



# Technology in Action Guide

## Secondary Digital Portfolios



### Definition

A digital portfolio is a computer or web based collection of student performance over time. Portfolios provide a window into student learning. A portfolio should showcase both student achievement and student learning or growth. To demonstrate growth, a portfolio will often include similar work done over the course of several months or years.

The student portfolio should include content chosen by the student with the clear understanding that the items must include examples of their best performances, demonstrations of

achieving a particular objective, and examples showing personal and academic growth. The content should include a wide range of skills and abilities to provide clear demonstration of what the student knows and understands about their ability.

One of the most important elements in a portfolio can be the student's reflection on their work. Students should include reflections on each performance to clarify why that selection is included in the portfolio. This is perhaps the most valuable part of the portfolio, since it provides a much clearer window into the learning of each student.



### Standards Connections

**ELA:** Speaking and Listening standards SL.2, SL.4, SL.5  
**Fine Art:** Standard Using a Personal Portfolio VA.PR4, VA. PR5  
**Math:** Practice standard 4 Modeling with Mathematics

**Social Emotional Learning:** Standard Goal 1– Developing Self Awareness —Goal 1—Develop Self-awareness related to academic goals

**Social Science:** Standards for Developing Inquiry skills



### Uses

**Student-Led Conferences—** Creating a digital portfolio of student selected work to present during a student led conference allows students to take ownership of their learning. Not only can students share where they excel in their academics, but they can reflect on their growth from the beginning of the quarter and even discuss where they may still be struggling by sharing the artifacts. Teachers can guide the selection of the portfolio artifacts so that the items included reflect the whole academic and social picture of the student.

**Transition/Career —**Creating portfolios in preparation to transition to the next academic level, college admissions or job applications will allow students to share a complete representation of who they are in academics and in a community context. Students building this type of portfolio will be able to identify the skills and credentials required to enter a particular profession (or next grade level) and begin to set long-term academic/career goals. The portfolio can assist them in planning and reflecting on the goals as they progress.



### Resources—Digital Portfolios



**Weebly** website builder is a simple “drag and drop” tool that has an educational account option that allows for a free account that educators can use to create as many student websites as needed. The educator can also create one website and assign a specific page to individual students by assigning them as editors to only that page. Weebly websites can be password protected so visitors can be controlled. Caution students on cyber safety and posting personal information, names can be limited to first name, last initial when public communication is not needed for the portfolio.

<https://education.weebly.com>



**Google Sites** website builder is an intermediate level website builder that can be integrated with Google classroom. This will allow parents to see the websites while connected to their students accounts and teachers within the same school to view them as well. Of course making the site public will allow anyone with the link to view the website as well. There are many resources available on the web to customize a website within Google sites and many video tutorials to help educators and students to learn how to use the platform. <https://sites.google.com/>



**Seesaw—** <http://web.seesaw.me/> - This is a student driven digital portfolio system that allows students to independently document what they are learning at school. Educators create classes within the platform. Students can be entered into the classes or teachers can give a class code to the student to "self join". Students can capture learning with pictures and videos (currently just iOS for videos), import documents and add comments. Student work can be shared with the class and other students can comment. (Educators monitor the comments prior to being displayed to the class on the "Facebook like feed".) The Seesaw platform includes the following features:

- ◇ Google Classroom integration
- ◇ All mobile device apps (Kindle Fire!)
- ◇ Chromebook compatible
- ◇ Multimedia tools built-in
- ◇ Integration with 100s of apps
- ◇ Free parent access
- ◇ Class blog (can be public or private)
- ◇ Printing with custom QR codes
- ◇ 2 teachers can share a class
- ◇ Teachers can have 10 classes
- ◇ Portfolios can be downloaded to a CD
- ◇ Many webinars for training

## Creating and Documenting Student Artifacts

### Websites and Online Resources



**Screencast-o-matic** allows users to

record on-screen activity and audio from a computer microphone or computer sound. Students can open their MS Word or Google Doc essay or report and record their reflections or process on how they developed their story. The video can then be saved and imported to the portfolio. The same process could be done for any computer generated work, modeling how to research or conduct a search online, or doing a science experiment with an interactive model and explaining why the reactions are occurring.

