

Why STEM?

Benefits for Libraries . . .

- Communicate to our communities that we are relevant
- Communicate to our communities that we are aware of and able to provide best practices
- Demonstrate to our communities that we are proactive
- Demonstrate to our communities that we are engaged

Why STEM?

Benefits for Teens . . .

- Digital Divide or Digital Gap
- Contemporary literacy skills
- Better prepared for success in education, work, etc.

Gaming in the Library

Why?

- Computer Literacy
- Multiplatform Storytelling (Basic Literacy Skills)
- 21st Century Education
- Lateral Thinking, Creativity, Innovation (STEM Education)
 - "Lateral thinking is solving problems through an indirect and creative approach, using reasoning that is not immediately obvious and involving ideas that may not be obtainable by using only traditional step-by-step logic." (Edward de Bono)
- Physical Benefits That Impact Learning and Basic Literacy
 - Hand/eye coordination, for example
- Patron (Customer) Satisfaction and Retention
- Supporting General Education


Challenges: keeping up with popular systems/games, game ratings



Coding @ the Library

Coding Tools:
[Code Academy](#)
[Scratch](#)
[Code.org](#)

Resources:
[Article at Librarified](#)
[Lego: We Do \(\\$200.00\) - YouTube](#)
[Beyond Legos: Coding for Kids](#)
[7 Apps for Teaching Coding Skills](#)
[Teaching Teens about Digital Literacy Through Coding](#)
[Camp for Code: Library program teaches teens basics of programming, robotics](#)



The Basics: Binary Code ([YouTube tutorial](#))
 Teach binary code with fun pony bead, fuse bead, Rainbow Loom crafts, for example

Minecraft



Minecraft is a game that was designed to help teach kids coding in a fun, game like environment.

See also, [Why Everyone Should Learn to Code: http://www.slate.com/blogs/future_tense/2013/03/29/codecademy_hacker_school_why_everyone_should_learn_to_code.html](#)

See also these References from YALSA:
[http://yalsa.ala.org/blog/2013/04/04/connect-create-collaboratecraft-a-teen-tech-week-post-mortem-minecraft-in-the-library/](#),
[http://www.questia.com/library/1G1-317588244/minecraft-programs-in-the-library-if-you-build-it](#)

STEM Kits



Snapcircuits



Lego We Do



Makey Makey



Raspberry Pi

Not just STEM, **STEAM**

Add the A for ART

Balance of creative thinking, problem solving and self expression added into the science.

Why STEAM?

Combines the benefits of STEM programming with *Creative Outlet + Tech Skills*


- Self discovery and expression
- Creative thinking
- Problem solving
- Stimulates imagination
- Develops a sense of craftsmanship
- Multiple disciplines

**STEAM
Programming
With
Visual Arts**

Digital Photography & Photo Manipulation

Have someone come in and do a digital photography workshop and discuss things like lighting, setting up a shot, etc.

Then, you can have a GIMP workshop. GIMP is a free, online equivalent to Photoshop. You can download it online and a variety of free brushes. It is not easy to use at first, so classes are good.



Picmonkey.com is an online photoediting program.



Instagram - very popular with tweens and teens, visual in nature, quick & easy interface

[Top Instagram Tags & Instagrammels](#)
[How to Be a Pro on Instagram](#)

Creative Ways to Use Instagram:

- Book Face
- Book Quotes/Covers
- Book Spine Poetry
- Get Caught Reading
- @ My Library



Photo Apps

Comic Book Photo Shake Word Foto Filter Mania



5 Best Photo Editor Apps

Memes!

Basically: An idea that spreads. See [Urban Dictionary](#). Have Meme contests. See also: [Meme the shirts](#)

World Apps to Enhance Your Photos and Turn Them into Memes and Quirky Art [WordApp Review and Breakdown](#)

Books are food for your brain

Let's Read Women

ONE IT, HAD BE DRILL

Know Your Meme

Infographics

Infographics is a visual way to represent data. It combines visual arts with computer skills to create the Infographic

Ways to use it with teens:
[Nick Felton: Infographic Biographies](#)
 Have teens tell their life story, or HS story, or senior year story in infographics
[20 Tools for Creating Your Own Infographics](#)

WATCH THIS SPACE. INFOGRAPHICS ARE HOT!

100% OF BUSINESSES CAN BENEFIT EVERYONE SHOULD CONSIDER THE POTENTIAL ADVANTAGES

INFOGRAPHIC PRODUCTION INCREASES BY 1% EVERY DAY

THEY SHOW AN EXPERT

THEIR EYE IN THE EYE OF THE SENIORS AND SPEND OUT TEXT-BASED

90% OF THE BRAIN IS VISUAL

40% OF THE WORLD'S POPULATION

~13 MILLION INFOGRAPHICS ON GUNNET

INFO INFO GRAPHICS

GO VIRAL

STEAM

Programming With Motion Picture Arts



It stands for Graphics Interchange Format. They are those moving picture thingies that you see around the web.

