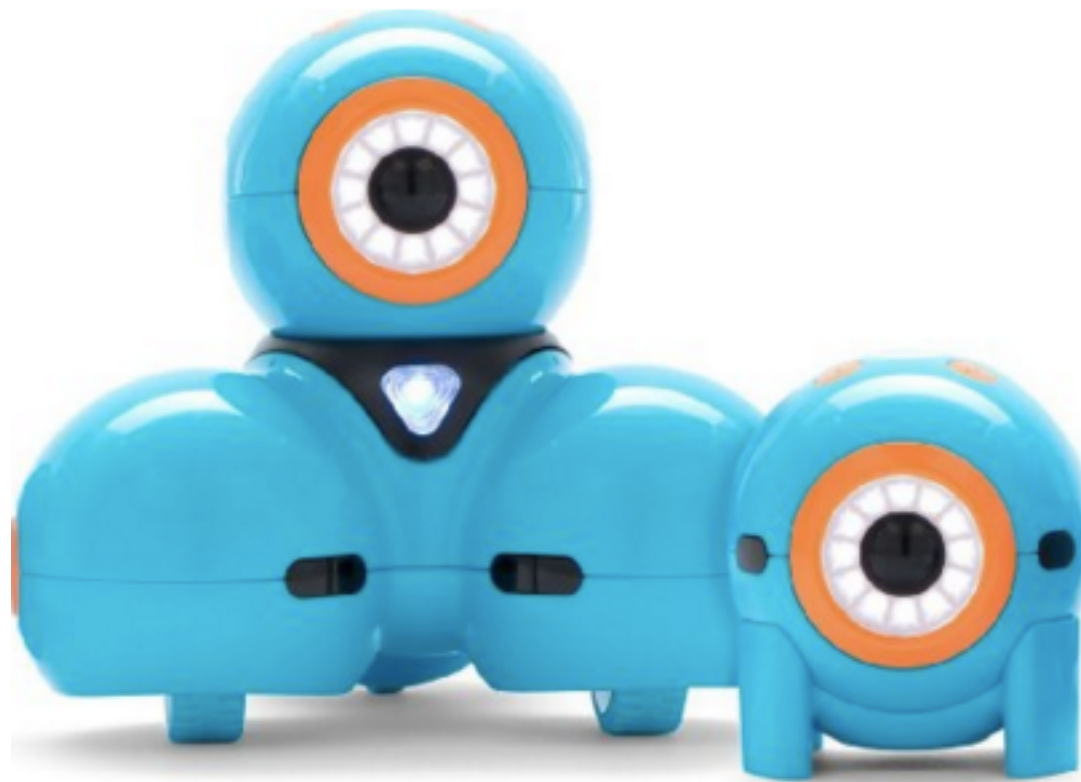


Mr. Burleson's Top 10 Holiday Gift Ideas for 2015

The IDEA Lab is full of educational resources. Some of them are technology based and some are not. I've gotten multiple requests for recommendations of holiday gifts. So, here are my top ten tools to encourage STEAM learning at home this holiday season.

[Dot and Dash](#)



Recommended Ages: 5 and up

Cost: \$199

Expandable: A variety of accessories are able to be purchased to further expand the experience

Dot and Dash are robots packed with personality. These two robots interact with you and with one another. The features that make Dot and Dash the number one recommendation are that they are highly expandable. The key to their expansion are the multitude of free apps. These apps allow students of all ages to learn to program. At the most basic level, students can explore drawing a path and having Dash follow their command. The other

apps allow the robots to grow with their owner. Some of the apps get into block based programming. There are also third party apps that allow young programmers to command multiple robots at a time.

The kids LOVE Dot and Dash in the IDEA Lab! We've begun complex programming with the fourth graders and it is a testament to the versatility of the tool!

