

The Pedagogy of Middle School Math: A Modern Interpretation

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Dear Reader,

Thank you for your interest in my capstone. First, let me introduce myself. I am currently an undergraduate student at American University in Washington, DC, where I will earn my Bachelor of Science in Mathematics and Secondary Education degree in May, 2008. I spent one semester of my undergraduate career at Middle Tennessee State University where I was able to focus on Mathematics Education in a program slightly larger than that at American. My education experience is extensive and varied, as I have been teaching religious education since 2000 and have also taught in various tutoring programs in the District of Columbia during college.

My most recent experiences include a practicum assignment twice a week in the fall with Sandra Allen, a National Board Certified teacher at Benjamin Banneker Academic High School and my student teaching experience all spring. My student teaching occurred at another well known charter school in DC, Paul Public Charter School. Technically my classes were both groups of students taking 7th grade Math Review from a somewhat remedial standpoint, as they entered 7th grade behind grade level in mathematics. One class was a group of mostly English Language Learners, explaining why they were behind. The other class was in a special program at Paul called Bridge, where students have to achieve at least 1.5 grade levels increase in their knowledge to move on to the next grade, because they entered so low. This class received a double period of instruction. The 29 students I saw every day presented unique challenges and provided the materials for this capstone.

My capstone represents an eclectic mix of teaching strategies. Paul has not made Adequate Yearly Progress (AYP) for the No Child Left Behind Act (NCLB) for two years, therefore putting the school in extreme danger if they do not pass again. The method most

recently proven to teach mathematics in the most comprehensive manner is discovery learning, as you will see many examples of in this capstone. In my classes, we often utilized this method as a whole class, but when students took this learning on their own shoulders, they participated in what we called explorations. However, some skills and concepts needed to fit in before the DC CAS and I took more traditional routes of teaching, with the promise that the students could participate in explorations to deepen their learning after the test.

This was a unique experience for me, as my views into education previously came from teachers who were not worried about their students passing, unlike my behind grade level students. Teaching effectively for students and to benefit the school as a whole was a balancing act that made me contemplate the meaning of teaching. I found that my philosophy did not change, and I pushed myself to give the students as much time as possible to explore their own ideas while still exposing them to the many mathematical concepts they had not heard of. Combining the ideal and the somewhat disheartening reality into one great learning experience was a challenge that I enjoyed and hopefully you will see how it benefitted all through this capstone.

When I changed my major to education during my sophomore year of college, I breathed a sigh of relief and felt a huge weight lifted off my shoulders. However, I am thankful for whatever led me to decide that political science was the path for me, as it brought me to American University and the District of Columbia. I have seen a mixture of all types of students, as I taught suburban students in religious education at home, tutored some of the most poverty stricken students through AU tutoring programs, and taught a unique blend of the motivated urban students at two DC charter schools. As much as I have loved the experience of teaching in DC, the future holds a different path for me.

After graduation I plan to return to Tennessee, where my family lives. I would like to take the unique experiences I have had in the District of Columbia and apply them to whatever mix of students I find myself teaching in such a different environment of southern culture. I look forward to learning more about myself as a teacher through work in secondary education and plan on entering a graduate program for curriculum and instruction once I establish my position. I thought that my practicum and student teaching experiences would help me choose whether I was best suited for middle school or high school. In reality, I now see the benefits and drawbacks of both and plan to leave that decision to a higher power. I did not enter education for the subject matter or the age group as many educators do, but for the love of teaching and cannot wait to share my passion with a new set of students.

Regarding the format, this capstone is broken down by the 10 Interstate New Teacher Assessment and Support Consortium (INTASC) standards. In each section you will find the INTASC description of the standard, my interpretation, and two artifacts of my teaching experience which represent that standard. Each artifact includes a description and a reflection, linking my teaching practices to both the INTASC standard and current best practices and educational theory. Thank you for taking the time to peruse this capstone, I hope you enjoy it as much as I enjoyed the experiences that are its foundation.

Sincerely,

Ali Clark

INTASC Standard #1

The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.

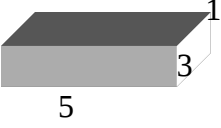
Interpretation:

The teacher has a deep knowledge of both facts and underlying concepts related to the subject material he/she is certified in. This knowledge incorporates connections between different strands of the subject material as well as connections between the chosen subject and other important information, both school subjects and everyday life applications. The teacher can use this knowledge to create lessons that motivate students, activate prior knowledge, prevent or address misconceptions, and allow for higher level thinking and instrumental understanding of the subject.

Artifact 1: Relational Learning Exploration

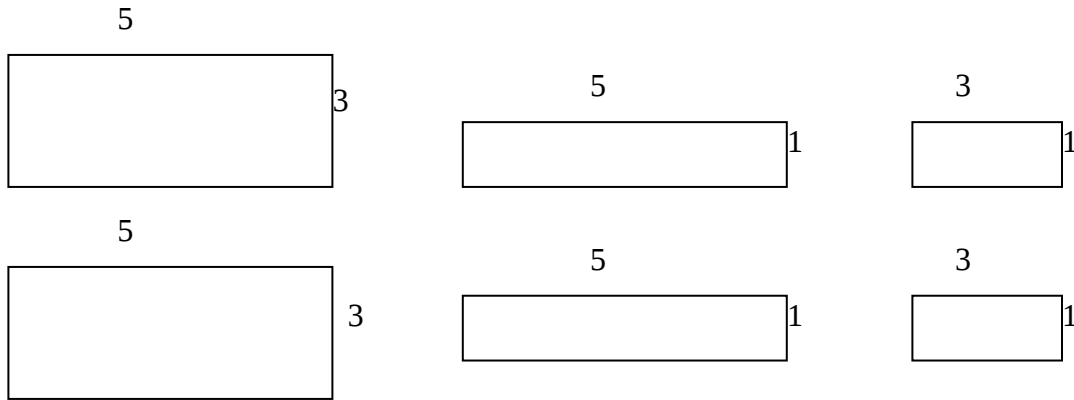
3D Shapes

- 1) Try to draw it in the first box on the chart. Label the length, width, and height.
- 2) Count the faces, edges, and vertices on it. Fill this in on the chart.
- 3) Describe the faces on the shape. Fill this in on the chart.
- 4) Find the volume of the 3D shape. Fill this in on the chart.
- 5) When you finish the front...flip this page over!

PICTURE	Faces, Edges, Vertices	FACES	VOLUME ($v = lwh$)
	<u>6</u> faces <u>12</u> edges <u>8</u> vertices	<u>0</u> (# of squares) <u>6</u> (# of rectangles)	Volume <u>15</u>
	<u> </u> faces <u> </u> edges <u> </u> vertices	<u> </u> (# of squares) <u> </u> (# of rectangles)	Volume <u> </u>
	<u> </u> faces <u> </u> edges <u> </u> vertices	<u> </u> (# of squares) <u> </u> (# of rectangles)	Volume <u> </u>
	<u> </u> faces <u> </u> edges <u> </u> vertices	<u> </u> (# of squares) <u> </u> (# of rectangles)	Volume <u> </u>

SEPARATE THEM!

- A Look at the EXAMPLE shape. Here is an example of all the separate flat pieces that make the shape.



- B. Then, I labeled them with their dimensions.
This part is tricky...match up each piece with where it is on the original shape to find the dimensions.
- C. Do you see any shapes that are CONGRUENT? How many pairs of shapes are congruent?
There are 3 pairs of congruent shapes.



1. Look at the first shape you drew. Draw all the separate flat pieces that make the shape.
2. Label them with their dimensions.
This part is tricky...match up each piece with where it is on the original shape to find the dimensions.
3. Do you see any shapes that are CONGRUENT? How many pairs of shapes are congruent?
There are _____ pairs of congruent shapes.

4. Look at the second shape you drew. Draw all the separate flat pieces that make the shape.

5. Label them with their dimensions.

This part is tricky...match up each piece with where it is on the original shape.

6. Do you see any shapes that are CONGRUENT? How many pairs of shapes are congruent?

There are _____ pairs of congruent shapes.



7. Look at the third shape you drew. Draw all the separate flat pieces that make the shape.

8. Label them with their dimensions.

This part is tricky...match up each piece with where it is on the original shape.

9. Do you see any shapes that are CONGRUENT? How many pairs of shapes are congruent?

There are _____ pairs of congruent shapes.

10. When you find volume are you finding what is inside the shape or outside?
11. What is material that makes the volume of your three boxes?
- Box 1 –
- Box 2 –
- Box 3 -
12. When we took apart the prisms and found all the flat shapes, what part of the shape were we finding, the outside or the inside?
13. Go back and find the area of ALL those different pieces you found on the prisms.
14. What material makes up the area of all the pieces you just found?
15. When would it be important to find how much a prism can hold? Give 2 examples.
16. When would it be important to find how much area is around the outside of a prism? Give 2 examples.

Description:

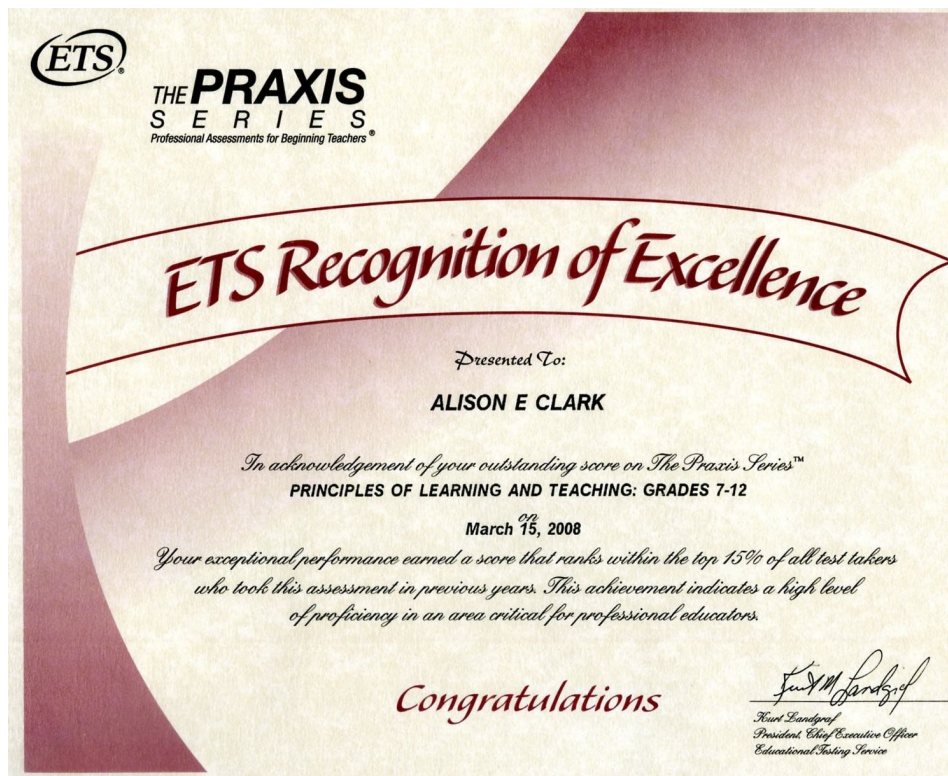
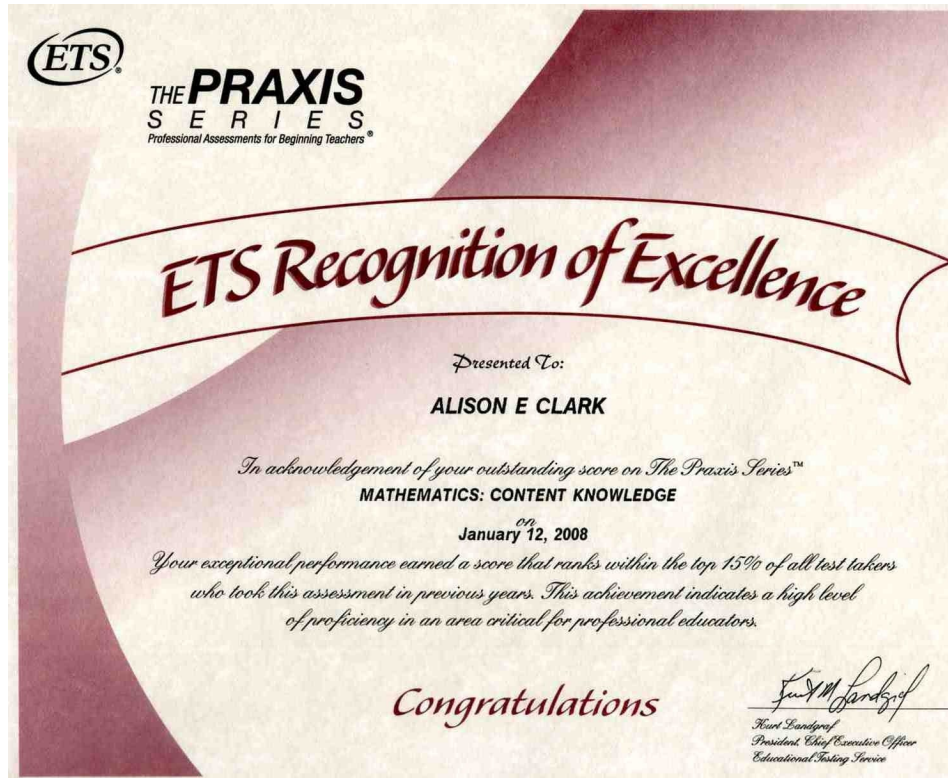
This is the worksheet given to students to complete as a discovery learning activity the day after a lesson on volume of 3-dimensional figures and before a lesson on surface area. At each group's table there were 3 distinct prisms, a cube alphabet block, a tissue box, and a box of staples, labeled with their numeric dimensions. After counting the number of edges, faces, and vertices and naming the quadrilaterals that create the faces, students found the volume of each shape. They then had to spatially take the prisms apart and draw each face separately, then find the area of each quadrilateral. The students had already discussed the meaning of volume and how to procedurally find it quickly with a formula. They also had prior knowledge on area, perimeter, and quadrilaterals so they would be able to recognize these pieces of the prisms.