<https://screencast-o-matic.com/home>



**ScreenCastify**—Chromebook compatible screen capture extension that will allow users to record on-screen activity including audio from either the microphone or computer sound.

<http://bit.ly/2GqrXdm>



**Adobe Spark** is a video creation tool that can be used on any device, Windows computer, Chromebook, and mobile device (even a phone!) Projects are saved online so students can access their project at anytime from a different device to edit and continue to work. The editor can import pictures, record video, add sound and music. The platform has many educational tutorials to guide educators in implementation and use.

<https://spark.adobe.com/>



**Animoto** is a video design platform that creates slide shows with music and built-in video styles. Many of the layout and creation tools are taken care of by the program so that the user only needs to “drag and drop” the photos. The resource includes an option for education that removes the watermark and increases the time limit allotment from the free version. Educators must first register for the free version, then “apply” for the upgraded educator version. <https://animoto.com/>



**Analyze My Writing** website tool can assist students in developing the written content placed on the portfolio websites. The tool will return an analysis of any writing that is pasted into the text box on the page. The platform will return information for basic text statistics, common words and phrases, readability, Lexile density, passive voice, cloze text, word-sentence-character counts, use of punctuation marks, and word/sentence lengths.

<http://www.analyzeemywriting.com/>



**Easel.ly** is a platform to create infographics from templates provided or design users own with guidance. Website offers both free and paid options with an educational pricing discount. The free option has 60 images and 10 font styles. Students can use this platform to show accomplishments outside of school, participation in community events or activities they would like to pursue in the future. <https://www.easel.ly/>



**ThingLink** creates an interactive digital graphic by adding “dots” that pop up text or connections to websites, videos or more graphics. Users can upload photos, documents or any graphic and then add points anywhere on the item to show items of interest or further exploration. Within a portfolio students might create a Thinglink for an art project or science model. After taking a photo of the artifacts students could identify areas within the media of an art project and make connections to the inspiration or selection of colors. Students connecting to a science model may have linkable items to the research they have based their data or maybe an interactive experiment proving their hypothesis.

<https://www.thinglink.com/edu>



**MyEbookMaker** creates Ebooks with this simple platform that allows users to upload a picture for the book cover, enter a Title and Author(s), organize chapters, enter or copy text into a standard text editor or templates. Many formatting option available including graphics, tables, flash video and iFrames. Accounts are free and files can be downloaded into an Epub format that can be transferred directly to e-readers, phones or tablets, hosted on website for downloads or read online by browser supported eReaders. Students can create an Ebook of their essays, stories and poetry...etc.

<http://www.myebookmaker.com/>



### Supporting Resources

There are many technology resources to support content curation for digital portfolios. The ones listed above are some of the best suited for 6-12th grade student ability levels. Be aware that technology companies can often change over time and as of the printing of this document all resources are current and available. To find more resources and the latest up-to-date technology to support technology integration, please visit [www.ilclassroomtech.weebly.com](http://www.ilclassroomtech.weebly.com).

- ◆ Assessment tools
- ◆ Audio/video tools
- ◆ Content area support
- ◆ Digital portfolios
- ◆ Computer science
- ◆ Learning management systems
- ◆ Mobile apps
- ◆ Research tools
- ◆ Social Emotional Learning
- ◆ Technology terms



# Technology in Action Guide

## Secondary English Language Arts

### Practice Standards Connections

#### READING

Key ideas & details  
Craft & structure  
Integration of knowledge & ideas  
Range of reading & level of text complexity

#### LANGUAGE

Conventions of standard English  
Knowledge of language  
Vocabulary acquisition & use

#### WRITING

Text types & purpose  
Production & distribution of writing  
Research to build & present knowledge  
Range of writing

