SDUHSD Science Newsletter
January 2018
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Cindi and Jenn will be using these updates as a communication tool each month. The newsletter archive is hosted here. Please e-mail jennifer.mccluan@sduhsd.net should you notice any colleagues not receiving it.

Table of Contents

Click on the linked Table of Content items below to advance to the related section of the newsletter.

Professional Development 2017-2018

January 2018 Inservice
Thank you to everyone who presented and participated in our inservice on January 30 at Carmel Valley Middle School. If you have not yet completed the Post-PD Survey from that session, please do so to provide feedback to support our work ahead.

March Professional Development Sessions
The dates for our March PD sessions are listed below. All PDs will be held at the district office in the large board room from 8:00 am - 2:30 pm. If you have not already done so, please request a substitute.

7th and 8th Grades: Wednesday, March 7th
Biology: Thursday, March 1st
Chemistry and Physics: Tuesday, March 6th

Jenn and Cindi will be in touch with more details as we get closer to the PD dates.

NGSS Updates and Resources

Stanford NGSS Assessment Project (SNAP) Courses
Stanford is offering two online free MOOC (Massive Open Online Courses) that explore NGSS assessment. Several SDUHSD middle and high school science teachers enrolled in Course 1 this past fall, and Stanford is now offering course 1 again this spring, in addition to a second course. Both courses are explained and linked below:

Performance Assessments in the NGSS Classroom: Implications for Practice
This course offering from the Stanford NGSS Assessment Project (SNAP) is designed to guide participants in exploring the role performance assessment can play in helping their students meet the goals of the Next Generation Science Standards. Participants will learn SNAP's strategies for analyzing what an assessment is evaluating, analyzing multidimensional student data, and making instructional decisions based on student

evidence. Participants will have opportunities throughout the course to practice using these strategies with sample short performance assessments (20 minute tasks) and student data.

Developing Instructionally-Embedded Performance Assessments for the NGSS Classroom
Stanford is Offering a free online course for science educators interested in learning about three-dimensional, NGSS assessment. The Stanford NGSS Assessment Project guides collaborative groups of participants through SNAP's process of developing multidimensional performance assessments for the Next Generation Science Standards. Participants will learn about the design of NGSS performance assessments by examining a sample classroom assessment, and they will learn to use SNAP's tools for planning, designing, and evaluating high-quality performance assessments. Registration is now open, and course runs from January 8, 2018 - March 30, 2018.

California Science Test Blueprint
The California Science Test (CAST) blueprint, documenting how the CAST is constructed as well as the alignment between the CAST and the California Next Generation Science Standards, is now available. Local educational agencies (LEAs) and teachers are encouraged to use the blueprint as a reference tool in preparing for the CAST.

How to Craft 3D Classroom Science Assessments
This session provides a step-by-step process to support participants as they design a 3D assessment task. Along the way, they learn how to define 3D learning performances for specific lessons—and how to use a range of tools to support their assessment design work. A key goal of the session activity is to improve the connection of intended learning goals to assessment practices.

UConn Secondary Science Modules
This page was created to provide resources to pre- and in-service science teachers. These units, tasks, and assessments represent teachers' humble attempts to create NRC Framework and Next Generation Science Standards (NGSS) aligned materials. These are first attempts to engage students in equitable three-dimensional learning. There are great unit modules, lessons, and assessments for middle and high school science are included under the tabs “Life Science, Earth Space Science, and Physical Science.

January 2018 NGSS Now
NGSS now publishes a monthly newsletter highlighting quality K-12 science education.

Next Gen Navigator
In this new NSTA publication, the focus of this issue is instructional materials to support NGSS classrooms.

Interesting Reads and Resources

Oakland Unified School District’s Secondary Science Instructional Toolkit
The good folks at Oakland have prepared this excellent instructional toolkit. They have “created a collection of strategies to support the use of the MS/HS OUSD NGSS curriculum. By highlighting these strategies in both the middle and high school science curriculum, we hope students become increasingly comfortable using the strategies throughout their academic experience in OUSD. The collection of strategies support sense-making, literacy, writing, argumentation, discussions, gathering feedback, and developing questions.” (and overall support of the SEPs). Thanks to Erica Zug for contributing!