Reflection:

The discovery learning process is one that was used consistently in my classroom early in the semester, and is currently a strong theory, especially for students of hard sciences. The students in the Bridge Program at Paul have extreme difficulties making connections between different mathematical concepts, so this discovery learning helped them understand visually and kinesthetically the concept of surface area. As seventh grade students, the curriculum requires that students can apply a formula for surface area, but the instrumental understanding of what the surface area is and how the formula was derived is within their grasp and became a personal goal of mine. I read an article by Richard Skemp called "Instrumental Understanding and Relational Understanding" in the March 2006 volume of *The Mathematics Teacher (NCTM)* which describes how students learn best if they understand the why and how behind the concepts they learn. This is supported by the "connections" process standard in the National Council of Teachers of Mathematics Principles and Standards for School Mathematics.

If I was going to do this lesson again, I would spend more time helping students see the dimensions of the faces of the 3D shapes as a group. It turned out that very few were spatially aware enough to do this on independently, even with the exemplar problem at the top. As the facilitator of this exploration, I spent much of my time assisting each student individually, or in pairs if nearby students came to that part at the same time, making my role more of an instructor because the directions were not clear enough for students to do the math discovery on their own. I would make easier and more meaningful next time by having them trace each flat surface onto wrapping paper and make a net of the shape, following similar guidelines about finding individual areas and adding them to find the surface area. This would help them see the usefulness of surface area during the exploration instead of the method and meaning being separate pieces of knowledge.

Artifact 2: Recognition of Excellence Certificates



Description:

These are the certificates I received for being awarded the Recognition of Excellence (ROE) from ETS for both the Mathematics: Content Knowledge and the Principles of Learning & Teaching: Grades 7-12 exams. The ROE is awarded to test takers who earn the ROE scaled-score, which is based on the top 15% of Praxis candidates who took each test between March 1998 and March 2003. The scaled-score requirement for the Mathematics: Content Knowledge exam is a 165 and for the exam it is a Principles of Learning and Teaching 184. My scores were a 174 and a 189, respectively.

The Mathematics: Content Knowledge is required for secondary level certification in Mathematics for both the District of Columbia where I attend American University, and the state of Tennessee, where I plan to teach next year. It is also required in most states that accept the Praxis test for certification. This test covers topics most commonly covered in secondary schools, following national research such as the National Council for Teachers of Mathematics and the National Council for Accreditation of Teacher Education rather than any particular state or district curriculum. The Principles of Learning and Teaching is an exam that covers the major bases of teaching, from psychology of student development to professional development to instruction and assessment. It is like a content knowledge exam on teaching as opposed to a specific subject content knowledge exam. This exam is not required in DC, but is required in Tennessee and many other states across the country.

Reflection:

The Mathematics: Content Knowledge exam required extensive knowledge of the subject area. As I began studying, I realized that it was more than studying; it was a review of all the different types of math I have learned both in high school Advanced Placement courses and at

the collegiate level. This test was not a traditional computational standardized exam, but required true understanding of the underlying concepts of mathematics. Not only did I need to be able to do the math, but be able to explain why some computation worked and what concepts proved other math ideas. This exam required me to really focus on my instrumental understanding of the abstract and theoretical mathematics behind what is taught, often relationally, in middle and high school. Having taken this exam and adding the deeper concepts into my pre-existing schema of teaching mathematics I opened my eyes to what is required of a teacher. I then found myself incorporating instrumental ideas into lessons I may have previously taught on a relational level.

The Principles of Learning and Teaching exam focused on incorporating educational theory into practice. In my collegiate coursework, applications of different aspects of teaching were required in separate classes, like students as learners in Psychology of Education, or classroom management techniques in Classroom Management, but this exam required application of many different theories into each of four case studies. This was one of the most realistic examinations I have taken, as I have now seen in a classroom that one type of educational issue does not occur at a time in an isolated environment. The combination of knowledge in both the science of mathematics and the art of teaching brings together the two major components of guiding students to their personal pinnacle of knowledge.

INTASC Standard #2

The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development.

Interpretation:

The teacher sees each student not as a student of the subject matter, but as the whole child. The teacher should have a base understanding of where the general population is expected to be in the cognitive, social, emotional, moral, and physical development domains, but realize and apply the knowledge that each student is different and will be at differing levels in each area of development. The developmental knowledge a teacher holds must be applied to observations of individual children in the class and utilized in daily and long term planning so students can grow not only academically, but as capable human beings.

The teacher encourages each student to do his or her personal best, based on individual growth both in the cognitive and the other four domains. The teacher scaffolds material appropriately for the level of development of the class as a whole (with modifications for exceptional students), helping students construct knowledge at the appropriate pace. A teacher proficient at this standard will encourage students to make connections from prior knowledge to the current material and think at a higher level about the material and patterns created.

Artifact 1: Cognitive and Social Development – Howard Tutor

Mr. Vincent
March 3, 2008 – More Triangles

Period $\frac{3}{4}$

Do Now:

Please sit between Kpana and Genesis, but float over to Amber if they seem to be getting it. Genesis has trouble solving equations, so she can set up the area formula but does the inverted operation incorrectly. Encourage her to write “SADMEP” down the page. Kpana will just need help...setting everything up! Remind him that Mr. Gilbert (soccer coach) is checking in with us and he won't get to play if he doesn't try.

Lesson:

Remain with Kpana and Genesis. Kpana seems to be getting spacier, keep reminding him to take notes. Check Genesis for drawing accuracy, yesterday I noticed her triangles were not even right triangles, which will cause an extreme problem today if she continues. You could use the thumb forefinger reminder of what a right angle looks like, have her draw that first then connect the ends.

We are going to be discussing “hypotenuse” today, but they are NOT doing the Pythagorean Theorem, so please avoid mentioning it.

Exploration:

Students will be using the index card ruler “trick” to measure hypotenuse. Your group will be the Edward, Cindy, Stephanie, Jennifer above and beyond group. If they get done early (which they will) you can introduce the Pythagorean Theorem. DO NOT have them solve for a side (only hypotenuse – plugging in easier than solving), and only use perfect squares! They do not understand the word “square root” so you will have to have them figure out which number multiplies to which. The triangles in the exploration are all Pythagorean triples, so have them *prove* their measurements with math. If still time, generate a list of perfect squares and their square roots.

Description:

This artifact is a set of directions for the Howard tutor who helped in my classes every day. My classes were lucky because many of the Howard students in the tutoring program at Paul only come to Paul a few days a week or come at different times, but Mr. Vincent came everyday. Consistency is key for middle school students going through many social and physical developmental changes that already cause enough turmoil. He built a rapport with the students and was able to connect with them on a level that was a little friendlier than a teacher can afford to be, allowing him different insights which helped me as well.

Every morning I wrote Mr. Vincent some directions for the time he spent in my classroom. Mr. Vincent had a background in mathematics but not in education, so he needed guidance as to what exactly was going to happen each day and how he should respond. This particular day his instructions ask him not to share information with the students, as the day before he gave the students formulas and other answers which impeded the discovery learning process. His instructions followed this format every day, separated by the three main portions of the lesson – the do now, the mini-lesson, and the exploration. I usually asked him to help different students for each part so no student felt targeted, and also because his skills varied at different activities.

Reflection:

Mr. Vincent encouraged cognitive development in the classroom. He has no education background, but a strong math background. Mr. Vincent's instructions usually involved him working with low students during the Do Now while I was checking homework. This was not a time I could help the lower students, so he was able to help them fix mistakes in their homework, make connections to complete the Do Now, and support them as they requested validation on

their ideas. Even after repeated instruction to avoid giving away answers without having students show or explain their thought process, he often did not have the patience to help them the way a certified teacher would have. For this reason, he was usually placed with the middle or high cognitive level students during the exploration. He could use his mathematics background to help them make connections and utilize their knowledge appropriately while my cooperating teacher and I could work with the students who needed more scaffolding and cognitive support without feeling guilty for not pushing the higher students.

Having an extra pair of hands in the classroom was also beneficial for the students' social and emotional development. Students at this age benefit from a strong, positive male role model. Many of the boys in the classroom do not have male role models at home. Because he did not have the distance a teacher needs to have, he was able to connect with the students and talk to them outside of class about non-academic subjects. He came to me and my cooperating teacher with information about students, which we could then use to help ensure they maintained appropriate social and emotional development, like when he would inform us of who was dating and who was fighting so I could make appropriate modifications to group work groups.

Artifact 2: Ability Differentiation – Assignment Modification

Name _____ Date _____ Class _____

2ACE Exercise 1

Investigation 2

Comparing and Scaling

1. Compare these four mixes for apple juice.

HINT Concentrate is the fruit substance that is left when water is removed from juice. When water is added back to the concentrate, fruit juice is made.

Mix W	
5 cups	8 cups
concentrate	cold water

Mix X	
3 cups	6 cups
concentrate	cold water

Mix Y	
6 cups	9 cups
concentrate	cold water

Mix Z	
3 cups	5 cups
concentrate	cold water

- a. Which mix would make the most “appley” juice?

HINT What would make a juice more “appley”? Do parts (b) and (c) first to help you answer this question.

- b. Suppose you make a single batch of each mix (W, X, Y, and Z). What **fraction** of each batch is **concentrate**?

HINT What is the total number of cups added to each batch?

Mix W:

Mix X:

Mix Y:

Mix Z:

2ACE Exercise 1 *(continued)*

Investigation 1

Comparing and Scaling

- c. Rewrite your answers to part (b) as percents.

Mix W:

Mix X:

Mix Y:

Mix Z:

- d. Suppose you make only 1 cup of Mix W. How much water and how much concentrate do you need?

HINT For Mix W, the current batch makes 13 cups (5 cups concentrate plus 8 cups water).

What fraction of the mix is concentrate?

What fraction of the mix is water?

How can you then determine how much concentrate and water you need to get only 1 total cup (make 1 cup)?

For example, the current recipe for Mix X makes 9 cups. $\frac{3}{9}$ (or $33\frac{1}{3}\%$) of the mix is concentrate and $\frac{6}{9}$ (or $66\frac{2}{3}\%$) of the mix is water. To make one cup of Mix X, you will need the same ratio. So, you need $33\frac{1}{3}\%$ of the cup to be concentrate and $66\frac{2}{3}\%$ of the cup to be water.

Mixing Juice HW

Mix W	
5 cups	8 cups
concentrate	cold water

Mix X	
3 cups	6 cups
concentrate	cold water

Mix Y	
6 cups	9 cups
concentrate	cold water

Mix Z	
3 cups	5 cups
concentrate	cold water

- How would I show the fraction of apple-concentrate compared to the total number of cups?
(Hint: which numbers go where?) SHOW LABELS!

Write the fraction for each of the mixes:

MIX	FRACTION
W	
X	
Y	
Z	

- Using the information from the fractions above...
What percent of each juice is “appley”?

MIX	PERCENT
W	
X	
Y	
Z	

3. What math are you doing to figure out how to go from fraction to percent?
4. Using the information from the fractions and percents above, *which mix is the most appley?*
5. Using the information from the fractions and percents above, *put the mixes in order from least appley to most appley.*
6. Which of these statements is correct?
6/9 of Mix Y is concentrate OR 6/15 of Mix Y is concentrate
Explain using your **math** and **reading** skills.
7. Look back at Mix W, 5 cups concentrate and 8 cups cold water.
Is the fraction $\frac{5}{8}$ for Mix W a *part to part ratio* or a *part to whole ratio*? Explain your answer.

Description:

The first two worksheets are from the Connected Math Project Special Needs Handbook. Even though the students in the Bridge Program at Paul do not have diagnosed disabilities or any special English language learning accommodations, they have been delayed developmentally somewhere along their education and have difficulty both spatially and cognitively. Extra scaffolding is often required to help students remember even simple procedures or thought processes they learned that day in class. The Special Needs Handbook was very helpful for finding worksheets that left more space for students to show work, and it has modified questions for students slightly behind grade level in their cognitive development. The scaffolding was provided by “hints” that led students through an appropriate thought process to find a solution.

However, sometimes even this workbook was not quite at the right level. This worksheet is a perfect example, in which the order would cause great confusion for my students. The exploration done in class the two days leading up to this homework assignment was a similar ratio situation where students were comparing fractions and percents, so students do know what is expected, but they need to see the steps sequentially. The connections that the exploration and this homework ask students to make are at grade level, so it is already a stretch for these students. They have not developed the problem solving skills to skip questions and come back to the original without getting lost as to what question they are solving. The modified worksheet given for homework is at a more appropriate level for their understanding.

Reflection:

The students I worked with in my practicum the semester before my student teaching experience were at the least on grade level, and many were advanced students. Expanding my horizons to teach students at the other end of the spectrum took a lot of patience. Every piece of

a lesson, exploration, assignment, or assessment had to be rethought on my part. Is the question straightforward enough? Can I make space modifications to allow them maximum work room without intimidating them with length? I gave this homework assignment my last week of student teaching, so this had become second nature. I knew that students responded well to charts, many did not read directions, and those who did would only do exactly what the directions required. This assignment was completed by 93% of students, and while they did not all do the work correctly, those 93% tried and had an answer logical for him/her for each question, which was rarely the case when I would assign non modified work.

As I modified lessons, notes and worksheets continuously over my time in the classroom I maintained high expectations for students. The self fulfilling prophecy that encourages teachers to maintain high expectations to see high achievement was obvious in my classroom. When I gave the students traditional work, my demeanor would change and I found myself expecting less out of them, and I got less. When I modified the work so it was still on grade level, but spaced and worded for my students cognitive development, the quality of the work improved drastically.

