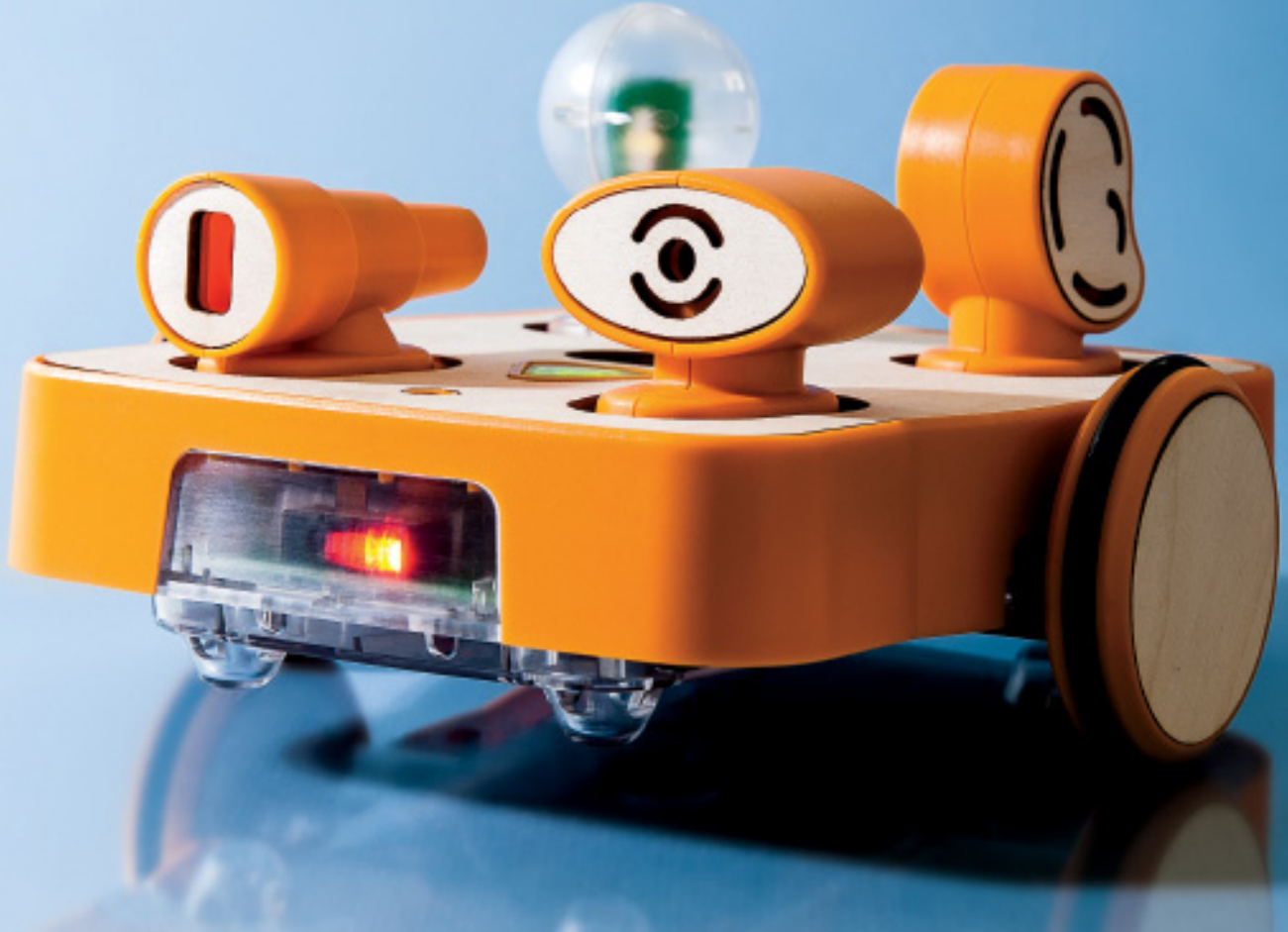




KIBO STEAM ROBOTICS

IN POST-PANDEMIC
LEARNING ENVIRONMENTS





As teachers and administrators around the country look ahead to in-person learning and full school days in the fall, discussions are already well underway about how to reverse the learning gap caused by the pandemic. The challenges of a year spent largely online impacted education in unique ways that KinderLab's KIBO Robot Kit can specifically address. From boosting kids' social-emotional intelligence and coping skills to revitalizing core curriculum with a tangible, screen-free

program, KIBO can enrich your STEM/STEAM curriculum and support children's needs in the years ahead.