#### SPEAKING & LISTENING

Comprehension & collaboration  
Presentation of knowledge & ideas

### Reading Tools

 **NewsELA** has news articles that can be searched by topic and then printed in different Lexile levels. The same article on Lions can be printed in Lexile level 450 through 950 so that all students can read the content in a level that is comfortable for them and then be able to participate in a project or conversation on the subject of the article. Educators can also create text sets to assign to a class, create quizzes and include writing assignments.  
<https://newsela.com/>



**Google Lit Trips** are downloadable files that mark the journeys of characters from famous literature on the surface of Google Earth. Along the way, place-marks with pop-up windows contain "just in time" resources including relevant media, thought-provoking discussion starters, and links to supplementary information about "real world" references in that portion of the story. Our focus is on creating engaging and relevant literary experiences for students. K-12 and Higher education titles available. Educators can also request titles and work with the creators to help build new content.  
<http://www.googlelittrips.org/>

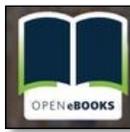
 **ReadWorks Digital** is the partner resource to ReadWorks.org platform that offers reading comprehension support. The resource works on Windows, Macbooks, Chromebooks and iOS devices. Included on the website are Nonfiction and literary articles, Question sets, Vocabulary support, Paired Texts, Step Reads, Audio versions of articles, and an Article-A-Day™. <http://digital.readworks.org/>

 **Learn Out Loud** is a platform that has free audio and video titles of literature in contemporary, classics, literary history, drama, poetry, and short stories to name a few. Most of the files can be downloaded and played later, all can be streamed.  
<http://www.learnoutloud.com/Free-Audio-Video/Literature>

### Language Tools

 **WordsWithFriends-EDU** the game now allows students to play with their classmates. Educators create a closed classroom that only students with the class code can enter. The platform also has a dictionary component so students can check to see if what they want to play is actually a word or verify the meanings of words played by their classmates. This is an app for iOS and Android, but can also be played on the computer so ChromeBooks and laptops will work as well. Educators can also setup a "community" class and invite parents to play as well. <https://wordswithfriendsedu.com/>

 **Tween Tribune** (TeenTribune, TweenTribune, TTEspañol and TTJunior) (hereinafter collectively referred to as "Tribune") is a free online educational service offered by the Smithsonian for use by K-12 grade Teachers and students. Tribune consists of daily news sites for kids, tweens, and teens, and includes text, photos, graphics, and audio and/or video materials prepared by the Smithsonian and others about current events, history, art, culture and science. Tribune also includes lessons, instructional and assessment tools, and opportunities for the registered users to communicate with other participants. Articles can be assigned based on the readers Lexile level or printed out by reading level as well.  
<http://tweentribune.com/>

 **Open eBooks** is a partnership between Digital Public Library of America, The New York Public Library, and First Book, with content support from digital books distributor Baker & Taylor. This effort is made possible by generous commitments of publishers with funding support provided in part by the Institute of Museum and Library Services and the Alfred P. Sloan Foundation, and is part of the White House ConnectED Initiative. Educators that are in the following groups qualify: Head Start, Title I or Title I eligible School, USDA Food and Nutrition Program, Federally Qualified Health Center, Title VII recipient, Military family support program, Library with an E-rate of 90, A program primarily serving children with disabilities (**INDIVIDUAL SPECIAL EDUCATION TEACHERS!!**), A program where at least 70% of children come from low-income families. Students can check out 10 books at a time...parents can have the app on their phones, tablet...etc. Students can login on up to 6 devices and access all their books. <http://openebooks.net/>

 **Wordflex Touch Dictionary** is not the ordinary dictionary or thesaurus! Wordflex "branches" out into a word tree when a word is typed into the search bar, select a branch, then more branches emerge and so on. The words with the branches also have pronunciations (British and American), meanings, root words, origins, etc. Users could easily get lost within the branches. One of the other unique components is the ability of this app is to send (email) a poster of the word tree or save it. The user is also able to swipe around the tree back to where they started or anywhere within the tree they have built. Devices -iPad <https://apple.co/2L7Wdwx>

