GOOD STEM/STEAM TOY EXAMPLES

These examples have been compiled based on a survey and/or phone interview with over 100 toy and STEM/STEAM experts.

It is important to note that many of these toys can relate to MORE THAN ONE category. We mention these toys in designated sections not to suggest that it is the only category this product qualifies for, rather to provide examples for each.

FACILITATES STEM-SPECIFIC PLAY

MY FIRST MIND BLOWING SCIENCE KIT
by Scientific Explorer
(SCIENCE, CHEMISTRY & TECHNOLOGY)

"Combines science and chemistry; kids can create a science lab at home. Teaches the science and technology part ."

BASIC SET **by Magformers**
(ENGINEERING)

"The Magformer set explores engineering, so a child can design and lay out a two-dimensional design and turn it into a three-dimensional build."

MECCANOID G15 **by Meccano**
(STEM & ROBOTICS)

"This robotics toy touches on all aspects of STEM— mechanics, electronics, virtual/conceptual programming work and thinking, and exposes kids to all those things."

MARBLE RUN SKYRAIL RACE **by Quercetti**
(ENGINEERING & PHYSICS)

"This exemplifies the very basic principles of engineering and physics and puts them together."

RAMI BINARY NUMBER GAME **by Quercetti**
(MATHEMATICS & CODING)

"The Rami is built to show the basic principles of mathematics, computer science, and coding."

KANO COMPUTER KIT **by littleBits**
(TECHNOLOGY & PROGRAMMING)

"This toy taps into the big emphasis on computer science and programming. Kids build their own computer to understand how it functions and works; and then they can do their own programming."

PULLEY SET FOR KIDS **by Brackitz**
(OPEN-ENDED, ENGINEERING, & PHYSICS)

"This is open-ended machine building teaches physics and essential engineering/construction practices."

ARCHITECTURAL MODEL BUILDING KIT
by Arckit
(STEM, ENGINEERING, OPEN-ENDED & INCLUDES CURRICULUM)

"This covers all STEM. Arckit is a hands-on architectural design tool that encourages open-ended play and allows children of all ages to freely and spontaneously express their ideas."

CODE AND GO ROBOT MOUSE
by Learning Resources
(CODING & SPATIAL THINKING)

"This toy takes coding down to the grade-school level – by helping to develop kids' critical thinking, problem solving and spatial recognition."

BASE INVENTOR KIT **by littleBits**
(TECHNOLOGY, ENGINEERING, & CODING)

"Explores open-ended, real-world engineering, electronics, and coding skills."

PERSPECTO 3D PUZZLE-SOLVING BRAIN BUILDER GAME **by FoxMind**
(GEOMETRY)

"A game of visual perception that makes players use and play with the concepts of perspective and geometry."

CIRCUIT BLOX LINE **by E-Blox**
(STEAM, ELECTRONICS, OPEN-ENDED)

"This line provides 59 to 800 project-based sets that teach STEM through brick-based electronic construction modules."

FACILITATES PROBLEM-SOLVING AND RELATES STEM TO THE REAL WORLD

LEGO GADGETS by Klutz
(OPEN-ENDED, CONSTRUCTION & RELATES TO THE REAL WORLD)

"LEGOs that can make all sorts of amazing gadgets. Each section has an open-ended challenge page with it. So, if you are making a unicycle, you can adjust it to make it go faster."

NEW CUBELETS DISCOVERY SET
by Modular Robotics
(CONSTRUCTION, CRITICAL THINKING & ROBOTICS)

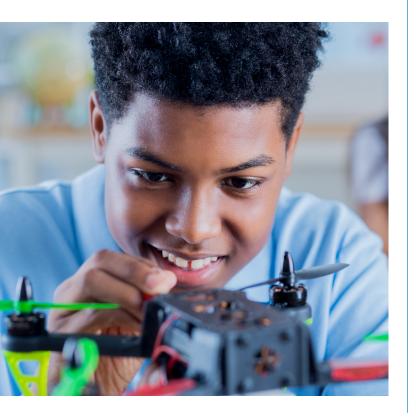*"Kids naturally want to figure out how things work. This product asks kids to mentally deconstruct objects by asking them questions to better understand concepts. Leads kids into the computer science realm along with teaching forward and backward thinking."*

BEAKER CREATURES LIQUID REACTOR SUPER LAB SET by Learning Resources
(CAUSE & EFFECT & STEM)

"Teaches cause and effect, engages kids in science— and is lots of fun to do."