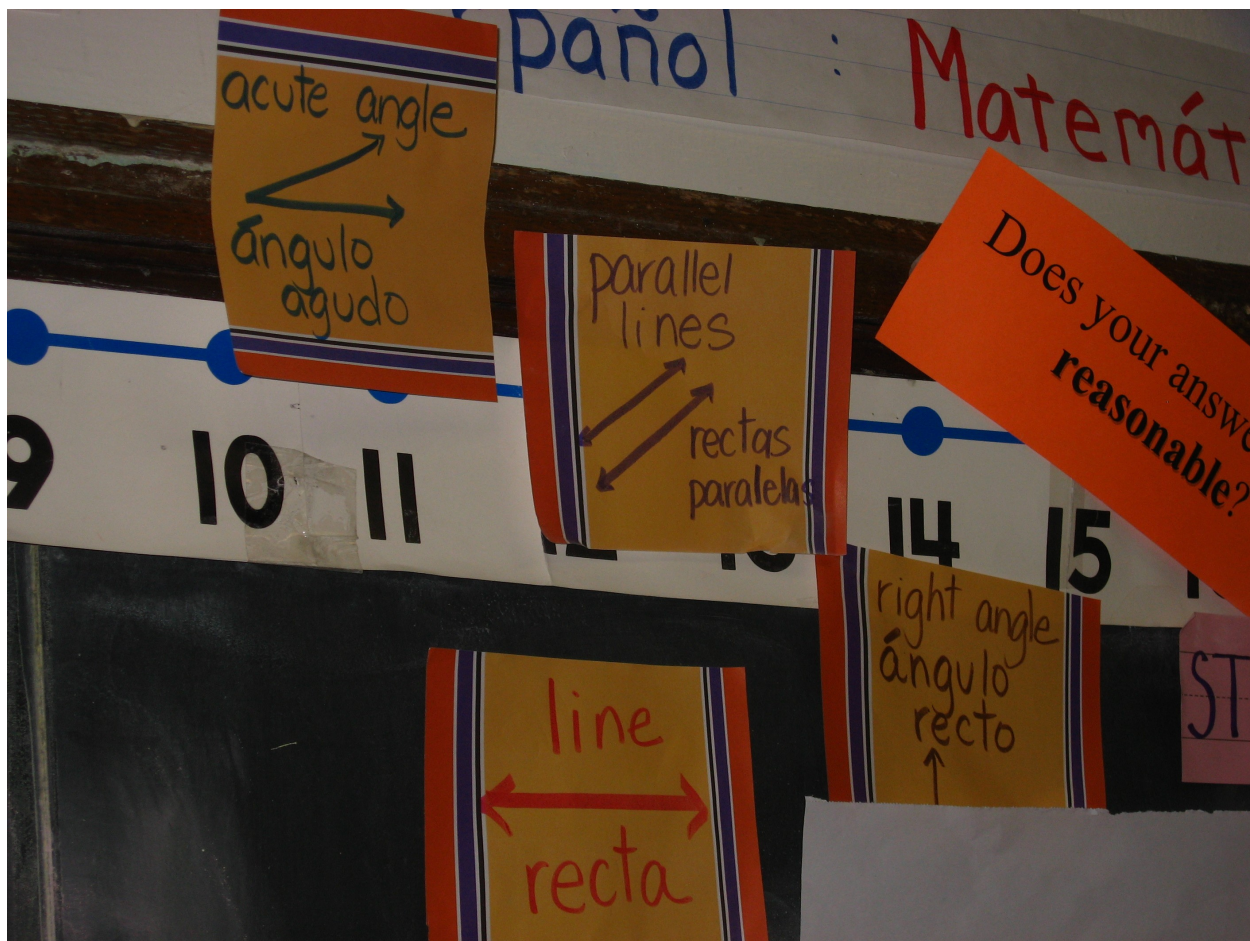
INTASC Standard #3

The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

Interpretation:

The teacher differentiates lessons with respect to the wide variety of students found in any class, whether that is multiple intelligences, learning styles, language and cultural barriers, and the myriad other individual distinctions between students. This means the teacher must have a strong background in how to appropriately challenge students with learning exceptionalities (i.e. disabilities, giftedness, or second language) as well as be able to make lessons appeal to the varied interests of all the students. This requires that the teacher know the laws regarding disabilities, such as IEPs and Section 504, as well as keep up on current research regarding unique learning approaches for other diversity factors. A teacher who excels in this standard not only incorporates these stylistic differences into the classroom but celebrates and encourages the unique talents and characteristics of each student while building a community of learners who respect and learn from each other.

Artifact 1: Bilingual Mathematics



Description:

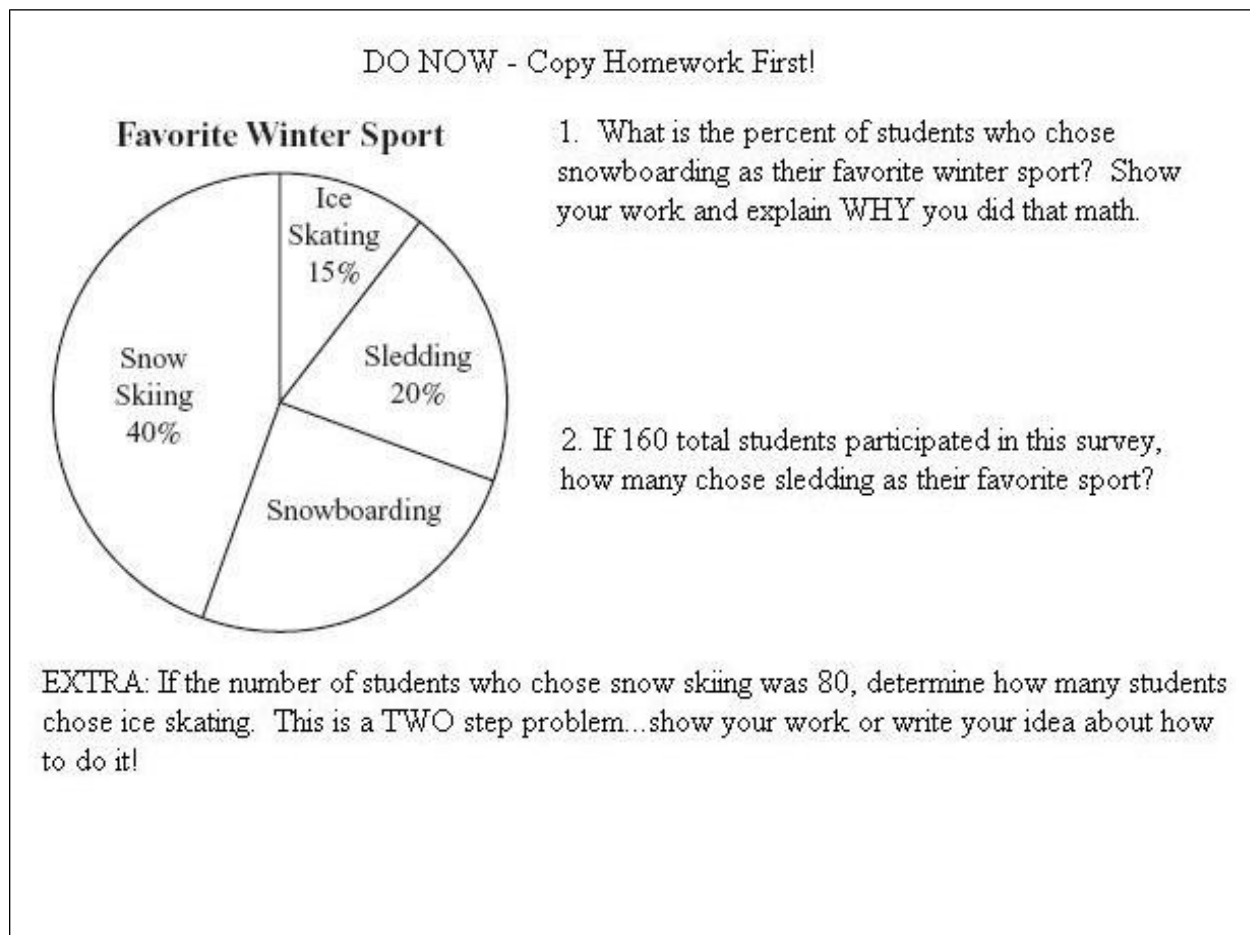
This picture is a set of vocabulary words on the front blackboard of the classroom about angles, both in English and in Spanish. These were created before a lesson on the angle types and shown and discussed with students during the lesson. They remained on the board for the rest of the advisory, and were a constant reminder to students to look for the words they knew inside new vocabulary. The many Spanish speakers had a chance to share their math ideas in their own language, and also explain a few new words to their non Spanish-speaking classmates. This lesson brought up different words for a few math concepts we were working on, which helped students remember that words can be deceiving.

Reflection:

I taught two classes, one single class of ELL students and another double block of students in the Bridge Program. A vast majority of the English Language Learners were native Spanish speakers, and about half of the students in the Bridge Program speak Spanish at home. Both classes benefitted from making word connections with a native language or one they heard often from their peers. English class in middle school requires root, prefix, suffix recognition, so students were prepared to help find similarities in words to those they already know. This tied another school subject into math, which helped motivate a different set of students than normally high achieving in math. Those students who were more verbally talented than mathematically adept could relate their skills to this type of learning, and it benefitted their memory of the vocabulary words.

This method also addressed and put a positive light on the differences between the two major ethnic groups in my classes. Paul is about 24% Hispanic and 76% Black. Tensions do not run particularly high for the most part, but the students have definitely grouped by background, and do not cross those boundaries in class or out. As the minority, the Hispanic students are occasionally overlooked on a school wide level. Teaching the other students about their language in an academic setting allowed those students to celebrate their heritage in a safe way and encouraged students to work together as the other students could come to them for more knowledge on the subject. My cooperating teacher came across some great Spanish/English resources after attending the National Council for Teachers of Mathematics Annual Conference, which she shared with me. I would love to work in another classroom with such cultural and linguistic diversity in which I could use those materials in a more extensive way than vocabulary words incorporated into lesson plans.

Artifact 2: Circle Graphs Do Now



Description:

The Do Now is a requirement at Paul Public Charter, and students enter every class with the expectation that they will have some work to complete upon arrival. In my classroom, the students did their do now silently, speaking only to one of the teachers or tutors in the room if they needed assistance. This was the time I walked around and checked homework. In this way I was able to check understanding of the previous day's lesson and could help students work on a homework problem they found difficult and incorrectly solved. After I checked the homework, every student had to correct a problem of my choosing during the do now. While they worked

on the Do Now, I had enough time to make sure that each student was achieving at his or her own highest level, by checking the homework problems that the student should have been able to solve and pushing them to the next level for their ability.

It was expected that all students should complete the first two questions on this Do Now, and most Do Nows in my classroom. The third question was an extension thought question, which many students do not have time to complete. Those that completed homework fix-ups after homework check and completed the first two problems typically had enough grasp of the content to comprehend the third question and work towards a solution. We discussed the Do Now as a class and solved each problem together. The students with calculator accommodations for their IEPs became “fact checkers” for the computational portions of the problems, sometimes allowing quicker class solutions when we needed to get to the lesson, and always feeling included in the experience.

Reflection:

Learning to differentiate for different ability groups without making any student stand out was a keystone in my student teaching experience. As my students entered the class several grade levels behind, most of the teaching was differentiated to a unique level. Accommodating the “advanced” students meant creating on grade levels questions with a slight push towards above average work. My goal with these students was to have them make connections between their math skills because that is what they were most lacking in, not the factual knowledge. In this sense, I used Bloom’s Taxonomy in helping the more adept students use the same information to think at a higher level than their classmates, who were usually at about a !!!! level.

The biggest difficulty was to encourage the two students with calculator accommodations to utilize the calculator, especially during lessons when other students were not allowed to use

the calculator. I did not want to give every student a calculator because most needed to work on their computation skills as well as conceptual knowledge. In this case, seating arrangements became useful learning tools as I put the students who could use a calculator near each other and several students who would benefit from calculator use near them. The calculators were on their desks before they entered the room, so it seemed more like they were left there by the previous class instead of given to the students directly during class. Other accommodations could be made less noticeably, like homework modifications, but this took finesse. Sometimes it was an issue when other students were not motivated enough to do the math themselves and also wanted calculators, which encouraged me to modify my classwork and lessons to encourage more motivation without needing calculators. It would not have been fair to allow students without IEPs the continual use of an accommodation they would not receive when being formally assessed.

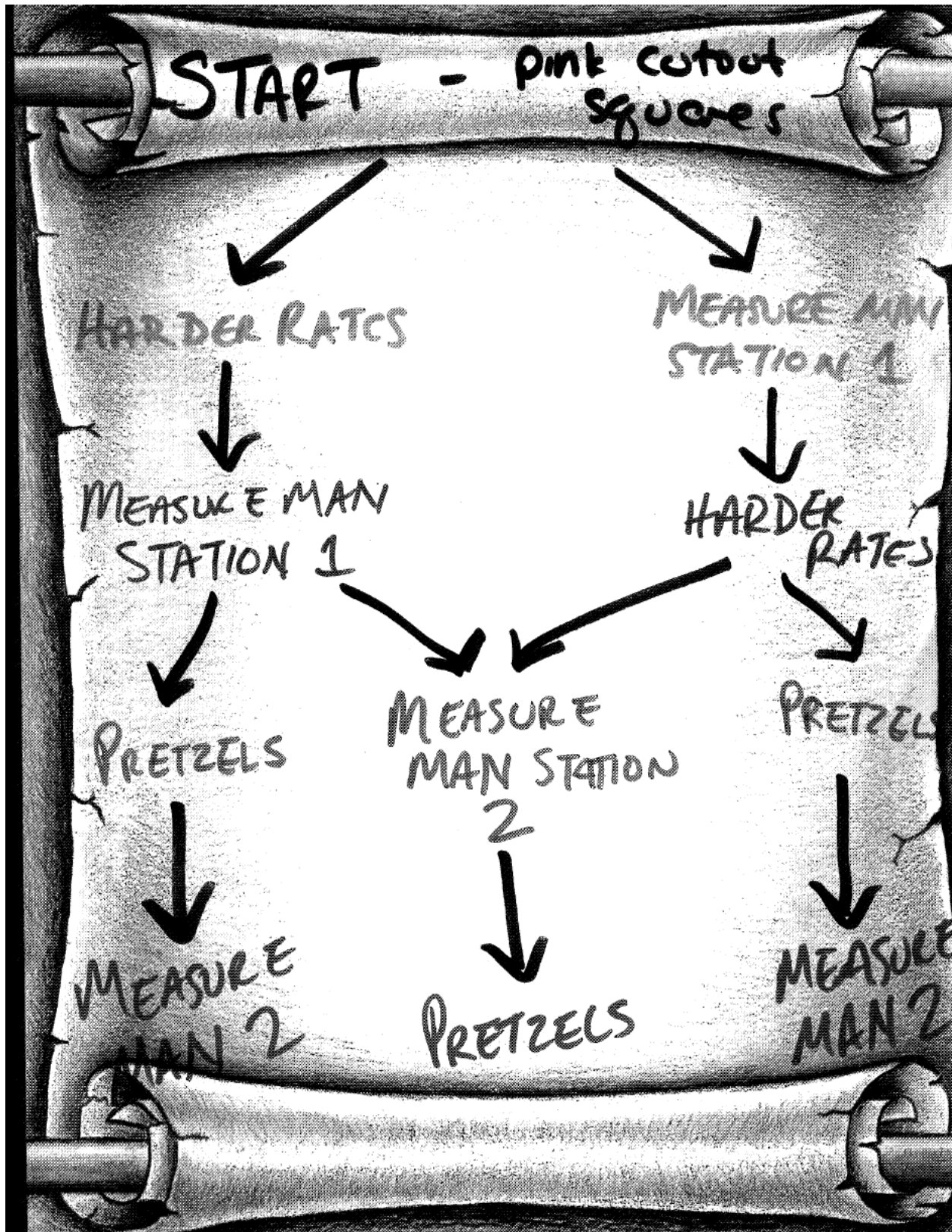
INTASC Standard #4

The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

Interpretation:

The teacher maintains an up-to-date repertoire of his or her personal interpretation of current best practices, and fully comprehends principles of effective instruction. This knowledge is used both to create a variety of instructional practices in the classroom and choose appropriate supplemental materials to enhance students' learning. Progress is the key of this principle as the teacher must be flexible from year to year as new instructional strategies and cognitive principles are researched and publicized, as well as from day to day in the classroom as individual classes and students react to different methods. The teacher does not use the same technique or follow the same role each lesson, but provides opportunities for students to learn higher level thinking skills in various ways.

