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## Leveling Up

Earn CE certificates via many of these free and low-cost webinars, courses, and seminars. See [edWeb.net](http://edWeb.net), [www.cec.spec.org](http://www.cec.spec.org), and [ADDitudemag.com](http://ADDitudemag.com) for additional interesting webinars.

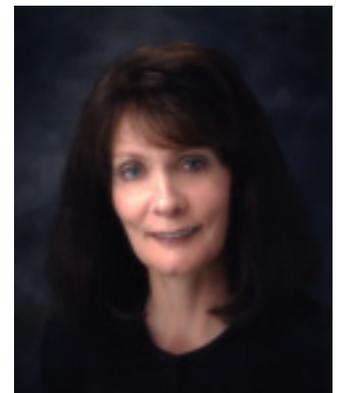
- **Visual Models for Fraction Addition and Subtraction**, Tues., March 3 at 4 p.m. on [edWeb.net](http://edWeb.net).
- **Minecraft & ADHD Kids: Brain Boosting or Attention Busting?**, Thu., March. 5 at 1 p.m. ET on [ADDitudemag.com](http://ADDitudemag.com).
- **Building an Elemen-**

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## Using classical music to enhance learning and improve behavior

*EDITOR'S NOTE: This article was inspired by an [ADDitudemag.com](http://ADDitudemag.com) webinar entitled "Sound Medicine for Your ADHD Child's Brain" which featured Sharlene Habermeyer of [www.goodmusicbrighterchildren.com](http://www.goodmusicbrighterchildren.com).*

Many people associate classical music with intellectual pursuits, with good reason. Learning starts with listening, and studies show that classical music, with its structure, symmetry, clarity, and detailed ornamentation, strengthens the brain's listening and comprehension skills especially well. This is crucial for learning disabled and ADHD children, who can hear OK but who have trouble processing what they hear. Studies also show that classical music alters brain waves, putting listeners in a relaxed but intellectually alert mind set.



Sharlene Habermeyer

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## Website review: Mystery Science.com

by Ann Kohler  
@MIDAKohler

I discovered a great little science website to help make STEM more accessible to my students. It is called "Mystery Science" and is at <http://www.mysteryscience.com>.

This site is just getting off the ground and they are adding content all the time, but they have some fabulous lessons out there right now for 3rd to 5th grade levels. My class has been focused on the "Spaceship Earth" Sun, Seasons, and Night Sky unit. Each lesson comes with a short interactive video with questions you can do as a



Ann Kohler

**MYSTERY**science

Please see [Science on page 3](#)

*Leveling Up*, continued from [page 1](#)

**tary School Coding Club: One Teacher's Experience**, Thu., March 12 at 3 p.m. ET on [edWeb.net](#).

- **Picture This: Imagery as Assessment Tools**, Tue., March 17 at 3 p.m. on [edWeb.net](#).
- **ADHD and Gifted? Helping Twice-Exceptional Kids Succeed**, Thu., March 19 at 1 p.m. ET on [ADDitudemag.com](#).
- **Investigating Adolescent Issues in Autism Spectrum Disorder & the DSM-5 Criteria**, Wed., March 18 at 11 a.m. ET on [edWeb.net](#).
- **The Multiplayer Classroom: Education in Play**, Wed., March 18 at 4 p.m. ET on [edWeb.net](#).
- **Collaborative Flipped Instruction**, Wed., March 18 at 5 p.m. ET on [edWeb.net](#).
- **Embedding Music in the Early Childhood Inclusion Classroom**, Thu., March 19 at 3 p.m. ET on [edWeb.net](#).
- **Literacy Draws Upon Art**, Thu., March 19 at 4 p.m. ET on [edWeb.net](#).
- **Getting Started with Google Classroom for Blended Learning**, Thu., March 19 at 5 p.m. ET on [edWeb.net](#).

## 75th Annual MCEC Conference March 4-6 in Grand Rapids

The 75th Annual Statewide Special Education Conference, sponsored by the [Michigan Council for Exceptional Children](#) (MCEC) will be held March 4 - 6 in the Grand Plaza Hotel in Grand Rapids, Mich.