Georgia Science Teachers Association Phenomena Bank

Modeled after #ProjectPhenomena, the Georgia Science Teachers Association has developed this searchable database of phenomena.

LIGO Launches "Gravity Spy" Citizen Science Program
LIGO's newest Citizen Science Program, Gravity Spy, will enable anyone around the world to help LIGO scientists and LIGO computers become better and faster at finding the telltale traces of gravitational waves. As a "Gravity Spy" participant, you will look at real LIGO data in search of 'glitches', unwanted hiccups in the signal that can sometimes be confused for or mask out gravitational waves. Glitches make finding the real thing even more difficult than it already is! Nevertheless, they are an unfortunate fact of life for LIGO, so identifying the different kinds of glitches that appear in the interferometer data is crucial for LIGO scientists to be able to distinguish between annoying blips and signals from space! Thanks to Amy Olson for sharing.

Grading
Brinn Belyea shared the following articles regarding approaches to grading:
https://www.edutopia.org/article/will-letter-grades-survive
https://www.edutopia.org/blog/when-grading-harms-student-learning-andrew-miller
https://www.edutopia.org/article/competency-based-learning-developing-mastery-skills-and-content
https://www.edutopia.org/article/acknowledging-ungraded-skills

Middle School Science

Content Support for Information Transfer
Jenn has curated a list of background readings, videos, articles, etc. to support teachers in increasing their content knowledge. This folder also contains lesson activities to support student understanding with information transfer and the storage of information (developed in collaboration with Steve Sogo, Department Chair, Laguna Beach High School).

Content Support for Electricity and Magnetism
Jenn has curated a list of background readings, videos, articles, etc. to support teachers in increasing their content knowledge.

Making of North America
This PBS/NOVA three episode series explores the epic 3 billion-year story of how our continent came to be. From the palm trees that once flourished in Alaska to titanic eruptions that nearly tore the Midwest in two, discover how forces of almost unimaginable power gave birth to North America. The second video explores how geology influences life.

High School Science

Content Support for Information Transfer
Jenn has curated a list of background readings, videos, articles, etc. to support teachers in increasing their content knowledge. This folder also contains lesson activities to support student understanding with information transfer and the storage of information (developed in collaboration with Steve Sogo, Department Chair, Laguna Beach High School).

Content Support for Electricity and Magnetism
Jenn has curated a list of background readings, videos, articles, etc. to support teachers in increasing their content knowledge.

Connecting Laboratory and Lecture

Physics teacher and blogger Mike Frank explores the value of connections between laboratory activities and lecture for student learning. Thanks to Brinn Belyea for contributing.

Learning Opportunities

San Diego STEM Ecosystem

The San Diego STEM Ecosystem connects schools, nonprofits, and businesses together to cultivate and sustain STEM learning opportunities in and out of school across the region. In this newsletter, you'll find a variety of STEM events and opportunities throughout the county.

Stanford NGSS Assessment Project

Given its popularity with science educators, Stanford University is offering an identical, second version of its fall Performance Assessments in the NGSS Classroom: Implications for Practice course this winter (January 8 - March 30, 2018). Nine SDUHSD science teachers completed the fall course, and found it to be very valuable.

American Society for Biochemistry and Molecular Biology

The American Society for Biochemistry and Molecular Biology is holding their 2018 meeting from April 21st – 25th in San Diego. Their list of sessions and award lectures, along with the rest of their programming, cover the latest research in the field, ranging from "Host Microbe Interactions in the Primate Gut: Implications for Human Origins" to "Seeing the Invisible by NMR Spectroscopy." You can register for the entire meeting or for just one day, and the best part is that registration is free for high school students and teachers – see the link below. Please let Alexander Becker (AlexanderBecker@workforce.org) know once you have registered and how many students you intend to bring for their data collection purposes.

Where: Location TBD
San Diego, CA

When: Saturday April 21st – Wednesday, April 25th, 2018

Register Here: http://www.asbmb.org/meeting2018/registration/

UCSD COSMOS Program is Looking for Teachers

The California State Summer School for Mathematics and Science (COSMOS) at UC San Diego is seeking motivated and innovative high school teachers to help encourage talented high school students to foster their interest in research and pursue careers in engineering, mathematics, technology and the sciences. As part of the instructional team the Teacher Fellow will:

- Serve as a pedagogical bridge between high school student learning & university faculty teaching.
- Consult with faculty, research scientists, and graduate students on course design.
- Directly participate in all classroom, laboratory and fieldtrips.
- Collaborate with other Teacher Fellows to design customized Science Communication curriculum
- Assist students in the development of their team research project presentations.
- Form relationships with university researchers and scientists.
- Learn about current field research from distinguished guest speakers.
- Access to state-of-the-art classrooms and laboratories.