## Writing Tools



**Book Creator**, the interactive ebook creator that was only available on Apple is now available online in Chrome. (YES, this will work on ChromeBooks!) The free version allows for one educator library and 40 active books. (If an educator is a tech/lab teacher, set up an account for each "home" teacher for your students.) Books can include comics, audio, video, drawings and can be published online. Educators can create their own books for use in the classroom on iPad as well!) <https://bookcreator.com/>



**Rhyme Zone** is a simple platform that allows users to input a word or phrase, select search and then get a return words or phrases that rhyme or nearly rhyme.

There are also options for synonyms, antonyms, homophones and many other choices. There are other advanced features available also. No login is required to use this platform.

<http://www.rhymezone.com/?loc=bar>



**Pobble 365** is a Picture a Day story starter with additional resources. The pictures are magnificent and thought provoking and come with activities that can be either shared on a projector or downloaded in the provided PDF's. Educators can also browse previous days photos and content if they are looking for a specific topic or concept connection. Below each photo there are sections with activities. <http://www.pobble365.com/>



**Hemingway App** website can be a little confusing at first. The page loads with a sample of what the APP can do, showing a paragraph with highlighted text and a KEY on the right hand side explaining what the different colors relate to as far as editing. This is actually where the user is to type (paste) in their writing that they wish to have evaluated. There is a download button on the far left that allows users to purchase a desktop version of the software. However, you can use a FREE version by simply typing in the text or pasting in the document. Font styles and formatting buttons are at the top of the screen. Once the text is finished, select "EDIT" from the location on the right and the APP will evaluate the writing.

<http://www.hemingwayapp.com/>



**Write About** is a platform to connect students to a community of writers and an authentic audience to develop growth through the entire writing process. Hundreds of ideas filtered by grade level, category or keyword, quickly create and share ideas with your own images, text and voice. Educators can create a closed group with another class across the country or within the same school. The free account has some limitation on the number of posts, (enough for a unit or lesson). However, if this is something that fits in with an educators entire school year the full version is currently \$24.95/yr for the whole class. <https://www.writeabout.com/>



## Speaking and Listening Tools



**Next Vista for Learning** provides a library of free videos made by and for teachers and students everywhere. All content is licensed under Creative Commons Attribution.

There are over 1800 videos on the website. Students can check on the latest "video challenge" to get ideas to create an entry and join the community. <http://www.nextvista.org/>



**School Tube** is a video platform for students and teachers to upload video creations. School Tube offers suggested educational websites that houses content for classrooms. This platform provides opportunities for students to share video work with an "authentic audience" in a controlled privacy environment. Many schools share daily news broadcasts and PSA videos. <http://www.schooltube.com/>



**edublogs** allows for educators to create a class account and control the postings of the students. Students are also not required to have email accounts. \*\*\*\*\*UPDATE 2/2/2017 EduBlogs is now completely FREE\*\*\*\*\* All accounts now have complete access to all resources including more space, templates, teacher controls, privacy controls...etc. This makes EduBlogs a GOTO platform for classroom blogging sites for early elementary through high school! <http://edublogs.org/>



**Adobe Spark** is a resource for creating videos, pages and audio. It is unique because users can start in the online platform, then continue on an iPad, then switch to using a Chromebook, etc. Adobe also hosts or stores all the files for easy access from any location, so students can work from home. (Users may use a portable storage device). To further explain the educational uses, Adobe has created a guide for educators that can be found here as well. It also includes many lesson ideas. <https://spark.adobe.com/>



**Lucidpress** makes it easy for all students — from those in elementary school to those in advanced digital communication courses — to create stunning content that brings their big ideas to life. Teachers can also create visual learning aids, posters, and other teaching collateral with just a few clicks of the mouse. Built in templates are available and the platform includes connection to images that are copyright free. There is an educational account just for teachers and their students. Scroll to the bottom of the linked page to get started. If you do not automatically get enrolled in the educational platform, don't hesitate to follow the instructions to request it. (Email accounts with .edu or k12.us.il should automatically populate. If you use another type of address, request access. There is a Google App that will integrate with Google Classroom and a SSO system. <https://www.lucidpress.com/pages/usecase/education>