The conference includes over 130 breakout sessions on Thursday and Friday and a selection of one-day preconference

workshops on Wednesday. Attendance prices vary; download a registration form at <http://www.michigancec.org/LinkClick.aspx?fileticket=WR0XBGlzs0c%3d&tabid=580>.

## About Special Ed Tech / Subscriptions

*Special Ed Tech*, [specialedtech.net](#), is a free newsletter published monthly from September through June by the director of Aspiring Games Foundation, [aspiringgames.org](#).

To subscribe, go to [specialedtech.net](#), scroll to the subscription box on the bottom of the page, insert your e-mail address, and click the "Subscribe" button. We welcome your questions and article suggestions. Direct all queries and subscription requests to editor Becky Palmer-Scott at [SpecialEdTechEditor@gmail.com](mailto:SpecialEdTechEditor@gmail.com).

## 'Foundations of Math' 5-day course for educators of students with special needs (K-12)

Michigan's Integrated Mathematics Initiative is sponsoring a 5-day research-based training course for all educators of students with special needs (K-12).



## MICHIGAN'S INTEGRATED MATHEMATICS INITIATIVE

Dr. Chris Cain will present a way of understanding and teaching mathematics to struggling students — from building the understanding of number to developing understanding of function — that will challenge and enhance teachers' current thinking about math education. Training will be offered in

- **Lansing**, Mich., on March 16 & 17, May 11, and May 26 & 27 (currently full but there is a waiting list).
- **Marquette**, Mich., on March 19 & 20, May 13, and May 28 & 29.
- **Traverse City**, Mich., on Aug. 10 & 11, Sept. 21, and Oct. 19 & 20.
- **Novi**, Mich., on Aug. 13 & 14, Sept. 23, and Oct. 22 & 23

The course is \$75; register soon to reserve your spot. For details and to register, see <http://mi2.cenmi.org/professional-learning-opportunities/foundations-math>.

*They give you the full list of easily obtained everyday items that you will need to perform the activity, and complete step-by-step instructions to complete them.*

*After watching the video lesson, constructing the activity, and answering questions about the lesson, your students will truly have an understanding of the concept you are trying to teach.*

**Science**, continued from [page 1](#)

class.

One of the really cool things about [mysteryscience.com](http://mysteryscience.com) is the hands-on activities that are included with every lesson. The website provides a full list of easily obtained everyday items needed to perform the activity, and step-by-step instructions to complete them. The activities can be completed by the entire class as a group, or students can work on them individually or in teams.

The screenshot shows the website interface. On the left is a sidebar with lesson categories for 3rd, 4th, and 5th grade. The 'Plant Adventures' category is highlighted in red. The main content area shows the 'Plant Adventures' page with sub-sections for 'Mystery 1: Seed Dispersal', 'Mystery 2: Roots, Water, & Minerals', and 'Mystery 3: Light, Leaves, & Competition'. Each mystery includes a title, a description of the activity, and a small image. For example, Mystery 1 features the activity 'How did a tree travel halfway around the world?' with a 25-minute video and a photo of a tree on a rock.

[www.mysteryscience.com](http://www.mysteryscience.com)

After watching the video lesson, constructing the activity, and answering questions about the lesson, your students will truly have an understanding of the concept you are trying to teach. And, if that isn't enough, [mysteryscience.com](http://mysteryscience.com) always has extended lesson activities to take the lesson a little further or for those students that need a little more to engage them. Best of all, you — the teacher — have all these resources laid out for you, and your class will be having fun while learning science! Go to the site today and see what I mean.

