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Teaching and Learning III: Math: Numbers to 1,000 CUP

How do mathematicians think about place value?

- I. Title and brief description: Give a title and short description. What, briefly, will students be doing in this unit of study?
 - In this unit, students will be extending their mathematical thinking in an intensive version of a math meeting. Throughout Topic 9: Numbers to 1,000, students will be learning to depict and describe numbers up to 1,000. This includes physical representations, pictorial representations, and abstract representations. Students will also be working with their ideas around place value, identifying patterns by skip counting, and comparing numbers to increase their number sense. In this extension of math meeting, students will be engaging in small-group interventions and extensions of previous lessons, working with technology to solve math problems, and building upon concepts to prepare them for the day's lesson. By incorporating more intentional interventions at the beginning of each lesson, students who need more support can receive it so that they can access the new material each day and students who crave extensions and can dive deeper into the concepts have an opportunity to challenge themselves as well. This will allow all students to access the new material each day as well as provide more individualized attention to those most at-risk students and give meaningful, on-task challenges and extension for the students who can be pushed.

- II. Big Idea/Essential Question: Explain your "big idea" and/or essential question.
 - **How do mathematicians think about place value?**
 - This essential question reflects the nature of the unit as a supplement to the main Pearson lessons. The Pearson textbook's essential question for students is "How can you count, read, and show numbers to 1,000?" I chose to differentiate my essential question because this unit is differentiated from Pearson. My students will be accomplishing the bulk of the counting, reading, and writing in the time spent on the Pearson textbook. In the extended math meetings, they will be working more on their mathematical thinking, number sense, and theoretical concepts associated with the unit. During the textbook lesson, they will learn more of the practical skills needed to build upon those theories. It is crucial that they build a strong sense of place value and identify those patterns linked to numbers and place value in younger grades so that they can understand even more complex math and check to see if their answers and ideas make numerical sense.

- III. Learning Goals: Explain what learning goals you have set for students' investigation of the big idea/essential question. Consider the following areas:
 - a. Development of content understanding (key concepts and ideas)
 - The most important learning goals of this unit are as follows:
 - SWBAT identify the main place values (ones, tens, hundreds, thousands).
 - SWBAT use relevant vocabulary (e.g. digit, greater than, less than, standard form, expanded form, increase, decrease) to describe numbers and talk about math.
 - SWBAT count by 1s, 5s, 10s, and 100s to 1,000.
 - SWBAT model 3 digit numbers with place value blocks.
 - SWBAT draw 3 digit numbers pictorially.
 - SWBAT tell the value of a digit based on its place in a number.
 - SWBAT read and write 3 digit numbers in expanded, standard, and word forms.

- SWBAT compare and contrast different ways to represent the same number.
- SWBAT compare the value of given numbers on hundreds charts, number lines, and by their place values.
- SWBAT use greater than and less than symbols to describe numbers' relations.
- SWBAT discover patterns and analyze them to solve problems.
- SWBAT practice basic computer skills including clicking, typing, scrolling, etc.

These learning goals focus on connecting students with content standards through meaningful and intentional application of small group work directed at their understandings. By assessing students daily, they will be able to work on the exact skills needed to successfully grasp each lesson within the unit. They will also be able to access the previous lesson's content briefly before engaging with the new content each day. These learning goals reflect Pearson's EnVision Topic 9: Numbers to 1,000 and the additional work students will do in their revamped math meetings.

- b. Enabling students to experience the power of their minds and their capacities as learners and doers (powerful learning)
- Students will be able to access a new vision of themselves throughout this unit. By seeing themselves be successful every day, they will gain confidence and see themselves as capable mathematicians. This is extremely important for our classroom as a whole. I have noticed that most of my students have become less and less interested and confident in math. In order to revive their inquiry and desires to discover in math, I knew they had to build their confidence. Almost all of my students dislike math and this makes it difficult to teach from the book in a predominantly whole-group setting. Those who enjoy math understand new concepts quickly and become bored with the slow-moving whole-group style lessons.