Age-appropriate, cross-curricular tools and resources have never been more important to re-engage with in-person learning, **practice SEL skills like collaboration and teamwork, and recover lost ground in math, literacy, and more with cross-curricular STEAM lessons.**

Find out how KIBO can:



COMBAT LEARNING LOSS AND PROVIDE SOCIAL-EMOTIONAL LEARNING OPPORTUNITIES – FROM PRESCHOOL TO EARLY ELEMENTARY SCHOOL



PROVIDE STEM SOLUTIONS YOU CAN RUN IN YOUR OWN SCHOOL, AFTERSCHOOL OR SUMMER PROGRAM



OFFER SCREEN-FREE, HANDS-ON PLAY THAT HELPS YOUNG STUDENTS RECOVER KEY SEL SKILLS

A SCHOOL YEAR ONLINE



Teachers know that routine, structure, and physical and emotional safety are prerequisites for children in order to engage with a lesson. These conditions foster a mindset that is conducive to learning. **Since last spring, many elementary school students have accessed their education in a manner that resembles more of an adult in the workplace.** There is no getting around the challenges of online, at-home school. Issues with focus, a lack of teacher control over the learning environment, unreliable Wi-Fi, unequal access to technology, too few devices, siblings in different classes sharing the same space, and a myriad of other obstacles interrupted and slowed down learning every day. Young students need direct support at the onset of

learning and also following through with tasks, but there's not much a teacher can do if a child doesn't connect or decides to close his/her laptop and walk away. Beyond the loss of learning caused by technology not meeting students' needs, there are also issues fundamental to the technology itself. Parents, teachers, and researchers have been concerned about increasing screen time among children *before* COVID-19. This is because increased screen time can lead to disrupted sleep patterns, which can have cascading effects on mood, health, and focus. And, a full day of online school means less movement, less play, and less hands-on engagement – necessary elements of learning for young children.

But it's not as though technology is bad. Technology is a tool. It's what we make it. It is proven that mathematical reasoning, logical problem solving, and computer programming are essential to our society and requisite skills needed in the 21st century workplace. If we weren't actively grateful for immunologists and IT professionals before this year, we certainly are now. While not all students will grow up to be computer programmers or microbiologists, everyone can benefit from a working knowledge of the fundamentals of science, technology, engineering, and math (STEM).

Now with the pandemic in our rear view, districts are starting to face a conundrum—how to tackle the learning loss that has become a

casualty of the pandemic. Teachers may find themselves in the precarious position of revisiting content that was initially taught during remote and hybrid learning. And if teachers must spend their time going back and reteaching or remediating the standards that were missed or concepts that weren't mastered, very little new content can be introduced. **Educators will be looking to reconnect with students who have been disconnected during remote learning and address the learning loss in core curriculum areas.** A way to achieve this is by maximizing their investment in curricula and hands-on learning NOW that teaches the standards in an engaging, interactive (and screen-free) manner.



INTRODUCING KIBO

By next fall, educators will be looking to make up for lost time and recoup missed social-emotional learning experiences. It will be important to support families cutting back on screen time by minimizing the use of tablets and laptops in the classroom. And somehow, without relying on software, teachers will need to continue to expand STEM/STEAM learning to prepare children for their futures. So how do you achieve all of these lofty goals?

“ It is not a robot. It is something that you can program to do what you want. It is much better!

-5-year-old child on the merits of KIBO

MEET KIBO

Since 2013, KIBO has provided a platform for young students to engage and learn STEAM concepts through play and creative self-expression. KIBO brings robotics and coding to young learners and sparks their interest in STEAM. When children code with KIBO they are learning invaluable skills that will lead them on the path for success in science, technology, engineering, art, and mathematics (STEAM) skills and future careers.

STEAM learning with the award-winning KIBO is fun, imaginative, and easy. Young learners will playfully discover these concepts by creating a sequence of instructions (a program) using the wooden building blocks, creating sequences, and learning the engineering design process. Designed for open-ended play, KIBO lets children make almost anything – a character from a story, a carousel, a dancer, a race car, a helicopter – anything that they can think of.

KIBO OFFERS

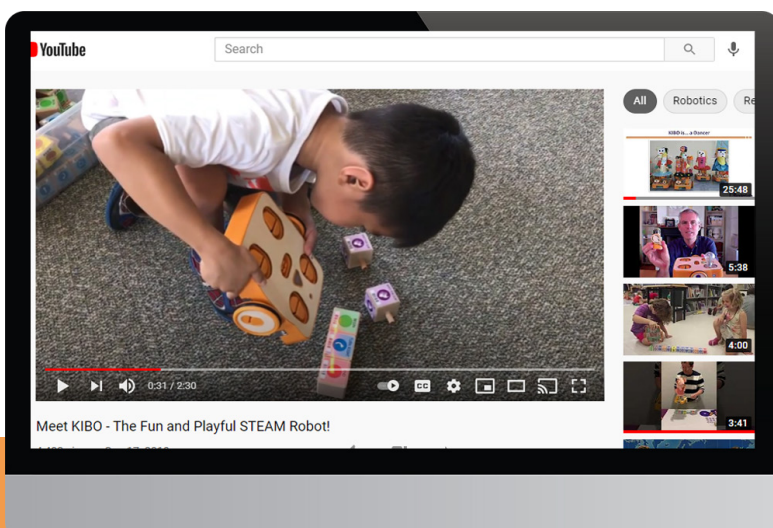
- A coding platform that can be **EASILY INTEGRATED INTO EXISTING CURRICULUM OR CLASSROOM PROJECTS**, such as literacy, social studies, science, math, and art curricula.
- STEAM learning to meet early learning **COMPUTER SCIENCE STANDARDS**.
- Over 160 hours of **STANDARDS-ALIGNED STEM CURRICULUM** and teaching materials to ensure success when implementing KIBO in classrooms.
- Easy-to-implement lesson plans and **FUN PLAY-BASED ACTIVITIES**.
- Training and support in integrating robotics into classrooms with a **WIDE RANGE OF CROSS-CURRICULAR CONNECTIONS** to literacy, community, dance, science, and more.

