Digital Science Teaching Training

JULY 13 • MONDAY

8:30am – 9:00am

Welcome Session and Tennessee Science Leadership Panel Zoom Room 1

Moderators: Jennifer Dye

Speakers: Jenice Gordon, Angie Mullins, Dr. Lory Heron, Anthony Goad

- Jennifer Dye, TSTA President will share about TSTA's support for science teachers and logistics of the upcoming Fall conference.
- Lory Heron, Anthony Goad, and Angie Mullins from Hamilton County Schools and Jenise Gordon from Girl's Preparatory School in Chattanooga will share their experiences in leading virtual professional development and training teachers for the opening of school in August using online tools.
- + Others

9:05am – 10:05am

Reach every student with Freckle's NGSS-aligned Science units for grades K-2 Zoom Room 1

Speakers: Sarah Scorzo, Raleigh Poole, Nicole Nelson, Chris Peterson

Freckle's Science units are designed to engage K-8 students at their own level with hands-on activities, project-based explorations, and differentiated articles. Introductory videos, experiments, and design-engineering challenges are included, so teachers never have to spend time hunting down additional resources. Teachers can monitor students' performance on reading assignments through a student activity report. Freckle's science activities require only basic household and classroom supplies, like paper clips, markers, plastic cups, and potting soil. A limited number of science units and activities are available for free. Freckle Premium users gain access to the complete library of science resources.

9:05am – 10:05am

Screencasting: Basics and Best Practices for Grades K-5 Zoom Room 3

Moderators: Andrea Henrie

Speakers: Cory Gleasman, Cale Koester

Screencasting is a versatile tool that teachers can use for delivering instruction, providing feedback, and offering supplemental resources. In addition, students can create valuable screencasts as part of project-based assessments. This session will discuss benefits, best practices, and step-by-step instructions on how both teachers and students can create, edit, and share screencasts using a variety of tools. While this technique will be primarily discussed in the context of online asynchronous learning, integration into other teaching methods will also be described.

9:05am – 10:05am

STEM, PBL, and Digital Readiness Integration into Core Subject Areas/Content for Grades K-5

Moderators: Brandy Young Zoom Room 2

Speakers: Tiffany Collins, Brittany Tate

Teachers will learn through STEM education how to construct relevant Problem Based Learning lessons for grades K-5 using the Engineering Design Process (EDP) as a foundation to integrate core subject areas across various content (such as math, reading, science, social studies, technology, engineering, and computer science) to be accompanied by K-8 Digital readiness standards. Teachers will promote 21st century skills and act as a facilitator to guide students thinking and learning by creating a positive working environment where students are encouraged to collaborate in teams, take ownership, and responsibility of their learning as student leaders. Teachers will learn how to provide students with opportunities to experience different kinds of STEM related careers as a way to prepare or equip students for jobs that may/may not exist in our ever changing global market as world class learners.

10:10am – 11:10am

Reach every student with Freckle's NGSS-aligned Science units for grades 3-5 Zoom Room 2

Speakers: Sarah Scorzo, Raleigh Poole, Nicole Nelson, Chris Peterson

Freckle's Science units are designed to engage K-8 students at their own level with hands-on activities, project-based explorations, and differentiated articles. Introductory videos, experiments, and design-engineering challenges are included, so teachers never have to spend time hunting down additional resources. Teachers can monitor students' performance on reading assignments through a student activity report. Freckle's science activities require only basic household and classroom supplies, like paper clips, markers, plastic cups, and potting soil. A limited number of science units and activities are available for free. Freckle Premium users gain access to the complete library of science resources.

10:10am – 11:10am

Schoology: The "With It" Teacher's Bestie Grades 3-5 Zoom Room 3

Moderators: Jennifer Dye

Speakers: Andrea Starks

Join me for a crash course of all things Schoology! From grading groups to differentiated assessments, we'll explore some of the ways Schoology can help keep you organized and efficient.