By addressing my students as individuals instead of as a whole-group, they will see themselves as powerful learners and believe in their capabilities as mathematical learners. When my students take math assessments on paper and on the computers, they get anxious and place a lot of weight on their final scores. By allowing them to take check-in quizzes daily, they will see their scores improve, increasing confidence. This will convince them they are capable in math and can all achieve goals from lessons. Based on their results, I will group them and give them interventions based off of what they need to work on. This will directly correlate to an increase in attention to them as individual learners and allow them the exact attention and practice they need. This equation and whirlwind of activities and differentiation will help them strengthen their skills as they learn and move through the content. Not only will they see themselves as "good at math" and strong mathematicians, this will even out their prior knowledge and engagement so that whole-group instruction is more effective. They will get to work on their individual skills directly, use strong math vocab, and build strong number sense which will all contribute to their confidence moving forward in math.
- c. Development of intellectual and academic habits of mind, work, and discourse, including habits of independent or collaborative thinking and doing typical of readers, writers, speakers, creators, researchers and thinkers in the discipline (ways of knowing and academic literacy)
- Students act like mathematicians when they embody the mathematical practice standards. By reinforcing math meetings, students get opportunities to practice all of the ways to "be a mathematician." First, the fourth and fifth standards involve modelling and

using appropriate tools. Throughout the unit, students will be practicing modelling 3 digit numbers with base ten blocks. They will also be using Chromebooks as learning tools and will be expected to practice their abilities to model and respect and use materials and tools to engage with math. Next, the first and sixth practice standards relate to persevering through problems and being precise. Students practice these standards by challenging themselves in the extension activities and trying their best on daily assessments to be accurately placed in groups. They will solve many problems within their zones of proximal development and they may need to persevere more and be more precise than they had to before. The seventh and eighth practice standards involve using structure and patterns to solve math problems. Students will complete activities built around recognizing the patterns within skip counting and hundreds charts regarding the place value changes in numbers. Lastly, the second and third practice standards address using reasoning and making arguments defending one's own thinking. Students build their number sense and ability to reason with a strong idea about place value. Students practice making arguments by practicing their metacognition and explaining their work verbally, in writing, and with models. Throughout the entire unit, students act as mathematicians and improve upon all the mathematical practice standards and ways of thinking. This allows them to become stronger mathematicians and think in mathematical ways.

d. Literacy development, including capabilities of proficient readers, writers, and speakers in the particular discipline

- Literacy is incorporated into this unit in a variety of ways. Before the unit even began, I updated our Math Words wall. I kept all relevant vocabulary from previous lessons and added all the new vocabulary from this topic. This is important for students to begin to take ownership of the vocabulary and become stronger speakers and writers of math themselves. In addition to the vocabulary posted in the classroom, we will also go through the Topic Opener to define all the new vocabulary before the first lesson. One of the first online games available to the students will be a vocabulary hunt game provided on Pearson Realize. This extensive coverage of the vocabulary will ensure all students hear, see, read, write, and interact with the new vocabulary in this topic.

Also, students' constant exposure to word problems is another way they will be expected to interact with literacy in math. They will need to read the problems, solve, write, and model their answers. They will be expected to use vocabulary when appropriate. Their abilities to read will be scaffolded as necessary but all students will be able to identify math words to determine important information within a problem such as "in all" indicating a sum or whole. Students will practice speaking and listening in their small groups and partner-work. They will need to listen to each other and to problems online and they will need to speak to explain and clarify their ideas. Throughout the course of the entire Topic and unit, students will have had an immense amount of opportunities to talk to each other and the teachers about their thinking, read many word problems, and write in response to those problems, increasing their literacy skills and math skills.

e. Development of trust and the classroom as a learning community

- This unit is extremely impactful for building upon our classroom community. Math meeting is a moment within our school day routine for us to regroup after lunch and recess and come back together as a learning community. By recognizing its importance

within our day, I know that this activity builds our classroom's climate and community. In addition to the routine, this unit evens out the playing field for my students. By addressing their strengths and pinpointing their challenges in math, each student sees themselves as smart and capable of improvement. No one is "the smart math kid" and no one is "the one who's bad at math." Each student knows they can accomplish their tasks and each student faces their challenges with a strong support system. In this way, each day, everyone is challenged and pushed appropriately. This also allows each student to be humbled and encouraged to be great at math, creating a respect for our differences and similarities as a class.