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## Technology in Action—Secondary English Language Arts

# Technology in Action Guide

## Secondary Mathematics

### Practice Standards Connections

**MP1**—Make sense of problems and persevere in solving them.

**MP2**—Reason abstractly and quantitatively

**MP3**—Construct viable arguments and critique the reasoning of others

**MP4**—Model with mathematics

**MP5**—Use appropriate tools strategically

**MP6**—Attend to precision

**MP7**—Look for and make use of structure

**MP8**—Look for an express regularity in repeated reasoning

**Social Emotional Learning Standards Connections**— SEL Goal 2– Use social-awareness and interpersonal skills to establish and maintain positive relationships—directly connects to MP3. Many of these resources can be used in a group or partner situation to build on both MP3 and SEL 2.

### Online Activities



**Illustrations** (from NCTM) website has a large collection of interactive activities/games for all grade levels and all standards. Educators can search by standard or grade level. Many of the activities can be used on an interactive whiteboard (smart-board or Promethean ). No login is required to use the activities. There are also lesson plans available on the website to work in conjunction with the interactive platform. <http://bit.ly/2woYEqr>



**Zombie Math** (From Northern Illinois University) is making math horrifically interesting and it isn't hard at all...with ZOMBIES! Prepare for the zombie apocalypse and the ACT exam by playing the ACT prep math game and watching the zombie videos to help liven up math skills. (Also a version of the game for 8th grade PARCC!) There are also lesson plans for educators to help breathe a little life into the math curriculum. <http://www.smartspaceuni.com/zombiemath/>



**Wolfram|Alpha** is a free online computational knowledge engine that generates answers to questions in real time by doing computations on its own vast internal knowledge base. Our long-term goal is to make all systematic knowledge immediately computable and accessible to everyone. The website can guide you step by step through the process of solving many mathematical problems, from solving a simple quadratic equation to taking the integral of a complex function. When trying to find the roots of  $3x^2+x-7=4x$ , the website can break down the steps for you if you click the "Show steps" button in the Result pod. This is also a Chrome Extension that will work with ChromeBooks. <http://www.wolframalpha.com/>



**Get the Math** (Thirteen.org) is about algebra in the real world. See how professionals use math in music, fashion, video games, restaurants, basketball, and special effects. Then take on interactive challenges related to those careers. There are 9 challenges on the platform, each have a teacher resource with standards aligned lesson plans. There are great student centered- real world - applications used to bring understanding of the use of algebraic concepts. <http://www.thirteen.org/get-the-math/>



**Pixar in a box** is designed to help students answer an age old question: Why do I need to learn this stuff? Their answer to this question is a series of interactive lessons, each of which demonstrate how a concept introduced in school is used for creative benefit at Pixar. Within the platform educators can choose the grade level mathematics of the lesson...some lessons have multiple options. EX- Lesson on geometric transformations could be grades 7-8 or High school rotation. <https://www.khanacademy.org/partner-content/pixar>



**Quadrant Defender** is a Tower Defense game that allows users to graph systems of equations and use that information to plan their defenses. This game contains game play elements that require students to engage in budgeting, critical thinking, and situational geometry. Badges in Quadrant Defender are earned by correctly plotting the intercept points of pairs of linear equations. The linear equations vary in complexity and become more difficult as the player progresses through the games. <http://spacewolf.adams50.org/game/quadrantdefender>

### Mathematical Videos



**Mathematics in Movies** - This is a collection of movie clips in which Mathematics appears. The site is now in HTML5 video and should be accessible by all devices. If not, chose the direct video links. To include a clip into a presentation, chose the quicktime version. A wide variety of genres and decades, some that students won't recognize but will certainly enjoy the connection. <http://www.math.harvard.edu/~knill/mathmovies/>



