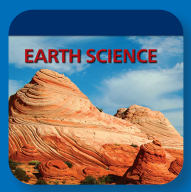
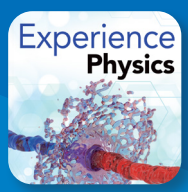
SAVVAS

Savvas High School Science Research & Efficacy





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Introduction

Savvas is excited for the opportunity to provide additional clarification for our proposed High School Science programs:

- *Miller & Levine Biology*
- *Experience Chemistry*
- *Experience Physics*
- *Earth Science*

You will see in our response below that we have provided details on the research and pedagogy behind our solutions, their effectiveness, key author expertise and feedback, customer testimonials, as well as districts across the country successfully using these solutions. We have also outlined a number of education awards received for each of these solutions as part of our response.

The Research and Efficacy Behind Savvas High School Science

Savvas High School Science – *Miller & Levine Biology*, *Experience Chemistry*, *Experience Physics*, and *Earth Science*– is founded on trusted instructional practices from highly acclaimed authorship and pedagogy. The programs' instructional model has proven to be thoroughly effective through comprehensive alignment to instructional rubrics, classroom pilots, and independent research—the only science programs where phenomena-based learning and experiential learning ensure conceptual understanding. As a result of the instructional model, students using Savvas High School Science programs have excelled in their science proficiency and performance.

The experiential learning model inspires students to connect with the three domains of science on a personal level, to actively engage in the science and engineering practices of discovery, to build enduring understanding of core science concepts, and to gain knowledge while making relevant connections to the world around them. These dynamic programs support a variety of student learning styles and offer a wealth of differentiated instructional strategies to address the needs of all high school learners. An emphasis on both scientific and non-scientific careers round out our offerings.

Lastly, the instructional model underpinning all of the programs is based on research conducted by the Instructional Leadership for Science Practices (ILSP), a National Science Foundation project whose goal was to develop tools that support educators in the integration of the Science and Engineering Practices (SEPs) along with the implementation of the Next Generation Science Standards (NGSS). Per ILSP's framework, the science and engineering practices provide a pathway for students to engage sequentially in the processes of investigation, sense-making, and critique. This approach was adapted by incorporating the BSCS 5E Model to round out the five stage learning progression: Engage, Explore, Explain, Elaborate, and Evaluate. The role of phenomena has been intensified in the pedagogy in order to address the need for phenomenon-based learning as outlined in the NGSS.

Product Design Research

Savvas is committed to meeting the needs of today's teachers and students with effective learning solutions. The Savvas Product Design Research Process is our commitment to improving educational outcomes and opportunities. From formative research and field-based inquiries to summative and efficacy research, Savvas products are rigorously and repeatedly tested with educators and learners.

We generate insights using a wide range of methods and evidence to ensure a 360-degree perspective that informs and inspires effective learning solutions.

Our Product Design Research Process involves a three-tiered approach where we:

Explore: Analyze existing literature and investigate the needs of educators and learners through Literature Reviews, Needs Assessments, and Opportunity Analysis.

Design: Generate a product vision, develop concepts, and iteratively test prototypes in simulated and contextual environments through Co-Visioning/Participatory Design, Concept Testing, Prototype Testing, Usability Testing, and Formative Field Studies.

Evaluate: Measure the implementation and effectiveness of a product through Impact and Efficacy Research as well as gain insights into educators' satisfaction and experience with a product through Customer Satisfaction Research.

Learning Solutions Designed for Efficacy

As your trusted education partner, our goal is to ensure our learning solutions are making a positive impact for both teachers and students. We work alongside schools nationwide to constantly improve our instructional materials and inspire all students to achieve. Through purposeful research and in collaboration with third-party evaluators, we design studies to meet best educational research practices while adhering to the highest level of integrity and privacy.

Our studies include Randomized Controlled Trials (RCTs), Quasi-Experimental Studies, and Field Tests designed to meet the ESSA Evidence Levels. To learn how Savvas products align to ESSA Evidence Levels, please visit the Savvas ESSA webpage at savvas.com/ESSA to access research.

Research Efficacy

Miller & Levine Biology

Miller & Levine Biology Multi-State Compendium (Savvas research): *

Summary of Research: The study focused on analyzing state science assessment data for *Miller & Levine Biology* users. Results were analyzed for secondary grades in 23 districts across 12 states, all of whom began implementing Miller & Levine Biology in 2018.

Description of Relevant Findings: Results showed that *Miller & Levine Biology* districts increased their state proficiency on end-of-course biology/science assessments from 2018 to 2019 by 4% points. Conversely, the overall science proficiency for the included states was 62% in 2018 and remained the same in 2019. That is, the states as a whole showed no growth on the same assessments over the same time period.