IV. Personal, social, and cultural factors (yourself, your students, and learning)

- a. What assumptions are you making about why your plan will connect to your Main South students? How are you taking into account any differences in your socioeconomic, cultural, or racial background, gender, personality, approach to learning, or view of the world?
- I recognize that my students come from different backgrounds than my own. We might all live in Main South but I do not share similar demographics than them. When approaching math, I recognize that people of color and women are groups that often struggle to see themselves as successful. In this type of unit, I took this into consideration. It is extremely important for these people, as young as second grade, to feel confident in their mathematical thinking and abilities. This type of intervention, while beneficial for their math scores and knowledge, is also designed to boost confidence and belief in oneself as a strong math learner. As a woman who loves math, this is apparent to me. I recall experiences trying to pretend to be bad at math as a young adult. I want to use that background and experience to provide my students with the idea that they should be good at math and not ashamed of it. It is my core belief that all students can be capable learners and achieve highly within a classroom regardless of their demographics and background.
Important to this unit is the realization that many of my students come from a socioeconomic status which prevents them from accessing the online materials from home. That is why it is increasingly important for us to incorporate technological experiences within the lessons at school. The more students can use Chromebooks to play games, take quizzes, and just scroll and click around, the more likely they will not feel intimidated by the technology when they take larger tests such as the MCAS test in 3rd grade. I want to include online resources that are iPhone and Android friendly so that my students can access them on cell phones as that is their main access to the internet. Despite our differences, I have considered my students access to materials and backgrounds and demographics with this unit's design and implementation.
- b. Please think about (and write about, if appropriate) whether and how in this plan you might position and empower students to "read the world" and act in it in support of equity and social justice.
- Although not obviously on the surface, units in math like this one are important for my students in building their sense of problem solving abilities. By persevering and solving complex real-world problems, these types of activities are preparing my students for a world full of hard-to-solve problems. If they have the confidence in their problem-solving skills and can work through tough problems, they will be able to transfer those skills to solving social injustices and fight for equity in our world. Feeling capable of using the tools available to you to make sense of the world around you is the basis for

activism. My students will begin to understand that problems are solvable and solutions can be found by collaborating with each other and using resources around. This will empower them to act in just ways as they move on from our classroom.

- V. Rationale: Your rationale should clearly show your careful consideration of a full range of factors in planning your unit to ensure equitable support and meaningful, authentic, and substantial learning for all students, taking into account:
- a. Learning goals: Explain why your big idea/essential question and your learning goals are important for your discipline and meaningful for your students.
- The following learning goals guided by the essential question are extremely important for my students' development of their number sense and conceptualization of place value. These core concepts will be built upon for almost all of the following math in their lives. By supplementing math meetings for this particular unit, I am ensuring that all my students will achieve the learning goals listed. This lesson design allows me to pinpoint specific skills that each individual student could improve upon and then address them. It is a great way to deliver small-group instruction to those students who need more scaffolding in order to be more successful during each new lesson. It also allows me to extend and push those students in need of a challenge in math. The learning goals have been drafted straight from the Pearson EnVisions lessons but modified to reflect the exact reinforcement and extension activities in this unit. Students will be practicing their technological skills while sharpening their number sense, grasp of place value, skip counting skills, etc. These learning goals will make math meetings more intensive and engaging, increasing student interest and involvement.
- b. Curriculum standards: Explain how the big idea/essential question connects to the Guiding Principles in the MA curriculum frameworks. Identify which learning standards are addressed and how.

The essential question, "How do mathematicians think about place value?" connects WOK framework (Mathematical Practice Standards) to Topic 9 in Pearson EnVisions textbook (Numbers to 1,000) while incorporating brief technological use and practice. Students will be expected to work in small groups and use their speaking and language skills to communicate their understandings in writing and verbally. Throughout each meeting associated with each lesson, each content standard is covered accordingly. The practice standards are addressed with each student's attention to detail working on their number sense and basic skills surrounding place value and numbers to 1,000. They will be expected to apply their knowledge from the previous lesson and work diligently as they narrow down on what skills they have which are strong and those which need to be worked at.

Mathematical Practice Standards

- MP.1. Make sense of problems and persevere in solving them.
- MP.2. Reason abstractly and quantitatively.
- MP.3. Construct viable arguments and critique the reasoning of others.
- MP.4. Model with mathematics.
- MP.5. Use appropriate tools strategically.
- MP.6. Attend to precision.
- MP.7. Look for and make use of structure.
- MP.8. Look for and express regularity in repeated reasoning.

