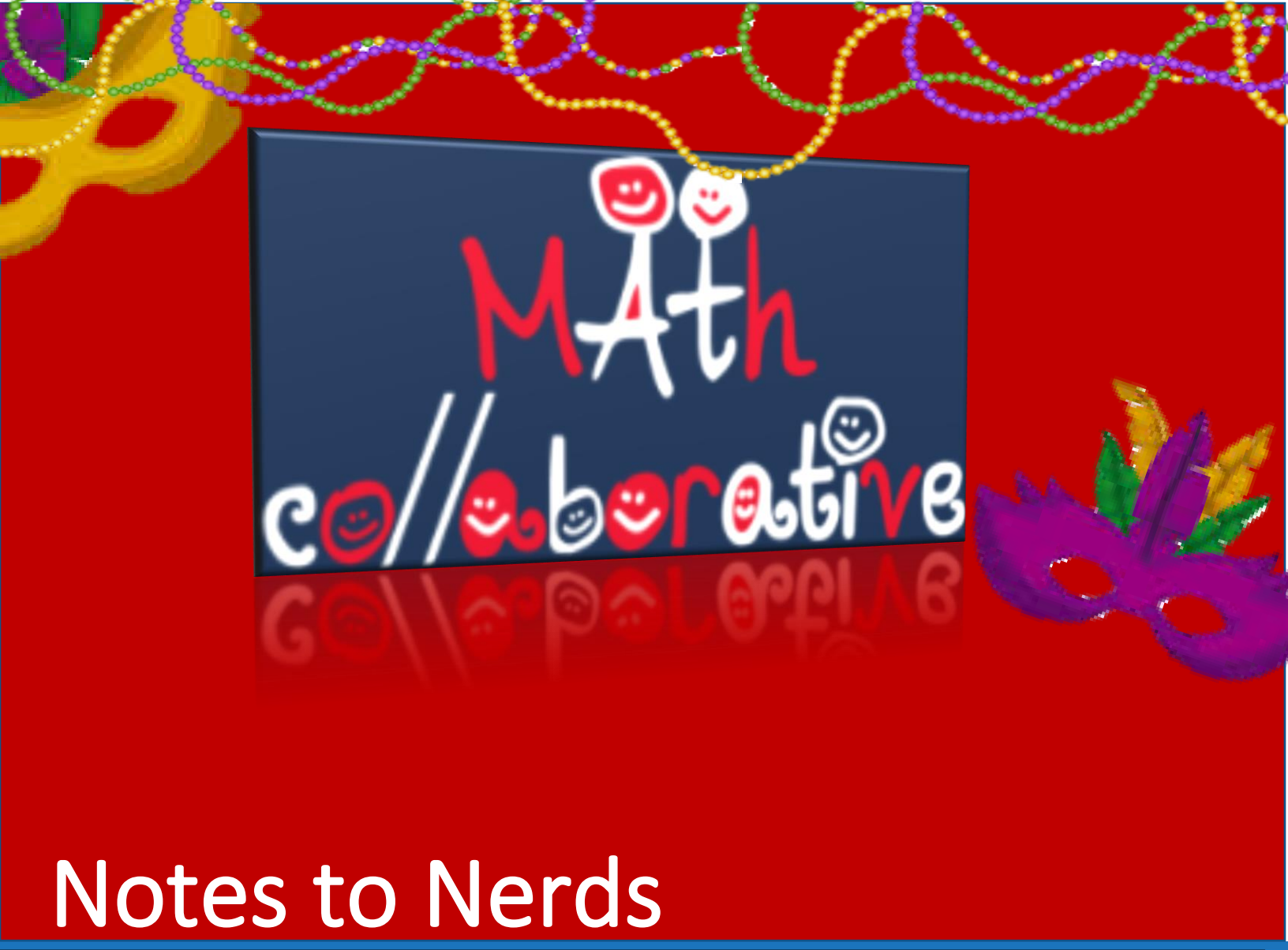


Notes to Nerds

February 19, 2021

Announcements

- Tomorrow's Heroes! Tonya Herring's nursing class worked with us this past week to improve dosing calculation skills. We wish them all the best on the exams ahead.