META-FORMS PUZZLE SOLVING BRAIN BUILDER GAME
by FoxMind
(REASONING)

"This is a game of pure reasoning skills."

ELECTRONIC EXPLORATION KIT
by Snap Circuits
(CAUSE & EFFECT/TRIAL & ERROR)

"These are compact, easy to understand, and with instant feedback because if the circuits aren't built correctly, the propeller doesn't turn, the light doesn't come on, or the speaker doesn't make sounds."

KIDZLABS WEATHER LAB SCIENCE KIT by 4M
(UNDERSTAND THE REAL WORLD & STEM)

"This kit makes it so interesting to learn about the weather in your living area."

SENSORS ALIVE by Thames & Kosmos
(UNDERSTAND THE REAL WORLD & STEM)

"With a set of sensors – sensor pods – kids collect data like temperature, sound, light etc. Then import the data into an app. The sensor data uses the input to create creatures. Low light might have a creature with small eyes. Little sound might create a creature with big ears. It combines real work experimentation with sensory input and gamifies the real science of light, sound, temperature, etc."

DISCOVERING STEM by Engino
(UNDERSTAND THE REAL WORLD & STEM)

"These sets cover topics like solar power and Newton's law. They actually sectioned different topics out so that each set focuses on a particular STEM area."

AN INVENTION KIT FOR EVERYONE
by Makey Makey
(UNDERSTAND THE REAL WORLD & TECHNOLOGY)

"These electronics boards allow kids to connect a couple of alligator clips to various types of materials and use the resistance of those materials' inherent properties to create a play pattern. Fruit on a table can become a video controller, for example. It helps kids understand how to brainstorm, look to nature, and look around by using things out of their context to inspire invention."

FACILITATES OPEN-ENDED PLAY AND ENCOURAGES CREATIVITY

MODEL BUILDING SETS by K'NEX
(OPEN-ENDED & CONSTRUCTION)

"The things they make are amazing with their structures and gears. It's the kind of things kids can get excited about – architecture and what makes things stable – gears and what makes them move."

COLOR CHEMISTRY SET FOR KIDS by Crayola
(CREATIVITY, OPEN-ENDED, CHEMISTRY & STEAM)

"It is essentially a chemistry sets but aligned closer to STEAM and offers more open-ended outcomes that kids can explore. Rather than just 10 things you can make, this set offers kids the ability to create their own experiments and to capture their own results."

BOOST CREATIVE TOOLBOX FUN ROBOT BUILDING SET by LEGO
(OPEN ENDED & STEM/STEAM)

"Opportunity to evolve and create your own outcomes. Good example of a product that truly is STEM/STEAM."

FANTA COLOR, PIN DESIGN GAME MOSAIC by Quercetti
(CREATIVITY, OBSERVATION & HANDS-ON)

"This toy is made of little pegs that allow children to create graphics and shapes. Also, by providing the basic colors of the pegs, kids learn how to produce combinations of colors. It shows them how their eyes interpret things and these products explore the ways adults normally look at colors. This product guides kids through this process and allows them to choose some shapes to duplicate."

CARDBOARD CONSTRUCTION TOOLSET by Makedo
(CREATIVITY & CONSTRUCTION)

"This is a series of adaptors that allow you to work with cardboard. All you have to do is find the cardboard. You can make forts, mazes, airplanes, hinges for doors. It's more of a tool kit that kids can use to create whatever they want."

FACILITATES HANDS-ON PLAY

KIDS FIRST CODING & ROBOTICS by Thames & Kosmos
(HANDS-ON, CODING & ROBOTICS)

"This product is tailored to younger kids as their first coding and robotics experience, mainly K-2, that is screen free. After a child uses it they will start developing the mental pathways needed to develop this skill later in life."

