

Science Teacher Professional Development Webinars and Learning Resources

Professional learning is available whether school is closed or not.

Provided here are online resources available for your continued learning. Topics are broken out by grade bands, as well as science instruction or content areas.

All the resources provided here are FREE although some of NSTA resources require a free account. More resources are available through a paid membership.

All the webinars here are from two sources: Bozeman Science and the National Science Teachers Association.

I have also added numerous journal articles regarding science instruction and English Language Learners that you can read online or print. A list of titles is at the end of this document. These have been added to the shared Google Drive – Irvington Science Folder, then Professional Development – ELL and Science – Journal Articles

In the event of a school closure, the expectation is that you would complete two (2) per day. Providing a summary or evidence of application in practice would be sufficient as evidence toward professional learning. If a question exists, contact your summative evaluator to determine what they would deem acceptable.

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Upcoming Seminars

K-HS: National Science Teachers Association

K-HS: Next Generation Science Standards

MS-HS: Advanced Placement

MS-HS: Content based

MS-HS: Instruction Using Tradebooks

K-HS: Journal Articles on ELLs and Science

Hope you enjoy.

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Upcoming Seminars

- What is a Planet? How Scientists Classify Pluto and Other Worlds in our Solar System and Beyond, March 18, 2020 at 7:00 pm
 - Register at <https://common.nsta.org/resource/?id=10.2505/9/WSNSTA200318>
- COVID-19: Don't Panic but Know the Science, March 25, 2020 at 7:00 pm
 - Register at <https://common.nsta.org/resource/?id=10.2505/9/WSNSTA200325>

Kindergarten through High School

National Science Teachers Association

Whether you are a member or not, NSTA offers professional development in several areas. To address content area subject knowledge go to <https://learningcenter.nsta.org/indexer/> and go to https://learningcenter.nsta.org/my_learning_center/register.aspx to create a free account.

They even offer a PD indexer that will test you on subject areas you select and then offer personalized PD.

There are over 4,200 free resources available. If you are a member you get over 12,000.

Next Generation Science Standards

Science and Engineering Practices

- Asking Questions & Defining Problems - <http://www.bozemanscience.com/ngs-asking-questions-defining-problems>
- Developing & Using Models - <http://www.bozemanscience.com/ngs-developing-using-models>
- Planning & Carrying Out Investigations - <http://www.bozemanscience.com/ngs-planning-carrying-out-investigations>
- Analyzing & Interpreting Data - <http://www.bozemanscience.com/ngss-analyzing-interpreting-data>

- Mathematics & Computational Thinking - <http://www.bozemanscience.com/ngs-using-mathematics-computational-thinking>
- Construct Explanations & Design Solutions - <http://www.bozemanscience.com/ngs-constructing-explanations-designed-solutions>
- Engaging in Argument from Evidence - <http://www.bozemanscience.com/ngs-engaging-in-argument-from-evidence>
- Obtaining, Evaluating, & Communicating Information - <http://www.bozemanscience.com/ngs-obtaining-evaluating-communicating-information>

Crosscutting Concepts

- Patterns - <http://www.bozemanscience.com/ngs-patterns>
- Cause & Effect : Mechanism and Explanation - <http://www.bozemanscience.com/ngs-cause-effect-mechanism-and-explanation>
- Scale, Proportion, & Quantity - <http://www.bozemanscience.com/ngs-scale-proportion-quantity>
- Systems & System Models - <http://www.bozemanscience.com/ngs-systems-system-models>
- Energy & Matter: Flows, Cycles, and Conservation - <http://www.bozemanscience.com/ngs-energy-matter-flows-cycles-and-conservation>
- Structure & Function - <http://www.bozemanscience.com/ngs-structure-function>
- Stability & Change - <http://www.bozemanscience.com/ngs-stability-change>

Secondary

Advanced Placement – content and instructional practice

- AP Biology
 - Bozeman Science – 109 videos on biology topics applicable to AP Biology
<http://www.bozemanscience.com/ap-biology>
- AP Chemistry
 - Bozeman Science – 71 videos on chemistry topics applicable to AP Chemistry <http://www.bozemanscience.com/ap-chemistry>
- AP Environmental Science
 - Bozeman Science – 35 videos on environmental science topics applicable to AP Environmental Science
<http://www.bozemanscience.com/ap-environmental-science>
- AP Physics
 - Bozeman Science – 137 videos on physics topics applicable to AP Physics
<http://www.bozemanscience.com/ap-physics>

Middle School and High School - content

- Biology
 - Bozeman Science – videos on biology topics, applicable for HS and MS
<http://www.bozemanscience.com/biology-main-page>
 - The Science of Modern Agriculture: Ag Microbials
<https://common.nsta.org/resource/?id=10.2505/9/WSAg180424>
 - The Science of Modern Agriculture: The Evolution of Crop Protection
<https://common.nsta.org/resource/?id=10.2505/9/WSAG171115>

- The Science of Modern Agriculture: Pest Management: Insects – Friends or Foes
<https://common.nsta.org/resource/?id=10.2505/9/WSAG171019>
- The Science of Modern Agriculture: GMOs – A Discussion in the Media, the Classroom, and at the Dinner Table
<https://common.nsta.org/resource/?id=10.2505/9/WSAG171004>
- Ocean of Changes: A conversation with marine ecologist Malin Pinsky of Rutgers University
<https://www.youtube.com/watch?v=2wcV1hQy9Ks>
- Chemistry
 - Bozeman Science – videos on chemistry topics, applicable for HS and MS
<http://www.bozemanscience.com/chemistry>
- Earth Science
 - Bozeman Science – videos on Earth Science topics, applicable for HS and MS
<http://www.bozemanscience.com/earth-science>
 - The Solar System with Hubble
<https://common.nsta.org/resource/?id=10.2505/9/WSNSTA190313>
 - Kilauea Summit and Lower East Rift Volcanic Eruptions
<https://common.nsta.org/resource/?id=10.2505/9/WSNSTA190423>
 - Marine Debris and Microplastics in Our Oceans
<https://common.nsta.org/resource/?id=10.2505/9/WSNSTA190515>
- Physics
 - Bozeman Science – videos on Physics topics, applicable for HS and MS
<http://www.bozemanscience.com/physics>
- Statistics & Graphing

- Bozeman Science – refresher for any level teacher, applicable to MS, HS, and AP students also

<http://www.bozemanscience.com/statistics-graphing>

Middle and High School – instructional practice

- Teaching Science through Tradebooks -
<https://common.nsta.org/resource/?id=10.2505/9/WSNSTA200303>

Irvington Science Folder

- ELLs in the Science Classroom
- Appropriate Practice for Linguistically Diverse Science Learners
- Challenges and Solutions for ELLs
- Design Challenges are “ELL-ementary”
- English Language Learners in the Science Classroom
- From Speaking to Writing in the Structured English Immersion Science Classroom
- Methods and Strategies: Alternative Assessments for English Language Learners
- Methods and Strategies: Enhancing Science for ELLs
- Science in any Language
- Sheltered Instruction Techniques for ELLs
- Strategies for ELL Success
- Striking a Balance
- Teaching Science to ELLs, Part 1
- Teaching Science to ELLs, Part 2
- Teaching Science to English-as-Second-Language Learners
- Unlocking Academic Vocabulary