**WatchKnowLearn** is a video platform that has educational videos curated not only by the website developers, but users can also upload videos. The subcategory MATHEMATICS splits into every math content available, from math for young learners to calculus. Educators can create accounts and save videos to a playlist so they are ready when needed in the classroom. Most all are hosted on YouTube and educators are encouraged to review first. <http://bit.ly/2wp01W6>



**Safe Share TV** is a platform to watch YouTube without any additional videos or advertisements appearing on the screen. By copying and pasting the YouTube link into the box on the home page, the website will generate a new LINK to the video. This link will never expire and now will direct to a video display that removes all the unwanted items. Educators can now place this link in a PowerPoint or an assignment in GAFE (Google Apps For Education) that the students can select and they will not be shown "other" items. <http://safeshare.tv/>

## Mobile Apps



**Quick Graph** is a powerful graphing calculator that takes full advantage of the multitouch display and the powerful graphing capabilities both in 2D and 3D. A simple interface that makes it easy to enter and/or edit equations and visualize them in mathematical notation. It's capable of displaying explicit and implicit (opt) equations as well as inequalities (opt) in both 2D and 3D, in all standard coordinate systems: cartesian, polar, spherical and cylindrical, all with amazing speed and beautiful results, which can be copied, emailed or saved to the photo library. <http://apple.co/2vfj7dK>



**ClassPad Mobile APP** - Calculator app equipped with powerful CAS graphing calculator functions of the handheld fx-CP400. There is a free version of the CASIO ClassPad app that is available on iOS and Android. The free version allows users to use functions such as basic calculations, graphs, and statistics, suitable for basic course of high school. Website- <http://edu.casio.com/forteachers/er/index.php>  
iOS LINK - <https://apple.co/2licXUM>  
ANDROID LINK—<http://bit.ly/2rIOXjk>



**Math With Your Friends** is a fun twist on a classic board game, and a unique new challenge! Instead of letters, tiles show numbers (0-9) and operators (+ - \* / =). Instead of words, players make mathematical equations to score points. Increase your score by taking advantage of multipliers on the game board. Invite your friends to play the game directly from your contacts. Use built-in chat to send important messages to your opponent, or simply to brag about your move.  
iOS—<http://apple.co/2vfaFeC>  
Android—<http://bit.ly/2vfAxXE>



## Online Virtual Tools



**Draw.io** is an online flowchart tool that allows users to create any type of drawing using simple to complex shapes and diagrams. Numbers and text included so student could use this to show the process in completing an equation. The platform has built in shapes that can be dragged onto the page and aligned to build the chart. The drawing can be saved to Google drive, Dropbox or Onedrive or printed out. Users can create an account, but it is not necessary to use the tool. <https://www.draw.io/>



**GeoGebra** is dynamic mathematics for all levels of education that brings together geometry, algebra, spreadsheets, graphing, statistics and calculus in one easy-to-use package. GeoGebra is a rapidly expanding community of millions of users located in just about every country. <http://bit.ly/2v7fNRY>



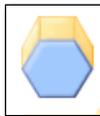
**Desmos** is the best-in-class HTML5 graphing calculator, which millions of students around the world use for free. The platform also has activities on top of that calculator, helping students use a powerful tool to experience all the curiosity, beauty, and sense that math has to offer. Those activities were used so often by so many teachers around the world that they decided to create an Activity Builder, helping every teacher create digital math activities that equal and exceed the activities we create ourselves. Users can create an account to save graphs and data for works in progress. Graphs can be printed or emailed. (calculator platform can be changed into 33 different languages.) (iOS and Android apps available as well.) <http://bit.ly/2v7m1RW>



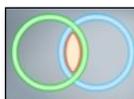
**Daum Equation Editor** - Online equation editor that will allow the user to save to Google drive, save as an image or text file, increase text and modify the color of different characters in the equation to help educators highlight portions of the instruction. <http://bit.ly/2v7AJ4P>