Watch this video to learn about the child-friendly mechanics of KIBO. Rather than manipulating text on a screen, kids use KIBO's built-in scanner to scan the wooden programming blocks to create sequences of instructions for KIBO to follow. KIBO is a flexible tool that can be dressed up as an animal, character, or vehicle—tailored to the needs dictated by a lesson or children's freeform play.

Using KIBO requires students to share materials and co-create a plan, using the engineering design process, to solve challenges. The robot is a powerful incentive for kids to get back in the habit of cooperative work and fosters hands-on learning experiences.

KIBO is fun, creative, and stimulating. And, for children nervous to get back in the flow of the school day away from their home and their trusted adults, KIBO can be an impetus for collaboration and provide an entrée back into classroom life.

The KIBO curriculum builds scientific thinking into intrinsically motivating games. When early learners **set up bowling pins** and program KIBO to be the bowling ball, they will need to measure the lane—a core mathematical standard. They will have to make predictions, write their program, test its sequences, and refine using adjustments based on how it performs. This is a more organic, real-life way of learning, where students strive to improve their own work, rather than produce a canned correct answer. It fosters a growth mindset, with the focus on process and progress. It also invites metacognition, students thinking about their thinking, which fosters self-awareness and reflection.



TEACHING WITH KIBO

More states are adapting computer science learning standards for the early elementary grades. We designed KIBO and its curriculum to dovetail with these curricular standards. But KIBO is not just a computer science program; with KIBO in hand, educators can teach any subject, by incorporating the art platforms and by [transforming KIBO into a fire engine, an animal, or a storybook character.](#)



WATCH AS MO WILLEMS' BELOVED CARTOON TAG TEAM, ELEPHANT AND PIGGIE, COME TO LIFE AS INTERACTING KIBO BOTS.

Those who are already fans of the series know how many life lessons, social skills, and literary values Willems fits between the covers of his picture books. KIBO can make the characters 3-D and help students connect with their perspectives. A KIBO play is also an appealing tool for retelling stories, a key benchmark of early literacy.



Research trials of KIBO have [shown exciting outcomes.](#) In fact, when students were asked if they might pursue a career in engineering after an 8-week unit with KIBO, girls and boys expressed equal interest in STEM jobs, a rare achievement as our field confronts long-held biases about gendered careers. In fact, KIBO lessons produce successful computational thinking learning outcomes when tested in underperforming schools attended by socioeconomically disadvantaged children. Students who used KIBO scored 27% better on computational thinking assessments than those who used screen-based tools. Why does working with wooden blocks outperform the learning outcomes of computers and tablets? Neurologically, kindergartners and other early learners are concrete thinkers, meaning it is not developmentally appropriate for them to learn abstract concepts without tangible, real-world applications for them to attach those

concepts to. Kindergartners learn to count by counting seals, butterflies, and apples. It is only over continuous practice that they learn to conceptualize numbers apart from concrete examples, but they need these to come to that realization. This is the fundamental advantage KIBO has over screen-based programming tools.

KIBO can easily be adapted specifically to the interests and needs of a student or class. Athletically minded kids will get a kick out of teaching KIBO to [play catch](#) with the Free Throw. Pretend play can be spiced up by programming KIBO as a [dancer](#) or a [pet](#). Once the class has some practice and gets to know its capabilities, the possibilities are limitless and can make the classroom a more constructive and student-directed space.

Given some time, encouragement and a little direction, students can make an engineering plan for KIBO and see it through to fruition. Interacting with KIBO in a real-world environment makes the learning immediate and real. **THE RESULT IS THAT COMPUTER PROGRAMMING DOESN'T SEEM LIKE MAGIC IN A SMARTPHONE, BUT MORE LIKE A CRAFT TO BE MASTERED.** When the new school year comes next fall and teachers begin to pick up the pieces post-pandemic and prepare students for the future, we believe KIBO can be a bright spot on the horizon. Teachers and parents will embrace the chance to keep the scientific thinking going, but also give their children a break from the screens.

TO FIND OUT MORE

SEE HOW KINDERLAB IS BRINGING TECHNOLOGY TO YOUNG LEARNERS, INCLUDING POPULATIONS WITH LIMITED ECONOMIC ACCESS. SUPPORT THE MOVEMENT TO BRING GIRLS INTO STEAM, AND WIN GRANTS FOR YOUR SCHOOL. LEARN MORE ABOUT KIBO TODAY.

[KINDERLABROBOTICS.COM](https://www.kinderlabrobotics.com)