Sphero



Recommended Ages: 8 and up

Cost: \$174.35

Expandable: A variety of accessories are able to be purchased to further expand the experience

Sphero is a durable, waterproof gyroscopic robot. There are many free apps that allow you to go from basic remote control driving to extremely complex programming and everything in between. One of the challenges with Sphero is pairing with a bluetooth device. With one or two this isn't much of a problem, but when you add dozens to the mix, like in the IDEA Lab, they can really be frustrating.

[Kibo](#)



Recommended Ages: 4-7

Cost: \$229-\$399

Expandable: Additional programming blocks are available to increase the complexity of the code.

“KIBO is a robot kit specifically designed for young children aged 4-7 years old. It is different from any other kit out there because it appeals to both technically minded kids and those that connect more to arts and culture or physical activity. Young children learn by doing. Children build their own robot with KIBO, program it to do what they want, and decorate it. KIBO gives children the chance to make their ideas physical and tangible—exactly what their young minds and bodies need. And KIBO does all this without requiring screen time from PCs, tablets or smartphones.” -From the KIBO site.

I love that KIBO does not require a device to use it. I also truly appreciate the tactile nature of the programming blocks. These robots appear very basic, but in the hands of an older child, they can create very complex and intricate programs.

Zometool



Recommended Ages: 6-15

Cost: \$55.95

Expandable: Much like Legos, you can add a multitude of expansion packs to increase the designs and complexity.

“Creator 1 is the perfect kit to get started with the Zometool construction set and discover why it fascinates kids, parents, scientists, artists and educators around the world. With 246 parts plus your imagination you can build hundreds of beautiful and fascinating models from simple to profound; gain insights into beautiful patterns related to meaningful concepts in Science, Technology, Engineering, Art and Math. Zometool is treasured by kids and Nobel Prize winners; it has won multiple awards and been included in lists like Forbes’ “Top Toys That Kindle Kids’ Creativity” and Time’s “Toys That Will Make Your Kids Smarter”. Clear and colorful step-by-step instructions will get you started while leaving you a wide universe open for exploration and free-play. Learning the basics takes minutes, achieving mastery is a lifetime journey. Zometool is 100% made in the USA using kid-safe materials. All Zometool kits are guaranteed for life by manufacturer.” -From the company’s website

-Note, we do not yet have these in the IDEA Lab, but they are on my wish list for next year. I especially like the geometric ‘balls’ that allow for specific types of ‘struts’ to be used. This enables complex shapes to be constructed.

[Kid K'nex](#)



Recommended Ages: 3 to 7 years (but the bigger kids love them in the IDEA Lab too!)

Cost: \$40.99

Expandable: Also like Legos. An abundance of kits are available.

“Big, soft, chunky pieces can be used by children with varying manipulative skills. Build 8 models from 1:1 correspondence cards or create your own creatures using the 131 parts, including 10 eyes and 2 ears/wings.”
From the company’s website.

Kids in the IDEA Lab like the ease with which they can create things that move.

K'nex



Recommended Ages: 7-15 years

Cost: \$29.99

Expandable: Various extension kits add complexity and diversity. Motors, pulleys and gears allow students to make anything!

Build all 70 models - or anything you can imagine with the 70 Model Ultimate Building Set! This 702 piece set includes building ideas for a hot air balloon, boats, trucks, a sand castle and more! Set includes a convenient storage treasure chest, large enough to fill with other K'NEX sets! All Rods and Connectors are Made in the USA.

Interestingly, the K'nex can be very challenging to the older students. I think they are intimidated by the complex models. The younger students just built with them freely. I think with time, the older students will learn to follow the visually complex instructions to create the intricate models.

Makey Makey



Recommended Ages: 8 years and up

Cost: \$49.99

Expandable: There are expansion packs that allow students to combine with Little Bits and more.

“What is Makey Makey?

Turn the whole world into a keyboard. It's a simple Invention Kit for Beginners or Experts doing art, engineering, and everything in between.

How Does it Work?

