

DreamIt Project

“Mathematics in Disguise”

By: Adrienne Marie Keiner

I am a 6th grade mathematics teacher. This school year I will meet with 4 mathematics classes everyday for 64 minute periods. Which means everyday for 64 minutes a day I have a chance to convey my love for math onto 127 students. So, the beginning 5-10 minutes of each period and/or the last 5-10 minutes of each period will be dedicated to the “DreamIt” project. As well as devoting many activities, lessons and final unit assessments to the “DreamIt” project. The plan is to slowly release the project to the students by the end of the second quarter. In those 5-10 minutes of every class students will have a discussion around a picture that involves math, such as a picture of an oriental rug. What does math have to do with an oriental rug? Students can look at the picture of the rug and explain that the patterns in the rug have a lot to do with algebra patterns or the shapes have a lot to do with geometry figures or that to make such a rug one has to think in not just artist terms but mathematical ones as well. After the first 6 weeks of teacher driven pictures I will have students bring in pictures that can join the discussion on Fridays and dedicate 10-15 minutes to that students interpretation. Pictures will consist of original works by students that follow a given rubric. All pictures will be submitted via students Chicago Public School gmail accounts and filtered through the 6th grade team of teachers. By the second quarter I will slowly release the pictures and discussions to become student created and student driven. But, these pictures are only the beginning of students discovering “Mathematics in Disguise”. Read on for more of my plan on finding math all around us.

In July 2014 I wanted the project to encompass the main idea of “Math disguised as science” but as the new 2014-2015 school year began and I meet with grade levels, vertically and horizontally, I ended up not wanting to be that specific to just science. I believe mathematics are in every aspect of daily life. So I am changing the main idea that I want all students to take away from this school year to “Mathematics in Disguise”.

My horizontal 6th grade teammates will be helping me greatly throughout the school year in accomplishing my goal. My teammates include: reading, writing, science, history, library, physical education, computer, art, global studies, and music teachers, all whom will collaborate and communicate with myself and students the, "Mathematics in Disguise", idea throughout the school year. When I brought this project to the reading, science, and history teachers I was very nervous, but they got just as excited as I am to start spreading this type of thinking. I was planning on 'selling' the idea much more than I needed to. Not only were they on board they took it upon themselves to quickly gather others and interrupt my classroom setup. I had to have an impromptu meeting about my plans, which were not at all ready! I introduced what I had up to this point and everyone agreed to help develop it further. We came up with, all subjects will have an exit ticket for students to reflect on the days lessons and how it relates to mathematics. These exit tickets will be analyzed by the specific teacher and then passed on to me to gather data and share with the classes. Exit tickets will be turned into hashtags, memes, and/or vines later on in the second quarter. These teachers will also be using the websites and technology I have brought back with me from the first initial MSU/WIPRO face-to-face meeting. Any new ideas during the first weeks of school and throughout the year will also be shared on my website via the embedded twitter feed, #mrskeiner. Using the #keinermath will show 6th grade transparency and allow students to see what their teachers are discussing, learning, and thinking, since it is all about them.

The biggest idea I want students to walk away with is that math is constantly all around us. We cannot escape from mathematics, not that we want to. Probably because I've taught math for 10 years and have always understood mathematics more than any other subject, I have become a bit biased. However, everytime I talk to students about career choices, sports, or other daily living tasks I come back to a math lesson. My "life" lessons that come up during simple conversations seem to circle back and relate to mathematics. I want others to see math this way as well.

Every year I come across many students that "hate" math or think it's such an impossibly complex thought process that only a few chosen students understand. I see students the first day walk in already given up with the lessons I haven't even taught. It is incredibly frustrating. I want students to walk away seeing any type of math they can, simple

or complex. I came to this conclusion years ago, but never really brought it to the forefront. I assumed by teaching math I was making students think this way. But now I'm not sure if I really was....

Through the two week MSU-WIPRO course I saw that I wasn't getting the love for mathematics across to the students. Just by walking around downtown having casual discussions around teaching, going to lunch with teachers in different subjects, completing quick fires along side academically diverse adults, listening to interpretations at the Museum of Science and Industry, and reading many articles on learning and teaching, I found what I wanted to share with everyone. That math IS all around us, disguised as science, as history, as technology, as reading, as art. Disguised, but, always there. I did not come to that thought by sitting in a classroom reading a book, I experienced it, which means my students have to experience it as well through endless amounts of mediums.

Many of the mathematical units I teach have hands on experiences in them, such as; putting recipes together, measuring and scaling school areas, acting out a mathematical problem, communicating math findings in anyway possible and so on. However, I would like to use more technology based tools, such as; social media, stop motion movies, movable graphs, closed circuit equations, any physical tech tool that will help further understanding or at least have them question the things around us mathematically. We will be starting this process off using everyday images at the beginning and/or end of class, which we will analyze and search for the hidden mathematical meaning in said pictures. While analyzing everyday images students will also complete "real" life mathematical problems related to the morning images the teacher has provided.