Artifact 1: Learning Centers



- 1) The P.E. closet at Paul Public Charter has 1 basketball for every 9 footballs. If there are 27 footballs, how many basketballs does Paul have?

$$\frac{1 \text{ bball}}{9 \text{ footballs}} = \frac{3 \text{ balls}}{27 \text{ footballs}}$$

- 4) A little kid can watch 4 episodes of Spongebot Squarepants per hour on DVD. How many hours would it take him to watch 20 episodes?

$$\frac{4 \text{ episodes}}{1 \text{ hour}} = \frac{20 \text{ episodes}}{5 \text{ hours}}$$

- 2) It costs 5 dollars for 9 cookies at the bakery downtown. How much money would 45 cookies cost?

$$\frac{5 \text{ dollars}}{9 \text{ cookies}} = \frac{25 \text{ dollars}}{45 \text{ cookies}}$$

switch problem!
25 dollars
45 cookies

- 5) The Paul basketball team scored 3 points in the first 10 minutes of the game. If they continue at the same rate, how many points will they score in a 30 minute game?

$$\frac{3 \text{ points}}{10 \text{ minutes}} = \frac{9 \text{ points}}{30 \text{ minutes}}$$

- 3) It takes 6 snowballs to make 2 snowmen. How many snowballs does it take to make 12 snowmen?

$$\frac{6 \text{ snowballs}}{2 \text{ snowmen}} = \frac{36 \text{ snowballs}}{12 \text{ snowmen}}$$

- 6) Golden Rockefeller can do 7 MathCounts problems in 5 minutes. How long would it take him to do 35 MathCounts problems?

$$\frac{7 \text{ MathCounts}}{5 \text{ minutes}} = \frac{35 \text{ MathCounts}}{25 \text{ minutes}}$$

3 5 9 25 36 25

Description:

This learning centers exploration was the culmination of a unit on proportions. Students spent nearly two weeks learning how to use proportions to solve unit conversion problems, general word problems, and rate problems. There was a giant measure man poster, which showed the number of gallons, quarts, pints and cups that are equivalent. Students also had a conversion chart for other types of measurement in their notebooks. The first piece of the exploration involved students all doing the same word problem proportions with cutout numbers to paste on. The next two levels of the exploration had a teacher or tutor manning the area so that students could get help setting up the proportions and with other conceptual issues.

Students had to follow the learning centers map posted several places around the classroom. The names of the centers were posted on the same type of scroll paper to bring continuity to the centers. We walked the centers together to make sure everyone understood how to progress from level to level. There is a lot of research which says students respond well to choice, so I wanted to make sure they felt like they could make decisions even though I needed them to try all the centers by the end of the exploration. They had two hours to do this exploration. By the time the students had maneuvered through the first three levels of centers, the final two centers were actually on grade level and were perfect for independent or paired work.

Reflection:

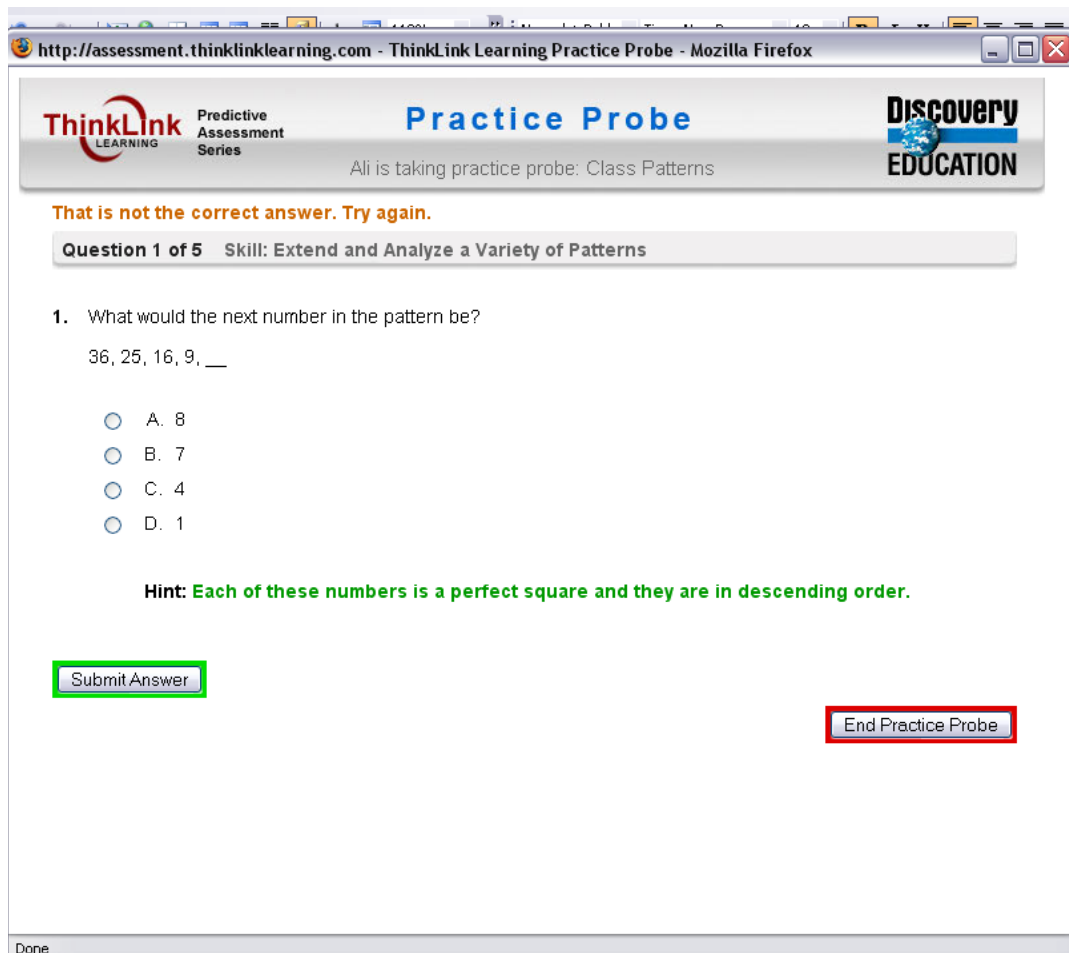
This activity was well received and it was obvious a lot of learning occurred. The students asked thoughtful questions when they needed, but utilized the appropriate tools at each center to help solve the problems. I wanted students to feel comfortable talking to each other and asking each other for help, so I clarified that I was expecting more noise than is usually allowed

during explorations, and students were very respectful about utilizing this privilege for math speak. They were able to practice the skills they had learned, but used multiple resources to achieve the goal of the learning centers – extend the learning up to grade level problems, as each step of the centers map pushed them up a portion of a grade level.

In the future I would extend this to be a two day exploration, and have students create the helpful tools at each center. While it was good that the students could see the measure man, or paste on the number blocks, I think that many are kinesthetic learners and would have gained more from forming a gallon man to count smaller units in a gallon and such. I also would have made solution charts for students to check their own work in case the teacher was busy working with another student when someone needed checked, as occurred quite often.

Artifact #2: Test Prep with a Twist

<http://www.thinklinklearning.com>



Description:

The first link in this artifact goes to an online website run by Discovery Learning, the makers of the DC-BAS tests. When the site is open, the students would click “Student Login” and enter their name. Then the student would click on “Practice Probes” on the far right and enter a code given by the teacher, in this case “599116.” Feel free to try this now. This particular quiz is 5 questions long, and about numeric patterns. It was used as an extension for students who completed the exploration about patterns earlier than other students. I also used this to have guided problems for students who came for extra help after school; computer use is a good motivational tool, especially for students who are trying above and beyond required class time.

ThinkLink is a program where teachers can choose the particular standard they want to address and look over as many as 100 practice problems to choose quizzes for their students. These questions reflect the types of questions which will be on the DC BAS and DC CAS, which is used by the District of Columbia to measure AYP. These problems are solely multiple choice, but they have an option where students can have more than one chance, and receive a hint to solve the problem. They are good for independent practice, as well as to find practice questions to print for students in In-School-Suspension and as homework assignments. This supplemental material does not replace classroom learning or higher level thinking, but works toward another goal just as vital in the time of No Child Left Behind.

Reflection:

Many educators are against such drill and skill routines as this type of exercise portrays. I have shown through many pieces of this capstone that I am capable of creating and implementing unique instructional methods like learning centers, explorations which foster discovery learning, and cross-curricular integration into mathematics. This ThinkLink online

method of practice for students was necessary for my students who came into 7th grade at 4th and 5th grade mathematics levels. They needed exposure to standardized test wording and what math they needed to do to succeed. In no way would I ever utilize solely test prep in a classroom, but this was important to my students' and schools' success, so I utilized researched and proven methods of test preparation.

The administration shared research with the teachers at Paul that ThinkLink and the DCBAS (both run by Discovery Learning) are 94% accurate as to the scores that will be received on the DC CAS. As Paul has missed AYP two years in a row, those scores are very important to the school as a whole. Therefore, the administration highly suggests the use of ThinkLink in the classroom. I used ThinkLink not only as extra in-class practice, but to choose homework and assessment problems. The students took DC BAS Test B my second week at Paul, and DC BAS Test C after I had been teaching for approximately two months. The second link in my artifact is an analysis of the increase in scores from Test B to Test C, representative of the time I taught. About 70% of my students increased their scores by at least one question, and 56% of my students stayed at the proficient level or moved from basic to proficient. Test scores are not everything, but they help keep a good school open and funded.

INTASC Standard #5

The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

Interpretation:

The teacher applies educational and group psychology to the classroom to encourage the entire class to learn together. A safe and positive learning environment is provided for every student via the teacher's effective classroom management style and expectations. The teacher does not teach students to learn for external reasons, but encourages students toward intrinsic motivation through the lessons, seating and cooperative learning arrangements, and other classroom factors. Finally, the knowledge of child and group psychological development is applied to cooperative learning methods and a community of learners who can work together and help each other in critical thinking processes.

Artifact 1: A Community of Learners



Description

The image is the “community meter” in our classroom, where the class’s engagement and behavior are monitored by the whole class, as determined by me, the teacher. The highest the class can be on is “excellent,” when every student is paying attention and participating and behaving. The class can then move progressively down from “excellent” to “good” to “fair” to “weak,” where they are punished which means that the classroom is in such a state I feel few to no students are learning appropriately. The community does not change when only one or two students are talking/not working/not participating, but when three or more become unruly because it affects the entire community of learners. The smiley face magnet signifies what level the class is on, currently just moved up from “fair” to “good” after an increase in participation.

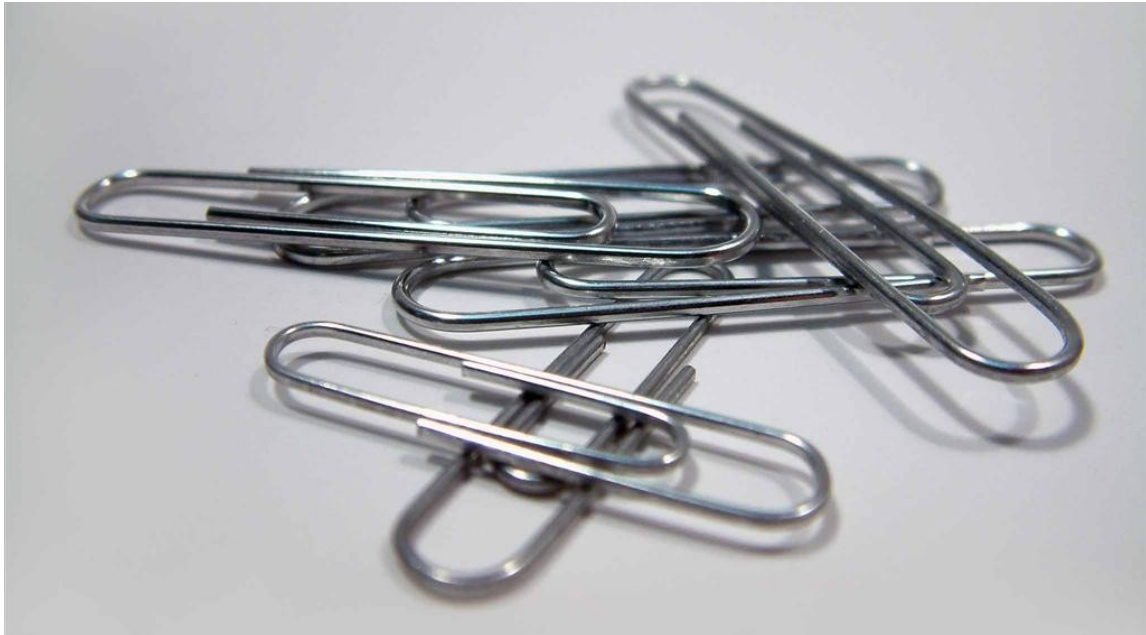
Reflection:

This community meter sparked amazing discussions in class about how learning occurs. Students were competitive in the sense that they always wanted to keep the community on

“excellent” and would be very upset with whatever portion of the class made the community drop. When they received paragraphs about their behavior, many would complain because they felt that if 5 or 6 students were talking, only those 5 or 6 students should receive a punishment. Some discussion topics (that arose more than once, of course) were about how we learn, why group work is important, when talking works in a learning situation, why a few people can influence a whole community, learning or otherwise, and how lack of participation can affect everyone’s learning.

