P2 / MAKERSPACES
Discover resources to engage students in hands-on learning

P3 / SCIENCE GAMES
Find great games for science learning at all levels.
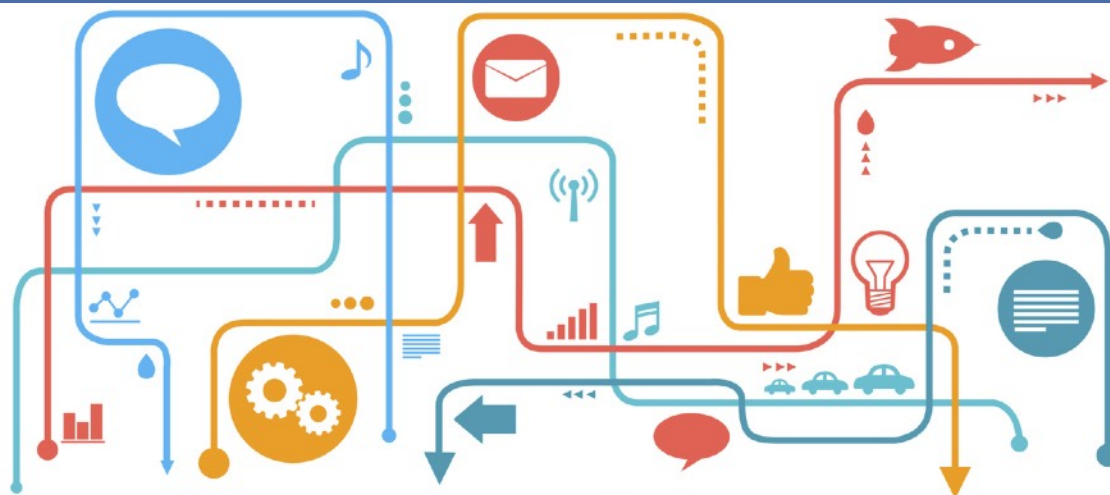
P3 / STEM CALENDAR
See what is going on in the world of STEM education.

P4 / EDTECH ERGERS
Many companies are joining forces to offer more to educators.

District 75 STEMConnect

Growing & Developing Professionally

There are a number of learning opportunities for teachers this year. The one stop hub for them all is the D75 STEM page. Here are a few.

District 75 PD Catalog - There are some new offerings like the Digital Without Borders (Accessibility), SMART & Promethean Interactives, Math Liaisons Workshops, Math Story Time, Virtual Voyages, & Pocket Computers

DIIT Professional Learning - Learn about SPOC-related technology

issues like network management, Office 365, G Suite, Apple Initiatives, and JAMF.

#NYCSchoolsTech Partner Cert. - The program, formerly the IPPD, connects teachers with EdTech companies.

DOE STEM - The structural changes will likely bring new offerings.

ONLINE CONNECTIONS

There are wonderful sites like EduMatch and MentorMe Edu that

can connect teachers around the world with partner teachers or veterans for guidance. Reset Edu offers burnt-out teacher opportunity for renewal.

CONFERENCES - Find upcoming conferences from the NSTA for science teachers to Closing the Gap and ATIA for accessibility. FETC and ISTE focus on emerging technology. There are even online conferences

like the Hive Summit Here is a comprehensive list.

Skill of the Month

Makerspaces

Whether you call it building, engineering, or project-based learning, (PBL) you will find making to be a powerful educational tool. It is one of the most impactful ways we have found to engage students in learning 21st-century skills. Students are motivated to learn and retain information more powerfully in an open PBL environment. See some ways you can begin that were shared at last year's Make: Education Forum. There are also the District 75 Makerspace workshops like Pocket Computers and Light Up Your Life.

MAKER FAIRES

The massive NYC Maker Faire is a wonderful opportunity to learn, but sadly it won't be happening this year. Gratefully though there are other opportunities. Philadelphia has a mini Maker Faire on October 6th and Rochester's Faire will be in November as part of the NYSCATE Conference.

NYC MAKER SPACES

The New York Hall of Science hosts a great space for students all year and in Manhattan there Skill Mill NYC, Dazzling Discoveries, and SciTech Kids. In Brooklyn you can access The Makery, Brooklyn Robot Foundry, or BK Bots. You can find a more complete list across all boroughs.

MAKERS IN THE CLASSROOM

PBL in the classroom may seem challenging, but you can begin

> "The desire to create is of the deepest yearnings of the human soul."
> - Dieter F. Uchtdorf

with cardboard, milk cartons, and an idea. You can also begin with a field trip to Cooper Hewitt or NYSci. The Extraordinaires is a game to set students on that path too.

If you plan to expand creation in your classroom you can find successful examples of NYC school makerspaces via the INNOVATION! School Library Makerspaces where grants are given as well as many

other makerspace grant opportunities as well.

You can also expand making using some of the following tools.