Alligator Clip two objects to the Makey Makey. For example, you and a banana (or an ice cube, or a kitty cat). When you touch the banana, the computer just thinks a keyboard key is being pressed, so you can type a letter, jump in a video game, take a picture, or play some music.

Who is Makey Makey For?

Kids, Artists, Educators, Engineers, Inventors, Makers. Really it is for everyone.

What materials work with Makey Makey?

Ketchup, Pencil Graphite, Finger Paint, Fruits, Plants, Coins, Your Grandma, Silverware, Anything that is Wet, Pets, Aluminum, Rain, and hundreds more.

Really any material that can conduct at least a tiny bit of electricity.

What can I create?

Make a banana piano, play Mario on a play dough game pad, take a selfie of your cat every time she drinks water. How? First, load up a computer program or any webpage. Let's say you load up a piano. Then, instead of using the computer keyboard buttons to play the piano, you can hook the Makey Makey to something fun, like bananas, and the bananas become your piano keys. Hundreds more of examples can be found at MakeyMakey.com" From the website.

We've only just touched on Makey Makey. I am excited to have students explore conductivity and circuit creation with this "Invention Kit for everyone!" I had the pleasure of working with the creator of this kit over the summer at a workshop at MIT. I highly recommend it!

Snap Circuits



Recommended Ages: 8 and up

Cost: \$20.99

Expandable: There are a multitude of expansion packs that explore everything from solar energy to crystal radio sets and more!

“Create Working Electronic Circuits Snap Circuits Jr (SC-100) comes with over 30 components to create 101 different electronic projects. The pieces, which include snap wires, slide switches, an alarm circuit, a music integrated circuit, and a speaker, snap together easily on the included plastic grid--no soldering required. Each piece is numbered and color-coded to make identifying them easy. These components combine to create working circuit boards just like the ones found inside televisions, radios, and other electronic devices. With its easy-to-follow instructions, Snap Circuits gives your child a hands-on education in how electrical circuits work to run the everyday devices that they're familiar with. They'll also gain valuable lessons in building and in

following instructions. The project manual includes large color illustrations and simple directions for each project. The projects include a sound-activated switch, a musical doorbell, a voice-controlled lamp, a flying saucer, and a light police siren. With these projects, children will experiment with things like electric switches, integrated circuits, digital circuits, fuses, and the transformation of circuit sounds into other sounds. Includes: Plastic snap-grid, 32 electrical components, and 1 project manual." From the website.

The kids in the IDEA Lab have a slightly different kit, but watching them freely explore and try their hand at the more than 100 projects was so enlightening. I think that all students would enjoy exploring these sets.

Hot Wheels



Recommended Ages: 4-10 years.

Expandable: Tons of expansion packs are available.

“With a whopping 15 feet of track, it's Hot Wheels custom action like never seen before! One Hot Wheels car is included so the revved up fun starts immediately. Includes 12 pieces of 9-inch track, six pieces of 12-inch track and 18 track connectors. Send your Hot Wheels car blasting along the track and speeding through the straightaways. Or test the speed of other cars in your collection to see which one has what it takes to win the race. Connect to other Hot Wheels track sets (sold separately) for tons of exciting, stunting fun! Each sold separately. Not for use with some Hot Wheels vehicles.” From the website.

I was amazed at how much fun the kids had with the very basic Hot Wheels tracks and loops we had in the IDEA Lab. All kids explored and tested their understanding of physics with these kits.

Marble Runs



Recommended Ages: 6-15 years.

Cost: \$36.00

Expandable: Not directly, but can be combined with other materials to allow creative and challenging marble runs.

“Set out on a search for fun and excitement with Techno Gears Marble Mania Quest.

This adventure themed marble run features a hand crank that turns a bucket and chain pulley system to lift the marbles to the top of the build where they twist and turn down the tracks for an action packed run! More than 200 pieces will provide children hours of fun construction building.” From the website.

Note: We have three marble walls in the IDEA Lab. The set I recommended includes gears, chutes and runs that will keep your young inventors exploring for days.