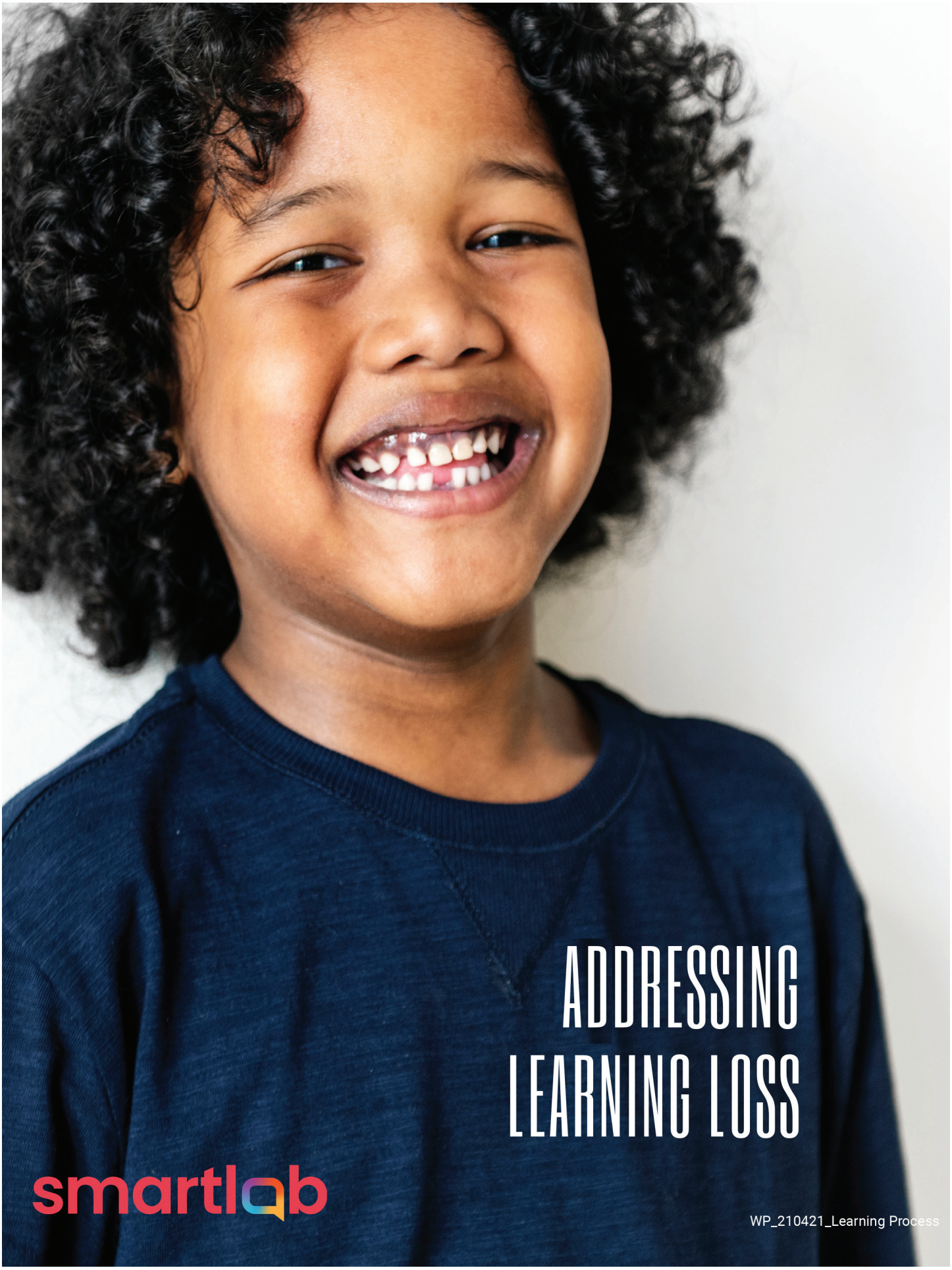


ADDRESSING LEARNING LOSS

smartlab

TABLE OF CONTENTS

ABSTRACT

SmartLab Learning is a learning solution that reinforces academic content with engaging, student-led experiences.

In an era of school closures and virtual classrooms, studies have found that student learning loss, always an issue after prolonged breaks, has only accelerated. This is even more the case for students in under-privileged schools.