*Ann Kohler is a Special Educator in Forsyth County, Georgia teaching in a BYOD school. In 2013 she completed her Master's Degree for Technology in Curriculum and Instruction. She received the 2013 Tools for Life Assistive Technology Innovation Award from [www.gatfl.gatech.edu](http://www.gatfl.gatech.edu), was an honorable mention in Tech and Learning Leader's of the Year 2013 for Innovation and was one of the 100 PBS LearningMedia 2014 Digital Innovators in the United States. She is currently working on her blog/website [www.edtechnow.com](http://www.edtechnow.com). You can reach her via twitter @MIDAKohler .*

[Link to page 1](#)

# Math Tech: GeoGebra & UDL

by Kate Fanelli



Kate Fanelli



## At a glance

**App:** GeoGebra

**Cost:** Free

**Type:** Graphing calculator

**Platforms:** Chrome, Windows, iPad, Android tablet, Mac OS X, Linux

**How to get:** Download from <https://www.geogebra.org/download>

In my November 2014 *Special Ed Tech* column, I wrote about calculators and how they can be used as universal supports for learning. Today I suggest using one particular calculator, GeoGebra, as part of Universal Design for Learning (UDL).

UDL is a way of teaching that comes to education from architecture. When architects build accessibility features into their designs from the beginning, they not only proactively address needs of people with disabilities (for example, curb cutouts, elevators, or ramps), but they do so seamlessly with the design of the rest of the structure, and inadvertently support the needs of people without disabilities, such as people making deliveries using carts or caretakers pushing strollers.

With UDL, teachers proactively build accessibility features into their lessons that align with strengths and difficulties of students with disabilities, but at the same time address learner variability within their entire classroom by making those accessibility features available to everyone. UDL involves offering students multiple means of representation (teachers present information in a variety of ways), multiple means of expression (students may demonstrate understanding in a variety of ways), and multiple means of engagement (teachers offer a variety of motivations for learning).

Recently I have been playing around with GeoGebra, a free graphing calculator app with computer algebra system (CAS) capabilities. GeoGebra is available on-line and as an app and can do just about everything I used Texas Instruments (TI) Nspire calculators for with my high school students with severe emotional impairments, including side by side dynamic, connected representations of algebraic functions; collecting like terms; substitution of values in an expres-

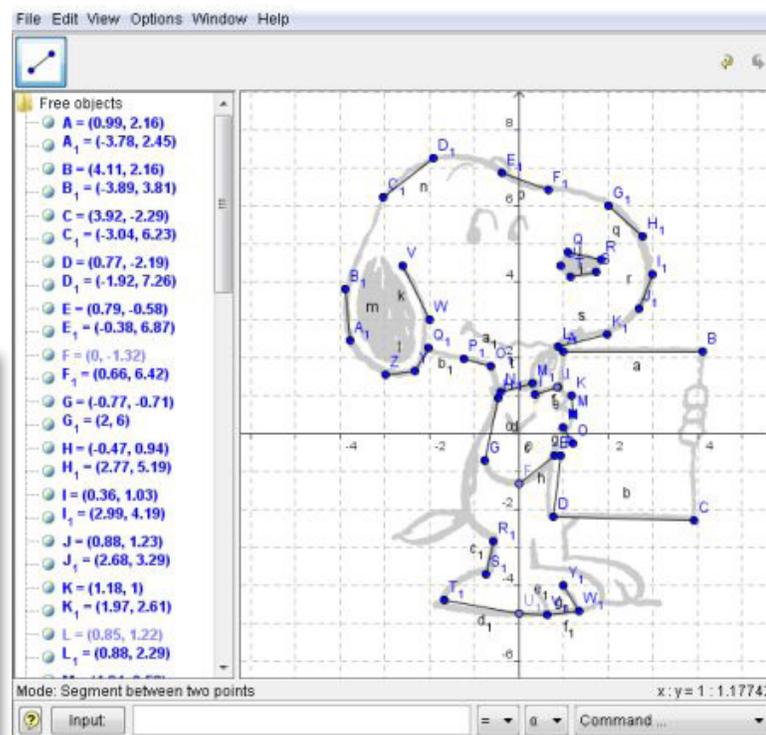


Image from [Plotting Points -- GeoGebra -- Snoopy](#)

sion; and geometric constructions. Like TI, GeoGebra also allows educators to build and program lessons that can be shared among users.

