ADE Science and STEM Professional Development

Spring/Summer 2016

Registration for all events is required. Click links for more information and to register.

Courses subject to cancellation due to low enrollment; please register at least 14 days prior to an event.

March 2016

RTOP Science– Reformed Teaching Observation Protocol for Science	3/1	Free
Webinar: Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (Grades 6-8)	3/3	Free
Webinar: Engineering in STEM	3/3	Free
STEMinars: Effectively Using Socratic Seminars to Enhance Your STEM Teaching & Learning	**3/8**	**$80**
Webinar: Reading & Writing in the STEM Classroom	3/9	Free
Integrating Code.org Across the Curriculum	**3/15**	**Free**
Webinar: STEM Learning Using the 5Es Instructional Model	3/15	Free
Webinar: Using Infographics in STEM, Part 1	3/23	Free
Webinar: Using Infographics in STEM, Part 2	3/24	Free

Professional Development Spotlight:
Integrating Code.org Across the Curriculum

In this hands-on, minds-on one day workshop, participants will experience Code.org's computer science fundamentals firsthand. They will learn about strategies to teach computer science effectively in the classroom using the online and offline lessons. Time will also be spent on making connections between Code.org materials and grade level content standards to enhance an integrated teaching and learning environment. Participants will leave with a plan on ways to integrate computer science seamlessly into their teaching. All participants who complete the workshop will receive fun Code.org swag and a hard copy of the curriculum guide. No computer science or coding experience needed - all are welcome!

April 2016

Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (Grades K-12)	**4/5**	**Free**
Webinar: Developing STEM Literacy Through the Practices	4/6	Free
Webinar: Science Storylines for Grades K-2	4/11	Free
Webinar: Integrating STEM Learning	4/14	Free
Webinar: Effective Discourse Communities in the STEM Classroom Using the Practices	4/20	Free
Webinar: Science Storylines for Grades 3-5	4/21	Free
Webinar: STEM in the Primary Classroom	4/26	Free
Webinar: Science Storylines for Grades 6-8	4/27	Free
Supporting Integrated STEM Learning Using Future Ready Skills	**4/30**	**Free**

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May 2016

Integrating Infographics in STEM	**5/3**	**Free**
Webinar: Engineering in STEM	5/5	Free
Formative Assessment in the Science Classroom (Grades K-8)	5/10	$70

June 2016

Webinar: Developing STEM Literacy Through the Practices	**6/2**	**Free**

July 2016

Making Sense of Science – Energy Course	**7/11-15**	**$300**

Professional Development Spotlight:

Developed by WestEd, this comprehensive professional development course for science teachers provides all the necessary scaffolds for building a scientific way of thinking in teachers and students, focusing on science content, inquiry, and literacy.

- Day 1 seeks to answer 'What is energy?' and explores the various kinds of energy that keep our world going.
- Day 2 identifies the various types of potential energy and helps to clarify what it really means to have potential energy.
- Day 3 explores the various ways in which heat energy is misunderstood and the ways in which scientists define and talk about heat energy, how it's transferred, and how it affects our world.
- Day 4 provides a systematic explanation for how and why conservation of energy is possible.
- Day 5 explores the complex interactions between food and organisms.

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Descriptions of Face to Face courses

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Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education

How can you align your curriculum and instruction to Arizona's Science Standard, yet teach to the 3-dimensions (practices, crosscutting concepts, and core ideas) of the Framework for K-12 Science Education? Participants will examine the science learning progressions identified within *A Framework for K-12 Science Education* and how they connect to Arizona's Science Standard.

STEMinars: Effectively Using Socratic Seminars to Enhance Your STEM Teaching & Learning

Participants will learn and apply the process for implementing Socratic investigation in 3-8 STEM lessons. Socratic Seminar is a deep analysis of substantive text and works of quality by a group of students /participants facilitated by a teacher or leader. The main goal is for students/participants to build a conceptual understanding of the texts and ideas by asking and answering questions, citing evidence, and conversing with each other in order to make meaning. This interdisciplinary STEM-focused session of Socratic Seminar will build basic seminar skills as we delve deeper into ideas and values, complexity and challenge, and relevance to the curriculum.

- Critical Thinking to promote deeper understanding of phenomena
- An in-depth examination of concepts and ideas from 3-8 STEM lesson text(s)
- Discovery and Discourse
- Connection to Standards

Supporting Integrated STEM Learning Using Future Ready Skills

How do we get our students ready for a future we can't yet define? Integrated STEM teaching and learning using future ready skills across the curriculum can help support students in this journey. In this workshop participants will look at and consider the instructional shifts needed for developing real-world, relevant and rigorous instruction that will take student learning deeper, impacting the classroom, school, community, and their future. STEM education can open the minds of students to deepen their learning using future ready skills.

Integrating Infographics in STEM

Students need to understand and be able to think critically about information presented in visual graphical forms. Teachers can help students develop a deeper understanding of graphical information through infographics while helping their students build 21st Century data and information literacy. The goal of this workshop is to equip teachers with the knowledge of how infographics can be used to gather and present complex information. Infographics are a stunning blend of art, science, and numerical information that is displayed in a format that requires students to interact with the data on a deeper conceptual level of understanding.

Formative assessment in the Science Classroom (Grades K-8)

What science ideas do your students bring to your classroom? What prior ideas do they retain even after instruction? This session will explore ways that formative assessment practices help inform teaching and learning in the science classroom. Participants will practice using science probes, formative assessment classroom techniques, and the Making Sense of Student Work Protocol, which can be used in PLCs or with teams of teachers to inform classroom teaching and student learning.

Making Sense of Science – Energy Course – 5 Day Event

Developed by WestEd, this comprehensive professional development course for science teachers provides all the necessary scaffolds for building a scientific way of thinking in teachers and students, focusing on science content, inquiry, and literacy.

- Day 1 seeks to answer 'What is energy?' and explores the various kinds of energy that keep our world going.
- Day 2 identifies the various types of potential energy and helps to clarify what it really means to have potential energy.
- Day 3 explores the various ways in which heat energy is misunderstood and the ways in which scientists define and talk about heat energy, how it's transferred, and how it affects our world.
- Day 4 provides a systematic explanation for how and why conservation of energy is possible.
- Day 5 explores the complex interactions between food and organisms.