regard to mistakes and how they provide opportunities for learning and growth is an important piece of the picture.
- Focusing on what you do know and what you need to work on (mistakes) is a 180-degree shift from what most kids and parents have experienced in school.
- The process of developing culture is never over; we know that there are outside influences (other teachers, coaches, parents, students) that affect student mindset.
- It is important for our students to see that when teachers make mistakes, we own them and learn from them; modeling gives students a sense that mistakes are a real part of life.
- Many who have not been successful in math are encouraged by the idea that challenging math problems help your brain grow, rather than just make them feel stupid.

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*CULTURE OF INVESTIGATION from previous page*

- Teacher talk has a huge influence on how students perceive the class and the content; how a teacher responds to their work has an impact on how they perceive themselves and school. Using growth mindset language needs to be a focus for teachers throughout the year.
- We used a Growth Mindset Pocket Feedback Tool (below); “Instead of Saying This... Say This” The tool was similar to having pocket questions. We found it helpful because changing our behavior, such as learning not to praise intelligence, required some effort on our part.

Our group used four innovations to support the development of “A Culture of Investigation.” The first innovation, “My Favorite No”, focused on mistakes anonymously providing

opportunities for analyzing, discussing, clarifying the problem followed by the opportunity to re-do the problem. A second innovation, The Teamwork Rubric, focused on self and team reflection of group dynamics from communication to on-task behaviors. When teams have a good rapport and work effectively together, it increases math learning. Number talks, the third innovation, empowered students to question and share their thinking and the strategy they used to solve problems. It is definitely a confidence builder and provides the groundwork for deeper understanding. The last innovation was goal setting. It presented the framework for students to experience perseverance, make mistakes, learn resiliency, and celebrate successes. All four innovations enhanced our student’s math experiences and growth mindset. Stay tuned for the March newsletter where the four innovations are revealed in detail!

**“INSTEAD OF SAYING THAT....SAY THIS” POCKET FEEDBACK**

You’re really good at that!	You’re improving...your efforts are paying off.
Not everyone can get an A on that test.	Struggling on this assessment does not mean you can’t get it; it means you’re learning it. Your brain is making connections that are not yet strong.
Wow. You really know your stuff!	You do have the skills, now let’s keep growing them!
That’s wrong.	If you keep working at it, your hard work and effort will pay off. <b>-OR-</b> It’s not correct...YET!
Your team got that correct!	Your team worked well together and your efforts paid off!
You are really smart!	You work hard in school and it shows

\*Adapted from Mindset Works

**WHAT DO YOU DO WHEN THE TECHNOLOGY DOES NOT COOPERATE?**

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

In a digital age, unexpected situations will arise beyond anyone’s control that may delay students and teachers from completing tasks as planned. Teachers using CPM eBooks should discuss an emergency plan with all of their students for completing classwork and homework if digital access is not available. These situations may arise because of a problem from CPM, but could also come from the Internet provider, from the school’s digital system, or from the home Internet system. In order to mitigate the many excuses students may have for not completing homework or classwork, the teacher should post alternatives for students to access CPM materials.

At CPM, reliable service for our customers is a priority. As such, we are continually adding more redundant services so that the possibility of an outage is lessened to almost zero. So what does a teacher do if the Internet goes out during class or in the evening when students are doing homework? Your school should decide on a procedure, posting it for all.

Possible Plans During School Time

1. Use a Document Camera to project the day’s lesson from a copy of the textbook.
2. Use an LCD projector to project the SMART board lesson.

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# #OBSERVE ME

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For many years the profession of teaching has been viewed as an individualized practice. Many educational systems have left teachers to work in isolation to plan, teach, grade, and reflect on their students' progress, with no chance of input from their peers. This needs to change. The power of collaboration is a key component to learning and improving not only for students, but also for teachers.

How does an athlete or musician get better? Or how do our students deepen their learning? Research has proven that feedback for students is a critical component of learning. If teachers are going to improve their practice or craft of teaching, they need feedback as well. Typically teachers receive feedback in the form of one or two formal evaluations a year. In many cases this feedback is not useful for improving one's everyday craft. If teachers are going to improve they need more ongoing and frequent feedback from not just a supervisor, but their peers and colleagues. Without feedback it is very difficult to determine how to improve.

Back in August Robert Kaplinsky started a movement on social media called #observe me. He put a call out to all those in the profession to post a sign on their classroom door indicating what they would like feedback on. His example:



As a mathematics coach, I have the opportunity to partner with teachers to provide feedback. Coaching is a great way for teachers to set goals and focus on areas, and then receive specific ongoing feedback to support them in improving their practice. You might be thinking “*That is great, but I don’t have a coach.*” However you do not need to have a coach at your school to ask for feedback. You might begin by pulling out your phone, start an audio recording, and slip it back in your pocket. This strategy may give you great insight into who is doing the talking and the type of questions that are being asked in your classroom. Or you might simply find one colleague to partner with and once a week visit part of each other’s class period. If you work with a team of teachers or are a member of a professional learning community, you might suggest that your team takes turns observing each other. Be the brave one to step up and take the lead by having them all observe you first. Think of the how much more students will value collaboration and feedback if they see teachers participating in the practice as well.