HAPPY ATOMS MAGNETIC MOLECULAR MODELING SET by Thames & Kosmos
(PHYSICAL MANIPULATION, CHEMISTRY & OPEN-ENDED)

"This is a set of magnetized models that builds different atoms – each one represents a different element and you can connect them with magnets and form molecules. With an iPad, take a picture you built with DNA. It will scan it and tell you what molecule you have built."

LEGO by LEGO
(HANDS-ON, ENGINEERING & MATHEMATICS)

"These building blocks help children think creatively while incorporating engineering, mathematics, and hands-on work."

SMART ART EDUCATIONAL STEM LEARNING TOY FOR KIDS by Circuit Cubes
(HANDS-ON, TECHNOLOGY & REAL WORLD)

"This is another good example of giving kids hands-on experiences while introducing real-world concepts."

CIRCUIT BLOX LIGHTS LINE by E-Blox
(HANDS-ON, ELECTRONICS & ENGINEERING)

"It helps kids learn about circuitry, electronics, and engineering, with some guided builds. It also allows them to be creative and try to figure things out on their own."

> **❝ We know that when you are engaged and you're having fun, then you are learning. Whenever you are playing, you are learning. ❞**
>
> **-James P. Seymour**
> PhD, Vice President & Chief Technology Officer
> E-Blox

FACILITATES SOCIAL AND EMOTIONAL PLAY

VEX IQ STARTER KITS by Vex Robotics
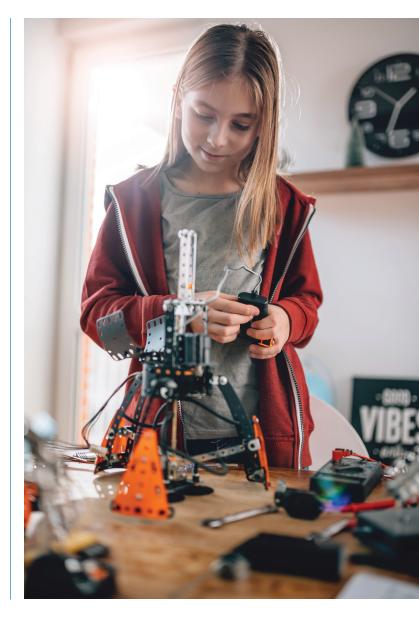(COLLABORATIVE, CODING & INCLUDES CURRICULUM)

"Gets kids into programming. It is so open-ended. With 80 instruction manuals you can build an alligator, dinosaur, a working farm, and then you get to program it no ceiling, no limits to what you can do and the challenges. Any kid who is into coding can zone in on it and see the physical payoff of what he or she coded. Then if they love it, they can use the same kit and go on to compete – similar to sports and group play. Kids can work together to accomplish a goal. Opens up a world of new opportunities to kids."

EVOLUTION ROBOT by Clementoni
(COLLABORATIVE, ROBOTICS, ENGINEERING, PROGRAMMING & INCLUDES CURRICULUM)

"In the process of building the robot, engineering concepts like gearing, transmitters, receivers, and levers are explored. After the robot is built, programming concepts are learned through an app; but also can be programmed without an app. Block programming is used, so sequential processes are explored, and the feedback is given when the robot carries out the commands as programmed. Open-ended. Includes collaboration in that more than one child can be involved with the building and playing – so some project management skills are taught."

FACILITATES CHILD-LED PLAY

THINK & LEARN CODE-A-PILLAR by Fisher-Price
(SIMPLE ENOUGH FOR A CHILD, HANDS-ON & STEM)

"This concept could get complicated, but they kept it simple, working with hand-eye coordination, etc."

MBOT ROBOT KIT by Makeblock
(CHILD-LED, SOLITARY PLAY & STEM)

"For a kid that wants a project, there is an incredible depth as to what you can do. With younger learners – they want to immediately drive them – but first kids have to build it. Open framework is great, you can plug in Argento. They have incredible depth of possibilities to it. Made so a single child can use the product, but it is adaptable so more than one child can play at the same time."

GOOD STEM/STEAM TOY EXAMPLES

FACILITATES GENDER NEUTRAL AND INCLUSIVE PLAY

CRYSTAL KITS: GROW YOUR OWN CRYSTAL JEWELRY, GROW YOUR OWN CRYSTAL MINI WORLDS, AND GROW YOUR OWN CRYSTAL UNICORN, DRAGON, FOX, AND NARWHAL by Klutz
(ENCOURAGES GIRLS & SCIENCE)

"Good for encouraging girls not yet involved with Maker Labs or LEGO. Promotes learning the science of prisms, and all the related science."