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11:20am – 12:20pm

Computationally Designing Scientific Simulations & Pandemic Prevention for Grades 3-5

Moderators: Brandy Young Zoom Room 2

Speakers: Cory Gleasman, Cale Koester

Computational thinking is growing in popularity in K-12 curricula. Computational thinking is conceptually embedded in most core disciplines and naturally connects to science. Furthermore, many interactive scientific models and simulations rely on computational thinking to operate and transfer knowledge. To code scientific simulations, learners must crosscut computational thinking concepts with scientific content knowledge. This session will investigate best practices and methods of leveraging computational thinking to construct scientific modeling opportunities with learners. Pedagogical guidelines for designing such a learning environment will be shared. Fittingly, a COVID-19 simulation will be programmed and investigated through a teaching perspective. No prior programming experience is required of attendees as intuitive block-based programming software will be employed.

11:20am – 12:50pm

Digital Interactive Notebooks for Grades K-5 Zoom Room 1

Moderators: Queen Ogbomo

Speakers: Leslie Suters

Explore a range of digital tools that can be used together (also known as app smashing!) to create digital interactive notebooks for blended or online science instruction. You will have the opportunity to contribute to a collaborative "class notebook" and also begin setting up a template that you can share with your own students to use as their own personal notebooks. We will App Smash with Book Creator, Google Slides, Flipgrid, PicCollage, Padlet, Google Jamboard, YoTeach, and more.

11:20am – 12:50pm

Edpuzzle for Effective Science Instruction for Grades K-5 Zoom Room 3

Moderators: Charlotte Cantkier

Speakers: Alex Lochoff

Edpuzzle is a tool that lets teachers take any video, embed questions into the video, and then track and monitor student data and progress. This session will cover everything teachers need to know to get started using Edpuzzle in their classes. After covering the basics we will also focus on specifically how teachers can fit Edpuzzle into their science class to maximize student learning.

1:00pm – 2:30pm

Adapting Quality Discussion Strategies for Virtual Instruction for Grades 3-12 Zoom Room 3

Moderators: Charlotte Cantkier

Speakers: Brian Caine

Join me for a working group to adapt some quality class discussion resources for virtual use particularly STEM Teaching Tools Activity Flow Chart. http://stemteachingtools.org/sp/talk-flowchart

We will be using Google jamboard and break the session into different groups, Each group will focus on one of the strategies from the flowchart and work to develop a “procedures/how to” sheet with tips on why/how to use this tool virtually.

1:00pm – 2:30pm

Just the Ticket! Virtual STEM Field Trips for Grades K-5 Zoom Room 1

Moderators: Donnette McNabb

Speakers: Jane Baker

Field trips can be a school year highlight, yet they are impractical right now. We can create new ways for K-5 students to experience the world and process their experiences through writing. This session will showcase six virtual STEM field trips and writing choice menus. Additionally, we will explore the use of some Google suite tools in writing instruction.

1:00pm – 2:30pm

Nature Journaling as an Interdisciplinary Tool for Grades 3-5 Zoom Room 2

Moderators: Leslie Suters

Speakers: Phil Salter

A journal can often prove to be an indispensable tool for scientists, naturalists, writers, activists, organizers, and countless more vocations. A perhaps undervalued component of nature journaling is that it can organically lend itself to support a learner's diverse explorations of place, its inhabitants, society, health, justice, and personal and collective reflection. A journal welcomes a learner to engage with pictures, words, and numbers in an interdisciplinary format. With a bit guidance, journaling strategies can support student learning at home and in their neighborhoods. We'll explore the potential value of sharing and tracking journaling strategies as classes and begin bridging experiential pedagogy with the work of a classroom.

2:40pm – 3:40pm

Assessing In An Online World for Grades 3-12 Zoom Room 3

Moderators: Viva Reynolds

Speakers: Dr. Jason Beach

Assessments are a crucial part of teaching and learning, and implementing quality assessments in an online environment can be challenging. In this how-to session, I will break down and demonstrate how to use online tools to develop formative and summative assessments that can be used either online or in face-to-face environments. We will discuss best practices in assessment and how these assessments can be used to improve student outcomes and pedagogy. We will examine Google Quizzes, Socrative, Quizizz, and other EdTech tools designed for assessment.

