



Hello Science Education Leaders,

I hope you enjoy a peaceful break this month and happy New Year! Here are the latest science education resources and opportunities I've heard about. If you have announcements to share about science or STEM-related professional learning and resources, please send them my way for the next edition. A record of these emails can be found on my website: [dpi.wi.gov/science/social-media](http://dpi.wi.gov/science/social-media).

Cheers,  
Kevin

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### Learning Opportunities

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- [WSELA Elementary Science Summit](#) - Feb 12
- [WSST/DPI Virtual Book Study](#) - K-8 Science Writing w/ Evidence - starts Jan 13
- [Center for Biomolecular Modeling Course](#) - Summer

### Resources

- [Classroom Lessons from Stanford on Savvy Online Research](#) - Fact or Fiction?
- [Rockets for Schools](#) - launch on May 8 and 9 in Sheboygan
- [Tracking Students](#) - Is it what's best for them? (Hint: no)
- [Best Young Children's STEM Books of the Year](#) - list from NSTA
- [New Tectonic Plate Modeling Simulation Tool from Concord](#)
- [New Google Earth Tools](#) - add lines, place markers, text, videos, etc. to a map
- [New Science Lessons from Smithsonian related to Sustainability/STEM](#)
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  - [High School Science Bowl](#) - at MSOE on Jan 18
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  - [2020 Wisconsin Aviation Art Contest](#) - deadline Jan 17
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- [Space Camp Scholarship](#) - deadline Jan 20
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## *Details*

### **Learning Opportunities**

- WSST Conference - March 19-21

<https://www.wsst.org/conference-2020> - I'm looking forward to the annual Wisconsin Society of Science Teachers conference in March! I'm helping out with an [elementary strand of sessions](#) on Thursday. Though, there will be amazing sessions, workshops, field trips, and other learning experiences for educators at all levels. Hope to see you in the Dells!

- WSELA Elementary Science Summit - Feb 12 - possibly in DeForest

This meeting will be designed to share current, effective practices in elementary science and work together on how to further improve programs. This will focus on program level efforts, not instructional practices (see WSST notice above for that support). We'll have specific small group time to share work on implementation of particular instructional materials (such as Mystery Science, Amplify, Carolina STC, FOSS, etc.). Elementary science is a critical element of equity and access, and it supports student literacy as well. Email Kevin Niemi - k j niemi at wisc dot edu - to get on the WSELA list, RSVP for the event, and receive further details. Email me (Kevin Anderson) to suggest specific topics or offer to present ideas. Cost will be \$20 and includes snacks, coffee, lunch (except free for first-time attendees).

- WSST/DPI Virtual Book Study - K-8 Science Writing w/ Evidence - starts Jan 13

<https://dpi.wi.gov/science/standards/learning/book-study> - Join this free virtual book study that's open to anyone! We'll be digging into books on writing in science, particularly the claim-evidence-reasoning model, with both a K-5 and 5-8 version of the book. I think the free books for WSST members have pretty much all been claimed, but you can still join and just buy the book. Or, you can apply for [PAEMST](#) and get the book for free as well (for K-6 teachers this year). Live, virtual discussions will be at 8pm on Jan 13, Feb 10, and Apr 20, along with an optional in-person meeting on Friday at the WSST conference. Registration here: <https://forms.gle/fixEffbs9DSPRudB7>.

- Center for Biomolecular Modeling - Modeling the Molecular World Course - July 27-31

<http://cbm.msoe.edu/teacherWorkshops/mmw.php> This course focuses on connecting the macroscopic world in which students live with the invisible world of molecules. We use physical models of proteins and other molecular structures to engage students in an active exploration. We use models of all sorts— from magnetic water molecules and mini-toober models of proteins to schematic models of membranes and components of the flow of genetic information (DNA → RNA → proteins). We will also model a variety of different teaching strategies interspersed throughout the course. This workshop combines the "big ideas" of chemistry and biology with cutting edge molecular stories of current research.

### **Resources**

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- Classroom Lessons from Stanford on Savvy Online Research - Fact or Fiction?

<https://cor.stanford.edu/> - Current research shows that students are not very good at determining fact from fiction in what they read online. To become scientifically literate, this learning is essential. Stanford has some new lessons in this regard that might be helpful to combine with a current science project. [Here's an article about them too.](#)

- Rockets for School

<http://www.rockets4schools.org> - Interested in a fun, educational project involving rocketry? Rockets for Schools is looking for schools to participate in the May 8 & 9, 2020 High Power Rocket Launch over Lake Michigan in Sheboygan. All U.S. middle and high school students in Grades 6-12 can participate and Rockets for Schools staff are able to assist educators interested in working with a team.

- Tracking Students - Is it what's best for them? (Hint: no)

<https://nepc.colorado.edu/sites/default/files/pb-options-10-tracking.pdf> - Research suggests tracking isn't best for any group of students. It also tells students from a young age that they aren't STEM people. Why does it persist? Our math colleagues recently had a conference on this topic (which is where this article comes from). They also [shared some resources](#). This is a major equity and access issue, especially when I hear that in-depth labs are "only possible" in higher level courses! All students deserve and need rigorous science experiences.

- Best Young Children's STEM Books of the Year - list from NSTA

<http://static.nsta.org/pdfs/2020BestSTEMBooks.pdf> - Always a useful resource from NSTA, would be nice new additions to an elementary library.