While this is not a direct learning method for students that maintains a cooperative classroom, it extends logically into all parts of the lesson and allows students to think about their actions in relation to different learning experiences. The discussions that occurred, and paragraphs that were written, allow students to really contemplate what it means to learn. The concept of a learning community being an overt part of the daily classroom routine benefitted many students as they used positive peer pressure to help each other stay focused and learn. The difficulty with the paragraph assignments is that I either had to take the time to have them all write the prompt down, or print a version later and find them in their last period classes. In the future I would have pre printed prompts on different topics to give out immediately with the homework assignments to save time.

Artifact 2: Asking Thoughtful Questions



Description:

This artifact portrays the paperclips used in a creative manner in order to help keep a student from disruptive classroom chatter. Genesis did not talk to her neighboring peers, and rarely spoke without following classroom rules by raising her hand and waiting to be called on, but she asked a multitude of related (and unrelated) questions and attempted to make connections between the material and *something* even if the logic was unapparent. The problem with the behavior Genesis exhibited was that it often drew the class off topic, but was occasionally a great connection between math concepts or a valid question about the material.

Reflection:

This student provided a real classroom management challenge, especially in light of the “community” concept where one student could not affect the general classroom management policy. One theory that helped inspire this method of attack was Dreikurs’ logical consequences. I did not want to punish Genesis for her talking as a whole, but for the unnecessary/unrelated

ideas and the thoughts she did not fully form before raising her hand for attention. The logical consequences theory emphasizes that consequences are supposed to teach students about the incorrect aspect of their actions, and with Genesis it did just that. She was still able to participate in class discussions, and ask some of her slightly off the wall questions, but after about a week of running out of paperclips before class was over, she began to think through things before raising her hand. This actually provoked more useful comments and helped her standing in the classroom as her peers had begun to dislike her for her somewhat annoying comments. She became part of the community again, and added to the value of class discussions instead of making them something the rest of the class dreaded.

In the future, I think this method would work better if better rules were laid down, and the class understood better. On more energetic days, the class would giggle when Genesis got a paperclip taken away. A common theme through most classroom management theory is consistency, and without written rules for this method, sometimes students argued that she should have paperclips removed, or she felt her question related to class and she should keep the paperclip. In my own classroom, part of my introduction to mathematics will be a discussion on appropriate questions and how to frame questions which benefit academic curiosity rather than avoidance of school work.

INTASC Standard #6

The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

Interpretation:

A teacher adept in this standard understands that no matter what the subject, students must be able to communicate their ideas about the content. Students are encouraged to use higher level thinking skills in articulating their ideas about the subject verbally and nonverbally. This can involve asking questions, giving writing prompts, or allowing students to use their creativity to express their thoughts and ideas. The teacher can use media and technology to encourage this creative expression of thought, as well as assist students in using nontraditional nonverbal methods of expression.

Artifact 1: Math Singing Stars



Description

This song is one of the 14 songs on the “Math Singing Stars” CD my students made through the grant I received from the Lynn Ganek Foundation and American University mini-grant opportunity for student teachers. The songs are mainly about mathematical procedures and vocabulary, covering topics from mean, median, mode to operations with decimals and fractions. The majority of the lyrics were written by me or my cooperating teacher, but students had input on the tune, and some ad-libbed lines in order to make the songs their own. This song is actually one that my students created out of a much shorter chant about decimal division. This was part of a bigger project where students used art to communicate their understanding of the math procedures on a CD label, and then practiced for the DC-CAS with three multiple choice questions about each song/procedure.

The image is me with part of the class as we recorded one of our songs, using a laptop and microphone. Well behaved students got a chance to label songs on the computer, use the

software to record and change the balance, and hold the microphone for the class to sing into. This allowed them familiarity with the technology, even though the detailed portions like changing formats and burning the CDs were handled outside of class by me. They had to work together to sing harmoniously and sound uniform on the recordings.

Reflection:

This experience was great for the students to express themselves in creative ways. Every time a new song was introduced into class, the class learned the song line by line. Then we discussed what each line meant, whether it was a concept description or a mathematical procedure using extra pronouns that needed definition or was more verbose than mathematically linguistic. Many students found it difficult to comprehend some of the wordier songs and relate them to math, causing longer discussion. In reality, this meant they had learned the concept again and in a different format, words, so they often remember those methods better. This also bridged cultural differences in the classroom, because some of the songs were pop songs and the students could bring their musical outside interests into the classroom with the ad-libbing.

This unique method of learning mathematics was motivation for even the least active students to come together and be participatory in their education. The incorporation of technology was also motivation for students in a high poverty school, and also allowed for a high quality product for students to take home. I learned a lot about technology in the classroom as I had to overcome technical difficulties and incorporate some extra management into the classroom with expensive equipment in it. If I were to do this again, I would give students more leeway with the musical creativity, adding an assignment where they had to use their notes and a favorite song to create their own math song.

Artifact 2: Literature and Mathematics

Spaghetti and Meatballs for All **by Marilyn Burns**



1. In the beginning of the story, Mrs. Comfort says she hasn't seen the family in a long time. What does she decide to do?
2. What are some of the foods that the Comforts decide to make?
3. What pet animal is in the background of most pictures?
4. What keeps happening to the tables and chairs as more family comes to visit?
5. Who is worried about the tables and chairs configuration? Who is not?
6. Describe some of the funny guests that showed up to the reunion. What were they wearing? What made them seem funny?
7. In the end, what is the final table configuration? What is interesting about the final table configuration?
8. How does this story relate to math? What math had Mrs. Comfort been planning for when she did the table arrangements?

Description:

This is a homework assignment after a lesson incorporating literature and mathematics. The story we read in class was Spaghetti and Meatballs for All by Marilyn Burns, a well respected children's author of mathematics related books. The librarian came to class as a "surprise speaker" for the students and read to them. Students shared extra copies of the book as they read along, taking responsibility for each other's learning while they showed the pictures to the rest of the class. After the reading, we spent the next three days in class doing an exploration where we followed the table seating changes in the book to find areas and perimeter with candy tables and chairs, then did a different exploration with new numbers but the same concept.

This first worksheet was discussed in small group pull-outs during the exploration. The librarian did not let them know that they would receive a worksheet with the same questions, but asked for this information in a discussion format. The students had to articulate their ideas clearly and agree on the answers in their group before they returned to the exploration tables. When they received this homework assignment, students then had to take the information they had already proven they knew and use their writing skills to prove that knowledge. Some questions were simply recall, but others required explanation of a thought process. The final two questions were discussed again the next day and students had to share the ideas they had written in a verbal manner and reword them again.

Reflection:

Students often think math class is just about numbers, but in reality they need to be able to express their mathematical thoughts in other methods as well. Class discussions required students to explain why their math worked or why certain words meant a certain process or concept. Students in my class were not allowed to simply choose an answer without showing

their work and/or explaining their thought process. It was much easier for students to discuss these ideas than to write out their ideas. The more practice they received, especially outside of English class, the better their writing should get. This follows one of the phrases I have heard in education classes throughout my time in college – every teacher is a reading teacher!

As often as possible, given time constraints, they were asked to write out their ideas in words. In preparation for the DC CAS, a great deal of classroom work required that students understand what the question was asking so they could do the correct math. It is assignments like these which helped students take the words and ideas in life that go along with math and actually relate the math concept to those phrases. This allows them the ability to comprehend and reword ideas that may seem foreign at first. It also gave them the ability to write out their thoughts on constructed response problems on the DC CAS which often require such. I had several discussions with some of my students who were weaker computationally about how being able to write about their math was just as good and showed just as much mastery, which helped their confidence in an area they clearly were not normally proficient.

INTASC Standard #7

The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

Interpretation:

The teacher utilizes knowledge of all aspects of best practices to create lesson plans. Plans incorporate appropriate levels and an expected growth span of student development as well as an appreciation for the diversity of learning modalities and cultural backgrounds all while striving to achieve the curriculum goals set forth by the district. He/she also understands the values of planning and remaining adaptable in both the short and long term. Plans include motivation, differentiation, and must be flexible as they can change with regards to time constraints, student prior knowledge, or other student needs.

Artifact 1: 20 skills in 20 Days – Long Term Planning

		coordinate shapes	adding integers	subtracting integers	multiplying integers	circle vocabulary	circle area	3D figures	volume	surface area	probability	percent of a number	circle graphs	stem and leaf plots	patterns in number	geometric pattern	decimal operation	fractions operation	solving equations	area/perimeter	similar/congruent
Edward Ballard																					
Takia B.																					
Donnell B.																					
Sean G.																					
Jennifer																					
Danny H.																					
Amber L.																					
Diamond M.																					
Estefany O.																					
Tiana P.																					
Genesis P.																					
Cindy P.																					
Stephanie S.																					
Kpana S.																					

surface area
 probability
 percent of a number
 circle graphs
 stem and leaf plots
 patterns in number
 geometric pattern
 decimal operation

Description:

This image is the chart used by my class to visualize our progress towards the 20 skills we learned before the DC-CAS. The project is called “20 Skills in 20 Days,” though the students did not realize that the class spent 25 days on the skills. Every day the students received a lesson and practiced the skill before completing a mini-quiz with two questions from sample DC CAS exams. They had to show mastery of the skill by answering both questions correctly in order to color in the skill of the day by their name. The close-up image shows the portion of the chart that was “revamped” as we got through the skills and I realized that the original order did not give students the review of prior knowledge (percent of a number) they needed before attempting to solve problems with circle graphs.

This long term plan was shared with the students before the charts even went up, to help build the motivation for the project. Individual students received a prize for mastering 5 skills, again at 10 skills, and had lunch with their teachers at 15 skills. All students are encouraged and receive extra help if needed so that they can all attend the party for reaching 20 skills. The final party took place a week and a half after the class completed the 20 Skills to allow for lagging students to catch up. Not only was this project set forth to teach the 7th graders major skills they needed for the DC CAS on April 22, it was to boost their confidence as they saw how much they accomplished.

Reflection:

This plan represents the many facets of long term planning that are required of a teacher. Maintaining curriculum goals is essential for any teacher, and each of these skills relates to at least one standard for the District of Columbia. Students in the Bridge Program at Paul Public Charter entered the class at least two years behind grade level, so some skills actually relate to a

5th or 6th grade standard, like naming three dimensional shapes. These skills were included in the long term plan because they are prior knowledge that is required to be able to master 7th grade skills, like volume and surface area. These 20 skills were chosen to be taught before the DCCAS because they seemed most likely to be tested, and NCLB puts these tests in high priority.

The difficulty in using this type of long term plan is that time constraints must be met because the goals were shared with the students. The poster had to be modified when I noticed a mistake in the order, because having students color in blocks out of order would have caused a class disturbance. Also, it left very little wiggle room for discovery of students lack of prior knowledge. Over the 25 days it took to complete the “20 Days” project, most of those issues worked themselves out as some skills were comprehended quickly and others took an extra day. Were I to do this again in a class preparing for a standardized exam, I would have given the students a pre-test a few weeks before this plan was to go into effect. I would then be able to determine which skills they had enough background knowledge about that I could teach the concepts that needed more time before jumping into a ‘cram for the exam’ project like “20 Skills in 20 Days.”

Artifact 2: Lesson Planning – Almost Pi Day!

Math Review 7th grade

March 11, 2008

110 minutes

Objectives:

I will be able to calculate the circumference, area, and diameter/radius of a circle given the radius/diameter on my exploration sheet.

Standards:

6.M.7

Understand the concept of the constant pi; know the formulas for the circumference and area of a circle. Use the concepts to solve problems.

Materials:

Radii Do-Now

DC CAS Rulers

Mastery Quiz B – Skill 4: Multiplying Integers

Mastery Quiz A – Skill 5: Circle Vocabulary

Mastery Quiz A – Skill 6: Circle Area

Circle Exploration

Procedures:

- Before class – write on board that radius is singular, radii is plural (more than 1 radius)

(15 minutes)

- Hand out Do Now and Mastery Quiz B (Motivation – color in block on 20 Skills in 20 Days chart when correct) when they enter, have them get ruler as they come in. Do Now – motivation, using a ruler, measure the radii and diameter. Differentiation – higher kids will find formula
- Check homework while students do Do Now, the homework was “Integer Review” and “Circle Vocabulary HW”

(10 minutes)

- Go over Do Now, start with Mastery Quiz B for review of multiplication of integers, yesterday’s lesson
- Sing Multiplication Song (Differentiation – interests)

(15 minutes)

- Use radii and diameter Do Now to come to conclusion that all radii are same length. Emphasize that all six short lines are radii. We kind of know what diameter is right? If I pick two radii that make a diameter, what kind of angle do they make? So that is also called a straight angle or a straight line. That is what our notes say from yesterday right?
- How many radii did it take to make that diameter? It took two. Check the other radii/diameters.

- So, let's write a rule that always works. (Motivation – self discovery) We rushed through this yesterday. What is a rule that always works called in math? (equation...variables that mean same thing...formula). What were we looking for? So the rule is diameter = something. What letter goes with diameter? What did we use to make diameter? The radius. Diameter = something and radius. What letter is radius? What did we do to the radius? They will say add, move toward multiplication.
- Open notebooks – continue notes about circles, day 2, same notes
- Put rule in notebooks

(5 minutes into break if needed)

- Put circles on overhead – 4 with diameter, find radius (BLUE); 4 with radius, find diameter (ORANGE). Walk around checking students, have students do one of each color first, after first person gets done with all 8, go over them. (Differentiation among skill level, problem of week for students who get done with all 8 before everyone does one of each)

STUDENTS HAVE BREAK TIME between 2 class periods (double block) – any student having trouble can stay in class with me while Ms. Abeles does hall duty

(10 minutes)

- What part of the circle have we not learned about yet? The inside and the outside. Thinking questions - Make area/perimeter connection and disassociation.
- Circumference is the perimeter – the line around a circle. Put in notes. Don't use perimeter, but easy to remember, CIRCles have CIRCumference
- There is a formula. Don't have to memorize, just recognize. $C = \pi D$. What does c and d mean? Also notes. Also $2\pi R$, have them find this by saying $d = 2r$, plugging in...only higher students will see this, let them explain to others, mention substitution method.
- Learn pi – 3.14 and $3 \frac{1}{7}$
- Remembering old stuff – turn $3 \frac{1}{7}$ into improper fraction, then decimal, see they are the same
- Thinking question - Which one would we use if the diameter was a fraction already, like $\frac{7}{2}$?
- Thinking question - Which one for diameter = 4? Could use both!
- Don't need to discover pi relationship – doing Sir Cumference story book in homeroom with this class! (fun activity with yarn diameter going around a pi 3 and $\frac{1}{7}$ times)

(5 minutes)

- Practice – put same radius and diameter circles up – find circumference– do one of each color first
- Reminder – **song** for multiplying decimals – (motivation) swing like a monkey!
- After “2 minutes” go over what we have done – really when everyone gets 1 done
- MASTERY QUIZ A (vocab)– when done, put new set of circles up for practicing circumference

(20 minutes)

- We did outside – now do inside – still called area!