Program Dates: Sunday, July 8—Saturday, August 4
Staff Orientation: Saturday, June 2, 2018 (tentatively)
Stipend: $5,000 (FULL FOUR-WEEK PARTICIPATION REQUIRED)
Grant Opportunity for equipment and/or supplies for your HS classroom
Lunch provided
Background Check Required
For More Information, Email: cosmos@ucsd.edu

Contact: Marit Bessesen
Phone: (858) 534-4317

Fleet Science Science Teacher Learning Opportunities
The Fleet Inquiry Institute is the teacher professional development arm of the Fleet Science Center's Education Department. For additional information about current programs please contact the Fleet Inquiry Institute at (619) 238-1233 x722 or by email.

SDCOE Science Newsletter and Professional Learning Opportunities
San Diego County Office of Education has shared upcoming learning events for K-12 students and educators in San Diego County.

Student Opportunities

San Diego STEM Ecosystem
The San Diego STEM Ecosystem connects schools, nonprofits, and businesses together to cultivate and sustain STEM learning opportunities in and out of school across the region. In this newsletter, you'll find a variety of STEM events and opportunities throughout the county.

Salk High School Science Day
Salk March of Dimes High School Science Day is a half-day community outreach event designed to get youngsters interested in considering an exciting career in research. The day's program includes presentations from scientists who share stories of their professional experience, laboratory tours and participation in ongoing laboratory experiments with some of the Salk Institute's world-renowned researchers. The event is scheduled for February 24, 2018, and the registration deadline is February 9, 2018.

Scripps Translational Science Institute
The voluntary summer research internship at STSI provides the opportunity for highly motivated high school, undergraduate, and professional students to work with and learn from a multi-disciplinary team of scientists, including internationally renowned investigators in the areas of genomics, computational biology, and mHealth research. The primary aim of our internship program is to train and prepare young scientists to become future leaders in the realm of translational science. The application deadline is February 15, 2018.

Young Scientist Challenge
The Discovery Education 3M Young Scientist Challenge is the nation's premier science competition for grades 5-8. This one-of-a-kind video competition has sparked a sense of wonder and discovery in hundreds of thousands of students and enhanced science, innovation and communication across the United States. One Young Scientist will win $25,000, and ten will win $1,000.

Emerge the Conference: Be a Doc in Decade
Spend a life-changing day on the beautiful UCSD campus experiencing hands-on training in a variety of life-saving simulations, meeting and being taught by world-class physicians and nurses, and acquainting yourself with the steps required to become a physician. Join other motivated high school students from around Southern California who are ready to emerge as the medical professionals of tomorrow.Thanks to Brinn Belyea for sharing!

2018 Genes in Space
MiniPCR will have their 2018 Genes in Space contest submissions in mid-April. They would like to provide an all day workshop for San Diego area teachers in Jan or early Feb with the equipment that Salk has available for checkout. Please help us select dates that would work by completing the linked poll: http://doodle.com/poll/56hh9nqtqhz7m6is . Learn more about the Genes in Space program here: https://www.genesinspace.org For those interested be sure to attend the Next Sen Science Educators Conference at Miramar College on Nov 4 - I'll be doing a presentation on the Genes in Space program to get you prepped for the workshop!

San Diego Air and Space Museum “Be the Astronaut”

As you begin the school year, we invite you to explore the museum as our personal guest. Our current exhibition, Be The Astronaut, covers so many STEM standards in immersive space-simulator environment, that we know you’ll want to return with your class. We’re therefore inviting educators to visit us and experience the exhibition, for free, at any time during our normal working hours. To schedule your special admission, please contact Patty Bowman, Education Administrative assistant, at pbowman@sdasm.org . We’re unveiling an excited, updated selection of education programs this year, both here at the museum and at your school, and we encourage you to look at them here: http://sandiegoairandspace.org/education/education-overview .