

Title: Using Math for Fun

Author: Catherine Walton, Benjamin Cardozo High School, NYC

Subject Area/ Grade: Geometry/ 9th & 10th Grade

Students will use drawing, doodling, interpreting diagrams, and creative expression to demonstrate learning.

Goals

- To have students be creative and think how mathematics can be fun.
- So that students understand what creativity is on the first day of classes I would show: https://youtu.be/VYqHGIR7a_k
- I would then have students answer the prompt: What are your thoughts of creativity? Do you see yourself as creative? If yes, explain how you are creative. If not, why do you feel this way?

Content Area and Standards

Mini Project 1 – Draw things out *or* Doodling

- Understanding concepts and definitions visually.

Mini Project 2 – Create a Story *or* Creative Math prompt

- Interpreting diagrams and applying it to what was taught. Breaking down a problem to simpler steps

Term Project - Video *or* Book

- Students show what they learned by creative expression (book/video)

Activity

Prior to assigning Mini Project 1 - I would show students this video to let them understand that words are powerful and can be used as symbolisms.

<https://www.joy2learn.org/theater/antigone/inside-hector-s-head/words-as-symbols/>

Mini Project 1 – Draw things out *or* Doodling

- If you choose to draw things out:
- Take 10 geometric terms that we have learned thus far. Write the geometric term, then draw a diagram showing the concept and write the definition of the term.
- If you choose Doodling:
- Look over your notes take a picture or recreate 5 doodles that you did. Analyze each of them and answer the following. Which lesson did the doodle come from (write the Aim)? What inspired you to make the doodle? How does it relate to the

lesson we were doing?

Prior to assigning Mini Project 2 - I would show students this video to let them understand that they need to come up with a strategy in creating something.

<https://www.joy2learn.org/painting-with-elizabeth-murray/in-my-head/strategy/>

Mini Project 2 – Create a Story or Creative Math prompt

- If you choose to Create a Story:
- Take any problem from your notes and pretend that you are creating a storybook for a younger sibling/relative/friend. Shows simple step by step instructions on how to solve the problem. I suggest that you use the storyboard template. (See below)
- If you choose a Creative Math prompt:
- Cut and paste the diagram (I would choose a relevant creative prompt) to a separate sheet of paper. You must analyze the following diagram and come up with 5 prompts.
- They can be any combination of the prompts listed below.
 - What do you notice?
 - What do you wonder?
 - What calculations can you come up with?
 - What analysis can you state?
 - What prediction(s) did you determine?
 - What conclusions did you discover?

Prior to assigning Term Project I would show students these three videos to let them understand that imagery and music go hand in hand and that to create something you need to prepare and think it out :

- <https://www.joy2learn.org/at-the-piano-featuring-alan-gampel/poisson-d-or/music-as-images/>
- <https://www.joy2learn.org/theater/antigone/inside-hector-s-head/an-actor-prepares/>
- [https://www.joy2learn.org/painting-with-elizabeth-murray/my-studio/enlarging-the-sketch\](https://www.joy2learn.org/painting-with-elizabeth-murray/my-studio/enlarging-the-sketch/)

Term Project - Video or Book

You may work on your own or in a group (3 maximum) to complete the following project. Choose any topic we covered in the Fall term. You can either make a video/book that teaches/explains a formula or the concept you chose.

If you choose a video:

- Need to include:
- A title page that states the topic; the name and class period of students that

created the project

- All notes that helped you plan the video I suggest you use storyboard template (See below)
- Examples of videos:
- Music: Distance/Midpoint formula
<https://www.youtube.com/watch?v=yY4hw4KQv2k>
- Circle Equation <https://www.youtube.com/watch?v=FwNjyhejxfM>
- Special Right Triangle <https://www.youtube.com/watch?v=TEz2Am1Iss8>

If you choose a book:

- Need to include:
- A title page that states the topic; the name and class period of students that created the project
- All notes that helped you plan the book I suggest you use storyboard template (See below)
- Example of a book:
 - <https://read.bookcreator.com/FI1jKsDURCdIFqjcModc0FUoN8U2/qcNXcxgkQz6oUYhrGlri6g>
 - <http://miamisburgmsart.blogspot.com/2012/03/cartoon-comic-books.htm>

Joy2Learn Artists /Videos that Support Project

Mini Project 1 – Draw things out *or* Doodling

- Your Brain Can Only Take So Much Focus
<https://hbr.org/2017/05/your-brain-can-only-take-so-much-focus>
- The Science of Drawing and Memory
<https://www.edutopia.org/article/science-drawin>
- Artist video-
<https://www.joy2learn.org/theater/antigone/inside-hector-s-head/words-as-symbols/>

Mini Project 2 – Create a Story *or* Creative Math prompt

- The Science of Drawing and Memory
<https://www.edutopia.org/article/science-drawin>
- Creative Math Prompts <http://www.5280math.com/noticing-and-wondering>
- Artist Video:
<https://www.joy2learn.org/painting-with-elizabeth-murray/in-my-head/strategy/>

Term Project - Video *or* Book

More music needed in classrooms after 20-year decline, educator Dr Anita Collins says
<https://mobile.abc.net.au/news/2019-05-20/bringing-arts-music-back-to-classrooms-a>

[fter-20-year-decline/11124520?pfmredir=sm&fbclid=IwAR0fHd4iHM2jq6bGBJUaFDWOMfP-Ln2fDKxtPUyQzd5pl5TkExrP2PHDKkw](https://www.edutopia.org/article/learning-math-seeing-it-story)

Learning Math by Seeing It as a Story

- <https://www.edutopia.org/article/learning-math-seeing-it-story>

Artist Videos:

- <https://www.joy2learn.org/at-the-piano-featuring-alan-gampel/poisson-d-or/music-as-images/>
- <https://www.joy2learn.org/theater/antigone/inside-hector-s-head/an-actor-prepares/>
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Art Forms that May Be Included

Drawing, Writing, and acting.

Connections to Students Passion Areas and Interests

Projects are geared to students to be creative by using their artistic abilities by drawing/writing, thinking.

Materials Needed

Printer, Paper, colored pencils/crayons, internet

Collaborators

Mini Project 1 – Draw things out *or* Doodling

- Students work individually.

Mini Project 2 – Create a Story *or* Creative Math prompt

- Students work individually.

Term Project - Video *or* Book

- Students can work individually or with a group.

Assessment

Rubrics for each Project

Timeline

Mini Project 1 – Draw things out *or* Doodling

- Would be given in early October.

Mini Project 2 – Create a Story or Creative Math prompt

- Given mid November.

Term Project - Video or Book

- Given early December.

Other Notes

Storyboard Template that I would give for projects:

https://www.educationworld.com/tools_templates/template_strybrd_8panels.doc