Examples:

1. Mathbox - I use a two by two large grid to guide students in solving mathematical problems. I am changing the parts of the Mathbox to have students think metacognitively instead of just remembering the steps. Students will share their mathboxes with each other to do partner reflections and discussion. All suggestions and comments from others will be shared with teachers and students via google drive, twitter, or gmail.

Before - Boring!

Write the problem and underline important information.	Create a plan to use that will help you solve the problem.
Solve the problem	write in words how you solved the problem

After - Memorable!

Interpret the problem using the given information and keywords from past learning. Rewrite or underline the given problem.	Attempt to solve the problem one way. Discuss with a partner.
Attempt to solve the problem a different way. Discuss with a partner.	Discuss the following questions and bullet your answers. 1) Why were your answers the same or different? 2) Why was this important to solve? 3) How will solving this problem help you in your everyday life?

My plan is to not only start with everyday images but to start by actually using all the tech tools I've been shown, which also means I have to make sure I know all the "in's and out's" of those same tools, while staying open-minded to what the students will discover and teach me in return.

This year my teaching team will focus directly on COMMUNICATION. Sharing and being public with information helps others reflect, learn and grow. I want students to see math all around them in every subject, but, also share what they see so others can learn from it as well. So, this year I want to focus on communicating "Mathematics in Disguise" via one website, schooledbykeiner.weebly.com and the embedded social media websites, Twitter, youtube, and google groups, using memes, vines, hashtags, stop-motion video,

de-motivational posters, and any other creations discovered and shared by students, teachers, and/or parents.

Tentative Timeline:

- Teacher led for the 1st two to three weeks and then student driven for the rest of the school year:
 - DreamIt Project Trailer Video: Teacher will explain the years mathematical and technological goals that will drive student learning.
 - Technology usage overview and use throughout the school year: Teacher will go over the use of technology being used during the school year that will relate to mathematical learning as well as learning in other subjects. Teacher will model and define online vocabulary and symbols for a clear understanding before students use. Such as:
 - Schooledbykeiner.weebly.com: My classroom website which will be used throughout the school year, and hopefully beyond, where students, parents, and teachers can see what is happening in the 6th grade and use all tools that have been and will be shared on the site.
 - Gmail: To communicate questions and learning with all teachers and other students.
 - Google groups: to discuss specific ideas, learning, and/or questions students may have around content areas and mathematical connections. There will only be one google group for all subjects for complete student transparency with teachers and content area. (I will try and attach this to my website, schooledbykeiner.weebly.com, for a 'one-stop-shop'.)
 - Twitter Feeds: On the schooledbykeiner.weebly.com site a #mrskeiner twitter feed has been embedded for students, teachers, and parents to share ideas, comments, suggestions, ideas, and specifically reflection hashtags. At the end of each week students will need to share a "reflection" hashtag, tweet, or email that will identify their learning from the week. Twitter will also be used for describing the days lessons, finding main ideas, daily or weekly student take-aways, questions

and/or positive student shoutouts. These will be used by the teacher as quick assessments or as teachable moments to review previous items.

- Memes and/or De-Motivational posters: Teachers will start off the school year by introducing daily pictures of the world around students and relating the pictures to specific subjects, as stated above. Teachers will ask students to create a content specific message for the picture given. After students start bringing in their own pictures and relating it to mathematics or other content areas, a hashtag or message will be added to the pictures and shared via google groups, teachers website, #mrskeiner, or by paper on school hallways. Sharing the meme will depend on students ability and accessibility with said tech tools.
- Stop-motion video: Students will use stop motion video for many different projects. At the start of the school year the middle school will be using stop-motion video to model middle school rules and guidelines. Students will then create 2D to 3D scale model of the school as a 3D puzzles, and use stop-motion video to create a “how-to” video on putting the puzzle together . More oportunities will arise throughout the year for students to use and create stop-motion videos and will be added to schooledbykeiner.weebly.com for students to learn from other students. These videos will also be used for unit assessments, which will be communicated via rubric.
- Vines: Similar to the stop-motion video students will create Vines on what not to do in middle school, or a specific subject and or class. Vines will also be used to communicate many types of information such as “Changing area, changing perimeter” unit. This geometry unit will show that students understand what happens to a shape when its area or perimeter changes. Students have already express their love of vines, which means I will have to amplify their use throughout the year. Vines will be explored more in the coming school weeks after more teacher team discussions.

