

Math ABC Book

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Someone once told me, “Be the teacher you wish you had growing up.” With that in mind, I always think back when I was in grade school. I always preferred art class over any of my other classes. If I could stay there all day, I would be the happiest person in the universe. Unfortunately, that was never an option. I always enjoyed doing crafty projects in class. I remembered one project that I enjoyed in my U.S history class during my sophomore year in high school. It was the last project of the academic year. Mrs. Betancourt assigned the class to do a ABC book related to history. She asked the class to pair up with a classmate for the project. She required the book to have one vocabulary word for every letter in the alphabet. She instructed us to include a definition written in our own words and an illustration that best represented the vocabulary word related to history. My partner and I decided we would split up the assignment. I volunteered to do the illustrations and help her write the definition for some words. As the creative person that I am, I thought about doing history puns for the drawings that would describe the word in a comical way. I do not remember any of my illustrations in the book, but I do remember my friend and I earned a 100 on the project.

During the spring 2017 semester, I enrolled in grades 4-8 literacy block for teacher candidates seeking certification in mathematics,

mathematics/science, or English/language arts and social studies. Our literacy block required us to complete field experience hours in an assigned mentor teacher’s classroom. One assignment in this course required us to complete a genre study. Fountas and Pinnell (2012) described the genre study as an instructional framework that is inquiry-based. According to Pytash and Morgan (2013), it is an inquiry-based instructional framework that supported students’ development as writers in single-subject areas or across disciplines. Our professor wanted us to go through the process of learning how to integrate writing into our content areas. It was also for us, an opportunity to practice teaching the writing process to students in our content area in small groups. Since I am seeking certification to teach mathematics, I had to think of a fun but interactive way to integrate writing. Our professor provided examples from previous students to give inspiration to the class. The examples included various genres that revolved around the TEKS.

At first glance using the comic strip to teach biography caught my attention because of the visual arts involved in making it, but as the week went on, I remembered the project I made the previous semester for one of my math classes. I hand made a short biography book about Euclid of Alexandria, a mathema-

tician that helped create a set of books called *The Elements*. The set of books had little math information that was known at the time, but we now consider such terminology such as: definitions, postulates, and axioms part of everyday knowledge. On every page, I wrote about Euclid of Alexandria and included a drawing about other mathematicians who made fun of him; I also included math puns. Then, I thought this assignment was too easy to write about a mathematician. How will a biography book help the students towards the end of the year? How much do 8th graders know about the founders of mathematics? I learned many of the students did not know much about mathematicians or why they were important? Then, I remembered the project from U.S history and thought I could easily modify it to fit a math classroom. The short biography book on Euclid of Alexandria integrated writing and visual arts in mathematics (see Appendix I: Euclid of Alexandria).

Why a short biography book is important in mathematics?

As a future teacher, I try my best to engage all students whenever I teach. I always have in mind their learning preference, particularly students who are visual and kinesthetic learners. I believe including visual arts is important because it caters to most students learning needs. Having students create a short biography book in a mathematics classroom provides opportunities for visual, kinesthetic and auditory students to excel in writing. According to Cunningham, Kantrowitz, Harnett, and Hill-Ries (2014), the arts are excellent vehicles for fostering higher order thinking skills; they encourage students to closely examine, reflect on, and analyze works of arts, and promote thoughtfulness creativity and the formulation of rich connections. In their report, Cunningham et al.

(2014) discussed how the “Framing Student Success: Connecting Rigorous Visual Arts, Math and Literacy Learning” experimental demonstration project integrated visual arts, math, and literacy. Funded by the U.S Department of Education Art in Educational Model Development and Dissemination (AEMDD) grant, this project brought together school based visual art teachers, math and literacy specialists and classroom teachers. The curriculum created was taught in three New York City Title I elementary schools from 2009-2012.

The report stated that in every unit, the student viewed works of visual art and used artistic and descriptive language, analogic reasoning and interpretive skills (Cunnington, Kantrowitz, Harnett, & Hill-Ries, 2014). This helped the students develop skills needed to interpret written text. The results from the project indicated that the project improved students’ visual arts skills and literacy and math achievements over three years. Knowing this, I concluded that a visual arts curriculum can also impact students in the middle grades, particularly those students struggling with believing the misconception that math is boring, a waste of time or all about completing worksheets. Creating a mathematics ABC book is a great project to do with middle school students. The main objective of the ABC book is to help with recalling key content specific vocabulary words learned during the academic year. Another objective is to help students add to their home library. If they do not have one, then this will help them establish a library in the home.