Mathematical Common Core Standards

- 2.NBT.A.1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.
 - a. 100 can be thought of as a bundle of ten tens—called a “hundred.”
 - b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
- 2.NBT.A.2. Count within 1,000; skip-count by 5s, 10s, and 100s. Identify patterns in skip counting starting at any number.
- 2.NBT.A.3. Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.
- 2.NBT.A.4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.
- 2.NBT.B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

Additional Standards

- 2.SL.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others’ talk in conversations by linking their comments to the remarks of others.
 - c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
 - 2.SL.3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
 - 2.SL.4 Tell a story, recount an experience, or explain how to solve a mathematical problem with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences and using appropriate vocabulary.
 - 2.SL.6 Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.
 - 2.L.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades.
 - 2.L.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - 2.L.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.
 - 2.L.6 Use words and phrases acquired through conversations, activities in the grade 2 curriculum, reading and being read to, and responding to texts, including using adjectives and adverbs to describe.
- c. Students’ backgrounds and readiness: What strengths, capacities, and interests, in terms of their content understanding (prior knowledge), academic and literacy development, personal and cultural abilities, and development as a learning community, are you taking into account in planning this unit?

- I am considering many aspects of my students' readiness surrounding their mathematical abilities as well as their interests and desires in math. I noticed in math, many students who need intervention and small-group instruction fail to get it until the later parts of our lessons. I also noticed that they often have to get pulled through a lesson even if they express misunderstanding early on. They often watch a lesson unfold and retain and engage with minimal parts of the bookwork. When we send them off for independent practice, their hands shoot up and we then pull them aside for the explanations they need to grasp the concept. This has occurred frequently throughout the year across many different units.

I have also noticed on the other end of the classroom spectrum that my students who are quick to pick up concepts in math feel as if we move too slowly through the content. Sometimes they try to sneak in doing problems ahead of the class or peaking at lessons to come. These students might be overconfident in their depth of understanding at times. That is why in this unit, I want to push them to develop their thinking around the lessons instead of moving quicker through them. These students would benefit from mathematical challenges and puzzles. Finding patterns, predicting, applying reasoning, and other mathematical practices could be tapped into and strengthened even more with those students.

My learning community values our math meeting after lunch and recess highly. It is our time to relax and refocus. We talk about how many days we have been in school and update our calendar. Previously, we worked with concepts we were covering such as odd/even and making the number with coin money. By condensing the meeting, I will maintain our routines surrounding days in school and working with calendars but allow more time for direct interventions and small group work. I recognize I could not just eliminate or change the math meeting drastically because it serves as a social-emotional regulator for the class and is part of a consistent routine we have already established.

- d. Student needs: What particular needs of your students—academic, social, personal, language (ELLs)—have you taken into account in planning the unit? What will they need to be able to do in order to meet the learning goals?

- I have considered many of my students diverse needs while planning for this unit. The mere creation of this unit was based in a response to the diverse mathematical strengths and needs my students present. Academically, in math, my class is widely divided into those students who enjoy and tend to thrive in math and those who have to put in lots of effort to understand the concepts at the speed we move. This division in our class has begun to affect management. Those students who tend to have difficulty lose interest in the lesson quickly and resort to foolishness. Those who understand the lesson quickly and easily want to move faster and also tend to act out from boredom. Knowing that some students need more front-loading to access the upcoming lessons is the main needs my students projected which made me design the new math meeting. In addition to wanting to help those struggling before they face the struggle, I wanted to also provide a time for those high-flyers to challenge themselves not with speed but with depth of knowledge around the topic.

In addition to the academic abilities of my students, I also recognize that I have students with special needs, and a lot of English Language learners in my class. This is important to how I addressed the supplemental activities in this lesson. I want my ELLs to be able to own the vocabulary involved with place value and be able to articulate their thinking in multiple ways. They would work on their speaking and listening skills while

strengthening their use of relevant math vocabulary. All students being able to improve their math skills is extremely important as we begin thinking about place value in a more in depth way. This unit is a key building block for the math we will be doing for the remainder of the year.

e. Research- and evidence-based powerful learning practices: Explain how research and ideas about powerful learning have informed your plan.

- Research has shown that when teaching math, it is crucial to front-load lessons and build a strong base of strategies for solving problems. It is also key to have good number sense to therefore use reasoning and identify patterns with numbers to make complex ideas make more sense. In the short-term I will be front-loading those students in the at-risk group for each lesson so that they may access all the material they need. In the long-term, I am front-loading all my students to be stronger mathematicians with better number sense, vocabulary, confidence using technology to solve math problems, and grasp of the core concept; place value.