2:40pm – 3:40pm

Differentiating your Science Instruction for face-to-Face and Distance Learning for Grades K-5

Moderators: Queen Ogbomo Zoom Room 1

Speakers: Claire Williams McGee

There are quick and easy steps to support a teacher wishing to not only differentiate, but also to support student voice and choice. These techniques transfer seamlessly to a virtual learning environment!

2:40pm – 3:40pm

Getting Students Actively Participating in Online Science Lessons for Grades 3-5 Zoom Room 2

Moderators: Charlotte Cantkier

Speakers: Melissa Wall

In this session, you will be given ideas for multiple remote learning science lessons, which will allow your students to actively participate from their homes. Lessons from all four disciplinary core ideas and the integration of many of the cross cutting concepts will be covered. Also in this session, we will go over read-aloud books you can incorporate into lessons that will keep students engaged. Come away more prepared for this year's online or hybrid science teaching by joining us!

3:50pm – 4:50pm

Engaging Students with the NGSS Phenomena Page for Grades 3-8 Zoom Room 2

Speakers: Stephanie Wendt, Perihan Fidan

Natural phenomena are observable events that occur in the universe. We can use our science knowledge to explain or predict phenomena. For example, why do images shift when looking through water? What is special about the way a slinky appears to fall to the ground? What is the mystery behind the sailing stones of Death Valley? Together, we will explore these events using the Phenomena for NGSS website. Learn to build your students' scientific knowledge by developing general ideas, based on evidence, that explain phenomena.

3:50pm – 4:50pm

STEM At Home: Resources Shared by Oakley STEM Center at Tennessee Tech Grades K-5

Speakers: Jennifer Meadows, Jane Baker Zoom Room 1

The need for STEM education did not stop with the pandemic. At the Oakley STEM Center at TN Tech University, we modified our face-to-face STEM instruction to meet the needs of families at home. In this session, we will explore the resources created and discuss ways to continue using them in the classroom.

JULY 14 • TUESDAY

8:30am – 9:00am

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9:05am – 10:05am

Engaging Strategies in the Secondary Classroom for Grades 6-12 Zoom Room 2

Moderators: Viva Reynolds

Speakers: Davey Robinson

This session dives into current strategies to actively engage students in the science classroom. There have been recent developments at the secondary level that suggests current trends do not adequately prepare students for either the post-secondary level or the workforce. I will be including strategies such as implementing online components, inquiry, and modeling. Furthermore, I will note how these strategies increase student comprehension and engagement with course content.

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Reach every student with Freckle's NGSS-aligned Science units for grades 6-8 Zoom Room 1

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Using Online Tools and the Jigsaw Method to Support Student Collaboration and Literacy for Grades 9-12 Zoom Room 2

Moderators: Leslie Suters

Speakers: Shara Terrill

In this session, we will discuss how to engage students in interpreting texts and group work using the jigsaw method through different online tools. Specifically, we will discuss how to use this method through one of three platforms - Flipgrid, Google Classroom, and Padlet. This method promotes collaboration between students, easily allows for differentiation, and gives many opportunities for formative assessment and teacher feedback. The presentation will include an example from the recent distance learning time in the presenter's classroom.

11:45am – 12:45pm

3D Best Practices in a Virtual Classroom for Grades 6-12 Zoom Room 2

Moderators: Viva Reynolds

Speakers: Dr. Lory Heron, Anthony Goad

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Differentiating your Science Instruction for face-to-Face and Distance Learning for Grades 6-8

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12:50pm – 2:20pm

Hands-on and Digital Resources for Virtual Instruction for Grades 6-12 Zoom Room 2

Moderators: Donnette McNabb

Speakers: Mary Coulter

In this session, I will share all the lab activities that I have compiled for students to complete while at home. They are mostly physical science activities for middle and high school students comprised of hands-on and digital resources. All the activities are completed with minimal chemicals (baking soda, vinegar, aluminum foil, etc) and materials (pH strips, batteries, wires, LEDs). Using supplies from home, students will be able to complete lab activities such as reaction rate, pH, circuitry, and energy.