Learning loss can be mitigated through the use of technology and experiential learning environments. Using collaboration, experience and self-directed learning concepts, students are less likely to “drop off” their studies during breaks and closures as happened during the COVID pandemic.

The suite of SmartLab Learning programs keeps learners actively engaged in open-ended activities that support standards-aligned math and science concepts.

INTRODUCTION

Every student looks forward to summer break when their days are filled with outdoor play, video games, and summer activities rather than the usual phonics and long division.

Although a reprieve from the pressures of test scores and homework is beneficial, it can also lead to learning loss, or the "summer slide." Learning loss refers to the loss of academic skills and knowledge during long breaks from the school environment, such as summer break, or more recently, school closures due to COVID-19.

During the school year, students spend an average of 7 hours a day exposed to academics-focused activities led or facilitated by professional educators, but during the typical summer break, children are no longer engaged in scholastic learning on a daily basis, which often results in forgotten skills and concepts that were once easily recalled.

Many important foundational concepts, particularly in the areas of math and reading, require repetition and regular exposure in order to become rote, thus when learners are no longer practicing these skills on a daily basis, they must be retaught and reviewed. This means that teachers must spend several weeks every year reteaching skills from the previous year due to students' summer learning loss.

The learning loss phenomena has many negative impacts on both students and teachers in the traditional classroom, including loss of valuable teaching time and a decrease in students' self-esteem. In addition, research has shown that learning loss can be cumulative, which means that over several summers, students may lose up to an entire school year's worth of skills and knowledge.

This is especially true when it comes to people of color and students of low socio-economic status. Fortunately, there are proven methods to combat summer learning loss or any loss of skills due to COVID related school closures.

When students are engaged in personalized, project-based programs, research has shown that learning loss dramatically decreases.

WHAT IS LEARNING LOSS

When students attend school regularly, the are immersed in an environment that is completely focused on helping them learn new content and master new skills.

Most teaching methods and curricula are designed to build on previously taught skills and rely on the assumption that students will have the opportunity to practice new skills repeatedly until they become habit.

However, when students don't attend school for an average of 10 weeks during their summer breaks, these skills are often not practiced, which leads to loss of competency in many subject areas, also known as "summer learning loss." Learning loss is usually measured in terms of gaps in reading achievement and loss of foundational math skills, but can affect all subject areas.

Due to varying amounts of academic exposure during the summer months, students begin the school year with varying achievement levels (Kim & White, 64).

This is especially true for many people of color or those from financially struggling families who do not have the opportunity to practice important academic skills during the summer months. (Allington & McGill-Franzen, 69).

Without the consistent practice that happens in the classroom, students tend to forget both content and skills. Research shows that students' achievement scores declined post-summer break by at least one month of learning, with learning loss increasing as grade level increased (Brookings, 2017). Many students return to school after the summer months performing at a lower level than they ended the previous year.

But learning loss is not only the result of summer break. In the spring of 2020, schools worldwide shut down due to the COVID-19 virus.

Although many schools implemented virtual e-learning platforms, studies show that students' learning suffered greatly.

According to researchers Kuhfield and Tarasawa, "… the school closures caused by COVID-19 have additional aspects of trauma to students, loss of resources, and loss of opportunity to learn that go well beyond a traditional summer break for many families."

The result for many students was major learning loss, with some returning to school in the fall performing at a projected seventy percent of pre-COVID learning capacity (Kuhfield & Tarasawa, 2).

Many schools and teachers were not prepared to switch to online learning and many parents were not able to give their children the help they needed while also working full-time and experiencing anxiety due to the pandemic.

WHAT CAUSES LEARNING LOSS?

When students don't have access to educational materials or activities during the summer, they naturally begin to lose many important skills. Most families of all backgrounds and economic standings view summer break as a time to relax and spend time outdoors. Although there is a lot of value in typical summer time activities, especially after a school year full of schedules, tests, and early wake ups, research has shown that complete absence of educational activities leads to significant learning loss of one to three months (Davies, 289).

Many students do not have access to even basic learning materials during the summer, including books at their learning level and simple math manipulatives. When students are not practicing important skills such as phonics and addition, it is very likely that they will regress in these subject areas and enter the next grade farther behind.

