What’s New With Science

Student Supports
NEW RESOURCES IN TRL

Instructional Segments: All instructional segments are available through the Teacher Resource Link (TRL), accessible through SLDS or this public link. You’ll find instructional segments in the Essential Toolkit within the “How Do I Teach” bucket. All published instructional segments have been updated to include student support suggestions, which are organized to match the 5E format of the instructional segments to make it easier to find the supports needed for each component of the lesson.

These supports are suggestions that can be used in the classroom for students who are struggling in science, but are not the only supports that could work for the lesson. Remember that students who have an IEP have specialized support accommodations designed by their IEP team, which must be followed regardless of any other supports offered.

Self-Reflection Checklists: This tool to help students self-reflect on their progress is also included in the Essential Toolkit. Currently, checklists are available for 3rd, 5th, 7th, and 8th grade along with biology and physical science. The checklists are designed to increase student ownership of their work and classroom, help students recognize what they know and do not know to increase confidence, and give students a way to discuss their knowledge. Click here to access the checklists.

Equity Instructional Planning Look-For: This document is available in the Essential Toolkit within the “Need to Know” bucket. Designed to help teachers evaluate their lessons for equity, this resource can be accessed here.

Literacy Video Series
READING, WRITING, AND SCIENCE: THE PERFECT COMBINATION

What does literacy have to do with science? Everything! As students obtain, evaluate, and communicate information throughout courses and grades, literacy is an integral component. Celebrate literacy with the GaDOE science team and author Jodi Wheeler-Toppen in the following video series. Find tips and strategies to support your science classroom as a space where students read, write, speak, and think. Consider using these resources and table tents that are shown in the videos.

Elementary:
• Integrating Writing and Science: An Introduction for Elementary School Teachers and Administrators
• Integrating Reading and Science: An Introduction for Elementary Teachers and Administrators
• Writing about Claims, Evidence, and Reasoning: For Elementary Educators
• Sentence Frames for Reading, Writing, and Forming Science Knowledge: For Elementary School and ESOL Teachers

Middle/High:
• Integrating Writing and Science: An Introduction for Middle and High School Teachers and Administrators
• Integrating Reading and Science: An Introduction for Middle and High School Teachers and Administrators
• Signal Words for Reading, Writing, and Forming Science Knowledge: For Middle and High School Teachers
• Writing about Claims, Evidence, and Reasoning: For Middle and High School Educators

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What's New With Science?

Literacy Video Series (cont.)

K-12:
- Reading Strategies Part 1: Make it Make Sense: For Teachers in Grades K-12
- Reading Strategies Part 2: Problem-Solving Tools
- Knowing Enough to Read: How Background Influences Science Comprehension
- Before and After Writing: Prewriting and Evaluation
- Integrating Reading, Writing, and Science in the K-8 Classroom: A Call to Action for Administrators

Georgia Science Teachers Association Conference
February 13-14, Columbus Convention and Trade Center

Come join us for the 2020 Broadening Our Horizons Conference! Over 200 sessions will focus on the conference strands of Assessment, Equity, Literacy, and STEM. There will be field trips, events, special guests and speakers, and exhibit hall. For more information, check out the 2020 conference page.

Thursday, 1:00-1:50 Realizing the Vision
Thursday, 2:00-2:50 Science and Literacy: The Perfect Combination
Friday, 1:00-1:50 Building Effective 3D Assessments
Friday, 10:00-11:50 Supports for Struggling Learners

All About Instruction

Computer Science Updates
FROM BRYAN COX, GA DOE COMPUTER SCIENCE SPECIALIST, bcox@doe.k12.ga.us

GaDOE defines Computer Science (CS) as “the study of computational thinking, computing devices and their impact on society.” While this includes programming and coding skills, it goes far beyond it. CS has become an integral part of our society, and Georgia is committed to ensuring our students have all the tools and skills they will need to thrive in this rapidly changing world.

Over the past six years, Georgia has picked up the pace in CS education, developing it into a complete K-12 discipline. This has included:
- Allowing certain high-school CS courses to count for graduation credit as a fourth science; a sequence of two of these courses may also count as a foreign language credit
- Establishing two credential paths for teachers with an add-on GACE exam and a set of Computer Science Endorsement standards, currently offered through three universities and three RESAs
- Organizing a group of Georgia educators to create the state’s first K-8 Computer Science standards
- The passage of Senate Bill 108 in 2019, requiring all middle and high schools to offer CS instruction by 2025 — this legislative action also funded the CS4GA Computer Science Capacity Grant, which provided funds to school systems for CS teacher training

Many teachers from other content areas (business, science, math, ELA) are already teaching CS. Now that a CS credential is required to teach CS in high school, those teachers are getting cross-credit dual certification. This makes sense as many CS domains, such as “computational thinker” and “reflective researcher,” were designed to be cross-curricular.

There is a plethora of opportunities to shore up knowledge, whether teachers plan to take the GACE and teach CS courses, or plan to integrate the principles of CS into existing science courses. GaDOE is developing two series of courses, available in the State Longitudinal Data System (SLDS). Simply click on “PL” and search for “Computer Science.”

The International Society of Technology in Education (ISTE) is also hosting a free course on computational thinking for educators (here). The spring cohort is full, but summer enrollment is open now. For information on additional opportunities, join the GaDOE Computer Science learning communities on edweb here.

Exposure to CS, including digital literacies and computational thinking, is beneficial to all teachers and essential for all students. To learn more, visit our GaDOE Computer Science page.

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All About Instruction

The Missing Piece—Crosscutting Concepts?
MAYBE YOU ARE INCORPORATING PHENOMENA AND PRACTICES—BUT WHAT ABOUT THE CROSSCUTTING CONCEPTS?

As science teachers, we can think of how the big ideas in science apply to what we are teaching, like energy and matter, or patterns. How can the crosscutting concepts (CCCs) be used to enhance our classrooms? We want our students to be able to think like experts. Science is much more than a collection of facts—our students should be experiencing science as a process.

The CCCs:

- Allow students to make sense of new problems/phenomena
- Develop ways of understanding
- Provide a focus for students as they construct explanations

Tips:

Students may not know how to apply CCCs at first. We may have to use direct instruction to help them see their utility. For example, in an eighth-grade science class, the teacher used an activity to help students conceptualize how CCCs can be used to gain understanding. The teacher prompted students to think about patterns in student clothing and asked about what some of the patterns were. The discussion led students to realize they had to gather data/observations from a large group, so students walked through the cafeteria and around the building. Naturally, they realized they should be recording and organizing the collected data. When they came together as a group, they discussed observations, shared data, and came to several conclusions about the patterns in clothing. The value in the activity was that students understood how framing thinking around patterns led to a process and an understanding. The teacher then compared this activity and sequence to the science standard they were covering about patterns in the periodic table and atomic structure.

Resources:

Appendix G—Crosscutting Concepts for GSE Science

This resource discusses the utility of crosscutting concepts in science instruction. Each of the seven crosscutting concepts are described as well as grade band progressions.

Graphic Organizers for Crosscutting Concepts here or editable here.

Dimension 2: Crosscutting Concepts from A Framework for K-12 Science Education

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