Relevancy of Research Findings: This preliminary study undertaken to inform future research had meaningful student science outcomes on state assessments. The study had a diverse student sample: (Hispanic: 42%; White: 31%; Black: 20%; and, Other race: 7%). Additionally, 50% of students qualified for free/reduced lunch and 11% were English learners.

*See Appendix

Select Miller & Levine Biology Post-Pandemic State Performance Results (Savvas research):

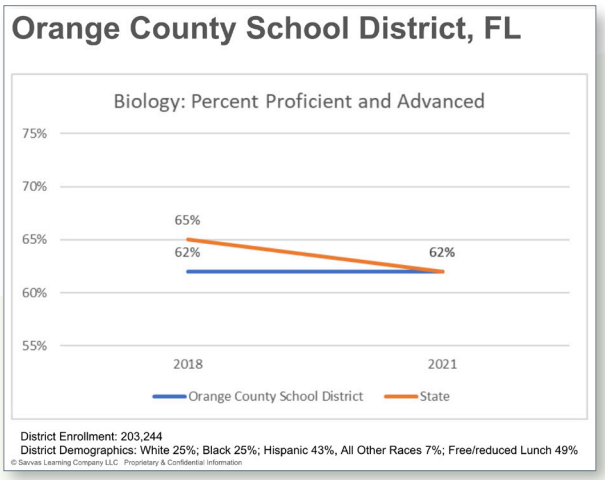
Summary of Research: State assessment performance was analyzed for districts using *Miller & Levine Biology* comparing pre/post implementation as well as comparing *Miller & Levine Biology* users to state performance results post-pandemic. This analysis includes selected districts represented in the Multi-State Compendium.

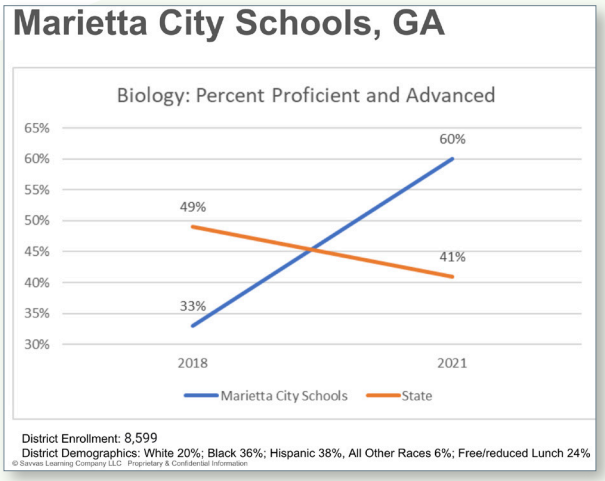
Description of Relevant Findings: Results showed that *Miller & Levine Biology* districts are generally maintaining or even increasing their proficiency and are not experiencing the degree of achievement declines we're seeing from the effects of the pandemic. Further, *Miller & Levine Biology* districts mostly exceeded overall state proficiency growth during the same time period.

School Year 2022-2023 *Miller & Levine Biology* Quasi-Experimental Design Study (Conducted by Strobel Consulting): Currently Underway

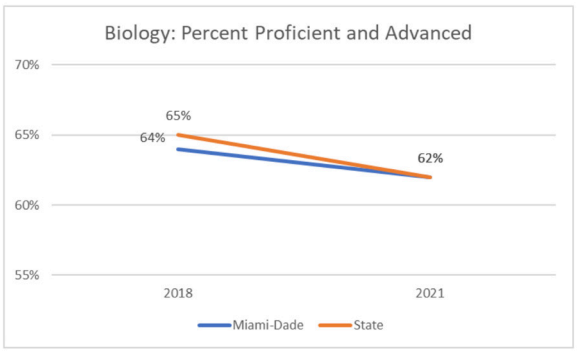
Summary of Research: This study will examine whether or not *Miller & Levine Biology* is associated with more enhanced Biology performance. A quasi-experimental design study is currently being conducted during the 2022-2023 school year where closely matched students who attended schools using *Miller & Levine Biology* will be compared to similar students in control schools using other biology programs. The outcome measure will be the state assessment proficiency ratings in PA, NY, TN and IN in 2022 and 2023.

Description of Relevant Findings: Available February 2024.