APPS TO MAKE GIFS



GifBoo (app)
 Cinemagram (also an app!)
 Gizmodo: [How to Make a GIF in 5 Easy Steps](#)
 Free Online GIFmaker
 Make a GIF
 Mashable: [Make Reaction GIFs with These 7 Tools](#)
 Mashable: [How to Make GIFs](#)
 8 Free GIF Maker Apps



Vine
 6 second videos
 Popular with teens
 Example: [What is Teen Advocacy](#)
[6 Second Booktalks](#)
 Resources: [How to Vine](#) ;
[How to Add Special Effects to Vine](#) ;
[Ultimate Guide to Vine](#)
 ; [6 Tips for Making an Awesome Vine Video](#) ;
[6 Ways Your Brand Can Use Vine](#)
 Examples:
[10 People You Should Follow on Vine](#)



YouTube
 More popular than FB
 Arranged by channels
 First online awards show
 Resources:
 Video App: iMovie
[6 Biggest Mistakes Brands Make on YouTube](#) ;
[How to YouTube with Success](#)
[10 Essential YouTube Tips and Tricks](#)

Teen Film Festival

Teens can create short films using a variety of tools, like iMovie, Movie Maker, Vine, Instagram Video and more.

You can make it a theme: Say, make a video about why the library is important to you. Or do a booktrailer festival. Or you can keep it open ended.

Resources
 Want to make a movie? There's an app for that of course. [Here's more on iMovie](#). Here's some information on making [book trailers](#). Here's a YouTube clip on making a [Short Film Clipcanvas](#) on [How to Make a Short Movie](#)
[Top 5 Online Tools to Make a Online For Free](#)
[How to Use Windows Movie Maker](#)



See also:
[Lights, Camera, Action: 5 YA Titles about teen filmmakers](#)

STEAM Programming With Music



Why music?

Music has positive effects on literacy. There are numerous studies that show this connection:

- <http://ecrp.uiuc.edu/v10n1/bolduc.html>
- http://www.abcmusicandme.com/documents/impact_of_music_on_literacy.pdf
- <http://educationcloset.com/2012/07/17/integrating-music-and-literacy/>
- [Music and Literacy](#)

There is just something about the teenage years and music.

- Some say there is something about the age 14 and music: <http://learning.blogs.nytimes.com/2011/05/25/is-14-a-magic-age-for-forming-cultural-tastes/>
- "Fourteen is a sort of magic age for the development of musical tastes. Pubertal growth hormones make everything we're experiencing, including music, seem very important. We're just reaching a point in our cognitive development when we're developing our own tastes. And musical tastes become a badge of identity." - Daniel J. Levitin, a professor of psychology and the director of the Laboratory for Music Perception, Cognition and Expertise at McGill University. (<http://blog.clickiticket.com/post/What-Kind-Of-Music-Were-You-Listening-To-At-Age-14.aspx>)
- [Slate: Musical Nostalgia](#)

The Book Playlist?

Playlist: "a list of recorded songs or pieces of music chosen to be broadcast on a radio show or by a particular radio station." (Dictionary.com)

A playlist is a modern day mixtape!

Book Playlists Can Be Many Things:

The list of songs an author listens to while writing a book that helped set the mood or helps define a character.

The list of songs talked about within the book itself (see *The Perks of Being a Wallflower*, for example)

The list of songs that comes to the mind of a reader as they read a book or think of the characters.



Where can you find Book Playlists?

Many authors will share their book playlists on Tumblr or in Blog Posts
See: [Sarah Dessen discussing the playlist for Just Listen](#)

Many readers will create book playlists and share them in the same way.
See: [Reading 2.0](#)

Book playlists can be simple - from just a list of song titles - to an actual playlist that embed the audio or video so you can quickly and easily hear the song being mentioned. For example, this BuzzFeed playlist for **The Perks of Being a Wallflower** has the video embedded for easy viewing/listening:
<http://www.buzzfeed.com/kaylavandoli/the-perks-of-being-a-wallflower-playlist-you-nee-cqn5>

There are many tools for creating playlists:
Spotify
Mashable: [10 iPhone Apps for Music Lovers](#)
Soundcloud: [What are playlists? How do I make them?](#)
www.playlist.com
www.take40.com



Video Killed the Radio Star . . .

Music programming can also be about video

- Teens can create lip sync videos to their favorite songs. How many different versions of *Let it Go* from Frozen have you seen?
- These videos can even be library promotions. You have seen the It's All About the Books take on *All About the Bass*, right?
<https://www.youtube.com/watch?v=PuszH4ADTU>
- You can do it simple: Use Animoto (which has free, already cleared songs you can use) to create a slide show of teens in the library/at library programs. Share it online or upload it to a screen that repeats behind your circulation desk or in your teen area.
- Or use something like [MovieMaker to make "Book Trailers"](#)
- [Music copyright info here](#)

Let's Make Beautiful Music Together @ the Library

A number of public libraries have digital media labs and recording studios.
They include:
[Arlington Heights Memorial Library: The Studio](#)
[Cleveland Public Library](#)
Cuyahoga CPL Recording Studio
Stoke Public Library
And more . . .



Unconventional

Using technology to take your library's book discussion groups outside the four walls of your library!

Book Discussion Groups

Why Tech?

