

elevateScience Research Base Overview

Welcome to *elevateScience*™ from Savvas Learning Company, the K-8 science program that invites you to reimagine science teaching and learning in your classroom! This classroom content was created using a collaborative process involving a review of the most current academic research on science teaching and learning. It included classroom practitioners, content experts, and students, in order to design an effective and engaging teaching and learning experience for today's classroom.

How We Built It

elevateScience™ began with an 'Innovation Lab' in which teachers, educators, students, and authors came together to imagine what an ideal teaching and learning experience would look like. Based on the blueprint generated there, a dedicated team of editors and developers executed on that to bring our collective vision into reality. Working in tandem, we developed content, went out to collect feedback, built more content, got feedback, field tested several lessons in different classrooms, and got feedback. In short, we received advice throughout the entire process of creating the course content now in front of you. The result is an exciting new approach—designed by educators to bridge time-tested best practices in science on one side and new brain research, college and career readiness expectations, and technology on the other side—so that instead of “throwing the baby out with the bathwater,” teachers can use what they know to reimagine teaching and learning in their classroom. All of this process is in keeping with Savvas Learning Company's new efficacy goals, in which we deliver a promise to educators that our course materials, when used with fidelity, will result in increased learning that can be shown with measurable data and student performance.

Why Reimagine Science?

So, a question you might have at this point is: “Why reimagine science teaching and learning?” Today, educators are being asked to shift the emphasis from content coverage to preparation for life beyond the classroom. New technologies, materials, and advances in medicine require citizens to be informed and able to think critically about the implications of these changes. Teachers will need new materials that are designed to meet these higher expectations, while offering new ways to actively engage all of their students. Teachers will be looking for programs that support students' active participation in the learning process through activities, integrate STEM experiences, include engineering/design challenges, foster thoughtful discussion, and set the context for learning with relevant project-based learning scenarios. In addition, they

should support ELA reading and writing skills, as essential factors in the organization of new curriculum materials. Science teachers are called on to help students develop the skills and strategies they need to tackle complex texts and develop speaking and listening skills. Classroom technology is expanding rapidly and each advance brings new opportunities to improve learning. Yet this expansion is uneven, so there are often wide differences even within the same school district in technology access, capabilities, and usage—requiring flexible solutions from high-tech to no-tech setups. All of these challenges have created new opportunities for reimagining how science is taught and learned.

What Does Research Say?

Our case for how to reimagine our comprehensive K-8 science program, *elevateScience™*, is based on foundational research, a detailed standards analysis, and ongoing research efforts.

Foundational research uncovered a key problem for the team to solve—many students did not retain content or demonstrate long-term understanding of key science concepts. They lack opportunities to apply their understanding of the ‘Big Ideas’ to new situations. Based on this research, we found these drivers for instruction:

These eight habits are ways of approaching learning that are both intellectual and practical and that will support students’ success in a variety of fields and disciplines:

- College and career readiness expectations can be met by giving students opportunities to solve real-world problems by providing relevant and engaging scenarios for problem-based learning.
- Support student access and understanding of complex text through interactive visuals and visual analogies so they can acquire knowledge and skills necessary to transfer knowledge.
- Build a logical sequence of knowledge that is closely aligned with standards to save teachers time and improve pacing.
- Inquiry-focused instruction along with a variety of hands-on labs has been shown to have significant impact on students’ content and skills mastery and their application to real-world challenges.
- Meaningful assessments that inform teaching, demonstrate student understanding and allow for the transfer of knowledge to new, unfamiliar situations.

Product Vision

Our vision is to engage every student; to inspire a love of science and excite each student to personally accept the importance of becoming informed citizens that can make a difference in the world.

Instructional Framework

Based upon this vision, our team developed a new instructional framework for our next generation of science programs. This new model offers a four-part instructional structure to enhance learning by focusing on the student outcome—Connect, Investigate, Synthesize, and Demonstrate. This model can be applied to both conventional and flipped instruction situations, providing greater flexibility for teachers and students to align with today’s classroom style, technology capabilities and access, and student needs of a given classroom. Additionally, the model also supports ongoing assessment to increase student achievement and drive instruction.

Our approach to learning is a dramatic shift from the traditional book-centric model to a dynamic learning experience, where students are empowered to learn and encouraged to collaborate on meaningful performance-based tasks. The interactive text in K-8 and the programs’ new instructional model, teaching support, and learning assets will enable more effective instruction, improving efficacy over time.

On the digital course, research points out that students and teachers who experience a rich learning environment that integrates narrative content and interactivities on an easy-to-use platform have greater achievement and greater retention. Formative assessments in the form of lesson-level quizzes that are auto-scored with remediation recommendations directed to individual students provide immediate feedback to correct misconceptions. Topic tests provide a more comprehensive assessment with a mastery report to the teacher. Benchmark tests that provide a snapshot of progression toward mastery aids classroom teachers in adjusting their instruction to support all learners. Real-time data has been shown to help teachers more efficiently and effectively monitor student progress and provides a benefit to students’ long term mastery.

Course content can be used in either a traditional whole-class instructional model or a flipped classroom model that opens up class time for focused remediation, purposeful collaborative discussion, and active project-based learning scenarios. The course is designed so that you can get the benefits of research-based pedagogy using whatever technology and capabilities of the classroom you have now.

About Professional Development

The teachers on our team were concerned that no matter how wonderful a digital course we created, in order for it to be effective, there would need to be easy-to-use professional development for teachers. Therefore, we focused a great

deal of attention on building high-quality professional development right into the program. You can view these courses as a complete PD assignment, or you can watch short segments at point-of-use within the course whenever you need them. You can also get 24/7 access to professional development by going to mySavvasTraining.com.

Research Bibliography

The following references represent the resources that were reviewed during the development process for *elevateScience™*. This bibliography reflects all of the academic research that influenced and informed our development process and in the various features found throughout the program.

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