- **Engineering is Elementary** - a PBL curriculum-check out the details
- **Paper Engineering**
- **Wearables** - combining sewing and electronics
- **Arduino** –open source electronics platform
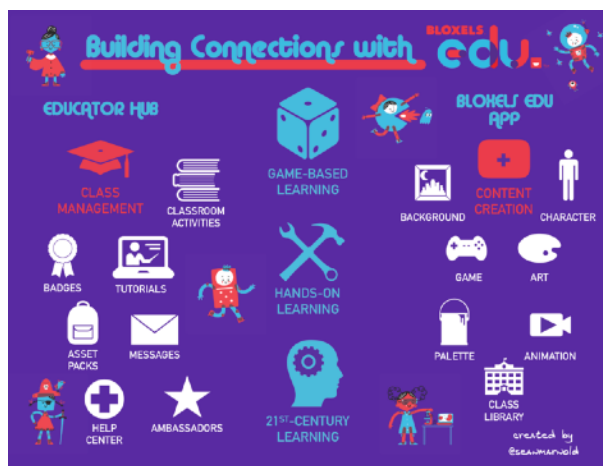 - •**littleBits** – easy-to-use color coded magnetic electronics component - attend the PD
- **SAM Labs** – similar to littleBits except each component is powered and Bluetooth ready
- **Makey Makey** – create controllers using everyday conductive objects
- **3D Printing**
- **Lego Robotics** - attend the PD

Find many more Makerspace Education resources as well.

App of the Month

Bloxels is essentially a construction and design toy paired with a digital game creation tool. That means it is both hands-on project-based learning and computer science combined in a platform easy enough for kindergarten students to explore. Students use various colored blocks to design characters, elements, and the setting in a digital game they are creating. Each color represents a different item in the game. They can then scan the items into the game using the free Bloxels Builder app on Google, the iOS, or Amazon. Once it's imported they can continue to customize their game, playtest it, or share it with others. It's fun CS creation in the vein of Lite-Brite.

Check out all the update details.

Science Games

Minecraft EDU

It's like digital LEGO and it allows the full creativity of students to be on display as they create anything their mind can imagine. It's wonderful for scientific exploration. That includes exploring biodiversity, sustainability, renewable energy, and deforestation through the variety of Minecraft biomes. You can take it even further with the new Chemistry Kit, Coding Kit, or explore Science Island.
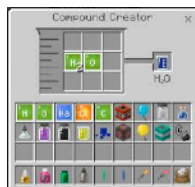
Legends of Learning

Legends of Learning is a whole platform that's all about Science (and Math) games. We're talking like 1000+ games across 140+ topics for elementary and middle school students. Teachers can set up a playlist for students or quickly begin assigning individual games. And all of the games are aligned directly to the NGSS. The games are quality-rated by students and teachers and marked as an assessment or instructional.

BrainPOP

Along with linking to other games listed here, BrainPOP also has their own science-related games across a variety of science topics.

- **Food Fight** - Take it further with printable species cards.

- **Guts and Bolts** - Explore the interplay of human body systems.

- **Sortify** - Categorize and sort information from movies into bins. See how to play.

- **The Meaning of Beep** - This is a game of context clues and synonyms. See how to play.

- **Time Zone X** - Restore order to the timeline across a number of themes. See how to play.

PBS

PBS has a wide array of learning resources for students of all ages. The best place to start is usually with PBS Learning Media.

- **PBS Kids** - Games for the early childhood set based on the tv shows your kids already enjoy.

- **NOVA Labs** - These more advanced games explore evolution, cybersecurity, RNA, clouds, energy, and the sun.

TinyBop

They currently have 17 apps organized into an explorers library and digital toys which are cheaper when purchased in a bundle.
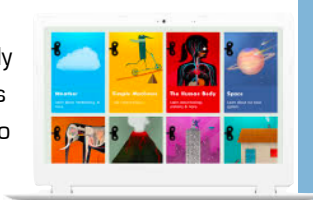
- Explorer's Library - The apps include The Human Body, Plants, Homes, Simple Machines, The Earth, Weather, Skyscrapers, Space, Mammals, Coral Reefs, and States of Matter.

- Digital Toys - The apps include The Robot Factory, The Everything Machine, The Monsters, The Infinite Arcade, Me: A Kid's Diary, and The Creature Garden.

Head online for the complete list. And check out the opportunities for High School Research Pathways and the Science of Smart Cities.

2018 EdTech Updates

With so many ed-tech companies coming together recently, it is worth asking if and how that will benefit schools.

MICROSOFT + MORE

Microsoft [recently purchased Minecraft](#), perhaps the most popular game of all time, and ultimately created a [version for education](#) with a number of new features. And our work has demonstrated that Minecraft is an incredibly [effective tool for teaching 21st-century skills](#), especially for students with autism. And they continue to improve the platform and make it more accessible.