FABTRONIC SEWING SET by Teknikio
(ENCOURAGES GIRLS, ELECTRONICS & STEM/STEAM)

"Combines sewing and electronics in the Maker space. Sometimes STEM can be intimidating to educators and some girls. This gets girls excited about STEM/STEAM."

AVENGER HERO INVENTOR KIT by littleBits
(CULTURALLY NEUTRAL & CREATIVITY)

"Uses superheroes from the Marvel Universe as inspiration to design your own hero. Each hero is paired with topics – like moving and jumping or how life works and depends on the hero that you build. The different heroes feature different subjects to tackle."

WONDERHOOD BUILDING SETS by Mindware
(ENCOURAGES GIRLS, ENGINEERING & PROBLEM-SOLVING)

"Engages girls in creative building and engineering concepts. Playsets also include problem-solving questions to work through as they build."

BUILDER KITS by Goldieblox
(ENCOURAGES GIRLS & CHEMISTRY)

"These toys are targeted to girls and include chemistry projects."

ROOMINATE BUILDING SETS by PlayMonster
(ENCOURAGES GIRLS & STEM)

"Empowers girls to dream, design, and build their own play structures. Girls have been underserved in STEM pursuits."

FACILITATES CURRICULUM FOR GUIDED PLAY

HOT WHEELS SPEEDOMETRY by Mattel
(INCLUDES CURRICULUM & STEM)

"Mattel partnered with University of Southern California on this concept. Research shows that the combination of Hot Wheels, along with curricula promote increased interest in STEM fields as well as achievement and improvement in STEM subjects."

TINKER CRATE by KiwiCo
(ENCOURAGES PARENTS, GUIDED PLAY & STEM)

"Developed to support STEM skills, these kits are delivered to your house every month. What makes it unique is it includes the physical product along with the supporting materials. Gives increased play value when parents have information on more than one way to play with the product and parents understand the various skills kids are experiencing."

CONSTRUCTION SETS by fishertechnik
(INCLUDES CURRICULUM & PHYSICS)

"These building sets are highly technical sets with advanced manuals – and their educational line comes with teaching curriculum. These could best be described as 'LEGOS in motion.' Could see these sets being a natural addition to a high school physics lab."

HUMMINGBIRD DUO BASE KIT by BirdBrain Technologies
(ENCOURAGES PARENTS, GUIDED PLAY, OPEN-ENDED & ROBOTICS)

"This is a programmable robot. So open-ended. Think of it as a series of small projects. Also allows for kids to do it with their parents."

FACILITATES TRIAL AND ERROR AND BUILDS CONFIDENCE

HAPPY ATOMS MAGNETIC MODELING SET
by Thames & Kosmos
(EMBRACES MISTAKES & CHEMISTRY)

"Kids snap the different bonds together magnetically and the app tells you the molecule you constructed, and you can see how they are related to other molecules, like hydro-carbon. They then show you the island of similar molecules and how they are different and then it tells you some facts. There can be games and guides to go along with them. Also teaches that mistakes can be a bridge to learning."

KIT-1, THE STEM ELECTRONIC KIT by Mand Labs
(BUILDS CONFIDENCE, PHYSICS, ELECTRONICS & INCLUDES CURRICULUM)

"This is a perfect example of a STEM educational toy that allows children to explore the world of physics and electronics, assemble circuits on board, and build their DIY innovative projects. It allows children to mess up with real-world components/tools and then have the confidence to learn from their mistakes. It lets children explore simple hands-on activities in a fun-interactive way."

DOC EDUCATIONAL SMART ROBOT
by Clementoni
(EMBRACES MISTAKES, OPEN-ENDED & STEM)

"Represents a good STEM toy because it has tiered learning concepts and can be open-ended. There is a real process used for programming and it shows how to do that without saying, 'This is how you have to think to do programming.' It can be used by one child and also by multiple children. The character is friendly and age-appropriate and there is feedback given for doing something right and gentle corrections for making a mistake."