By building upon what my students already bring I exemplify to them and for them that they are wealths of knowledge and capable learners. By accessing their prior knowledge before teaching a new lesson, I allow each student a chance to recall important information and engage their mathematical brain. Research has shown that this access to prior knowledge and experiences allows students to build more connections and stronger connections to material.

VI. Assessments: It is essential for both you and your students that your formative and culminating assessments clearly show the extent to which students have achieved learning goals.

a. Explain your main assessments and why they are appropriate for your learning goals.

- My main assessments in this unit are simple. Daily, I expect all students to complete the quick check associated with that lesson. I use this to decide who needs a reteaching intervention and who can benefit from an extension or challenge. I also expect each student to complete their respective worksheet or assignment daily as well. This is how I will monitor who is benefitting from the activities and who needs more support. For example, if a student does well on the quick check and tries the enrichment activity but gets it all wrong, I know that that individual needs more scaffolding or to have a conversation about what is going on before sending them along. Dividing into groups does not have to be an even split. If everyone in the class is succeeding and achieving the learning goals then I will provide all students with the Enrichment. If the whole class does poorly on the quick check, instead of everyone doing the reteaching intervention, I will go back and reteach the whole lesson to clear up any misconceptions or unclear ideas. I will also assess their cumulative knowledge at the end with the paper and online assessments provided by EnVisions.

b. How will students know what to expect and the criteria for good work?

- Students will have the math meeting schedule posted on the white board everyday and know what to turn in from that schedule. Students know that I need them to transition effectively so that they can get to all the work they need to do. They know I expect them to try their best on the quick checks and that most of the work in this unit is independent or quiet group work. Students know I will be reviewing their work to better

help them every day get better at math. We will go over expectations and goals in the brief meeting before I send them off to work.

- c. Attach a draft of your culminating assignment and corresponding assessment criteria/rubric.
- See Pearson’s Online Assessment.
- d. How will students and parents learn about students’ overall academic progress from these assessments?
- I will let parents know about their students’ work in math through the newsletter Jen sends out monthly. I will also be giving my students extra worksheets or challenges if they want. This will look different than the typical math book papers that go home. If students want to push themselves at home too, they are more than welcome to bring home the Common Core reviews and any extra work they did not get to finish in class. I will also be sending home login information so that they can all access the games we play online at home either on phones, tablets, or computers.

VII. Unit Calendar

- a. Provide a calendar of key learning activities, learning strategies, and assessments for your anticipated timeframe for the unit.

<u>Unit Plan</u>	<u>Activities</u>	<u>Strategies</u>	<u>Assessments</u>
LAP 1: 9-1 and 9-2 Understand 100s and Models and 3 Digit Numbers	<ul style="list-style-type: none"> ● Days in School Meeting ● Interactive Story Books ● Online Games <ul style="list-style-type: none"> ○ How Much/How Many? ○ Save the Word ● Quick Check ● Intervention/Reteaching Activities ● Enrichment Challenges ● Common Core Review 	<ul style="list-style-type: none"> ● Technology Incorporation ● Literacy ● Small Group ● Activation of Prior Knowledge ● Social Emotional Grounding/Awareness 	<ul style="list-style-type: none"> ● Quick Checks ● Intervention and Enrichment Worksheets ● Common Core Review ● Participation in Online Games
LAP 2: 9-3 and 9-4 Name Place Values and Read and Write 3 Digit Numbers	<ul style="list-style-type: none"> ● Days in School Meeting ● Today’s Challenge ● Online Games <ul style="list-style-type: none"> ○ Gobbling 100s ● Quick Check ● Intervention/Reteaching Activities ● Enrichment Challenges ● Common Core Review 	<ul style="list-style-type: none"> ● Technology Incorporation ● Small Group ● Activation of Prior Knowledge ● Social Emotional Grounding/Awareness 	<ul style="list-style-type: none"> ● Quick Checks ● Intervention and Enrichment Worksheets ● Common Core Review ● Participation in Online Games
LAP 3: 9-5 and 9-6 Different	<ul style="list-style-type: none"> ● Days in School Meeting ● Today’s Challenge ● Online Games 	<ul style="list-style-type: none"> ● Technology Incorporation ● Small Group 	<ul style="list-style-type: none"> ● Quick Checks ● Intervention and Enrichment Worksheets