- ~~Formula – don't have to memorize!~~

- Only one formula - $a = \pi r^2$
- Practice squaring
- Practice plugging in
- Put radius circles up, walk around and check after first person finishes all of them (Differentiation – skill level)

(15 minutes)

- Exploration at tables – 4 circles, given radius/diameter of circles find the other, then find circumference and area. Give students calculators for motivation, this is not assessing computation but use of correct formula
- Give yarn to students who finish early – measure and mark diameters, then use it to measure circumference, see what they find...

(5 minutes – Closure)

- When done and checked by adult – get MASTERY QUIZ A (area), color in block
- When done with quiz – get homework and work on it or project

Assessment:

- Walk around quick mini-assessments while kids doing overhead practice.
- Exploration – Ms. A, Ms. C, and Mr. V checking for understanding, meet after
- Mini Quizzes for 20 Skills in 20 Days
- Homework –
 - o Circle Vocab HW back (this checks diameter and radius)
 - o Integers and Words (review of addition and subtraction of integers)
 - o Area and Circumference

Description:

This is a lesson plan used during a short unit on circles. The day before, students had learned the basic vocabulary in a circle. This lesson involves teaching all the basics and a mini exploration. The students discover many of the formulas needed to do computations with a circle, but there is no instrumental explanation of what pi is. This is because during the homeroom period the students are reading a fun story book about the relationship that pi represents. When they finish the story on Pi Day (3/14) they will have a pie and yarn to measure pieces themselves. The exploration that follows this lesson requires application of the

knowledge to situational problems where students have to assess what measurement of a circle the questions are asking before they do the math.

This lesson emphasizes math vocabulary, where students are required to know both the easy vocabulary and elementary math skills they have used for so long, as well as pre-algebra concepts like powers, formulas, and variables. Use of multiple formulas and representations of pieces of a circle encourage students to remember things the way best for them and help the lower students who cannot comprehend the more difficult on-grade level skills. As it is, most of this knowledge appears to be completely new to students even though it is something they should have mastered the year before.

Reflection:

This lesson flowed smoothly for the Bridge students. The use of phrases like “the algebra way” and “the 8th grade word is” motivated them to try their best and prove that they can do the math and move up to 8th grade. As expected, very few students had prior knowledge as to the material. Some remember pi, and had ideas as to putting pi and radii or diameters into formulas, but could not remember how or why. My time frames were fairly close to accurate, as the students were well behaved and had trouble making connections at the places I predicted.

The students were much more adept at solving the problems on the exploration when they had calculators; though the practice took so long they only had 10 minutes to explore the circles kinesthetically. Many students only got through one circle on the exploration. Since the long term plan included practicing decimal operations in less than a week, in the future I would either give the students calculators at the beginning to save computation time or switch the order so we reviewed decimals in advance. Also, this lesson showed that many students do not comprehend how to use powers within the order of operations, so I incorporated that concept into the Do Now

for the next day. All in all, it was well received and students enjoyed the lead up to Pi Day and the grand explanation of that weird Greek letter!

INTASC Standard #8

The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.

Interpretation:

The teacher understands that assessment is not a once-a-unit occurrence. Students need constant feedback on their progress in order to learn from their mistakes, which requires constant assessment of their abilities. This assessment can occur in many ways, from the traditional written examination to teacher observations to a student portfolio of work over time. Each piece of the assessment should have a specific goal that the teacher can easily use to determine mastery.

An underlying concept of the constant assessment required of a teacher proficient in this standard is that assessment is not a final and absolute grade. Students attend school to gain knowledge, so the teacher cannot accept failure after one attempt. It is the teacher's responsibility to utilize the assessments to modify lessons and create the most opportunity for students to learn the appropriate material.

Artifact 1: Impact on Student Learning

Name: J.O.

1000 0 1

Similar/Congruent PRE-TEST

(not for a grade – calm down!)

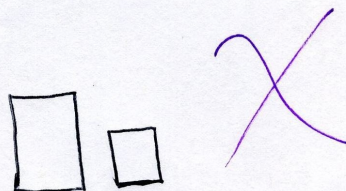
1. You have a mama triangle and a baby triangle, and they are similar. Fill in this proportion with the labels that would help you solve for a missing piece.

The four labels you should use are:

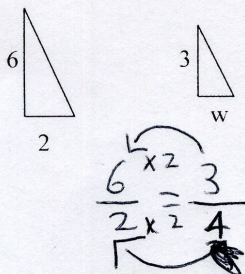
mama height, mama base, baby height, baby base

Mama height Mama base
baby height baby base

2. Draw two CONGRUENT shapes in this box.

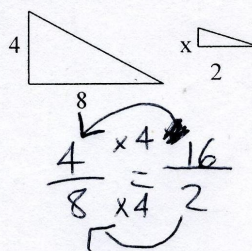


3. Write a proportion to find w. Write your solution at the bottom of the box. Show your work.



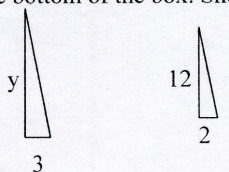
w = 1

4. Write a proportion to find x. Write your solution at the bottom of the box. Show your work.



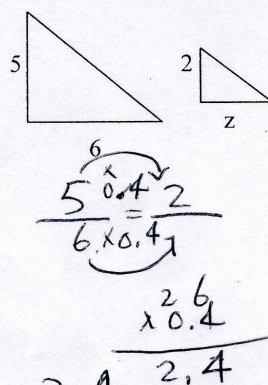
x = 2

5. Write a proportion to find y. Write your solution at the bottom of the box. Show your work.



y = 18

6. Write a proportion to find z. Write your solution at the bottom of the box. Show your work.



z = 2.4

Name: J.D.

10/1/11

Similar/Congruent POST TEST

(Mastery Quiz – you must get 5 out of 6 right!)

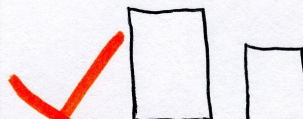
1. You have a mama triangle and a baby triangle, and they are similar. Fill in this proportion with the labels that would help you solve for a missing piece.

The four labels you should use are:

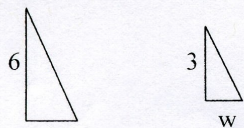
mama height, mama base, baby height, baby base

$$\frac{\text{Mama height}}{\text{Mama base}} = \frac{\text{baby height}}{\text{baby base}}$$

2. Draw two CONGRUENT shapes in this box.



3. Write a proportion to find w. Write your solution at the bottom of the box. Show your work.



$$\frac{6}{2} = \frac{3}{w}$$

$$6 \cdot w = 2 \cdot 3$$

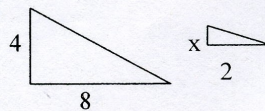
$$6w = 6$$

$$\div 6 \div 6$$

$$1w = 1$$

$$w = 1$$

4. Write a proportion to find x. Write your solution at the bottom of the box. Show your work



$$\frac{4}{8} = \frac{x}{2}$$

$$4 \cdot 2 = 8 \cdot x$$

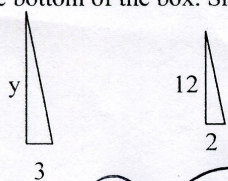
$$8 = 8x$$

$$8 \div 8 \div 8$$

$$1 = 1x$$

$$x = 1$$

5. Write a proportion to find y. Write your solution at the bottom of the box. Show your work



$$\frac{y}{3} = \frac{12}{2}$$

$$y \cdot 2 = 3 \cdot 12$$

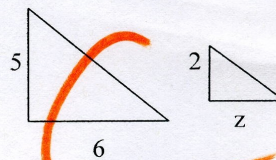
$$y2 = 36$$

$$\div 2 \div 2$$

$$1y = 18$$

$$y = 18$$

6. Write a proportion to find z. Write your solution at the bottom of the box. Show your work



$$\frac{5}{6} = \frac{2}{z}$$

$$5 \cdot z = 6 \cdot 2$$

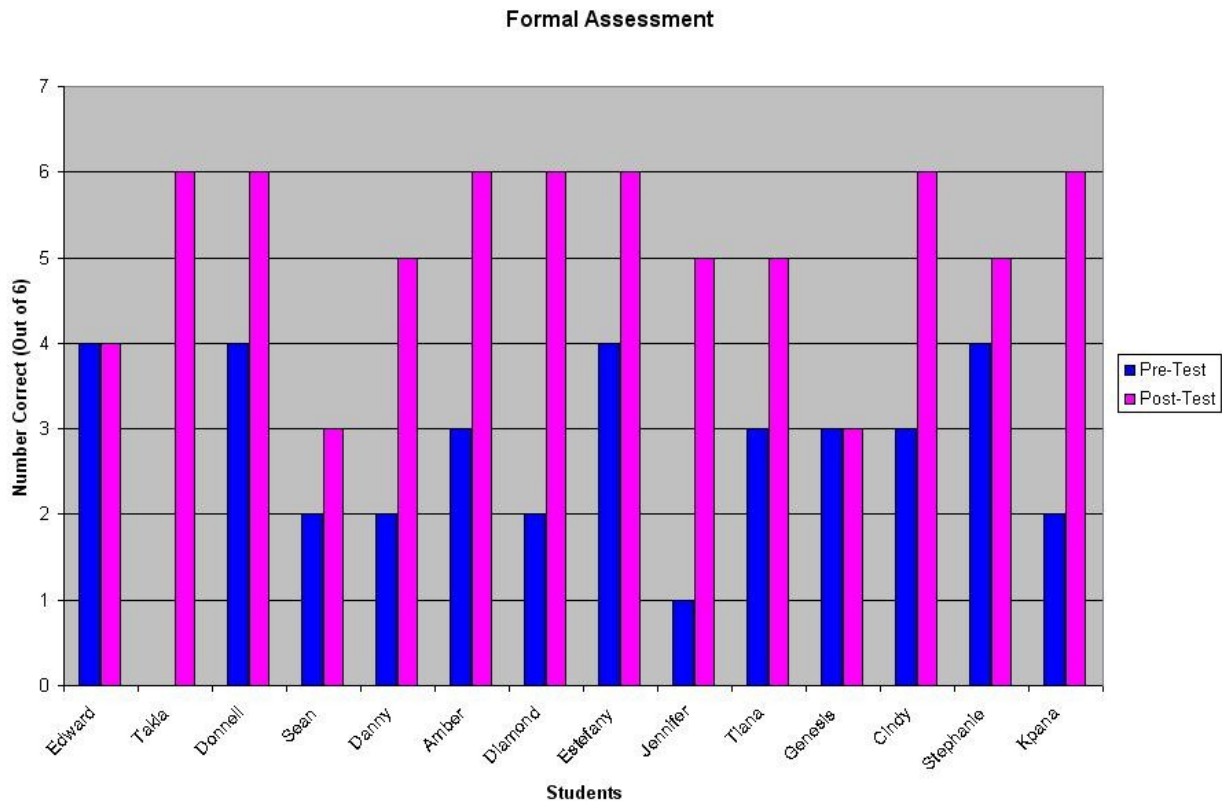
$$5z = 12$$

$$\div 5 \div 5$$

$$1z = 2.4$$

$$z = 2.4$$

$$\begin{array}{r} 2.4 \\ 5 \overline{) 12.0} \\ \underline{-10} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$



Pre-Assessment:

My pre assessment and post assessment were the exact same questions, not that my students even noticed. The first two questions were testing prior knowledge, how to set up proportions for similar triangles and the concept of congruence. These two concepts were often mixed up when taught before, so I wanted to check their memory about the basics. The next two questions should have been about 50% correct, because it involved students taking the method they usually used to solve proportions but solving with division as opposed to my student's fall back, multiplication. The final two questions could have been solved by their original method, looking for the relationship between denominators/numerators and applying it to the other, but it was multiplication by a decimal so very few students saw that. Previously, all of the proportions they had to solve were whole number relationships.

This assessment was confusing for students because they knew how to set up the problems, but most got stuck on solving them. Frustrations were high when we began the lesson, but once they learned how to solve the problems they relaxed. I told the students that the questions were in stages, they definitely knew how to do the first two, the second two were a little trickier, and they probably did not know how to do the second. I was very worried they would shut down if they felt expected to solve all problems correctly. Even with clarifications on the expectations, several students stayed after class to try to finish the problems. Only one student actually solved one of the problems that needed cross multiplication, but she got 4 other questions wrong that she should have been able to do.

Lesson:

Students came in with more prior knowledge than I expected. Most remembered the difference between congruent and similar, and how to set up a proportion for similar shapes (questions 1 and 2). The Do Now for the lesson involved reviewing the material for similar/congruent and corresponding pieces of similar shapes. The increase in understanding of this material is obvious. Unfortunately, students showed the same problem on the rest of the assessment as they did their first time around with proportions – lack of number sense. They found the relationship going across the equation, but then did the easier math (multiplication rather than division) with the number they found so they ended with non-equivalent fractions. This was a problem because this showed they not only did not understand the concept of WHY proportions work, but how to relate the numbers in the proportion back to the original triangles.

In order to motivate the students, I called this a trick to solve proportions, because I love proportions so much, I use my heart to solve them. They were frustrated enough from not being able to solve the Pre-Test that they were excited to find a better way. We then did cross

multiplication, but extended the cross multiplication lines through the numerators and then rounded them back down to make a heart shape. (My students actually call this the Clark Heart now!) I introduced the name “cross multiplication” but did not push it because I did not want to confuse the proportion fraction with the multiplication of fractions concept. This left the students with an equation at the bottom of the heart, which they were able to use prior knowledge to solve. We then went back and labeled our triangles to make sure they made sense, as I wanted to work on the number sense problem. For practice, I gave the students laminated versions of a blank proportion with the heart drawn on it. They set up the proportion for practice problems and used dry erase markers to solve them on the fun laminated worksheet while the teachers and tutors in the classroom walked around and checked on them.

Post-Assessment:

The post assessment went very well. All students showed mastery of setting up proportions, and only one was unable to draw congruent shapes. After discussing this with her afterwards, I believe this is her spatial sense and drawing skills more than an comprehension issue, because she told me that her shapes were the same shape and same size...see the Post Test above. Most students improved their proportion solving skills, with the exception of Edward and Genesis. Both students refused to use the heart method and tried to find the relationship in their old manner. I kept them after school and did problems with them individually. Once they saw the true benefit of using cross multiplication, they became much more willing to use it and mastered the concept completely.