- Youtube Channels: Students that are unable to have a twitter account or other social media accounts will be able to use their gmail account youtube channels to share unit projects, activities, and assignments. Teacher may make a 6th grade youtube channel to share publicly, however, a separate media consent will need to be signed by parents.
- During the first 2-3 weeks of school students will only be communicating the above mentioned technologies via paper and pencil and/or whiteboard marker and whiteboards. Students will not use said technology until respect for said technology is internalized and expressed properly inside the classroom. A gradual release of teacher driven experiences will happen after students communicate their metacognitive learning of respect for technology and its use in education and learning. Which means math, science, reading, and history will have classroom twitter feeds on bulletin boards that remain public to the middle school for the entire school year. A paper, public twitter feed in the middle school hallway will model its educational use and students will see twitter and other technologies through a learning lens instead of just a social lens. Teacher will post all materials onto schooledbykeiner.weebly.com from the start of the school year. By the second quarter students should be sharing onto the website as well. Before students are able to use online technologies classes will complete the following: (remember all items will be connected back to mathematics.)
 - Physical Memes: Students will pose with a message and others will interpret the message. Can be used in all subjects to relate back to math.
 - Collage, Drawn Memes, or De-Motivational posters: All completed on paper as comics or using cut outs from magazines or newspapers. Can be used in all subjects to relate back to math.
 - Physical Vines: Students will act out or model a message that relates to a lesson, activity or memorable educational moment in a specific content area. Once acted out students will need to connect the Vine throughout the school year. The one item that was always on my mind and led me to this three item decision was, “how will students prove

they see math everywhere?” So I have decided to go with the use of Padlet, memes, and google docs/my website:

After completing a teacher and student focus group, as well as SKYPing with the author of “Secrets, Lies, and Algebra”, I was feeling way too overwhelmed. I spoke with many colleagues and came to the conclusion that I had to scale things back to really get my main message across and truly be memorable. I have concluded that I should focus on three main technologies to stick to and then add the above mentioned as I and the class dive deeper into math being everywhere, just in disguise. The one item that was always on my mind was, “how will students prove they see math everywhere?” So I have decided to go with the use of Padlet, memes, and google docs/my website:

1. Padlet.com: By students uploading pictures on “Selfie Saturday” and by students commenting on pictures I have uploaded from my everyday life. In both instances students have to explain where the math is and relate it to what they’re being taught that week in math class.
2. Memes: Students love sarcasm and love being funny. I have created a paper meme wall outside my classroom that students can add to once the meme has been approved by me. The memes must consist of an appropriate picture, either from real life or from provided outline sources, and a snappy, relatable, and positive quote from any subject in school that also connects to math class. This has helped students be on the look out for math in other subjects.
3. Google Docs & my website (schooledbykeiner.weebly.com): I was utterly surprised at how many students have google accounts AND do not use it. Not using their accounts meant they didn’t know how to use google docs, which is why I am choosing to focus on that as a large part of my project. Plus google docs can be used to communicate using many of its mediums, such as turning documents into PDF’s or Word files.
4. Student shared weebly websites: I recently found out I can attach 40 websites to my own schooledbykeiner.weebly.com site. I’m super excited to have students create their own portfolio websites to share their findings. There was a slight hiccup with the amount of students and the lack of individual websites available, so I developed “shared websites”. I have 120 students this year

and not enough websites to go around individually, thus leading to the “shared website”, three students will share a website to allow everyone to communicate their findings individual. These “shared websites” will not be group work. So far students are excited! Below are items I had to touch on to make sure websites were being used properly and effectively:

- a. Sharing websites - I had students group themselves to insure privacy, trust and respect. Each group understood that they had a communal home page and had to come up with a group website name, but also one individual page where their work would be shared. Individual pages would be titled with their full name. No one would alter others pages, just their own.
- b. Privacy - When explaining Weebly and website construction, students agreed 100% that their websites would be password protected, not public. Students also agreed that one password for all websites would be great so students could check out others students websites while still keeping them all private. I love how much the students are concerned with privacy, I really nailed that message home!
- c. Website usage - So far student have been adding previous completed tasks to their sites while learning the in’s and out’s of Weebly. In the near future I would like projects and homework to be communicated through their sites.

The 2014-2015 school years focus of “Mathematics in Disguise” should be a wild ride. As the year progresses I’m positive there will be added items to this DreamIt project. After being in school for just a week I’ve already made changes and added items. I can tell students are just as hyped up as I am. Such love for math is exactly what I want to convey this school year. I truly believe if you love something you will see it and find it all around you. This DreamIt project is only the beginning. After I collaborate with my team of teachers and spread the word of educational technology INSIDE the classroom, only being used to further learning, no one will be able to stop the message from getting out. My students, after just one year, will be able to see math in every aspect of their life and won’t be to stop showing it to others. I hope my ‘evil’ plan works!