- Calling COEHP Professors – Opportunities for your students to participate in our virtual workshops every Tuesday, Wednesday, and Thursday. Professional development, networking and no cost!
- Math Masters is March 6th! Do you know of any middle school teams who would like to join us? Register Here!

- What is PhET? You can find one at the end of this newsletter… (no litter training or feeding required).

Upcoming Workshops

Tuesday, February 23:

@3:45pm

Tuesday, February 23:

@4:45pm

Wednesday February 24:

@4:15pm

Thursday, February 25:

@4:15pm

Tuesday, March 2: ***Elementary Topic Pending*** **@3:45pm**

Tuesday, March 2:

@4:30pm

Wednesday, March 3:

@4:15pm

Thursday, March 4:

@4:15pm

Has it Been a Year?

We are coming up on the anniversary that disrupted our lives and continues to challenge us on so many levels. Teachers, students, and parents struggle with the yo-yo of moving from the uncertainty of sustained, face to face instruction to the inadequacies of virtual learning… and back again. Many of the classrooms I visit are a strange blend of students and teachers being presently virtual through a combination of masks, social distance, and computer instruction.

I read a paper this past week suggested to me by a colleague. It describes in a very academic way the phases which education systems moved through as a result of the pandemic. It tells of the initial disequilibrium of hopping from the traditional classroom to *the Zoomies*. Followed by the frantic searches for things that work and the disjointed push to backfill those moves with meaningful educational experiences. All the while, we still struggle to connect teachers and students via Wi-Fi which is at best uneven and at worst non-existent. It calls into question how we stay in contact with students in the "new landscape" of technology and blended learning we seem to find ourselves in currently.

In Georgia and Alabama, the needs are quite similar. In a recent virtual meeting, teachers stayed almost 45 minutes beyond the scheduled time to their particular needs and experiences. At a GCTM Roundtable with a state senator this past week, teachers shared many concerns -- the need for improved high-speed internet for rural areas, equity in education, the roll-out of a new curriculum, high stakes testing, and concern about vaccinations for teachers.

So far, I have said a lot to say nothing we don't know.

But the thought struck me, whether we are face to face, or blended, or virtual in our educational delivery, we have to understand it is vital for us to build the supports we took for granted when schools were face to face. The simple act of greeting students at the start of the day. The mundaneness of school lunches and breakfasts. Or the perceived frivolousness of an after-school math club. Or the underappreciated need for guidance counselors, mental health, and nursing professionals. Or the luxury for teachers to just stand in each other's doorway to exchange ideas and joys and frustrations. There is a genuine need to create these supports, regardless of the modality of the delivery used!

Whatever the modality is as we move forward, we must understand that **education is a vitally human and personal endeavor,** and it should be supported in that way.

Happy Maths,
Peter

By Hope Phillips

No need to Fret… Here is PhET - A website to help students *get* math. – Presented by Hope Phillips

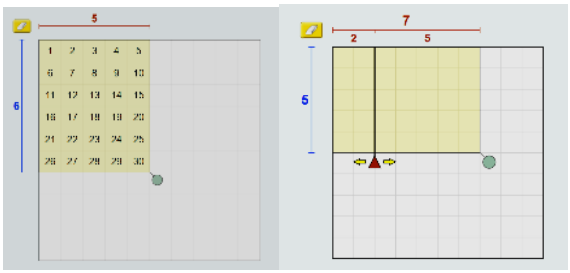
Anything free is great, right? Not unless it provides some utility; otherwise, it's just free. I have good news for you – something free *and* great. Meet PhET, a free, online website with interactive simulations to support math (and science) for elementary, middle, and high school standards. After a short registration process, you have access to the following:

Simulations

- Video primers that explain how to use the simulations
- Teacher Tips – a PDF explaining an overview of each simulation's controls and insights into student thinking (easy to print for quick reference)
- Lessons using the simulations

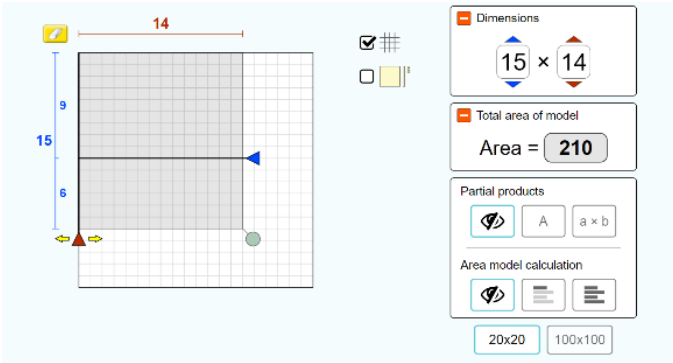
ELEMENTARY:

Multiplying Using an Area Model:



- Use sliders to change the values of factors
- Decompose each factor to create partial products

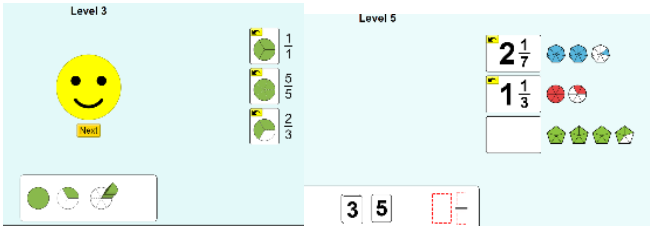
Area Model Multiplication -- Another version:



- Decompose factors
- Set to Base-10 block representations
- View symbolic solutions

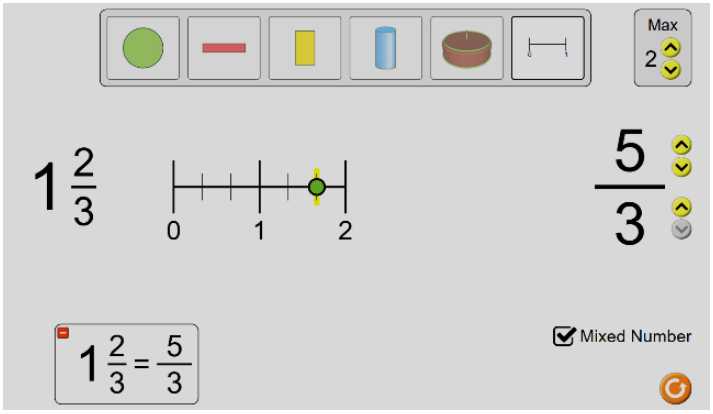
Build a Fraction (one of several fraction simulations!):

- Build proper and improper fractions with simulations that require knowledge of equivalent fractions. Make the right decisions about which digits to choose to build your fractions. There aren't unlimited digits!



Fractions - Mixed Numbers:

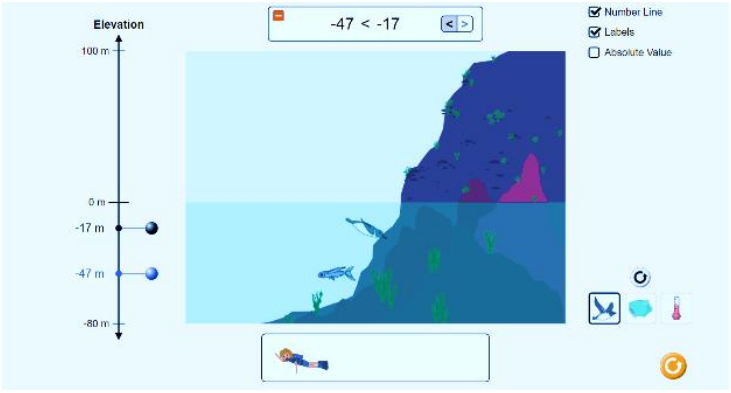
- Explores mixed numbers using region and length models. Teachers can choose the whole numbers and denominators of the mixed numbers.