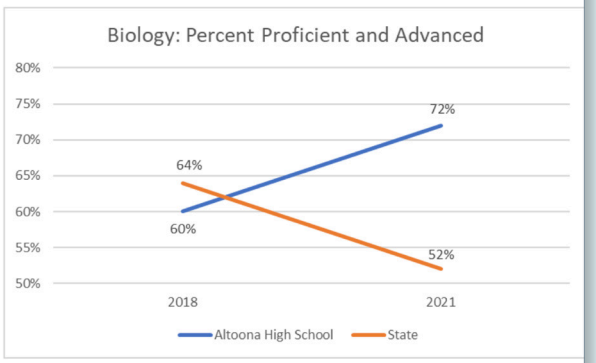


Miami-Dade School District, FL



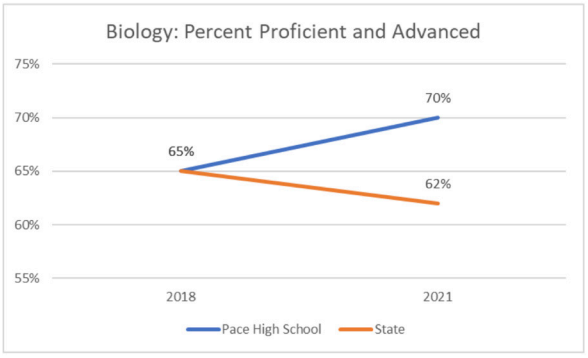
District Enrollment: 328,589
District Demographics: White 6%; Black 19%; Hispanic 73%, All Other Races 2%; Free/reduced Lunch 73%

Altoona High School, PA



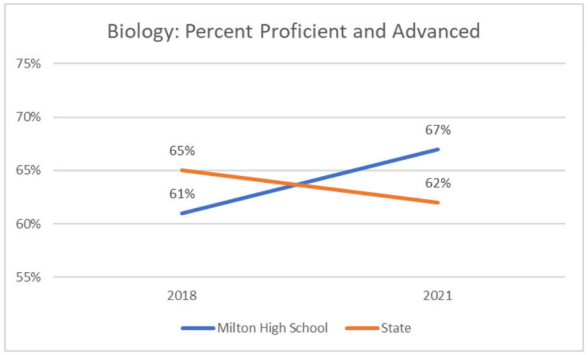
School Enrollment: 2,224
School Demographics: White 87%; Black 9%; Hispanic 2%, All Other Races 2%; Free/reduced Lunch 44%

Pace High School, FL



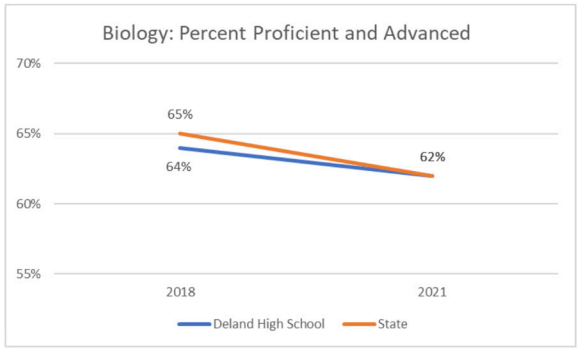
School Enrollment: 2,144
School Demographics: White 82%; Black 3%; Hispanic 6%, All Other Races 9%; Free/reduced Lunch 24%

Milton High School, FL



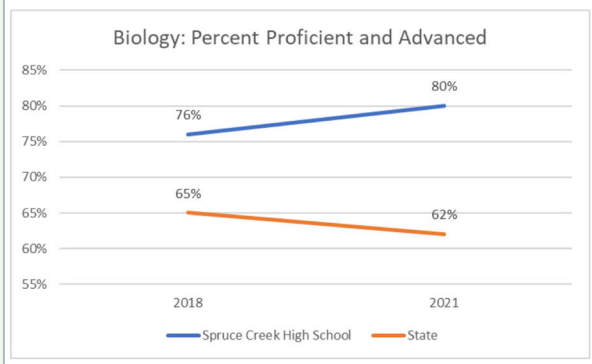
School Enrollment: 2,010
School Demographics: White 74%; Black 9%; Hispanic 7%, All Other Races 11%; Free/reduced Lunch 42%

Deland High School, FL



School Enrollment: 2,749
Demographics: White 56%; Black 14%; Hispanic 25%, All Other Races 5%; Free/reduced Lunch 53%

Spruce Creek High School, FL



School Enrollment: 2,470
School Demographics: White 74%; Black 9%; Hispanic 7%, All Other Races 10%; Free/reduced Lunch 38%

Miller & Levine Biology Customer Satisfaction Research (Savvas research):

Summary of Research: This quantitative online survey gathered feedback back from current (SY 22-23) Miller & Levine Biology customers regarding their satisfaction and usage with the program. A total of 205 current Miller & Levine Biology users completed the survey in November 2022.