Of course, additional factors related to the COVID-19 pandemic exacerbated the learning loss that is typical of any amount of time away from the school. These results were clear when students began to return to the classroom in the fall of 2020. With the range of in-person, remote, and hybrid approaches to reopening schools, additional learning loss has continued into the spring of 2021 (Kuhfield & Tarasawa, 2).

The "COVID slide" as it is termed, resulted in learners falling behind academically, with many still doing virtual schooling, even in the spring of 2021 (Kuhfield & Tarasawa, 2).

Virtual schooling is especially difficult for students of lower socio-economic status who may not have access to necessary equipment or reliable internet (Kim & Padilla). In addition, keeping students engaged and on task for the entire day during video calls and prerecorded lessons is nearly impossible (Dorn et al., 2020).

Lack of quality, in-person lessons combined with the stress of the health and financial repercussions of the pandemic led to an increase in learning loss as well as a presumed increase in mental health concerns.

Although learning loss is the result of time away from school, whether it be due to summer months or virtual schooling, it actually begins long before the school bell rings on the last day of school before summer break because teaching strategies and the classroom environment have a substantial impact on how students learn and retain knowledge, even when they're away from the classroom.

The core problem is the fact that most learners are not able to recall information or remember how to use important skills, which means that perhaps they have not been taught in a way that promotes mastery of these skills (Rahman et al., 1–2).

When teachers engage in student-centered, constructivist teaching strategies and learning is individualized to each student, learners are more motivated to learn and show increased interest in the curriculum (Kaplan, 2019). If the material is not presented in an engaging manner that promotes intrinsically motivated learning in students, how can one expect them to remember the material after a three-month long break?

The phrase, "It's like riding a bike" refers to the ease of an activity that

involves muscle memory, even if a person hasn't performed the task in some time. The idea behind this phrase is that once you learn how to do something and have adequate practice or repetition, the skill eventually comes naturally and your body relies on muscle memory to complete the task.

Ideally, students should be taught important concepts in a way that provides them ample opportunity for practice so that foundational skills and concepts will become rote and easily recalled, even after summer break.

EFFECTS OF LEARNING LOSS

Learning loss has many long-term effects on both students and teachers. Learners who have learning loss begin the year behind their peers, which results in ever-widening achievement gaps (Quinn & Polikoff, 2017).

Many of the learners affected by learning loss are already at an academic disadvantage due to low socio-economic status and other factors, which makes it nearly impossible to catch up to their peers after several summers of cumulative loss of foundational skills (Allington & McGill-Franzen, 289).

Research has shown that when students have no academic learning opportunities during summer break, their test scores reflect a learning loss of up to three months; therefore, they begin the school year without vital skills and knowledge needed to perform successfully in their new grade level (Blazer). Students with substantial learning loss are often perpetually struggling with new content because they aren't able to relearn the skills lost to the summer slide. This constant academic struggle may also lead to lower self-esteem and confidence in the classroom.

Teachers will often collect data at the beginning of each new school year to assess students' current reading and math levels.

These test scores help guide instruction and determine whether a review of the previous year's curriculum is required before introducing new concepts. When teachers spend time reviewing previously-learned skills and concepts, they are using valuable time allocated to introducing and teaching the current grade level's state-required academic standards.

Some schools remain closed due to COVID in the spring of 2021, which means they have been implementing virtual school for more than a year. If research is correct, these students will have sizable learning loss when they finally return to school and teachers will spend substantial time reteaching concepts that should have been mastered the previous year (Quinn & Polikoff, 2017).

Although most children exhibit some form of learning loss, some children retain important skills and concepts, while others even make gains over the summer. For these students, the reteaching necessary for those students who do show evidence of learning loss is not beneficial (Allington & McGill-Franzen, 69). These students will most likely feel bored and unmotivated while their teachers reintroduce material they have already mastered.

LEARNING LOSS IN TERMS OF RACE AND SOCIO-ECONOMIC STATUS

Children of all races and financial backgrounds are affected by summer and COVID learning loss, but a disproportionate number of people of color and learners from low socio-economic status show more severe learning loss (Allington & McGill-Frazen, 69).

Many of these students live in neighborhoods with fewer resources than their more financially stable peers. Lack of resources combined with parents who often live paycheck to paycheck leads to less educational opportunities outside of school.