MIDDLE SCHOOL:

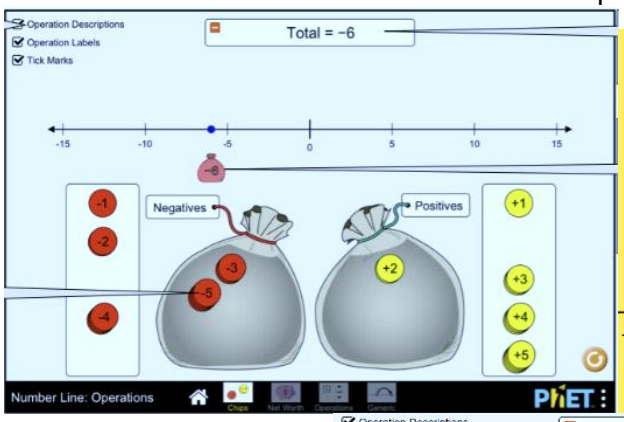
Number Line - Integers: (BRAND NEW APPLET!)

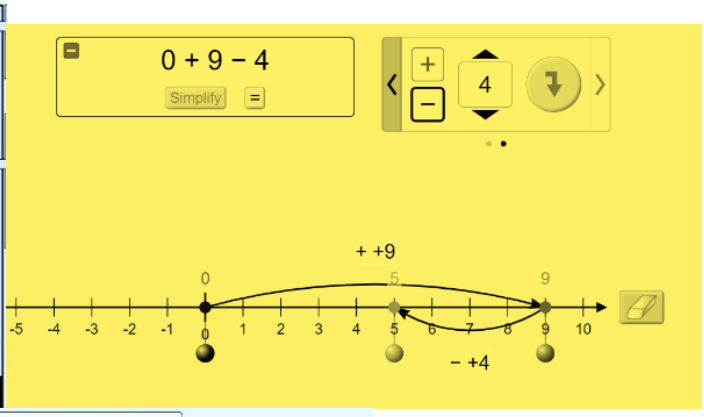
- Explore magnitude of integers with a vertical number line
- Interact with sea level changes from the point-of-view of fish or a scuba diver
- Interact with global temperature comparison

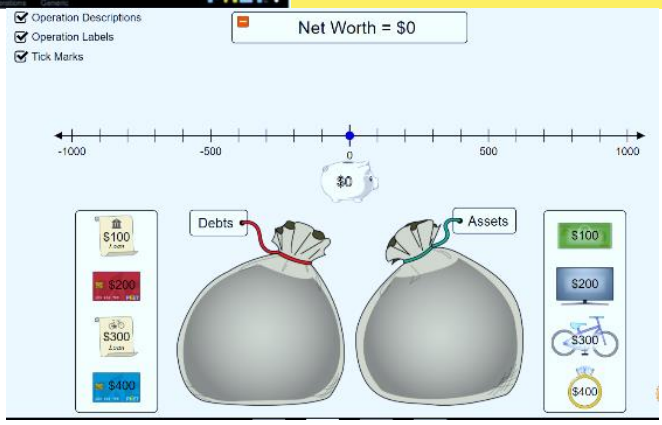


Number Line: Operations: **(BRAND NEW APPLET!)**

- Integer addition and subtraction using either two-color counters (chips) or number lines
  - *See* in action the concepts of asset, debt, and net worth