People can participate from any location

Depending what tech you use, people can participate on their own time


A way of taking your programming outside the building and creating outreach opportunities

You can build an archive of discussions for new people to go back and read


What are the disadvantages?

- Requires an access to technology, so there are economic barriers as well as some other barriers to access
- For some, it will lack the social interaction and intimacy that they are looking for
- While it can increase numbers, it doesn't necessarily get people into the building

Skype Book Discussion Club



Skype is an online video chat program that you can download for free. Combine this tech with a traditional book discussion group to bring tech into literacy. Many authors will Skype for free (see link below) and love to meet with readers.



You could also do a sort of sister city/pen pal book discussion with another library and meet their teens. For example, have a Divergent discussion in March when the movie is released.

[Skype in the Classroom](#)
[Authors who Skype \(for free!\)](#)

Let's Talk Social Media & Book Discussions



Facebook - ongoing changing in policies are causing some users to defect, less popular now, teens are defecting, can now use Hashtags. Groups feature allows for great online book clubs.



Twitter - very popular, large book/reading community, easy to share, #hashtags rule (see [The Beginners Guide to the Hashtag](#))



Pinterest - results in the most actual purchases and traffic, easily organized, some copyright concerns to be aware of ([Mashable: Pinterest Drives More Traffic to Publishers Than Twitter, LinkedIn, Reddit Combined](#)) ([20 Ways Libraries are Using Pinterest](#))

Let's Talk Social Media & Book Discussions



Tumblr - Very popular with teens, allows for a variety of different kinds of posts, has an ask feature, reblogging allows for addition of comments



Google Hangouts - Can be closed or open, similar to Skype, Hangouts can be recorded and shared



Goodreads - Designed as a reading community, great for making lists and sharing reviews, a very tumultuous community at times, now owned by Amazon

Twitter Chats

Put together a schedule, create a hashtag, promote, discuss, archive



Examples:
[#yalove](#)
[#ewyagc](#)
[#svyalit](#)

Tumblr

everyone who works with teens should be using this; easy to use, very visual and easy to organize

Don't Blog, Tumblr



5 Things You Can Do with Tumblr

1. [Craft Tutorials](#); Example, [Tardis Costume](#)
2. [Booklists](#); Example, [10 Things I Learned About Surviving the Apocalypse from YA Books](#)
3. [New Books](#): Share the covers & reviews
4. [Program Pics](#)
5. [Book Quotes](#)

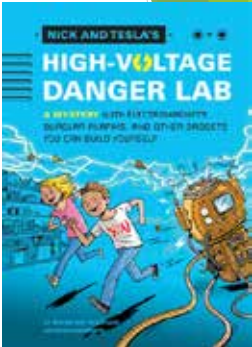
STEM Themed Books

[Nick and Tesla has built in projects.](#) They also have projects on [their website.](#)

Do a reading club with a STEM themed book and find projects that you can easily do from the Science Fair books. [STEM Girls Booklist.](#)

Do a Sci Fi book club and have someone come in and talk about telescopes and observatories. [#YALIT that takes place in space.](#)


Do a mystery book club and have a forensic scientist come in and talk about crime solving procedures. Or watch [How Sherlock Changes the World on PBS.](#) [CSI Program outline.](#)



Resources and Further Reading

- ▶ Reaching Teens Subversively through Passive Programming:
http://www.programminalibrarian.org/library/planning/reaching-teens-passive-programming.html#UP2ZL8ps_s (Book Facing)
- ▶ 21st century teens & 21st century libraries
<http://www.districtmagazine.org/2014/01/21st-century-teens-21st-century-library-services-call-action/>
- ▶ Today's Teens, Tomorrow Techie <http://www.bklynpubliclibrary.org/support/volunteer/14>
- ▶ Libraries Connect Teens To Technology with Video Games:
<http://library.austintexas.gov/press-release/library-connects-teens-technology-through-video-games-12-19-13>
- ▶ Recharge Your Library with Pop Culture and Technology:
<http://www.amazon.com/Recharge-Library-Program-Culture-Technology/dp/1610693698>
- ▶ Teaching Teens about Digital Literacy through Programming:
<http://www.districtmagazine.org/2014/01/teaching-teens-coming-for-kids/>
- ▶ <http://www.ala.org/news/press-releases/2013/10/diy-your-library-teen-tech-week-materials-national-lib-week-among-aems>
- ▶ Teen Tech Camp <http://www.memphislibrary.org/teens/techcamp>
- ▶ Pew: Teens and Technology
<http://librarians.pewresearch.org/2013/08/22/our-latest-research-on-teens-and-technology/>
- ▶ Using Technology to Connect Teens and Public Libraries <http://scholarworks.sjsu.edu/slsr/vol1/iss1/17/>
- ▶ Retired Teachers Teach Community Art and Science:
http://aubsourpub.com/libraries/it-s-alive-retired-teachers-teach-community-art-and-science_c9a9403-e932-5b61-ae88-3863f117411c.html

On TLT: Tech with Nick and Tesla, Teen Tech 12, Check In @ Your Library



Infopeople *helping libraries think differently*

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