Reflection:

The students needed to learn how to cross multiply in order to solve proportions that were at grade level. My cooperating teacher did not teach them cross multiplication the first time

around because she was worried it would have confused them. I feel that they responded very well to the heart method of cross multiplication and were able to make the connection that this method only works with equivalent fractions, not when multiplying fractions. They are much more comfortable doing division in an equation format, which they reach at the bottom of the cross multiplication method. The piece I wish I had had more time to address was the lack of number sense. We went back and labeled the triangles again to make sure the numbers made sense, but next time I would make them do that with incorrectly solved proportions to show the misconceptions and help them through the correction process. I do not believe in the least that this lesson helped their number sense, but they are adept at solving proportions now. There were hearts all over their DC CAS booklets at the end of April!

Artifact 2: Continual Assessment

Name: Jennifer Ortiz -3 80% B-

TAKE HOME QUIZ 1 Advisory 4

Solve these integer expressions:

- a. $(-4)(-2)$ 8

b. $(3)(-3)$ -9
- The poster below shows the cost of the International Spy Museum and some popular gift shop items.

International Spy Museum
 Admission Ticket: \$15
 Binoculars: \$25
 Keychains: \$3

Which of the following expressions represents the total cost, in dollars, of **1 admission ticket** and **some amount of keychains**, for any number **k** of keychains?

☒ A. $15 + 3k$
☐ B. $15(k + 3)$
☐ C. $15 - 3k$
☐ D. $15 + k + 3$
- What does it mean when two shapes are similar?
 Write it in **words** AND **draw a picture**.



The same shape but different size.
- The cost for renting a video from the new Video Store is shown below...

Days (d)	Total Cost
1	\$ 7
2	\$ 11
3	\$ 15
4	\$ 19

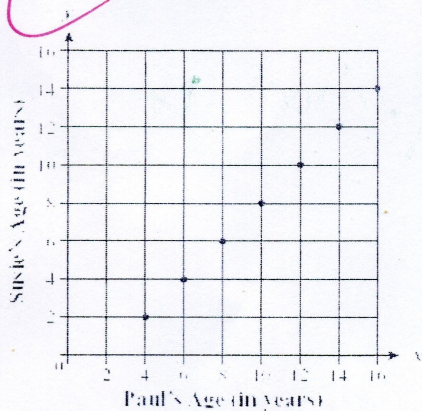
Based on the data in the table, which of the following expressions represents the total cost, in dollars, of renting a movie for **d** days?

~~A. $d + 6$~~
~~B. $6d$~~
☒ C. $4d + 3$
☐ D. $10d - 3$

$2 \times 4 + 3$
 $8 + 3 = 11$

good corrections! HA

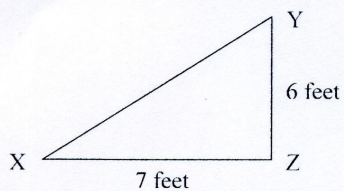
5. The graph below represents the relationship between Paul's age and his sister Susie's age



Which of the following best describes the relationship between Paul's age and Susie's age for all the points shown on the graph?

- A. Paul is twice as old as Susie.
- ☒ B. Paul is 2 years older than Susie.
- C. Paul is half as old as Susie.
- D. Paul is 2 years younger than Susie.

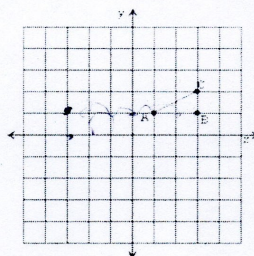
6. A picture of the right triangle XYZ is show below. Find the **area** of the triangle in square units.



$$a = \frac{b \cdot h}{2} = \frac{7 \cdot 6}{2} = \frac{42}{2} = 21$$

The area is 21

7. What are the new coordinates of point B if Triangle ABC is **reflected over the y-axis**?



- A. (5,5)
- B. (1,1)
- ☒ C. (-3,1)
- D. (3,-1)

Sam planned a rectangular garden that was 9 feet long and 4 feet wide.

What is the **area**, in square feet, of the garden Sam planned? Show or explain how you got your answer.

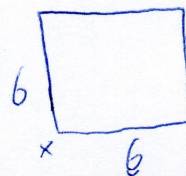
$$A = l \cdot w$$

$$9 \cdot 4$$

$$36$$

- b. Suppose Sam decided to change the shape of his garden to a **square** with the **same area** as the rectangle. What would be the **perimeter**, in feet, of the square garden? Show or explain how you got your answer.

~~$$P = 2l + 2w$$~~
~~$$2 \cdot 9 + 2 \cdot 4$$~~
~~$$18 + 8$$~~
~~$$26$$~~



$$P = 2l + 2w$$

$$2 \cdot 6 + 2 \cdot 6$$

$$12 + 12$$

$$24$$

9. Which of the following sentences best describes two parallel lines?

- ☒ A. They do not ever intersect.
☐ B. They intersect at one point.
☐ C. They intersect at two points.
☐ D. They intersect at a right angle.

10.

- a. Draw a picture of a rhombus:



- b. What do you know about the **length of the sides** of the rhombus?

They all are the same size

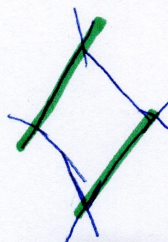
- c. What do you know about the **angles** in a rhombus? (How many acute, obtuse, or right angles?)

1 pair of acute angles
 1 pair of obtuse angles

- d. What do you know about **parallel lines** in your rhombus?

~~They do not have parallel lines~~

they have two pairs that will never touch



they go across each other

Description:

This quiz is a compilation of questions taken from the advisory exam the week before, with congruent formatting and different numbers. The original questions came from the Massachusetts Comprehensive Assessment System (MCAS), which is what the DCCAS is based on. The ten questions were chosen with two main criteria: relevance to the upcoming DC CAS and percent of students who mastered the concept on the original exam. The District of Columbia published a spreadsheet of the standards with the number of questions the DC CAS would have regarding each of them. Students received homework and in-class review about these concepts between the Advisory 3 Exam and the Advisory 4 Take Home Quiz to help re-master the gaps of knowledge. This was not the end of the correction process however; students were then able to stay after school or take their papers home to correct their mistakes on this quiz to receive half the points missed.

Reflection:

The original exam was graded as the final exam for Advisory 3, and entered into gradebooks as such. As an assessment, it was accurate at the time the grade was recorded. Though it was meant to be a post-assessment, in reality it automatically became a pre-assessment after it was graded and I realized concepts were not mastered. I modified the plan for the first week of Advisory 4, integrating the old concepts into the new lessons, adding review homework, and then had to create a new assessment of the same material.

Oral assessments were included in the growth process, as the class and I discussed each of these concepts in Do Nows throughout the week. Students who were incorrect multiple times or showed nonverbal responses that made me question their understanding were kept after class to do practice problems and encourage their growth. Effort was key in this process, and students

were reminded daily that they could get extra help whenever they needed it. By the completion of this assignment, about 75% of the students showed mastery of the ten standards assessed here. This assessment became a full-fledged project as students received so many different types of assessment for this scant grouping of standards.

INTASC Standard #9

The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions of others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

Interpretation:

A teacher is in reality, a student. New research comes out continuously, and every teacher has unique ideas to be shared with others. In order for a teacher to grow and provide the best opportunities for his or her students, the teacher needs to take advantages of all possible opportunities to grow and learn. This includes reflection on lessons, discussions with administration, and mentor teachers. Teachers can learn from other professionals via discussions and observations of their classrooms. The teacher as a student should also continually grow in an academic sense by staying current on best practices specifically in his or her field by participating in national organizations or taking collegiate level courses about new topics.

Artifact 1: Observe and Apply

Form C

School of Education, Teaching & Health: Observation Form

Person Observed: <u>Terra White</u>	Date: <u>2/6/08</u>
Lesson Title or Topic: <u>Read-Aloud</u>	Grade/Subject: <u>7th Bridge Reading</u>
Observed by: <u>Alison Clark</u>	(You may wish to copy the ✓ at the top of each column below and paste it into the appropriate boxes.)

1. Knowledge of Subject Matter	✓	2. Planning and Preparation	✓
a. Teaching is based on thorough knowledge of subject	✓	a. Objectives of lesson are clear to teacher and students	✓
b. Content is accurate	✓	b. Materials and activities are organized	✓
		c. Assignments are clear, purposeful, and instructive	✓
Examples: <u>incorporates vocabulary from English class</u>		Examples: <u>kids seem to know the flow, easily started lesson</u>	
3. Student Involvement and Motivation	✓	4. Teaching Methods and Models	✓
a. Students are all actively engaged	✓	a. Appropriate teaching model is used	✓
b. Lesson incorporates student ideas	✓	b. Varied questioning techniques are incorporated	✓
c. Expectations are high for all students	✓	c. Wait time is used effectively	✓
d. Students' prior knowledge is utilized	✓	d. Feedback is timely and useful	✓
		e. Assessment is aligned with lesson objectives	✓
Examples: <u>students give predictions</u>		Examples: <u>basic recall ?'s & higher-level thinking - why did she do this? inference!</u>	
5. Classroom Management	✓	6. Relationship with Students	✓
a. Teacher is well organized and prepared	✓	a. Teacher shows respect for students	✓
b. Teacher keeps students on task	✓	b. Criticism is constructive, positive and specific	✓
c. Rules are enforced in a fair and consistent manner	✓	c. Critique is of action, not individuals	✓
d. Transitions are smooth and efficient	✓	d. Teacher helps students reach high standards and build self esteem	✓
Examples: <u>asks Sean to do lots of stuff - keeps his energy up!</u>		Examples: <u>does not correct mispronounced words til student done reading</u>	
7. Communication Skills	✓		
a. Oral language and tone are appropriate	✓	<u>Johnny clearly had different idea! he had to follow along w/ finger and Terra made eye contact affirmations he was doing so</u>	
b. Diction and volume are clear and audible	✓		
c. Body language is appropriate	✓		
d. Eye contact is maintained	✓		
e. Teacher listens and responds to students	✓		
f. Written language is accurate	N/A		
Examples: <u>even when reading, she maintains watch on kids while reading @ their pace</u>		<u>- eslef seems weak. not class - not as strong reader, so less confident</u>	

Description:

This is the observation sheet I used when I watched Terra White teach a reading class to half of the students in my Math Review class of students in the Bridge Program. This was early in the student teaching experiences, so it was beneficial in that I could get to know my students better by seeing them more than one period. Ms. White is a third year teacher who has many creative techniques and a good rapport with the students. At the beginning of class, the students discussed what had previously occurred in the story and shared their post-it note exit cards from the class before, describing their predictions for the continuation of the story. They then moved rather seamlessly to the reading rug where they took turns reading aloud while Ms. White interjected with questions.

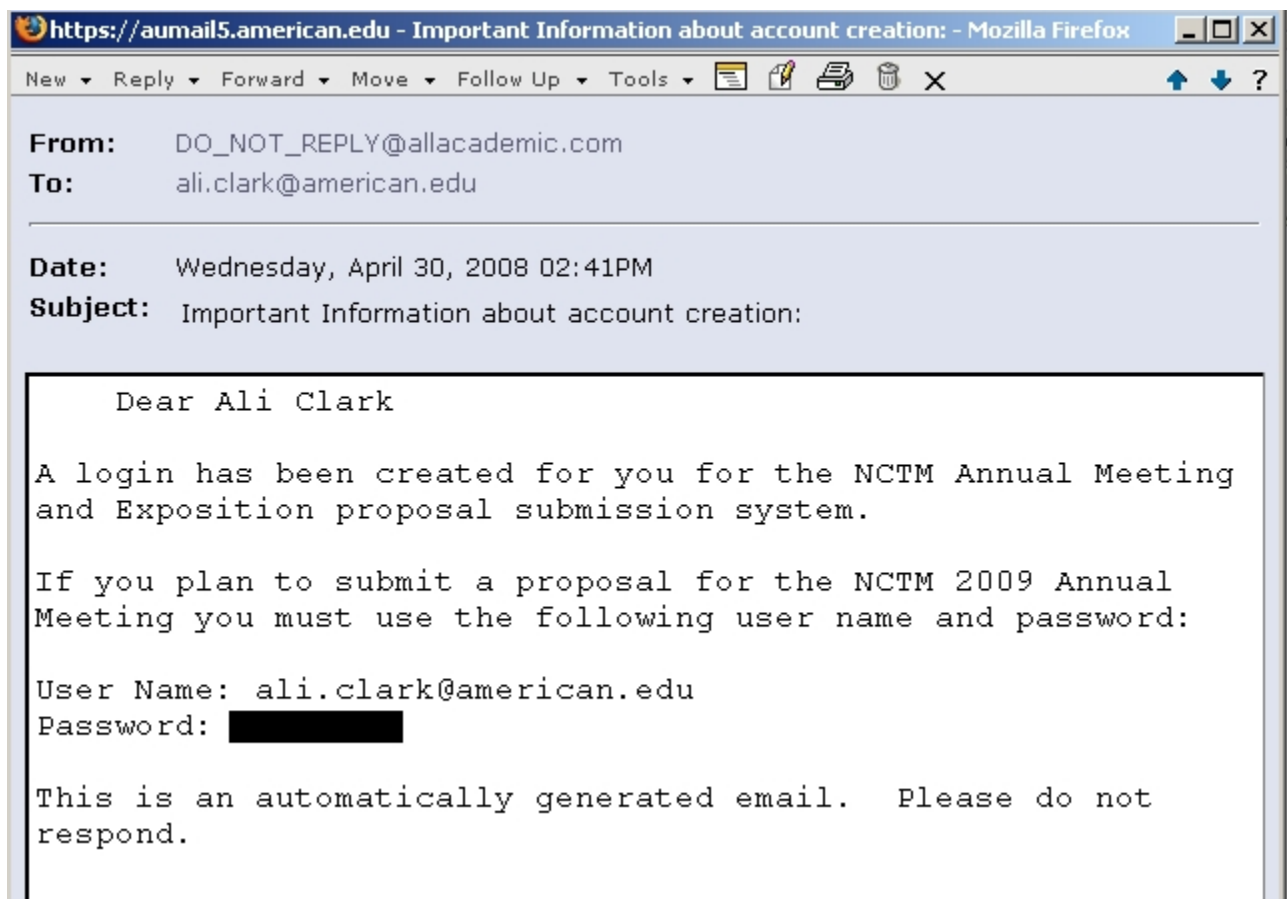
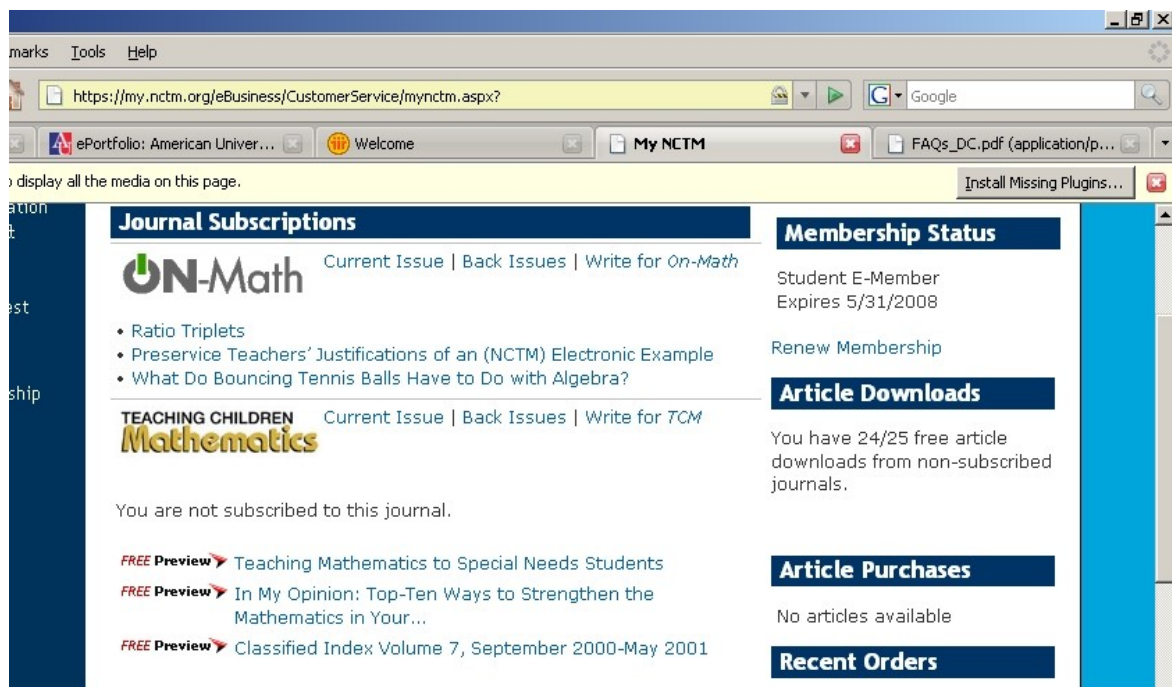
Reflection:

Professional development occurs within the school realm, not just a subject realm. Obviously every teacher has a unique methodology in the classroom, and I tried to take advantage of learning from as many different teachers as possible. Thinking scientifically, I wanted to see other classrooms with one variable changed at a time, so for many observations I kept my students constant and observed their other teachers, as Paul is on a team system. I was able to gain a new understanding of some teaching best practices, like incorporating higher level thinking questions into a discussion. I also saw great classroom management techniques that I could use specifically on my students because I saw them interact in a new environment, like having Sean do many of the physical tasks in the classroom to give him an outlet for his energy.

I gained a lot of ideas and was able to implement some new techniques into my classroom. I shared my observations with my cooperating teacher, as she knew my students better than me that early in student teaching. One thing that I wish I had spent more time doing

was discussing my observation with the classroom teacher I observed. In this case, I talked with Ms. White about her method for creating the higher level thinking questions, but I only took away my interpretations about how she reacted to each student's questions and I feel I could have developed more professionally if I had spent more time discussing the class with her after school.

Artifact 2: Conference Presentation



Description:

My cooperating teacher and I submitted this proposal to the National Council of Teachers of Mathematics to present at the 2009 Annual Conference. Mia Abeles has been singing songs with her math students for years, and I utilized my grant money from the Lynn Ganek Foundation to write more songs with the students and record them onto CDs for the students to have tangible evidence of their creativity and a helpful tool for remembering procedures and vocabulary. If chosen for the conference, we will discuss these experiences and more with the other participants. I will receive a discount to attend if chosen to present, and the conference itself will be a great tool for growing professionally. There are four days of continuous professional development opportunities from fellow mathematics educators on many current hot topics in the subject.

This submission also reflects that I am a member of the National Council of Teachers of Mathematics. As a student member, I have a subscription to the “Mathematics Teacher,” a professional journal for secondary level math educators. I also have access to 25 downloads of professional articles from other NCTM journals and a full online version of the Principles and Standards for School Mathematics. One of the most beneficial perks of this membership is receiving biweekly email updates about current events regarding policy in the education sector, specifically mathematics education.

Reflection:

Being an active part of a professional organization can only benefit me as a teacher. I have access to many professional resources in one place online. The piece I utilized the most while teaching was the online version of the Principles and Standards of School Mathematics to gain ideas on how to incorporate the process standards of mathematics into the content

prescribed by the district. I also used it for ideas about where the content I was teaching would become prior knowledge and how broad and deep was appropriate for my grade level in each content strand.

The conference I plan on attending next year, and hopefully presenting at, is a great opportunity for me to learn professionally from others. Just to be asked by my cooperating teacher to be a co-speaker is an honor, and has encouraged me to begin more research on the subject we will be presenting on. Events like this remind me that teaching is a growing process and I will always find more to learn about to incorporate into my classroom and it is my professional responsibility to do everything in my power to give my students the best education I can provide.

INTASC Standard #10

The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

Interpretation:

A teacher's job is not a traditional profession, contained in one building. Teachers should not only create relationships with teaching colleagues within the school, but extend a hand to the community they teach in, to the parents of their students, and even beyond the teaching role within the school. The more active a teacher is in his or her students' lives, the more impact he or she will have on their development, cognitive and otherwise. This is especially true in a middle school as students are going through many physical and emotional changes. The more stability a teacher can provide, the better.

Artifact 1: Collaboration

From:  Ali Clark/ac4035a/AmericanU
To:  gmCGovern@paulcharter.org 
Date:  Tuesday, April 08, 2008 04:21PM
Subject:  Class today



 Gina,

Everything went much smoother today! Algebra was a wee bit talkative, but we got through the lesson and re-reviewed stuff from yesterday they seemed confused on. Ture, Lishonia, and Jacob are consistently outperforming other students as far as speed, though I have not yet checked their accuracy on the most recent work. Should I create an extension for them or do you have a routine? Robert Blakey and Thaddeus do not seem to get along well, there were some issues with writing on each others' papers today - I think I will separate them tomorrow. Any other suggestions for dealing with Blakey? All in all, it went well and they were much better behaved and attentive to the lesson and tasks at hand, though I am pretty sure one of the boys stole my pen!

Geometry was fabulous, they asked good questions and we really got into the meat of distributive property, multiplicative and additive identity, and we worked on cleaning up our work so we were not writing unnecessary steps or pieces. Ms. Hoffman sat in to help because it was her off period, but they were good on their own and worked well. Most really enjoyed the distributive property problems with the number puzzles, with the exception being the ones without the patience to discover the solution to each of the puzzles. We also worked on our ThinkLinks in that class, but some of them are concerned because they do not remember which ones they have done and which they haven't. Do you have that information?

Funny Geometry stories - Kristen does not ever, ever, ever close her mouth. Not a story, just thought you could share a :sigh: with me over her incessant questioning/talking. Story: This morning, Alia put her highlighter in her shirt pocket, and forgot the lid...until Geometry. She had a spot of bright yellow about 3 inches across on her shirt! I felt bad, but the image of the dorky overly bright geometry kids needing pocket protectors was too much for my brain and I had a good chuckle. Final story - yesterday, Golden asked to go out in the hallway to fart...twice. Not quietly to me personally of course, but to the entire class in the MIDDLE OF THE DO NOW. Ridiculous child. Also, I think you are right about his height, as I can see more sock every day. Actually starting to see the leg above the sock.

7th Period also went well. This flow chart was easier for most of the kids. Jeffrey did not like it, but he does well solving them in his notebook. Jose was working with Ms. Messner most of the period and doing a good job. Yenis was getting correct answers, and one time got the answer BEFORE Vanessa, so I think she may have had a solitary moment of clarity today or something. Jennifer, Catiz, and Jeffrey were the only students to DO the homework from last night, though Yenis and Nancy did about half the problems. I talked with them about the importance of doing their homework, and Mr. Brown taped Sadiya's to her notebook so she cannot "lose it" again. I thought 2-Step Equations would take much longer, so I did not have a quiz prepared for today, but they have all colored in the block for One Step Equations. I think Yenis may have gotten major help, but she showed her work and talked to me about one of them, so I let her have it. I assume you have listened to your voicemail by now, they did well at the 1,2 Step song. Tomorrow Ms. Messner is going to read the rice story in her class so we have more time to focus on the math during 7th period. I am excited, it is cute!

Final thing, I forgot to mention this yesterday, but you told your kids there would be a letter home from you about your absence at Parent Teacher Conferences. Do you want to email me a letter, or should I just verbally remind them again?

That's all for now, hope the conference is going well.
-Ali

 Attachm
ents:


Description:

This is one of many emails I shared with Gina McGovern during the week of the National Council of Teachers of Mathematics 2008 Annual Conference. She and my cooperating teacher, Mia Abeles, were presenting at the conference and asked me to take over their classes for the week. I was already teaching Mia's classes (3 periods a day) as part of my student teaching, but it was quite a perk to have Gina's classes as well, due to the diversity of learners. Gina teaches a 7th grade ESL Math Review course, which was very similar to my 1st period class and was somewhat routine for me. Her other two classes are the highest performing math students in the school, a 7th grade Algebra class and an 8th grade Geometry class. This was a great chance for me to see the other side of middle school, because both of the classes I taught were students needing remedial catch-up while learning on grade level skills. Gina and I planned the week out together in advance, and I kept her updated with daily emails while she was gone.

In this email, I shared humorous anecdotes and academic updates on Gina's students. More importantly, I asked for advice. I had observed her class many times as it occurs in the same room I teach in, and had even been the equivalent of a teacher's assistant at times, often tutoring during classtime. Some routines, management issues, and student achievement levels had gone unnoticed by me in these times, and I requested Gina's advice on how to deal with many factors affecting the students' performances. Her advice not only worked in her classes, but gave me new ideas for my classes and to add to my teacher "bag of tricks."

Reflection:

Teaching two class-loads made for an exhausting week, but I learned a great deal about myself as a teacher, classroom manager, planner, and professional. Planning ahead of time with Gina was an eye opening experience, because she is able to use more on grade level tasks than my students could handle. We discussed teaching techniques, management styles, and other

professional methodology that I could use in a different way in her classes as opposed to mine. Teaching three different preps for her class load required support, as I also had my three classes to teach that week. I learned to ask for help and utilized Gina's organization techniques in her classroom to make sure her classes did not feel off kilter with a different teacher for a week. Collaboration made for a very unique experience, not necessarily easier as I had to meet her expectations, but I learned a lot.

As I was not teaching with a cooperating teacher observing me every period and discussing the pros and cons of each lesson, I focused on being an outside observer while teaching to note as many places to grow as possible. I was able to ask clear, specific questions of Gina about the content and individual student management issues. When I did not get the answers I needed from email responses, I had to elucidate my questions and improved my professional correspondence techniques. One of the greatest lessons I learned from this experience was the value of journaling about the day and sharing those experiences with colleagues. I was also able this way to compare student growth and my personal growth. (Not to mention the great stories I won't forget now!)

Artifact 2: Becoming Part of Paul PCS

 PAUL PUBLIC CHARTER SCHOOL FACULTY MEETING Wednesday, March 12, 2008 3:30-5:00pm  <u>Agenda</u> I. Pulse II. Housekeeping ➤ BAS time concerns — <i>tell Jami after about our kids, what accommodations for lunch?</i> ➤ Hall duty — <i>read more preference on 3rd floor</i> ➤ Project Week proposals — <i>Mr. Welsh</i> ➤ Tutoring needs ➤ Class Inventory forms ➤ Technology survey III. Team-Building — <i>what would make Paul Perfect School?</i> <u>Reminders:</u> • Advisory 3 ends next Thursday • Grades due 3/31 • Next Staff Meeting 4/9/08 <u>Notes:</u> <i>- ask Gina if she needs help w/ project ask proposal</i>
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- double period for math
- better communication
- PE uniform strictness
- smaller classes
- academic competitions w/ other sch
- smart boards
- LCD projector } in every class
- student/parent login for grades
- recess w/ outside supervisors
- support services for parents
- structured after care
- homework detention
- community service
- appropriate offenses
- team building

Description:

These notes are from the March faculty meeting. At this meeting we were required to sit with our departments. The administration changed this every meeting, so sometimes we sat with our teams, other times with hallway neighbors, other times with anyone we wanted. This usually related to the DC BAS/DC CAS portion of the meeting and in what way they wanted to emphasize test prep that day. The back of the page was the “team building” activity listed as number 3 on the agenda. The team had to come up with things we thought would make Paul the perfect school. I was official recorder for the team, and even made a few suggestions myself. At this point I had attended Math Family Night and all department meetings so the math teachers were comfortable with me and respected me as a valuable contributing member of the group.

Reflection:

I tried to be as active as possible in the school environment. I was the only student teacher who attended all faculty meetings and department meetings during my time there. I created relationships with teachers in other departments and grade levels, which gave me insight into my students as well. It was my attendance at the department meetings which fostered my relationship with Ashley Hall, who also teaches 7th grade math. We shared emails often on best practices for specific lessons we were both teaching. Through my professional behavior, my opinion was respected and I even added a few pieces to the math budget for students to use next year based on materials I felt were lacking, even at a great school like Paul.

I used the information gathered at faculty, department, and team meetings to congratulate students on achievements discussed, encouraged students I knew to get involved in activities I learned about that would suit them, and volunteered to do extra things around the school, like give out achievement awards during assemblies and grade DC BAS tests on the weekends. I

helped set up and then attended Math Family Night and was official videographer of the event. I also assisted at Family Literacy Night, even though it was run by the English/Reading Department. Over time I learned names and faces of many of the seventh and eighth grade students and created relationships with those who were not even in my classes. I worked to become a part of the Paul community rather than a transient student teacher.