- New Tectonic Plate Modeling Simulation Tool from Concord

<https://concord.org/blog/teach-plate-tectonics-with-tectonic-explorer/> - This tool allows students to create their own worlds and tectonic plates and simulate what would happen over time!

- New Google Earth Tools - add lines, place markers, text, videos, etc. to a map

<https://earth.google.com/web/> - This interactive mapping tool could support student data collection and place-based learning. Lots of interesting possibilities! [Here's an article that describes it.](#)

- New Science Lessons from Smithsonian related to Sustainability/STEM

*Pick Your Plate! A Global Guide to Nutrition* – a simulation demonstrating differences in cultural foods and nutritional standards across the globe: <https://ssec.si.edu/pick-your-plate>  
*Aquation: The Freshwater Access Game* – simulation where students manage wealth and water distribution to solve the world's water crisis: <https://ssec.si.edu/aquation>  
*Mosquito: How Can We Ensure Health for All from Mosquito-borne Diseases?* and *"Food! How do we ensure good nutrition for all?"* – Place-based Community Research Guides aligned with the UN Sustainable Development Goals and designed to help youth ages 8-17 use their STEM

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knowledge to do social good in their region: <https://ssec.si.edu/global-goals>. *Tami's Tower: Let's Think About Engineering* - an PK-2 educational engineering design game with built in metacognitive prompts to help young students design a solution to a problem using basic engineering design principles - <https://ssec.si.edu/tamis-tower> (available in English and Spanish).

- Data! - freeze and thaw for Madison lakes

<http://www.aos.wisc.edu/~sco/lakes/msnicesum.html> - What data do you use in your classroom? This data provides freeze/thaw dates for Madison area lakes (see graphs at the bottom), but similar data exists across the state. Big Data is a huge and growing industry! Most of my friends and colleagues in STEM professions repeatedly say that data analysis is a skill they wish they had learned more of in their schooling.

- National Geographic Newsletter and Grants

National Geographic is doing some interesting new work around inquiry and geography - could tie well to place-based science. You can connect to their [monthly newsletter](#), and there is a current "That's Geography" grant opportunity - [main page](#) along with the [full RFP](#), [FAQs](#), and [application guidance](#). More funding opportunities can be found on their [grants website](#). The deadline for the "That's Geography" grant is January 15.

### **Student Opportunities**

- State Water Inquiry Project - ongoing

<https://dpi.wi.gov/inquiry> - I encourage you to continue to share your work related to water through this year (and beyond). This website has a core project idea, as well as other sample ideas at each grade level linked to the standards: <https://dpi.wi.gov/science/water> (scroll down). Share pics, data and ideas at <https://siftr.org/WisconsinWater/>. Salt season brings a whole new range of phenomena for exploration!

- Science Fair? CSEF, BSSEF, and MASTERS

As I continue to note, to build scientific literacy students should engage in authentic scientific research. Science Fairs are a nice place to showcase that learning, and they accept a wide range of project types (engineering too). A Madison regional conference - [CSEF](#) - open to anyone only has a few more days to submit a project (accepted late). The state fair - [BSSEF](#) - is also open to anyone, no qualifier required. Finally, a relatively new middle school fair happens in Madison in May - [MASTERS](#).

- High School Science Bowl - at MSOE on Jan 18

<https://www.msOE.edu/academics/high-school-programs/regional-science-bowl-at-msoe/> - MSOE invites high school teams to participate in the Science Bowl on January 18. Teams go head-to-head against other teams in a fast-paced question and answer format similar to Jeopardy®. Students are quizzed on all science disciplines, including biology, chemistry, earth science, physics, astronomy and math. Regional science bowls are held across the country. The first-place team from each regional competition wins an all-expense paid trip to the National Science Bowl finals, held in Washington, D.C. each spring.

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- NASA Essay Contest

<https://www.jpl.nasa.gov/edu/news/2019/12/5/nasa-scientist-for-a-day-essay-contest-goes-far-out-in-2020/> - Students in grades 5 through 12 investigate and make a case for which of three distant worlds to explore further. The worlds chosen for this year's contest are Uranus' moon [Miranda](#), Neptune's moon [Triton](#), and Pluto's moon [Charon](#). To enter the contest, which is hosted in the U.S. and more than a dozen countries, students (or a team) must [submit an essay](#) of up to 500 words explaining why they would want to send a spacecraft there.

- 2020 Wisconsin Aviation Art Contest - deadline Jan 17

<http://wisconsin.gov/artcontest> - Calling all artists and aviation enthusiasts! The Wisconsin Department of Transportation (WisDOT) invites students to participate in the International Aviation Art Contest. This year's theme is "Flying Yesterday and Tomorrow." The contest is open to Wisconsin students in multiple age groups, and the top 3 entries in each age group will be displayed in the Wisconsin State Capitol and will advance to the national competition.

- Space Camp Scholarship - deadline Jan 20

<https://geekpartnership.org/programs/spacecamp/> - Are you or your students especially interested in space? The Geek Partnership Society, a non-profit in Minnesota, is accepting applications for 2 scholarships to attend Space Camp in Huntsville, Alabama this summer. One scholarship is for educators, another is for students, ages 10-14. The scholarship will cover all costs other than transportation to the airport.

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"Science is not a body of facts, [it] is a method for deciding whether what we choose to believe has a basis in the laws of nature or not." – Marcia McNutt