Description of Relevant Findings: Results showed that Miller & Levine Biology users have high levels of satisfaction with the program, with almost two-thirds of customers rating the program (7-9 on a 9-point scale, where 9 = extremely satisfied) and very few giving low ratings (1-3, where 1 = not at all satisfied). Additionally, nearly nine-in-ten customers agree that the program has high-quality content.

Program Authorship

Much of our curricular success is the result of a longstanding commitment to developing instructional materials that incorporate current content research and best instructional practices. The Savvas High School Science authorship team are experienced science educators, nationally recognized science education leaders, and experts in key contemporary issues who ensure that all content is scientifically accurate, unbiased, comprehensive, and understandable.

Nationally Recognized Education Leaders

- Organizational leaders in NSTA, NSF, NABT, NOVA, NGSS, and AAAS
- Ongoing researchers in science education
- Published authors and national speakers on science education issues
- Recipients of national teacher educator and industry awards

Experts in Key Science Education Issues

- Current Scientific Research
- NGSS Best Instructional Practices
- Inquiry and STEM Instruction
- Conceptual Development and Understanding
- Digital Resources that Enhance Learning

Kenneth R. Miller, Ph.D. is Professor Emeritus of Biology at Brown University in Providence, Rhode Island. Dr. Miller attended Brown University as an undergraduate and earned his Ph.D. in Cell Biology at the University of Colorado. His research work on cellular membranes has been published in journals such as Cell, Nature, Journal of Cell Biology, and Scientific American. His honors include the Public Service Award from the American Society for Cell Biology, the Distinguished Service Award from the National Association of Biology Teachers, the AAAS Award for Public Engagement with Science, the Stephen Jay Gould Prize from the Society for the Study of Evolution, and the Laetare Medal from Notre Dame University.

Joseph S. Levine, Ph.D. was born in Mount Vernon, New York, attended public schools, and graduated from Mount Vernon High School. Dr. Levine studied at Tufts University and earned his Ph.D. in Biology working between Harvard University and the Marine Biological Laboratory in Woods Hole, Massachusetts. He has taught at Boston College and Boston University, and at the Organization for Tropical Studies in Costa Rica. Following a fellowship at WGBH-TV, he served as science correspondent for National Public Radio, and as scientific advisor to NOVA for programs including Judgment Day, for OMNI-MAX films including Coral Reef Adventure, and for the PBS series The Secret of Life and The Evolution Project. He designed exhibits for state aquaria in Texas, New Jersey, and Florida, and has led seminars and professional development workshops across the United States, Mexico, Puerto Rico, the U.S. Virgin Islands, Indonesia, Malaysia, and Singapore—where he served as "Outstanding Educator in Residence" for the Ministry of Education. He was recently elected a Fellow of AAAS.

Christopher Moore, Ph.D. is the Dr. George F. Haddix Community Chair in Physical Science and professor of physics at the University of Nebraska Omaha (UNO). Dr. Moore conducts research in chemistry and physics education, teacher preparation, and change processes in educational institutions. He is author of the books Creating Scientists: Teaching and Assessing Science Practice for the NGSS and Teaching Science Thinking: Using Scientific Reasoning in the Classroom, both of which provide frameworks for teachers implementing modern science standards. Chris has degrees in chemistry and physics, has worked as a physical science teacher at several secondary schools in Virginia, and runs both a materials science research lab and a lab on chemistry and physics education. He is also co-author of the bestselling high school science curricula Experience Chemistry and Experience Physics published by Savvas Learning Company. As director of the UNO STEM Teaching, Research, and Inquiry-based Learning (TRAIL) Center, Dr. Moore supports community programming that elevates human potential through lifelong learning, focusing on in-service teacher professional development.

Michael Wysession, Ph.D. is a Professor of Earth and Planetary Sciences and Executive Director of The Teaching Center at Washington University in St. Louis. Author of more than 100 science and science education publications, Dr. Wysession was awarded the National Science Foundation Presidential Faculty Fellowship and the Packard Foundation Fellowship for his research in geophysics. Dr. Wysession is also a leader in geoscience literacy and education; he is the chair of the Earth Science Literacy Initiative, the author of several popular video lectures on geoscience, and a lead writer of the Next Generation Science Standards.

Geraldine Cochran, Ph.D. is an Associate Professor of Professional Practice in the School of Arts and Sciences and the Department of Physics and Astronomy at Rutgers University, and she is a physics education researcher. Dr. Cochran earned her Ph.D. in curriculum and instruction with a cognate in physics and her Ed.S. in science education with a specialization in teacher preparation from Florida International University in Miami. She earned her M.A.T. with a specialization in secondary school physics, her B.S. degree in physics, and her B.S. degree in mathematics from Chicago State University in Chicago, IL.

