

K-12 Math Teaching Resources

Compiled by Dr. Cathery Yeh

Hello community, this is a collection of resources that center on learning and experiencing mathematics through problem solving and play. Please feel free to share and also let me know if there are additional resources I should add to this collection.

- If you have additional resources to add to this list, please add the link as a comment and I will include it in this Google Doc or DM me on Twitter @YehCathery.

K-6 Grade Resources

1. **SFUSD Grades K-5 lesson plan and student pages:** SFUSD has produced ten days of [elementary activities](#) (and they're good). All lesson plans and student pages are google docs and can be easily accessed. They are releasing them under a CCBY license.
2. **Three-Act Math Tasks** consist of three distinct parts: an engaging and perplexing Act One, an information and solution seeking Act Two, and a solution discussion and solution revealing Act Three. Most of these sites include a video launch component and student handouts/worksheets with the corresponding standards listed to allow the activity to be done at home:
 - **Graham Fletcher / Questioning My Metacognition** - 3 Act Lessons for Kindergarten through High School, with an emphasis on Elementary.
 - **Mike Wiernicki / Under the Dome**- Tasks for Elementary and Middle School.
 - **Tap Into Teen Minds** is Kyle Pierce's contribution to the 3-Act world with activities for grades K-High School.

More Resources for 3-Act Tasks:

- [NCSM's Tool to Evaluate 3-Act Tasks](#)
- [The Three Acts of a Mathematics Lesson Explained](#)
- [Engaging Students in Three Acts](#). (Online Article)
- [Get Your Model On: Modeling in the Elementary Grades](#).
- [Why Use 3-Act Tasks?](#)
- [GSE Effective Instructional Practices Guide \(Three Act Tasks\)](#)

3. NCTM Classroom Resources

NCTM will provide weekly "[Figure This: Math Challenges for Families](#)" weekly that can be assigned to teacher's Google Classroom

4. **Other Virtual Manipulatives:** Math Learning Center [math apps](#) for visual math models

5. [Visual Flashcards](#): Free math flashcards with a problem on the front and a similar problem on the back (instead of a problem and answer) to encourage relational thinking rather than answer getting.
6. [Math Games](#) from the Mathematics Education Collaborative that promote mathematical reasoning and fluency
7. [Caregiver Math Resources](#) with books, online games, and printable games from [Lesley University](#)
8. [K-5 Quality Home Math Activities](#) from Citizens of the World Los Angeles that are not digital

Grades 6-12 Resources

1. **Three-Act Math Tasks** consist of three distinct parts: an engaging and perplexing Act One, an information and solution seeking Act Two, and a solution discussion and solution revealing Act Three. Most of these sites include a video launch component and student handouts/worksheets with the corresponding standards listed to allow the activity to be done at home:
 - [Dan Meyer / blog.MrMeyer.com](#) - Dan Meyer originated 3-Act tasks. His emphasis is Middle and High School. See his posts about [how to teach with 3-Act Tasks here](#).
 - [Andrew Stadel / Divisible by 3](#) - Tasks for Middle and High School.
 - [Tap Into Teen Minds](#) is [Kyle Pierce's](#) contribution to the 3-Act world with activities for grades K-High School.

More Resources for 3-Act Tasks:

- [NCSM's Tool to Evaluate 3-Act Tasks](#)
- [The Three Acts of a Mathematics Lesson Explained](#)
- [Engaging Students in Three Acts. \(Online Article\)](#)
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- [GSE Effective Instructional Practices Guide \(Three Act Tasks\)](#)

2) **Desmos**, founded by Eli Luberoff, a math and physics double major from Yale University, is an advanced graphing calculator implemented as a web application and a mobile application.

- Upcoming [Desmos Teacher Workshops @Desmos](#)
- [Grades 6-12 Desmos Lessons](#): Collection of digital math activities
- [Desmos Math Art Competition](#): These projects involve using various equations and inequalities in their [free Graphing Calculator](#) to create some truly impressive pictures.

3) [Geogebra](#): Online math tools for graphing, geometry, 3D and more and related math lessons.

4) [Mathematical Story Author Competition](#): Annual international competition set up to encourage young mathematics learners (8-15 years old) to create their own mathematical story book highlighting understanding of mathematical concepts within story context.

Resources for Families and Caretakers

1. [Math Games](#) from the Mathematics Education Collaborative that promote mathematical reasoning and fluency
2. [Math Resources](#) with books, online games, and printable games from Lesley University
3. [DREME](#) offers a list of books that can be used to share math ideas with kids, along with reading guides, arranged by math topics
4. [K-5 quality home math activities](#) from Citizens of the World Los Angeles that include activities that are not digital
5. [Young Mathematical Story Author Competition](#): Annual international competition set up to encourage young mathematics learners (8-15 years old) to create their own mathematical story picture book.
6. [MoMath Communication Competition for high school students](#): Why do you love math?
7. NCTM "[Figure This: Math Challenges for Families](#)" weekly family activities
8. [YouCubed Parent Resources](#): Articles on mathematics learning for caretakers/parents
9. [Visual Flashcards](#): Free math flashcards with a problem on the front and a similar problem on the back (instead of a problem and answer) to encourage relational thinking rather than answer getting.
10. California Math Council **Math at Home** Parent Guides:
 - a. [K12 Math at Home English](#)
 - b. [K12 Math at Home Spanish](#)
 - c. [PreK Math at Home English](#)
 - d. [PreK Math at Home Spanish](#)

Accessibility Considerations:

1. [Chrome Web Extensions](#): Post contain 30 Chrome web extensions that can assist students in five main categories: text to speech, readability, reading comprehension, focus, navigation

Additional Related Resources:

- 1) [Zoom Videoconferencing](#) allows breakout rooms, screen annotations, video recording, and 300 people to be on at once. Students or teachers can now fill out an online form using their school email addresses and are then verified by Zoom to gain unlimited temporary meeting minutes.
- 2) [Education companies](#) offering free services.
- 3) [Sites and apps](#) offering free services
- 4) [Suggestions](#) from disability culture and community for virtual learning with inclusion in design