How to make an ABC Math Book?

For this project, I wanted to know how well each student knew content specific vocabulary words. It took two days to complete my book. On the first day, I wrote each word and the definition. Then, I typed and printed the vocabulary words and the definitions. On the second day, I gathered supplies. I put my book together by pasting the background paper to the page; I proceeded to glue the letters with the vocabulary word and the definition. When I finished, I thought about funny math puns I could illustrate to make my book a bit more interesting and appealing to my audience (see Appendix II: Math ABC Book). In my ideal book, I wish to have had enough space to do a small comic explaining every vocabulary word, but time is limited in the classroom. I knew it would take students longer due to the limited class time. For this reason, I would assign this project as a year-long endeavor allowing in-class time for students to work on it. This is the best option for students who struggle in mathematics.

Nonetheless, this project can take less time to complete if the teacher has a word wall visible in the classroom. It is easier for the students to choose vocabulary words if they can see their options instead of spending time looking for the words. It will also take less time depending on the students enrolled in the class. The book consists of using every letter in the English alphabet, one letter per page. On each page, they must include a definition in their own words and a picture or example that describes the content specific vocabulary word. To help students with time management, it is imperative to write a schedule to show students how to manage their time. An example is provided below.

Day 1: Select the vocabulary words (10 minutes).

Day 2: Write the definitions for vocabulary words A-M (20 minutes).

Day 3: Write the definitions for N-Z (20 minutes).

Day 4: This is a computer lab day for students to type and print what they need for this project. If the students finish early, then they can start putting the book together.

Day 5: Begin gluing and illustrating examples to explain the vocabulary words. If the students do not finish the project on day five, then allow in-class time on the next school day. As stated previously, this project can be a yearlong endeavor.

In sum, infusing the visual arts and writing in a mathematics classroom can be frightening and overwhelming, but the outcome can be surprising for teachers and students. Once I completed this project for my course in content area reading in the middle school, I realized crossing the arts, mathematics and literature boundaries gave me additional tools to teach lessons that will engage my future students and cater to their learning needs.