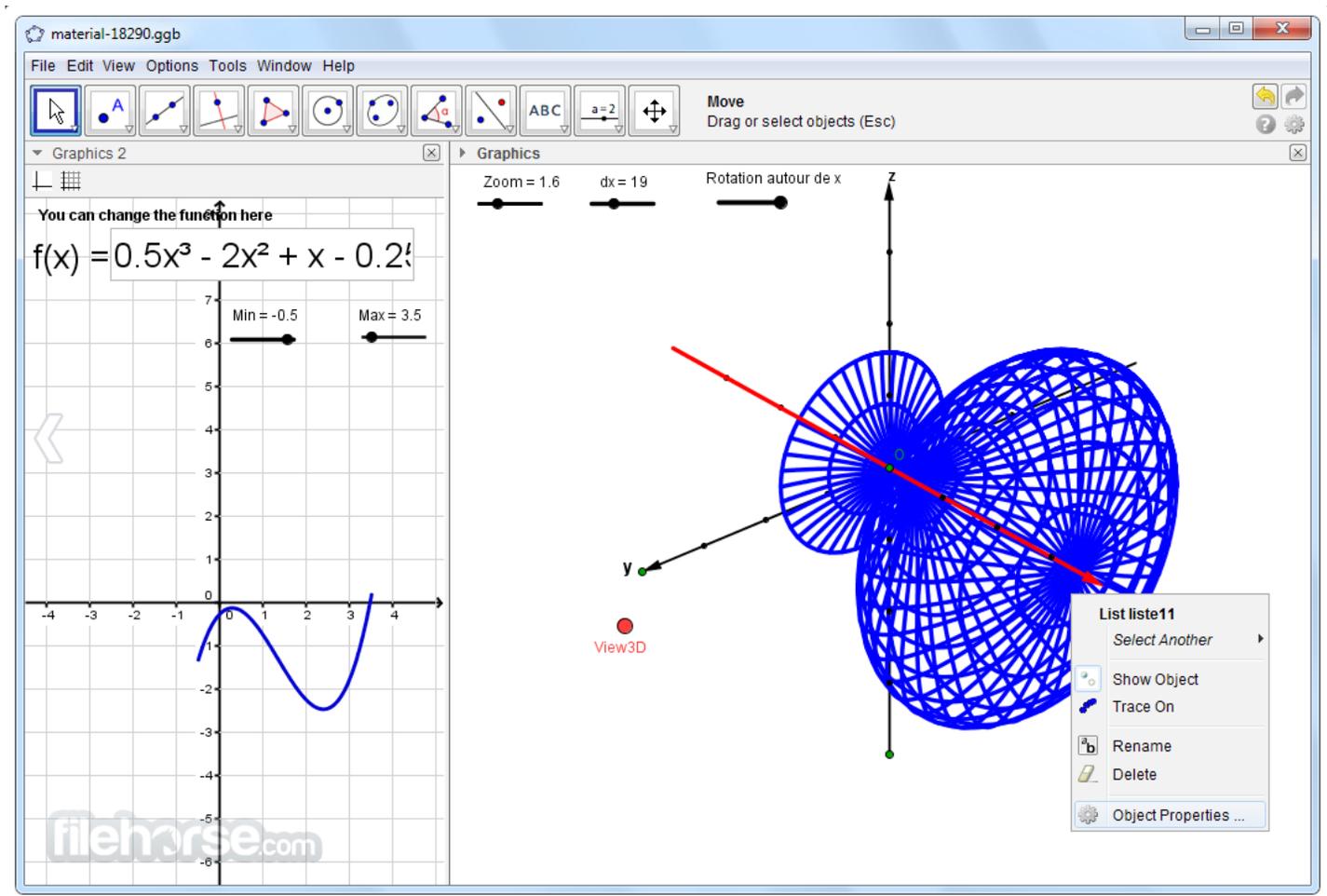
With the shift to online standardized assessments, I would be hesitant to create dependency on handheld calculators that are not allowed on such tests. However, GeoGebra would not only give my students experience with using on-screen calculators,

Please see **MathTech** on next page

*MathTech, continued from previous page*

but would also allow for flexible methods of representation and expression, and could be motivating to those students who enjoy working with technology. While TI products are still state of the art, cutting edge technology with many features that enhance, support, and assess instruction, for those on a budget, GeoGebra shows promise as a viable alternative.