Jason Sterlace is a former high school physics and chemistry teacher from Virginia who is the Physics Coordinator for the Learning Center, and an Instructor for the Department of Physics and Astronomy, at James Madison University. Mr. Sterlace is a STEP-UP Ambassador for APS and a Nanoscience Fellow at the MathScience Innovation Center in Richmond, Virginia. He was named the Physics Teacher of the Year in 2013 by the Virginia Association of Science Teachers. Mr. Sterlace is a veteran of the United States Navy.

Learning Outcomes

Miller & Levine Biology

"When Joe Levine and I wrote the latest edition of our biology textbook we had several goals in mind. First and foremost was to tell the story of biology in a way that would energize and excite your students about the science of life. Every chapter begins with a Case Study that challenges students to make sense of a real-world phenomenon they can explore in depth. These help to frame the chapter content, to allow students to ask questions, to conduct research, and to develop reasoning and presentation skills. Biology is a visual subject, and every page of the text is filled with clear, illustrative diagrams, photographs, and carefully designed representations of biological processes. The text is written in a conversational style that avoids jargon and invites students to think of themselves as part of the scientific process. In addition, it presents some of the most important recent developments in biology, including CRISPR technology, genomics, and epigenetic regulation of gene expression. The program is supplemented by an extraordinary collection of lab exercises, videos, simulations, and interactive tools that make the subject come alive. Biology by Miller and Levine works for students because it is written by two scientists who are passionate about the subject and deeply committed to effective science education. As one teacher using our program wrote, 'This book provides exceptional content in a highly applicable and relevant manner. The program was clearly designed to provide 21st century learners with the skills to not just understand the concepts of biology but prepare students to use them and continue their study to be the next generation of STEM leaders.'"

— Ken Miller, Ph.D.

Experience Chemistry
Experience Physics

"Experience Chemistry and Experience Physics are innovative and award-winning programs that combine the latest research in best practices in student learning with the Framework for K-12 Science Education by the National Research Council and the Next Generation Science Standards (NGSS). We designed these student-centered programs from the ground up around the Framework's principles of three-dimensional learning and phenomenon-based storylines of student investigation. Experience Physics and Experience Chemistry engage students in sustained investigations to support deeper understanding and sense-making of science and engineering concepts. Students use the BSCS 5E model (Engage, Explore, Explain, Elaborate and Evaluate) to investigate storylines of multilevel anchoring and investigative phenomena that fully encompass the NGSS performance expectations. Investigations are driven by student questioning, allowing students to productively participate in genuine scientific discourse and practices."

— Michael Wysession, Ph.D.

Award Winning Programs

Experience Chemistry

American Business Association Stevie Awards, Gold Stevie Winner
Category: Best Science Instructional Solution

American Business Association People's Choice Stevie Awards
Category: Favorite New Products

EdTech Breakthrough Awards
Category: Best Science Learning Solution

SIIA CODiE Awards, Winner
Category: Best Advanced Science Instructional Solution

Technology & Learning Annual Awards Winner

Experience Physics

SIIA CODiE Awards, Finalist
Category: Best Science Instructional Solution for Grades 9-12

Tech & Learning Awards of Excellence
Category: Secondary Education

Biology

AEP Award Distinguished Achievement Awards
Category: Technology Innovations, Websites
Category: Curriculum, Science, Grades 9-12

AEP Golden Lamp Award
"Miller & Levine Biology" is a Golden Lamp Award finalist in the "Curriculum" category.

Customer Testimonials

Ellen M. Ruane, Assistant Superintendent, Curriculum & Instruction
Jersey CIty Public Schools*

"As the Assistant Superintendent, Curriculum & Instruction in Jersey CIty Public Schools, one of New Jersey largest urban school districts, I have witnessed firsthand the impact of Savvas's high school science programs (Miller and Levine Biology, Experience Chemistry, and Experience Physics) on our students' learning experiences as well as teacher behavior and practice. As a part of our review for a new science curriculum, some of the key factors that set Savvas apart from other programs is its commitment to multilingual learners, cultural relevance and inclusivity as well as the foundation of NGSS hands-on teaching and learning.

Savvas's high school science solutions and support has enabled our students to engage in productive science talk, discourse and sense-making as well as construct evidence-based scientific explanations and models that connect to real-world phenomena. I have also witnessed throughout this year our teachers shifting their practices to elicit and honor students' background knowledge and experiences while fostering connections to real-world phenomena and previous learning.

Teachers have provided and established protocols for constructing scientific explanations and models to the students. Through our partnership with Savvas with these high school science solutions,, our students have been able to see themselves reflected in the curriculum, which has ignited a genuine sense of engagement and empowerment.