I would echo Robert’s challenge to create an Observe Me sign, post it outside your room, take a picture and post it to social media with #ObserveMe.

For additional ideas, Robert has created this website [Bit.ly/observe\\_me](http://Bit.ly/observe_me).

## TECHNOLOGY from page 9

3. Have a set of textbooks available for emergencies.
4. If the school loses power, students whose schools allow cell phones may be able to access content through their cell phones.

## Possible Plans During the Evening

5. If eBooks are unavailable, go directly to <http://homework.cpm.org>. All homework problems as well as hints, steps, and some answers are available. This site has never gone down and does not require a login.

6. Within a few minutes, you should be able to go to: <https://freebooks.cpm.org> if more information is needed.
7. If neither of the first steps works within 15 minutes, email [support@cpm.org](mailto:support@cpm.org) explaining any error messages you are getting.
8. If your Internet goes out at your home, try your cell phone or call a friend.

# CPM'S POSITION PAPER ON HOMEWORK

Karen Wootton, Director of Curriculum and Assessment

CPM believes that homework is an opportunity for students to individually practice skills and deepen their understanding of concepts. Because of this, CPM authors have taken care to purposefully place each homework problem correctly within the course to support one of CPM's guiding principles, mastery over time. Looking at the homework, headed *Review & Preview* in the text, you will most likely see one or two problems related to the day's topic, a couple problems on topics from a few weeks ago, and a few problems on topics from possibly a few chapters ago. This is called mixed, spaced practice, or interleaving. The research is clear on this: learning is improved when the practice is *spaced* over time, rather than being *massed*, or happening all at once and then left behind. Topics and skills are revisited again and again through the homework. Each time, the questions grow in depth and complexity, topics are presented with different representations, as well as connected to other areas of mathematics.

Homework assignments allow teachers to formatively assess their students' ability to demonstrate mathematical skill, understanding in writing, and growth, as well as the quality of work. The spaced practice of the *Review & Preview* sections allow students to demonstrate growth over time and progress toward mastery. CPM recommends that teachers do not spend time grading every homework assignment for correctness. CPM believes that one of the best ways to prepare to teach a CPM course is to work through all the assigned problems. Teachers who do so create solution sets for homework checking as an added benefit of thorough preparation. Teachers should provide these solutions for students to check their work which allows students to take responsibility for their learning. By reviewing detailed solutions, students can correct any errors, and determine if they need to see the teacher for

additional help or clarification, or to feel confident that they have mastered the concepts and skills. Homework is an opportunity to practice outside of class. Errors are to be expected and not penalized. Every effort should be made to help students understand that homework is for their benefit and to improve learning. Doing homework problems gives students an opportunity to self assess their readiness and preparation for individual assessments.

Because CPM feels that doing homework should support student learning, there are two pieces of information that students, parents, and teachers should all be aware. First, there are only a minimal number of homework problems to do each night. This is purposeful and CPM does not expect teachers to supplement the homework problems with additional worksheets or problems from another source. Students will get the necessary practice through the mixed, spaced practice that continues throughout the year. For example, when students first learn how to factor trinomials, there might be only two problems for homework that night on factoring trinomials. However, over the course of the next several weeks and months, the students will end up doing well over one hundred factoring problems, far more than the "1 - 30 odd" many teachers assign in a more traditional massed approach to homework. Second, CPM provides online Homework Help free to anyone with internet access. Within the eBook, next to each homework problem is a link: [Homework Help](#)  which will take the student to the hints and suggestions for solving the problem. For students who do not have an eBook, all Homework Help can be found by going to CPM.org and selecting the student's text from Textbook Resources then choosing Homework Help from the menu on the left.

Homework Help is designed to support a task that is done outside of the classroom with no teacher oversight or support. The variety of assistance that Homework Help provides is appropriate to the purpose of homework, that is, to practice and deepen understanding. Therefore, students will not find simple answer statements in the Homework Help. Rather, hints, suggestions, and references to previous problems are offered. A student may choose to rapidly click through all the hints, and then copy the answer. (Some problems do not have the answer.) Of course this is not what we would want students to do, but most students use Homework Help as the support it is intended to be. CPM believes it is important to let students know that Homework Help is available, free of charge, and students should use it to help them learn, not to copy answers.

Every school and every district has its own policy on homework and how or if it should be graded. CPM believes it is the school's or district's duty to have a policy on homework and the assessing of it that is readily shared with students, parents, and teachers. CPM believes that homework falls under the heading of formative assessment and should therefore be used accordingly.

## CPM DIRECTORS & COORDINATORS

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## CONGRATULATIONS!

Lorrayne Graham, a valuable CPM employee that many of us have had the wonderful pleasure to talk to over the past 12 years, retired at the end of 2016. Lorrayne has always been a cheerleader for many of us, a ray of sunshine, even when our days might get us down. She is heading out to a new adventure, filled with lots of traveling and family time. She will be greatly missed. Good luck Lorrayne!



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