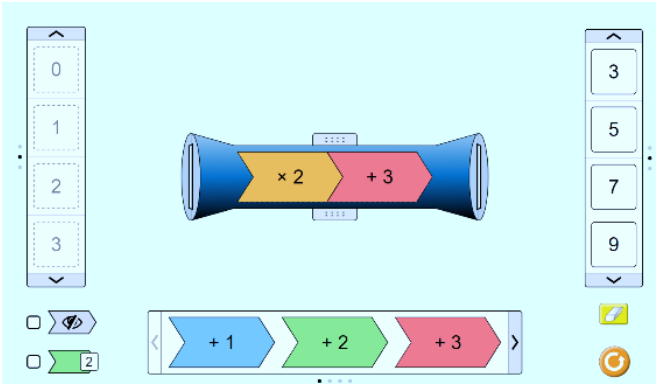






Function Builder:

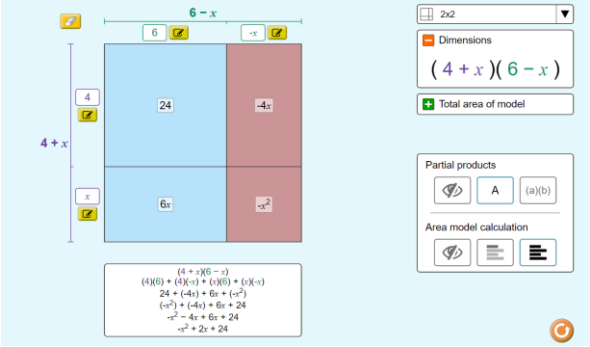
- Explore the concept of *function* with PHET's fabulous function machines
  - Create function rules and apply them with input and output tables



HIGH SCHOOL:

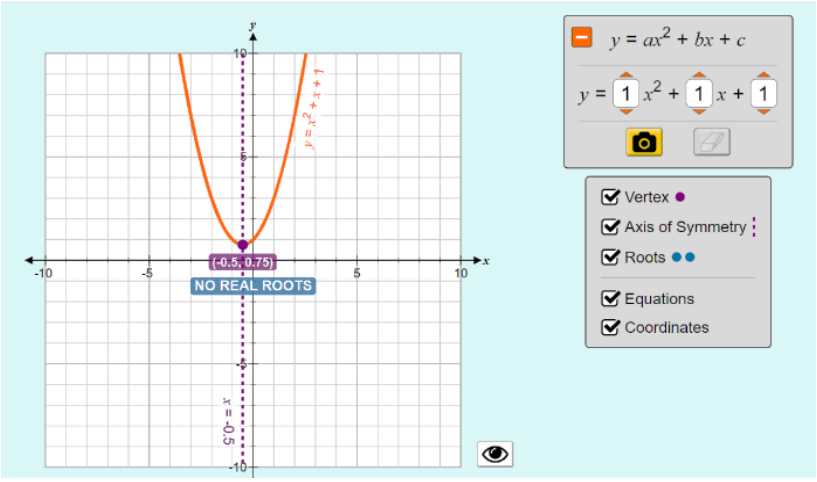
Area Model Algebra:

- Factor polynomials using an area model
  - See partial products
- See the problem worked out, symbolically, step by step



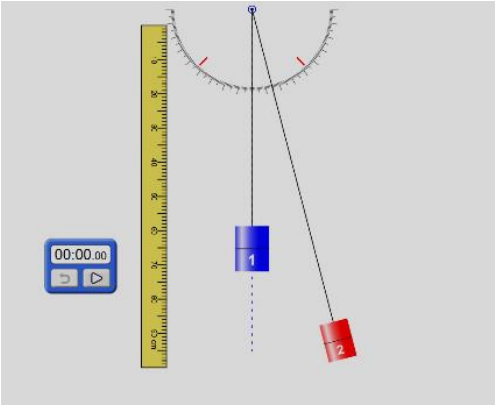
Graphing Quadratics:

- Discover how changing the coefficients “a,” “b,” and “c” affect the parabola at hand
  - Explore standard form, vertex form, and parabolas as conic sections



Pendulum Lab:

- Allows users to explore quadratic and square root functions
    - Sliders for length, mass, gravity, and friction



Trig Tour:

- See, simultaneously, animation around the unit circle and graphing on the Cartesian plane