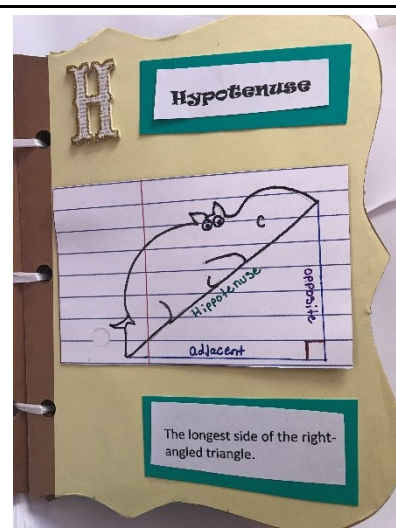
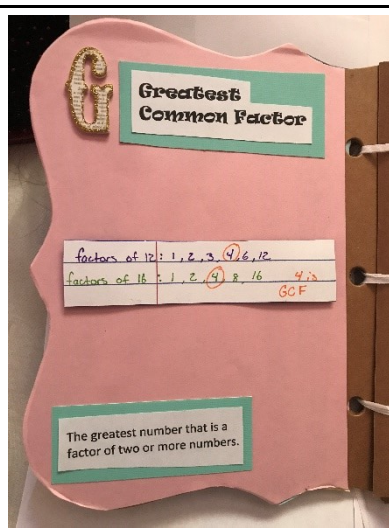
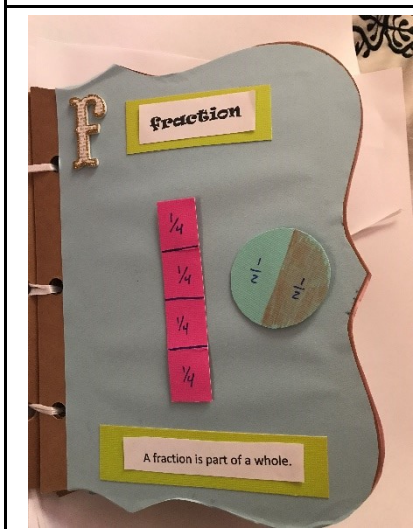
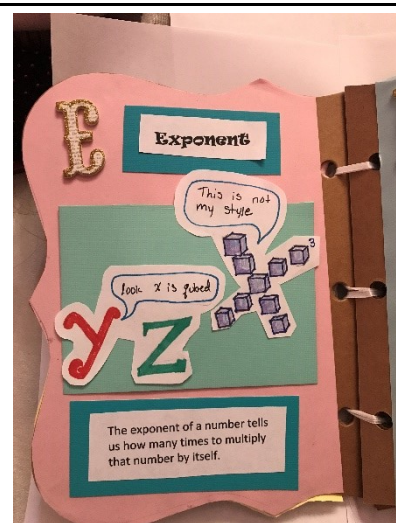
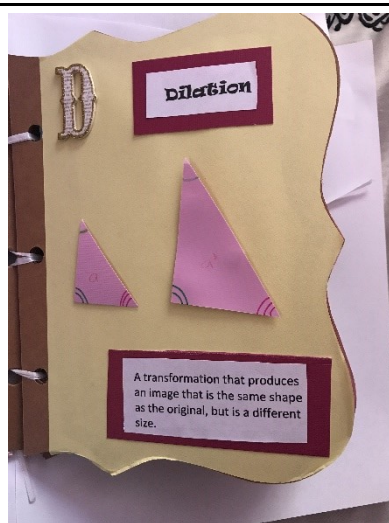
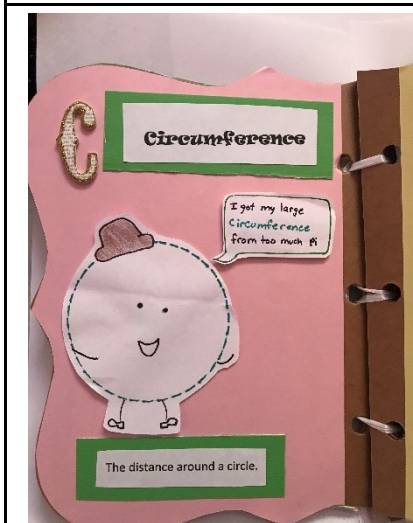
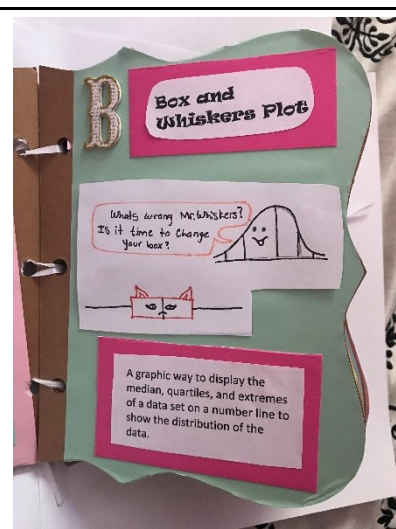
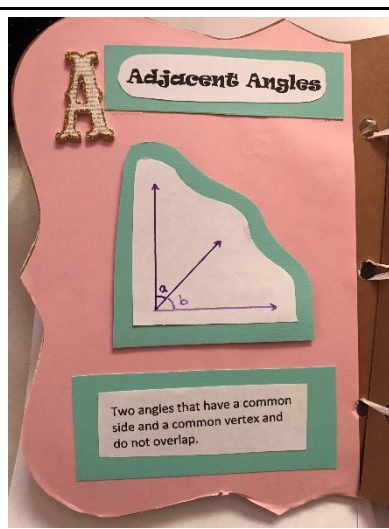
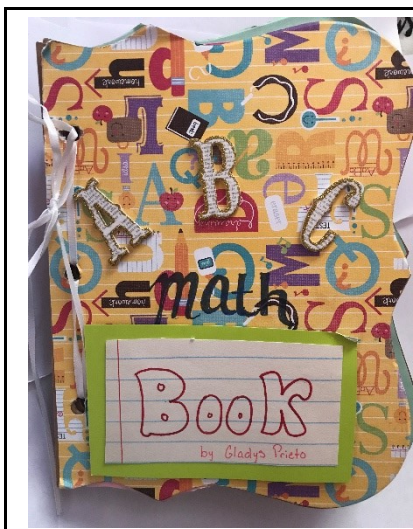
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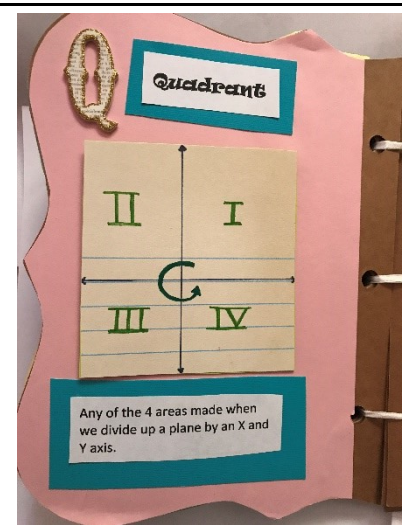