12:50pm – 2:20pm

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2:25pm – 3:55pm

At Home Science Lab during Remote Learning Determining the pH of many household chemicals with home-made pH indicators for Grades 9-12 Zoom Room 2

Moderators: Brandy Young

Speakers: Louis Kuykendall

This tremendously successful At-Home chemistry lab was performed by 80 of students via Zoom sessions. The lab involved classifying the pH household products with naturally occurring pH indicators that can also be found in every day items from around the house. It culminates with some remarkable color changes. This lab can be used not only teach Acids, Bases, and pH; but also to learn how to write a technical paper including an Abstract, which was new to them. There are over 20 easily obtainable options for household items to use. All the students were able to find at least one indicator substance and three items to be tested for pH. Most students found and used more. Anything from cabbage to blackberries to grape Jelly.

2:25pm – 3:55pm

Digital Interactive Notebooks for Grades 6-12 Zoom Room 3

Speakers: Leslie Suters

Explore a range of digital tools that can be used together (also known as app smashing!) to create digital interactive notebooks for blended or online science instruction. You will have the opportunity to contribute to a collaborative "class notebook" and also begin setting up a template that you can share with your own students to use as their own personal notebooks. Additionally, we will practice making collaborative annotations to a reading selection to model how to make reading visible, active, and social. We will App Smash with Book Creator, Google Slides, Flipgrid, PicCollage, Padlet, Google Jamboard, Hypothesis, YoTeach, and more.

2:25pm – 3:55pm

The Renaissance Foundry Model as an Effective Tool for Online Learning for Grades 6-12

Speakers: Dr. Andrea Arce-Trigatti, Dr. Stephanie Jorgensen, Dr. Robby Sanders, Dr. Pedro E. Arce Zoom Room 1

This training session will feature the Renaissance Foundry Model (RFM) as a tool that can be leveraged to develop both online and in-person learning strategies for students (Arce et al., 2015). Created as an innovation-driven learning platform, the RFM incorporates collaborative and active learning strategies focused on knowledge acquisition and knowledge transfer that can be applied to various learning environments and content. This training will provide teachers with guidance and examples of how the RFM can be effectively applied to engage students in active and collaborative learning in an online setting. The facilitators will be featuring the six elements of the RFM and asking participants to engage with examples and case studies to better understanding this platform.

4:00pm – 5:00pm

Computationally Designing Scientific Simulations & Pandemic Prevention for Grades 6-12

Moderators: Viva Reynolds Zoom Room 2

Speakers: Cory Gleasman, Cale Koester

Computational thinking is growing in popularity in K-12 curricula. Computational thinking is conceptually embedded in most core disciplines and naturally connects to science. Furthermore, many interactive scientific models and simulations rely on computational thinking to operate and transfer knowledge. To code scientific simulations, learners must crosscut computational thinking concepts with scientific content knowledge. This session will investigate best practices and methods of leveraging computational thinking to construct scientific modeling opportunities with learners. Pedagogical guidelines for designing such a learning environment will be shared. Fittingly, a COVID-19 simulation will be programmed and investigated through a teaching perspective. No prior programming experience is required of attendees as intuitive block-based programming software will be employed.

4:00pm – 5:00pm

Defined Learning: Project/Problem Based Learning Resource Free to Middle School Teachers for Grades 6-8

Zoom Room 1

Moderators: Donnette McNabb

Speakers: Brandi Stroecker, Aimee Tait

TSIN is proud to offer a free, online middle school STEM Career Awareness curriculum that incorporates Project/Problem Based Learning (PBL) strategies. Defined Learning provides teachers with the educational and assessment tools needed to implement high-quality PBL. Our hands-on projects are based on situations in STEM careers to help learners discover their passions and choose a pathway to a promising future.