In partnership with our amazing team of educators, I have observed the positive impact that Savvas High School programs have had on our students' science education. Savvas has set a remarkable example and has truly empowered our students to embrace their own identities while embracing the world of science around them.

It should also be mentioned that, Savvas's commitment to professional development had played a pivotal role in the success of our educators. The embedded support, workshops, webinars, and coaching sessions provided by Savvas have empowered our teachers to further enhance their instructional practices and implement these science programs effectively. Our Jersey City educators' unwavering dedication, coupled with Savvas's support, has truly transformed the teaching and learning experience for our students.

I have to say how happy I am with the support I've been given by Savvas with this adoption - by everyone on the team. There is no adoption that I have been this interested in...EVER. We haven't had this level of support with any other curriculum adoption."

Patricia Hudak, Science Supervisor
Jersey City Public Schools

"In an effort to improve the science instruction happening in Jersey Public Schools, and our overall science program, we wanted to look for new resources that really align closely with the New Jersey student learning standards and next-generation science standards. So, we made a list of criteria of what really would work best for our school and our school district. First, was hands-on laboratory experiments. That was most important. We want students coming from a pandemic to have the opportunity to actually engage with science physically and to have the experience of being scientists once again.

Second, we wanted to have ease of use for teachers, so they can easily implement the program, and so can students as well with the online integration tool … as well as online laboratory experiments, videos, e-textbooks, and also the textbook can, online, be translated to multiple languages, which was a third point for English language learners, having that text in multiple languages is really important.

And there were also resources on Savvas we saw for students with special needs, as well, that can be accommodated. So really looking at Savvas that hit all the key points we needed for a science program. And because of that choice we've had a really great experience working with Savvas, not just with the materials and the training, but we've also had the opportunity to work with our consultants who have been amazing. Jessica Smith, our partner in this, has visited every single school, has met every single science teacher, has worked with us to discuss our goals in science education and how we can achieve them, as well as working with us to create professional development that best suits the needs of our teachers and our students, and also fits with Savvas's programming. So we can make sure it's a perfect alignment.

And we've been making strides in working with our teachers, in fact, creating a learning lab program where we have some of our top teachers in the district get one-on-one consulting from both Savvas consultant, Jessica Smith, but also the science supervisors into how to really integrate Savvas materials into the instruction while at the same time improving instruction with the New Jersey student learning science standards. So, Savvas has really been a partner with us the whole time. And we're excited to work with them. Their expertise and knowledge has really increased our ability to have an effective first year of implementation, which, I know, has made a difference for many teachers, and for our students as well."

Jillian Rothstien, High School Inclusion Teacher
Jersey City Public Schools

"What's good about the platform is it's very technology based, but it has a component where I can see within a day or two what they've done. I can make comments, and I can get them on track without too much time, as opposed to in the past, where they would take something home, read it, and they might not understand it. They may not turn it in because they didn't understand it. And then I'm chasing after them. Now, they can annotate in the book or ask a question in the book or make a comment, and I can see those comments. And I can comment right back to them. So it's really nice that they have that technology where we have opportunities between our Google Classroom and the Savvas platform. And if they can't read it on their own, they can at least hear the word, how it's supposed to be pronounced, and that's helping them as well."

Nick Weimmer High School Learning Lab Teacher
Jersey City Public Schools

"By providing opportunities for students to engage in authentic scientific practices, such as designing experiments, making observations, and constructing models; I can help them develop a deeper understanding of scientific concepts and their relevance to the real-world. Additionally, I will encourage students to communicate their findings and explanations effectively, both orally and in writing, to further strengthen their scientific literacy and ability to connect scientific ideas to everyday phenomena."

Karen Walkinshaw, Senior Lead Educator of Curriculum Mathematics & Science
Camden City School District

"It has been a pleasure to partner with the Savvas Science team. In collaboration with our dedicated Camden educators, Savvas's comprehensive high school science curriculum and innovative instructional strategies created a truly remarkable learning environment in our science classrooms. Results have shown a profound impact on our diverse population of students, who have developed a deeper understanding of hands-on engagement, phenomenon and are truly engaged as scientists.

We have also observed a real positive change in teacher practice and classroom engagement with the implementation of the Savvas high school science curriculum (Miller and Levine Biology and Experience Chemistry). Teachers have facilitated sense-making student conversations by asking probing questions to help students make sense of their own understandings, and regularly encourage them to share their own lived experiences around topics they are studying. Teachers redirect students when necessary and regularly invite them to share their thinking and make conjectures, and elicit student-to-student talk toward consensus building and other hands-on experiments and more.