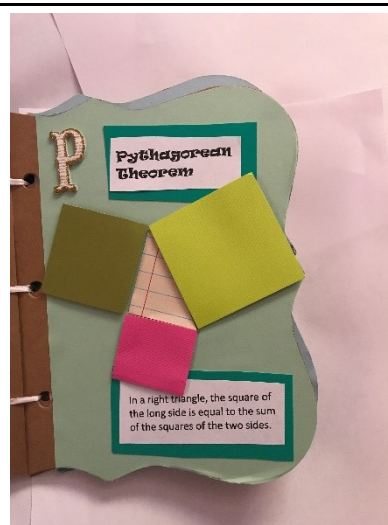
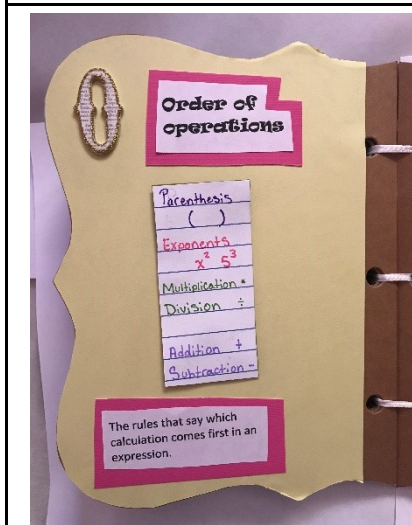
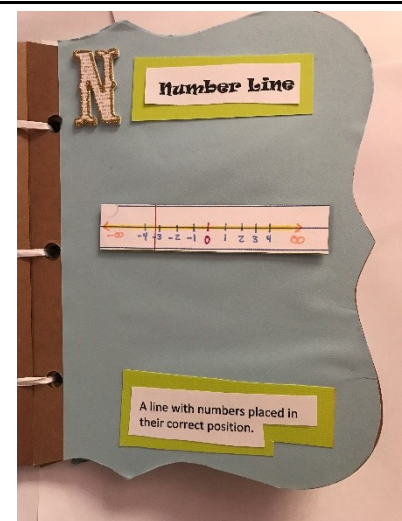
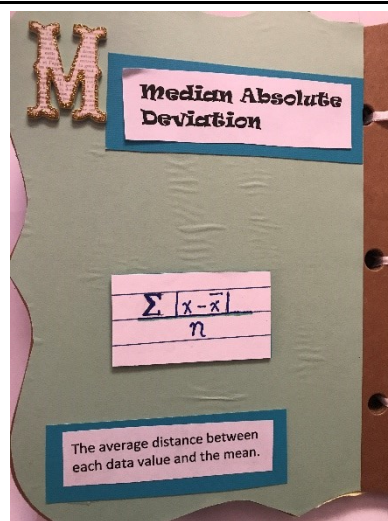
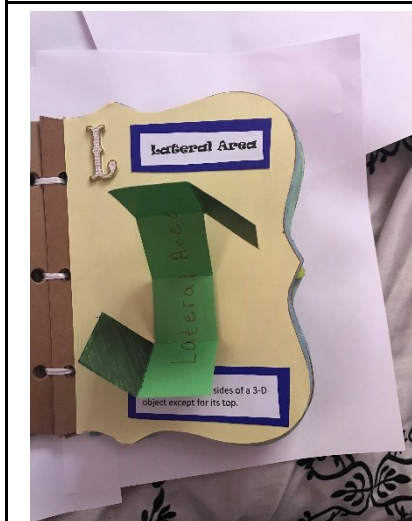
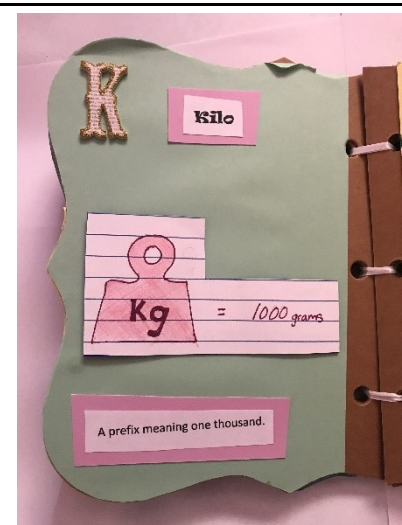
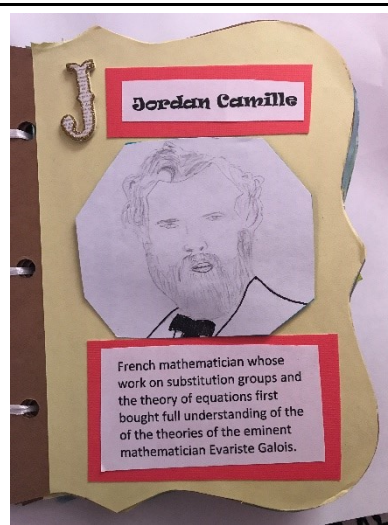
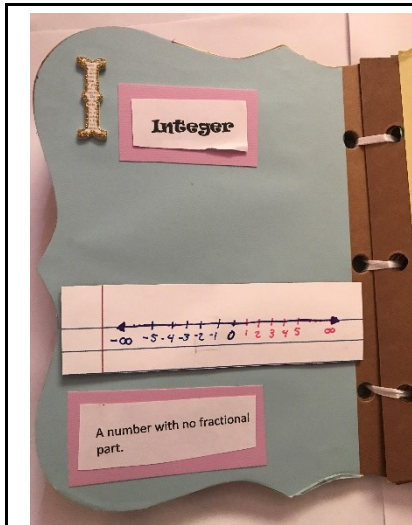
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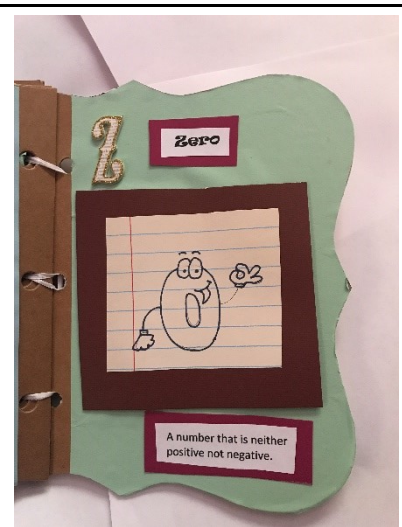
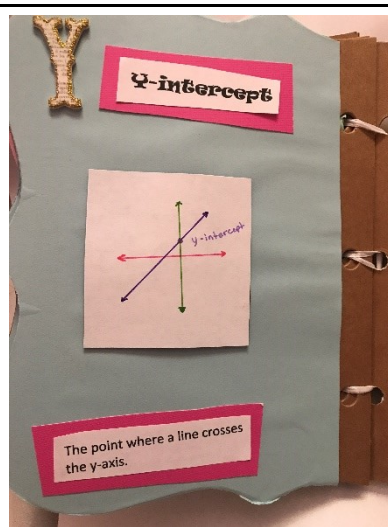