Beyond that [Microsoft recently welcomed Flipgrid](#), a video platform created to inspire and empower student voices. to their family. If you want to be amongst the many educators who've caught [Flipgrid Fever](#), now is a perfect time. Joining with Microsoft made Flipgrid suddenly free for all teachers. And beyond that, it has helped infuse them with the ability to add huge improvements like video shorts, collaboration, and augmented reality capabilities.

And on top of all of these Microsoft has infused all of it with their [zealousness for accessibility](#) by allowing the [Immersive Reader](#) to be used in both of the above platforms. And [Immersive Reader](#)

[seems like it will soon be working across every platform](#) with the capability having come to educator favorites like Buncee, Nearpod, PowerSchool, Wakelet, and more. And, as a special education teacher, I couldn't be happier about that kind of a move to make accessibility non-proprietary.

NEARPOD + FLOCABULARY

Nearpod was beaming digital content to help educators [teach, assess, and connect students](#) teacher content and assessments to student devices long before anyone else was doing it. It's given them the time to improve with a wide array of instructional and assessment tools including [virtual reality](#), [3D manipulatives](#), [digital simulations](#), collaboration tools., and a new [Time to Climb](#) game And the other major benefit of their long tenure have been their ability to create a large quantity of quality lessons that cover a broad range of topics. Those have included partnerships with [Common Sense Education](#), [iCivics](#), [Amplify](#), [Lifeliqe](#), and [Flocabulary](#). So you could find lessons from those partners on Nearpod in the past.

Flocabulary lets you use [musical learning](#) to teach students math, science, and life skills. My district has noted the [power of music to impact learning for students with autism](#) as anyone who grew up in the era of Schoolhouse Rock! can attest. Studies have shown that music [helps children pay attention](#), retain content, [develop language](#), and enhance learning.Flocabulary

lets you use [musical learning](#) to teach students math, science, and life skills. My district has noted the power of music to impact learning for students with autism as anyone who grew up in the era of Schoolhouse Rock! can attest. They also have a wide array of videos with accompanying lessons and interactive content. So right now the partnership hasn't borne much except Flocabulary's logo now taking on the Nearpod colors and name.

With both already allowing Google and Office365 logins, combining that part is easy. But I can imagine a world with less expensive combined subscriptions and embedding all Flocabulary content into Nearpod and supplementing Flocabulary lessons with Nearpod activities and assessment games. We can only hope.

SPHERO + LITTLEBITS

[Robots in the classroom](#) are a wonderful hands-on way to learn computer science and address real world problems and [Sphero](#) has been one of the most fun ways to do that. With an [education app](#) that allows for differentiation, provides lessons and activities, connects to a learning community, and now provides a full [computer science](#)

curriculum. And with the addition of Specdrums for musical learning and the new RVR programmable and expandable robot, they offer even more ways to learn.

Now they are joining forces with littleBits, the magnetic electronic building blocks. This should increase the ability of Sphero to offer expanded STEAM learning. It combines the pre-made robots from Sphero with the constructive learning enabled through littleBits. It allows students to scaffold up to more DIY hands-on making and learning. And given that both have Star Wars related connections and offerings, together they may be able to make the Kessel run in less than twelve parsecs.

IROBOT + ROOT

Continuing in that robotic vein, iRobot, the Roomba vacuum people purchased Root which looks like a little programmable and expandable classroom Roomba with eyes that moves, draws, and plays games (no vacuuming yet 😀). In some ways it work a bit like Ozobots in that it can scan and follow drawn marker lines while driving horizontally on a a classroom whiteboard. The Root Academy is where you can access the learning resources and printable curriculum cards.

KAHOOT! + DRAGONBOX

Kahoot!, a digital assessment tool familiar to many teachers, can make class review a kind of showdown. And their breadth of pre-made quizzes along with the ability for individual review can save teachers a lot of time and effort. They were doing well after some help from Disney and bought DragonBox which probably my favorite example of what a quality educational game can be. DragonBox has an amazing series of games to teach math skills in a manner that only seems like play until you realize you've mastered Algebra 1. It's not clear if there will

be any collaboration, but these two playful learning companies based in Oslo seem to be on track to make student learning more fun.

MORE

A few other notable ed-tech partnerships include Nickelodeon, the children's TV network, buying Sparkler, a platform to help monitor early childhood learning and growth. That should team up well with Nickelodeon's Noggin content. Also Discovery

Education, a company that already dipped their toe into the virtual reality education world, acquired Inspyro, a provider of virtual reality and augmented reality content . They can now add that content to their series of digital textbooks for expanded learning opportunities. its math, science and social studies digital textbooks and to its Discovery Education Experience learning platform. Over five million educators and 51 million students worldwide use Discovery services. In addition, Google recently shared that it acquired Socratic, an online assessment and content platform, that as been relaunched as an AI-powered learning app. I'm curious if it will at some point be integrated fully into Google Classroom. As with all of these time will tell on what value may be added in partnering, but, in the world of education, collaborating is usually mutually beneficial..

District 75
TECHConnect