

Real Math + Students = Engagement

Nancy Ann Norem Powell, NCTM 2014, New Orleans, LA ID# 23416
Email: nancynpowell@gmail.com Twitter: @NAPmath

See the entire post and read sample student work at: <http://napmath.wordpress.com/>

Students always ask, "When are we ever going to use math?" They often say, "I don't need math for the job I want." As teachers, we know that almost all jobs use math. This assignment helped my students realize that math was everywhere and also introduced them to careers they may not have known existed or what people do at these jobs. This assignment REVOLUTIONALIZED my math classes. Students began to realize that they were in no position to decide what math they needed and what math they didn't. They just better learn the math and be prepared for anything!

When I started teaching, it became more important to have examples to share with students. As the Internet became more available, it became easier to find examples.

Students take a few minutes (2-10 minute videos) and watch the video and do a little research (use a book, a magazine, another Internet site, etc.) and then write a paper at least one page long if word processed or 2 pages if hand-written. They did not hand in a list of questions and answers. I've included their worksheet for gathering information and my evaluation sheet.

What I learned from student papers:

1. Students stopped asking the question about when were they going to use the math. They started realizing that until they knew what they were going to do, they needed to be prepared to meet any math challenges and learn the math. Some of the people in the movies said that they didn't know that they were ever going to use the math that they used in their jobs until they needed it.
2. Some students didn't even know some of the careers they saw in the movies existed and got excited that they were REAL jobs. I used more career related problems in my examples/homework.
3. I learned more about my students, their experiences, their hopes and dreams, their interests, and more. I used this information in interactions with students, later assignments and when developing future projects.
4. I realized that English teachers probably learned a lot more than I had about my students by reading their papers. This might be why they were probably perceived as more "interested in them [students] as a person" than math teachers. I got to know my students even better and it made a positive impact in the classroom.

Sites for good videos and resources for students and their papers

Here are some recommendations.

- My all-time favorite: The Futures Channel <http://thefutureschannel.com/> - Do your students ever ask “What’s math got to do with it?” Here is a site that has videos that you can use to answer some of their questions. The “stars” are real people – some famous, some not, some young, some not, but all interesting and current topics. Movies are about 2 – 6 minutes in length – just perfect to begin or end a lesson. The videos change from week to week so sign up for their free newsletter that keep you up to date on the movies that are new for the week. (Just so you know, they are generally accessible for two weeks and then they are replaced so use them fast!) The Futures Channel uses media technologies to link scientists, explorers, and visionaries with today’s learners and educators. Videos on this site are very high quality and there are often lessons and activities to go along with the videos, making them easy to use in the classroom.
- Math at Work Mondays <http://www.mathforgrownups.com/category/math-for-grownups/math-at-work-monday/> - Look on this site on Mondays (and other days) for Math at Work Mondays for interviews (some videos) with people at work and how they use math in their jobs.
- Head Rush Cool Jobs <http://www.sciencechannel.com/tv-shows/head-rush/videos/cool-jobs-in-science.htm> - While this site is technically about cool jobs in science, there are several videos that relate to mathematics. For example, there is one video where a skate park designer describes how he uses shapes, angles, and trigonometry to create his skate parks. It is a great video for geometry classes.
- Mathematics for Economics <http://www.metalproject.co.uk/> -ME:TAL or Mathematics for Economics: Enhancing Teaching and Learning is an organization that creates videos and lessons illustrating to students the use of mathematical topics in the business world. For example, there is a video that shows two industries that use linear programming. The website is great to show students real life applications.
- Careers Information http://www.mathscareers.org.uk/16-19/career_profiles.cfm.html - There are many career profiles/interviews at this site
- Maths in Work videos <https://www.ncetm.org.uk/resources/11329> - This includes many links to jobs including Designing Aircraft, Listening to Music, Experimenting with the Heart, Revolutionizing Computing, Beating Traffic, Scanning the Unseen Cat scan, Packing It In, Unearthing Power Lines, What to do with a Maths Degree, and much more Learn a lot about 40+ careers and answer when math is used in each, including possible salary predictions
- WeUseMath http://weusemath.org/?page_id=800 - Learn a lot about 40+ careers and answer when math is used in each, including possible salary predictions
- 10 Amazing Jobs You Could Land with the right STEM Education <http://mashable.com/2013/02/05/10-awesome-stem-jobs/>

What's Math Got to Do with It?

Take a few minutes (these will be short movies) and watch the movie and do a little research (use a book, a magazine, another Internet site, etc.) and then write a paper at least one page long if word processed or 2 pages if hand-written. Please do not hand in a list of questions and answers. Take notes below so you can write the paper.

1. What's MATH got to do with the subject of the movie? (2 points)

****2. Be more specific and talk about what course concepts (Algebra if you're in Algebra, Geometry if you're in geometry, Calculus if you're in Calc, etc.) appear to be related to the subject of the movie? For ideas, look in your math book after watching the movie. Be specific and use correct mathematical vocabulary. (3 points)

3. Would you like to have this job? Why or why not? (1 point)

4. What other occupations (2 or more) might be related to this job or the math used in this movie? (2 points)

5. What did you find most interesting, what was new to you, and/or did it make you think differently about math in the "real world"? (2 points)

There must be at least one other source in addition to the movie website - another related website or magazine/newspaper article or other print material. Please remember to cite your sources. (-1 if they are not given!)

What's **Math** got to do with it?

Name _____

Topic of Paper: _____

Date _____

Category	Points Available	Points Awarded
What's math got to do with the subject of the movie?	2	
What [your subject, ie Geometry] concepts appear to be related to the subject of the movie?	3	
Would you like to have this job?	1	
What math occupations would be applicable to the subject of the movie? (2 or more)	2	
What did you find most interesting, what was new to you, and/or did it make you think differently about math in the "real world"?	2	
Cite your sources. There must be at least one source in addition to the movie web site . (-1 if they are not given!)	(0)	
Paper less than one page long (-1) (12 point font, 1" margins, double-spaced minimum)	(0)	
Total Points	10	

Comments:

Additional resources you might be interested in

1. **NAPmath** – <http://NAPmath.wordpress.com> – this is my blog. I write when I have something to say/share.
2. **Green Apples** – <http://GreenApples.wikispaces.com> – a website full of resources for new MATH teachers (and veterans). Join the wiki and contribute to the pages. I use it with new teachers in my department and pre-service teachers. Teachers that helped developed the site include Nationally Board Certified in Math, Presidential Awardees in Math Teaching, state and local teaching awards, and most important, they are successful in the classroom.
3. **GeometryGems** - <http://geometrygems.wikispaces.com/> - this site is dedicated to all things Geometry including activities, projects, SMART board files, paper folding, common core, and more.
4. **SmartBoardSmarty** – <http://SmartBoardSmarty.wikispaces.com> – If you have a SMART board in your classroom, go here and download free Math Notebook files, get step-by-step directions, tutorials, updates on SMART, resources, and lots more.
5. **ActivInspireAdventures** – <http://ActivInspireAdventures.wikispaces.com> – If you have a Promethean board in your classroom, check this site for resources, tutorials, free downloads, and more.
6. **Pinterest** – <http://www.pinterest.com/napmath/> - find links to Math sites, math blogs, math journal and foldables, technology, iPad (and other Apple problems) resources, activities for QR codes, SMART/Promethean/Interactive white board resources, assessment and much more.
7. **Resource Garden** - <http://resourcegarden.wikispaces.com/Planted+Gardens> - need to find resources for graphics, sign and fancy Word Generators, photos, sounds, music, videos, flash/java, and free ways to edit sound, video, and graphics? This site has great links, copyright information, and lots more.