Ways to Say the Same Number and Place Value Patterns with Numbers	<ul style="list-style-type: none"> ○ Space Jump ● Quick Check ● Intervention/Reteaching Activities ● Digital Tools ● Enrichment Challenges ● Common Core Review 	<ul style="list-style-type: none"> ● Activation of Prior Knowledge ● Social Emotional Grounding/Awareness 	<ul style="list-style-type: none"> ● Common Core Review ● Participation in Online Games
LAP 4: 9-7 and 9-8 Skip Count by 5s, 10s, and 100s to 1,000 and Compare Numbers Using Place Value	<ul style="list-style-type: none"> ● Days in School Meeting ● Today's Challenge ● Online Games ○ Greg Tang: Place Value ● Quick Check ● Intervention/Reteaching Activities ● Enrichment Challenges ● Notice and Wonder ● Common Core Review 	<ul style="list-style-type: none"> ● Technology Incorporation ● Small Group ● Activation of Prior Knowledge ● Notice and Wonder ● Social Emotional Grounding/Awareness 	<ul style="list-style-type: none"> ● Quick Checks ● Intervention and Enrichment Worksheets ● Common Core Review ● Participation in Online Games
LAP 5: 9-9 and 9-10 Compare Numbers on a Number Line and Look For and Use Structure	<ul style="list-style-type: none"> ● Days in School Meeting ● Today's Challenge ● Online Games ● Quick Check ● Intervention/Reteaching Activities ● Enrichment Challenges ● Common Core Review 	<ul style="list-style-type: none"> ● Technology Incorporation ● Small Group ● Activation of Prior Knowledge ● Social Emotional Grounding/Awareness 	<ul style="list-style-type: none"> ● Quick Checks ● Intervention and Enrichment Worksheets ● Common Core Review ● Participation in Online Games

- b. Explain your sequence of activities—why does this particular order make sense in light of your learning goals and rationale for the unit?
- This unit follows the Pearson EnVision's curriculum for Topic 9: Numbers to 1,000. The order of the lessons reflects the order in which they present the material. The math meetings are supplementary lessons to enhance student understanding around the material. I grouped two meetings into one lesson to cover the entire unit and because adjacent lessons often are similar enough to bleed into one another. Before the unit starts, there is a Topic Opener and review of new vocabulary, this ensures all students start with a basic exposure knowledge of the necessary vocabulary in the unit. Next, we start with number sense and comprehending what 100s are and what place value means. We then transition to naming the place values, making models, and representing 3 digit numbers. This gives the foundation for students to then begin to represent the same number in different ways. Then students can compare 3 digit numbers in multiple ways as well. Lastly, students can use skip counting and repetition in structure of 3 digit numbers to make sense of their nature and help them conceptualize and deepen their number sense.

VIII. Family and Community Involvement:

a. Are there possible ways for you to actively involve parents in their child's academic activities and performance, and communicate clearly with them?

- As I mentioned before, I will update parents on what we are changing in math through the monthly classroom newsletter. I will also be sending home login info for the online math games so that students can access those games at home on any device available to them. Extra work will get sent home as optional extensions for students who want them. I hope to be able to update parents on growth at the end of the unit. I will track student's work before, during, and after we try this new math meeting and hope to share positive results.

b. Are there possible resources—such as guest presenters, A/V, field trips, and material artifacts—from colleagues, families, and the community for you to draw on to enhance learning?

- In an ideal world, I would be able to give my students lots of time, money, and effort to explore all avenues their learning takes them. Being able to access Chromebooks and use outside resources like Greg Tang math are great resources we already have in Worcester at Jacob Hiatt. I noticed that we had been neglecting these tools and wanted to try and incorporate them more into our day. In addition, I would have students meet someone like Greg Tang or have the ability to take Chromebooks home. I know those are not very feasible options but I believe that my students have great opportunities with the technology Worcester already has, we just need to utilize it.

It might be of benefit to have students meet people in their community from WPI or who use math daily. Engineers, accountants, etc. would be great people to inspire and encourage my students to continue their love for math. This unit is designed to strengthen my students' mathematical orientations and interests. If I could have real people they might know and live around speak to them about the importance of math, that might be a very fun and inspirational addition to this unit and would connect the real-world, their community, to the math we do at school in second grade.