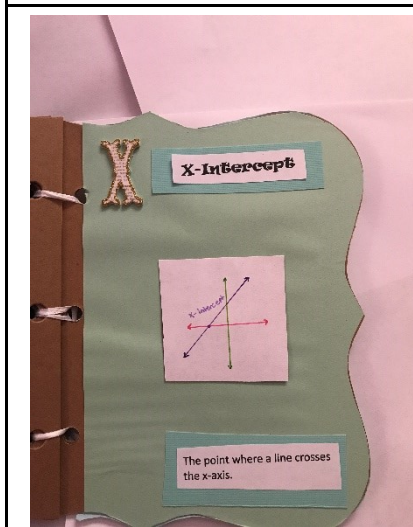
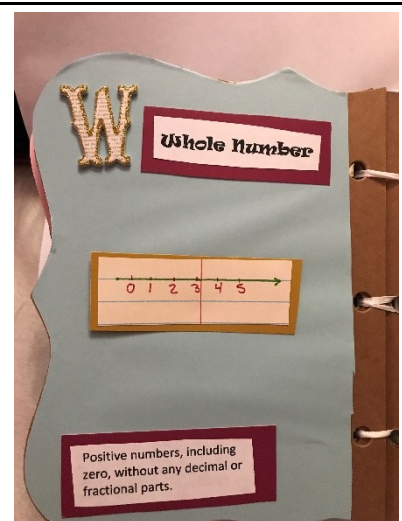
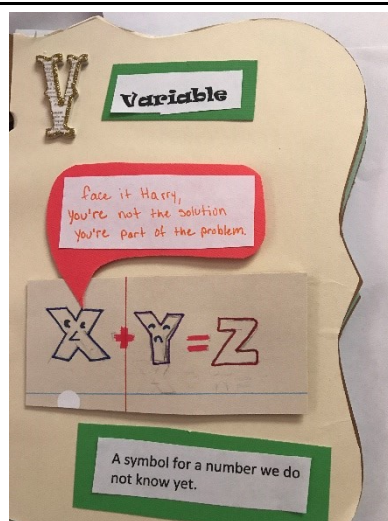
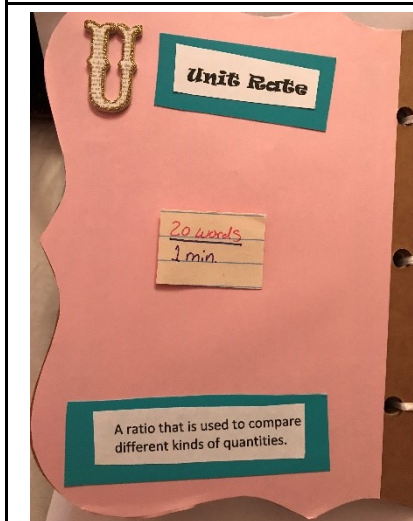
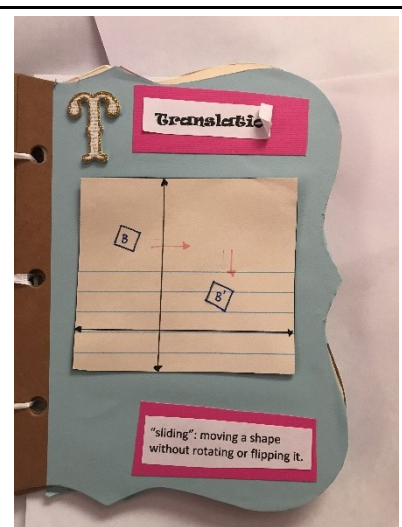
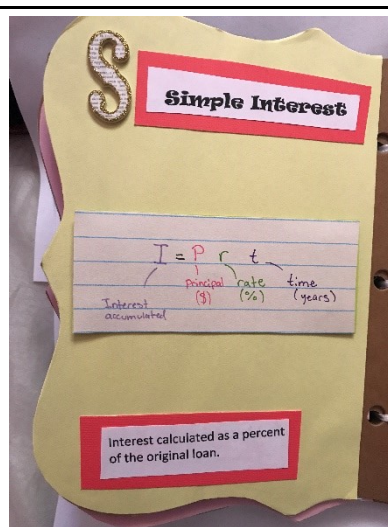
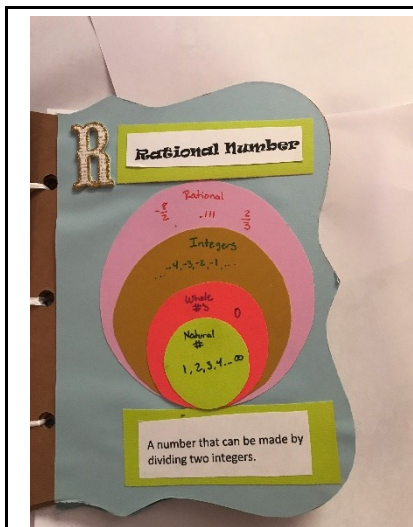
Appendix I: Euclid of Alexandria



Appendix II- Math ABC Book







Author's Biography

Gladys Prieto is a senior at Sam Houston State University. She will graduate in the spring 2018 with a Bachelor of Science degree in interdisciplinary studies with a minor in mathematics. She is the Vice President of Kappa Delta Pi, an international honor society in education. She wants to start her career teaching 7th or 8th grade mathematics. After teaching five years, she wants to go back to school and earn a master's degree in educational leadership.

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