Our Camden students have also been extremely engaged in their science learning. Students make c onnections and express background knowledge by sharing scientific ideas, observations, predictions, and questions. Our Classroom artifacts now include scientific models, explanations, answers, and solutions to others for discussion. We also observe students now consider multiple approaches to solving problems by connecting new and previous understanding while discussing with other students."

Ashley Fulmer, NGSS Coordinator
Riverside Unified School District in California

"As a district administrator and former science teacher, I appreciate how Experience Physics thoughtfully aligns to the NGSS. Instead of having content-laden lessons, students are tasked with figuring out phenomena through experiences that focus on skills such as modeling, evaluating, and questioning.

The 5E model approach also allows students to explore and engage with phenomena through lab activities before they work on understanding the content behind the phenomena. Having a culture of students ' figuring-out' rather than 'learning-about' is key to having our students graduate college- and career-ready.

"I was on the textbook committee that chose this book for the county. I liked the structure of the text (bold words, concise concept units within the chapter, options for digital and hands-on activities, review questions/ test prep questions at the end of each chapter, Biology Foundations workbook (with lower lexile) for practice reading and writing in the content area. Great online access, PBL learning, virtual labs."

Kristin Raub Teacher on Special Assignment Science, Technology, Engineering and Math
Capistrano Unified School District

"Good Afternoon, I am pleased to inform you that a consensus has been released regarding our next steps with the science pilot in Capistrano Unified School District. Chemistry has 100% consensus on moving to adopting Savvas for Chemistry. With 6 votes outstanding in Biology, we currently have a 100% consensus on moving to adopt Savvas for Biology. How soon can we create demo accounts for our IMRC to review the materials? We are hoping to bring it to the IMRC in February and the Board in March."

Lucia Johnson, Chemistry teacher
Warren Township High School

"Noting how Experience Chemistry provided her with a "new and refreshing" way of teaching, Lucia Johnson, a chemistry teacher at Warren Township High School in Illinois, said the program's student-driven and phenomena-based instructional approaches excelled at engaging her students like no other program she has ever used.

In my 18 years as an educator, I've never taught chemistry like this," she explained. "Before, I covered chemistry topics in the traditional progression, yet it was sometimes hard to bridge the relevance of one unit to the next. With Experience Chemistry, the units become interrelated 'storylines' that encourage students to explore and make connections to real-world applications, like the chemical make-up of colors in fireworks. Now, students are in the driver's seat of their own learning, and that's exciting for everyone."

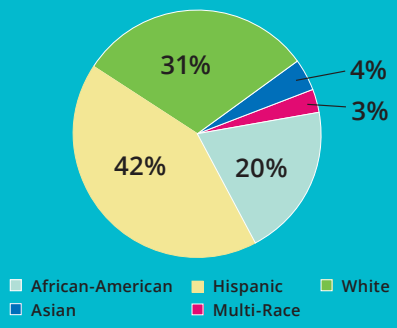
Districts Using Savvas High School Science Programs

New York City Department of Education, NY
Orange Co Public School District, FL
Miami-Dade Co Public Sch District, FL
Los Angeles Unif Sch District, CA
Memphis-Shelby County School District, TN
DeKalb Co School District, GA
Loudoun Co Public School District, MD
Prince William Co Public School District, MD
San Bernardino City Unified School District, CA
Albuquerque Pub School District, NM
Fresno Unified School District, CA
Buffalo Public Schools, NY
Rochester City School District, NY
Prince George's Co School District, MD
Abington School District, PA
Camden City School District, NJ
Lower Moreland School District, PA
Altoona Area School District, PA
Pine Richland School District, PA
Edison Township School District, NJ
Lenape Regional High School District, NJ
Jersey City Public School District, NJ
Bayonne School District, NJ
Radnor Twp School District, PA
Upper Moreland Twp School District, PA
Lower Moreland Twp School District, PA
Muhlenberg School District, PA
Bristol Twp School District, PA
Tredyffrin-Easttown School District, PA
Woodland Hills School District, PA
Hempfield School District, PA
South Plainfield Public School District, NJ
Mt. Lebanon School District, PA
Southeast Delco School District, PA
Stroudsburg City School District, PA
Westfield School District, NJ
Pine Richland School District, PA
Hartford Public School District, CT
Maricopa Unified School District, AZ
Riverside Unified School District, CA
West Contra Costa Unified School District, CA
Chino Valley Unified School District, CA
Victor Valley Union High School District, CA
Twin Rivers Unified School District, CA
Tolleson Union High School District AZ
Huber Heights City School District, OH
Richmond City School District, VA
San Leandro Unified School District, CA
Orange Unified School District, CA
Maricopa Unified School District #20, AZ
Hacienda La Puente Unified School District, CA
Catalina Foothills Unified School District, AZ
Rockdale County Public School District, GA
Township High School District 211, IL
St. Michael-Albertville School District 885, MN
Huntley Community School District 158, IL
Neosho School District, MO
White Plains City School District, NY
South Sioux City Community Schools, NE
Crete-Monee Community School District, IL
School District of Hudson, WI
Orleans Parish School District, LA
Edmond School District 12, OK
Lake Elsinore Unified School District, CA
Moreno Valley Unified School District, CA
Gordon County School District, GA
Pike County School District, GA
Miamisburg City School District, OH
Fresno Unified School District, CA
De Soto Public School District #73, MO
Lakeview Community School District, MI
St. Croix Central School District, WI
Hiawatha Schools USD 415, KS
Recovery School District, LA
The Diocese of Rockville Centre, NY
Parma City School District, OH
Medford Public Schools, MA
Fairborn City School District, OH
Huntington School District, NY
Youngstown City School District, OH
Waunakee Community School District, WI