In theory, households with higher incomes and educational levels have more time and resources to devote to educational experiences during the summer months.

According to researchers Allington and McGill-Frazen in their article "The Impact of Summer Setback on the Reading Achievement Gap, "… the family income has been shown to be a powerful predictor of the number of age-appropriate children's books and magazines that are available in the home" (p. 72).

In addition, children of color who come from non-English speaking homes are also at a disadvantage during the summer when it comes to American schooling because their family members often aren't fluent in English and therefore can't assist with retaining certain skills, particularly in the subjects of reading and phonics (Dorna et al., 2020).

COVID has also increased learning loss among lower SES students due to lack of technological resources. These students are also less likely to have parents who can work from home and more likely to have parents who are considered "essential workers," therefore; their parents are less available for help with virtual learning and school work (Dorn et al., 2020).

Low SES learners who show signs of learning loss in the early elementary years will most likely have cumulative learning loss each summer, which means that by the later elementary or middle school years, the achievement gaps will grow even wider compared to their peers who come from more financially stable households (Quinn & Polikoff, 2017).

HOW TO PROACTIVELY MITIGATE LEARNING LOSS DURING THE SCHOOL YEAR

Traditional classrooms typically utilize teacher-centered instruction in which teachers engage in direct instruction and are considered the primary learning source. Research has shown that progressive, student-centered classrooms promote intrinsic motivation to learn and result in deeper, more meaningful learning (Loughlin, 437).

When teachers are seen as facilitators of knowledge rather than lecturers, students show deeper involvement, which leads to self-directed, lifelong learning (Eiss, 9).

Education today often focuses on teaching as much content as possible and raising standardized test scores rather than the more important task of encouraging students to think critically and stoking their curiosity.

Not only do student-centered teaching practices result in more purposeful learning and extensive understanding during the school year, it also affects summer learning loss because when students learn in a way that includes hands-on experiences that promote mastery and understanding of concepts rather than rote memorization, the skills and knowledge are more easily recalled, even after a break from an academic learning environment (Ingmire, 2015).

In addition, teachers providing individualized instruction results in positive learning experiences for students who feel seen and heard in the classroom (Reber et al). Positive learning experiences lead to positive attitudes in the classroom, and when students enjoy the classroom, they are more likely to be actively engaged in the learning process (Yonezawa et al).

The most effective teaching strategies during the school year to combat summer learning loss are those that are student-led and project-based. Project-based learning is a teaching style that involves using real world situations and problems to help students acquire new knowledge and build deeper understanding (Why is Project-Based Learning Important?, 2007).

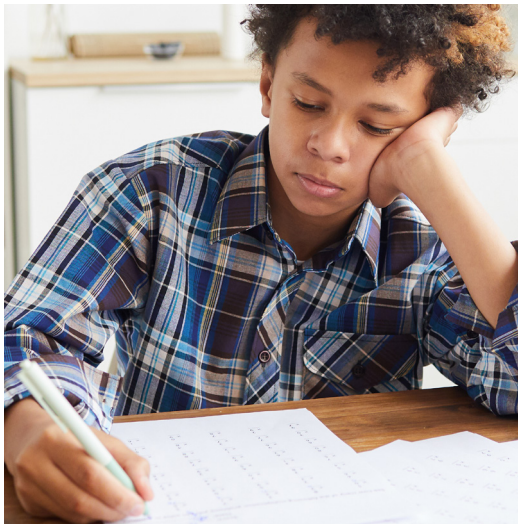
This teaching method is most commonly used to teach STEM-based curriculum, which lends itself to experiential and exploratory learning procedures, such as touching, experimenting, and use of manipulatives, but project-based learning can be used effectively across the disciplines (Ingmire, 2012).

One of the main benefits of project-based learning is that it tends to increase student engagement and excitement about learning. Students are able to explore new concepts or solve problems that directly affect them. Real-world application results in personalized learning and deeper understanding because learners are able to use what they learn in everyday, real situations (Why is Project-Based Learning Important?, 2007).

COVID-related learning loss can also be mitigated with effective project-based curriculum, even through virtual learning. Many students who experience difficulty with motivation with e-learning would benefit from project-based learning

because it is individualized and based on student-interest and allows learners to connect with their world in a way that promotes active, life-long learning (Why is Project-Based Learning Important?, 2007).