GeoGebra training happens all over the world on an ongoing basis, but a quick visit to their website shows that a 2-day workshop will be offered in Ohio this summer. For those in the Midwestern United States, this would be a great opportunity to learn more about how to use this free resource. I am told by those who have gone to two day GeoGebra conferences before that it is just as helpful to novices as experienced users.



GeoGebra graphing a trinomial equation

For more information on Universal Design for Learning, visit <http://www.cast.org/udl/index.html> or download the free online book containing over 10 years of research and application of UDL at <http://udltheorypractice.cast.org/login>.

Kate Fanelli is the math accessibility specialist for Michigan's Integrated Mathematics Initiative (Mi)2, a state of Michigan initiative that promotes and supports high quality mathematics education for ALL students. Follow (Mi)2 on Facebook ([www.facebook.com/mi2.page](http://www.facebook.com/mi2.page)) or on Twitter (@MI2\_Math). Contact Kate at [kate.fanelli@misquared.org](mailto:kate.fanelli@misquared.org).

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*To enhance learning, have your students listen to classical music for at least 20 minutes a day, especially when they are studying.*

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*To help children move along the hallways in an orderly fashion, play marches when children go in and out for recess and lunch.*

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Amazon Music



### **Music**, continued from [page 1](#)

Sharlene Habermeyer discovered the benefits of classical music first-hand, when her son was diagnosed with learning disabilities and ADHD. Habermeyer made sure that he listened to classical music at least 20 minutes a day, especially when he was studying. She also encouraged him to play a musical instrument. Although Habermeyer was told that her son would have trouble in school and probably never attend college, he eventually graduated from a four year university with a double major in film and philosophy...and straight A's.

A teacher, Habermeyer plays 10 minutes of classical music as her students enter the classroom, to help them get into a learning mindset. She recommends playing classical music quietly when students are working or studying in class. She suggests four musical works in particular:

- Handel: *Water Music*
- Bach: *Brandenburg Concertos*
- Vivaldi: *Four Seasons*
- Mozart: *A Little Night Music (Eine kleine Nachtmusik)*

In addition, Habermeyer found marches, such as those by John Philip Sousa, to be very effective in getting her young son to move along from one activity to another. She suggests that marches be played when children go in and out for recess and lunch.

With the advent of portable Bluetooth speakers, it's possible to play high quality music wherever you are, even in the hallways or outside. First, however, you need to install a music app.

Two popular music apps are Amazon Music and Pandora, both of which have free versions and which are available on multiple platforms. If you are a member of Amazon Prime (which costs about \$75/year), you have many benefits, including a lot of free music and movies, as well as free shipping on tangible goods. Most of the music in Habermeyer's list can be downloaded free with Amazon Prime, or bought for a few dollars if you're not a Prime member.

Pandora has the advantage of letting you create a music station, such as 'classical,' and automatically providing matching music. If you don't like the song offered, you can skip to the next song. The drawback to the free version of Pandora is the commercials between songs.



AUVIO Bluetooth Portable Speaker



BOSE Soundlink Mini

There are a range of Bluetooth speakers which can work well. The AUVIO Bluetooth Portable Speaker (\$37.97 from Radio Shack) is small enough to fit in most purses, but powerful enough to fill a classroom with music. If you are a true audiophile, you might appreciate the BOSE Soundlink Mini (also small enough to fit in a purse), which goes for around \$200.

To connect the speaker to your device, turn the speaker on, then open your device's Settings menu and tap on "Bluetooth."

*Do you play classical music in the classroom, or do you plan to? Please tell us about it in the article comments or at [specialteditor@gmail.com](mailto:specialteditor@gmail.com). Your comments will be published in Special Ed Tech.* 