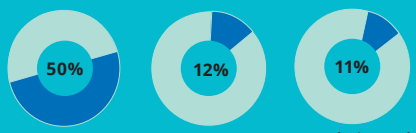
EFFICACY RESULTS WITH Miller & Levine Biology

PROFILE OF DISTRICTS

Demographics School Year: **2020-2021**
Total Students: **96,419**



Additionally:



qualified for free/ reduced-priced lunch

with Individual Education Plans (IEPs)

were designated English Learners

STATES INCLUDED: AR, AZ, FL, GA, ID, IL, MA, NC, NY, PA, TX, AND VA

SCHOOL DISTRICTS SUCCEED WITH *Miller & Levine Biology**

In 2018, 23 school districts across twelve states began implementation of *Miller & Levine Biology* in secondary grades.

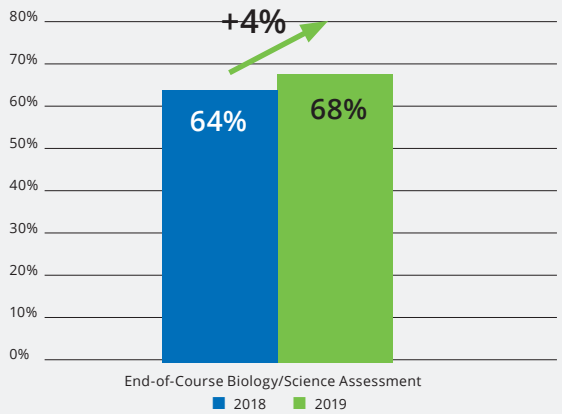
KEY FINDINGS

- After implementing *Miller & Levine Biology*, districts increased their state proficiency on end-of-course biology/science assessments.
- District percentage point increase was 4%.
- Conversely, the overall science proficiency for the included states was 62% in 2018 and remained the same in 2019. That is, the states as a whole showed no growth on the same assessments over the same time period.

Our analyses below display the districts' improved student science proficiency on the state assessments, and how they exceeded their respective states in percentage point growth after implementing *Miller & Levine Biology.*

DISTRICTS INCREASED IN STATE SCIENCE PROFICIENCY

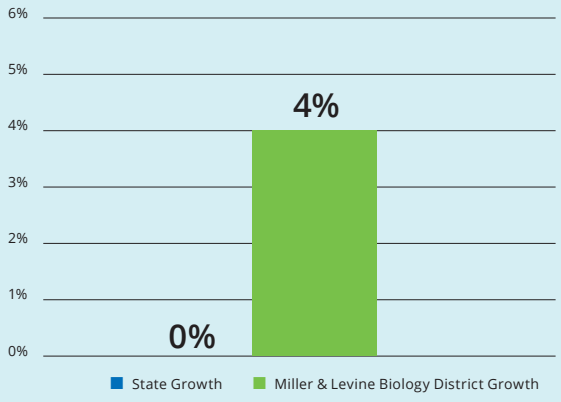
After Implementing *Miller & Levine Biology*



SOURCE: State DOE websites

DISTRICTS EXCEEDED STATE PROFICIENCY GROWTH

After Implementing *Miller & Levine Biology*



SOURCE: State DOE websites

**Miller & Levine Biology* was developed by two preeminent biologists and passionate educators, Ken Miller and Joe Levine. This blended print and digital curriculum immerses grades 9-12 students in biological inquiry. Students think, investigate, and talk about biology. They interact with natural phenomena through problem-based learning, research, and lab experiments.

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