In their article "COVID-19 and Learning Loss-Disparities Grow and Students Need Help," Dorna et al. state, "…improving the quality of remote learning can lessen this impact significantly, especially for students of color" (2020).



Project-based learning is one way to improve the quality of remote learning. Virtual learning can feel impersonal and disconnected, but project-based learning involves much more than a computer screen. Project-based learning allows students to connect with their community in a way that hasn't been possible during a pandemic that requires isolation and discourages human contact.

Rather, learners are actively constructing their own knowledge in a way that makes learning more exciting and meaningful and leads to more authentic assessment of student achievement (Vega, 2012). When students enjoy learning and have the opportunity to apply new skills, knowledge retention naturally increases, leading to a decrease in learning loss. Learners who enjoy learning and have some control over the instructional process through methods such as self-selection, have a deeper, more authentic understanding of the curriculum and will likely be more able to recall important skills and concepts (Loughlin et al., 444).

On the contrary, students in a traditional, teacher-directed classroom, whether it be in-person or remote, often don't understand the why behind what they are learning and simply memorize material for testing purposes and the information is never stored in their long-term memory, making recall several months later nearly impossible.

MITIGATING SUMMER LEARNING LOSS WITH EFFECTIVE SUMMER PROGRAMS

Although effective teaching methods during the school year are the best way to mitigate summer learning loss, effective summer programs can also be used to help students maintain vital academic skills.

When summer programs are research-based to support state and national standards and student-centered to promote student engagement, summer programs can be very successful in preventing summer (Quinn & Polikoff, 2017) and Covid-related learning loss.

Traditional summer programs utilizing traditional teaching methods are often poorly attended and results are mixed. Districts may experience difficulty encouraging attendance during the summer months, especially when students aren't excited about the program or engaged in the material (McEachin et al).

When summer programs introduce project-based learning (McEachin et al) that promotes life-long learning through individualized instruction, collaboration, and real-world application, students naturally become more engaged in the learning process and motivated to attend summer classes (Mac Iver & Mac Iver).

In order to increase student attendance and engagement, summer programs cannot feel like a punishment. Project-based learning encourages students to become responsible for their own learning and also provides them with the opportunity to utilize technology and other hands-on learning methods to build knowledge. In addition, students can demonstrate proficiency through a variety of assessment methods, rather than memorizing information for a formal assessment, as is common in traditional classroom and summer programs (Why is Project-Based Learning Important?, 2007).

When students feel more excited and motivated to learn, engagement increases, which results in meaningful learning experiences that allow students to build on their individual knowledge and skills. Teachers must act as facilitators that encourage critical thinking and natural curiosity rather than direct instructors because research shows that this student-teacher partnership promotes student achievement and learner retention (Loughlin et al., 444).

CONCLUSION

Learning loss, whether due to time away from school for summer break or Covid-related school closures, is a serious problem affecting today's learners.

When students can't recall important concepts and skills, they enter the next grade further behind, and teachers must either move on to a new curriculum or spend time reteaching previously taught information and skills. Furthermore, learning loss often has a cumulative effect, resulting in many students performing an entire grade level or more behind by the time they enter high school, with students from financially-struggling households or minority backgrounds often disproportionately affected by learning loss.

Although learning loss is a difficult problem to mitigate, the real solution begins in the classroom with research-based, student-centered teaching methods that promote student engagement and true mastery of concepts.

When teachers utilize proven teaching methods, such as project-based learning, students naturally retain information and view learning as an exciting, meaningful experience with real-world application. As more schools move towards an individualized, constructivist approach, students will have a deeper, more personal connection to the curriculum and learning loss will hopefully become a thing of the past.

ABOUT SMARTLAB LEARNING

We've pioneered the conversion of traditional learning environments into project-based learning experiences and constructivist spaces since 1987.

Today, we partner with the most innovative school leaders nationwide to provide personalized, project-based learning experiences and environments that engage and empower students through experiential, personalized, and collaborative learning.

With SmartLab Learning's suite of in-person and remote solutions, we provide students with hands-on, project-based learning experiences that encourage them to explore, question, and lead their own learning while engaging in our standards-aligned supplemental math and science curriculum.

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