**PhET Simulations** from University of Colorado provides fun, free, interactive, research-based science and mathematics simulations. The simulations are written in Java, Flash or HTML5, and can be run online or downloaded to your computer. All simulations are open source (see our source code). Simulations are all grade levels and subjects are physics, biology, chemistry, earth science and math. Users can play with the simulations without an account. Educators can use an account to keep track of students and simulations. <https://phet.colorado.edu/>



**The National Library of Virtual Manipulatives (NLVM)** is an NSF supported project that began in 1999 to develop a library of uniquely interactive, web-based virtual manipulatives or concept tutorials, mostly in the form of Java applets, for mathematics instruction (K-12 emphasis). Utah State University team is building Java-based mathematical tools and editors that allow us to create exciting new approaches to interactive mathematical instruction. The use of Java as a programming language provides platform independence and web-based accessibility. The NLVM is a resource from which teachers may freely draw to enrich their mathematics classrooms. <http://bit.ly/2v7j9V4>



**Venn Diagram** is an online interactive Venn diagram that does not require any user login or account to be used. Platform requires a name typed in only to give a title to the diagram for the purpose to be saved when finished. Diagram can be two or three circles. Users can label the circles and select the colors of each. While Venn Diagrams are not explicitly referenced by the ILS for Mathematics, they can be a useful tool for building conceptual understanding. This applet could be exceptionally effective when engaging in the Conditional Probability and Rules of Probability Standards (S-CP.1-9). <http://bit.ly/2vfSmpu>

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## Technology in Action—Secondary Mathematics



# Technology in Action

## Guide

# Secondary Science



### Sample Standards Connections

When implementing technology into lessons and units, educators can connect to the content standards of the immediate subject, such as science, quickly. Connecting the tools within this document to the core disciplines of Life Science, Physical Science, Earth and Space, or Engineering can be the first step of Standards Connections. Taking a few steps further, educators need to connect with standards outside of science. Here are a few that might be include with the tools here:

**ELA** *R.7* Integration of Knowledge and Ideas, *R.10*– Range of Reading and Level of Text Complexity, *L.6*–Vocabulary Acquisition and Use, *W.1-W.3*–Text Types and Purpose, *W.4-W.6*– Production and Distribution of Writing, *W.7-W.9*– Research to Build and Present Knowledge, *W.10*– Range of Writing, *SL.1-SL.3*– Comprehension and Collaboration

**SEL**—*Goal 1*– Self Awareness and *Goal 2*– Social Awareness/ Interpersonal Skills



### Online Experiments/ Simulations



**Molecular Workbench** (The Concord Consortium) - The complete workbench is a downloadable program that can be modified by the educator and then the students can control the experiments more. However, there is now a selection of “online” HTML 5 experiments and simulations that can be utilized completely online and are Chromebook compatible. This is the link to those resources. (You can also link to the downloadable program and all of the resources available from this webpage on your class website.)  
<http://bit.ly/2lrxTcM>

PHYSICAL SCIENCE



**Star in a Box**—An interactive web app which animates stars with different starting masses as they change during their lives. Some stars live fast-paced, dramatic lives, others change very little for billions of years. The web app visualizes the changes in mass, size, brightness and temperature for all these different stages. It allows a user to examine snapshots of a star's position on the color-magnitude diagram (CMD) - the primary diagram used by astronomers to study evolution within stellar populations and to see how stellar parameters relate to one another.  
<http://bit.ly/2lYj3gP>

EARTH AND SPACE



**Sparticl** is designed for teens. Educators will see that in everything from the content to the site features. Accurate and FUN videos, games, articles, interactive demonstrations, and more for 600+ topics, covering the common concepts and terms used in middle school science. Personalization features such as avatars and custom collections. Searchable menu that makes it easy to find all middle school curriculum subjects, and even the science of sports & fun.  
<http://www.sparticl.org/>

PHYSICAL SCIENCE



**Go Lab– Electrical Circuits**—In the Electrical Circuit Lab students can create their own electrical circuits and do measurements on it. In the circuits, the students can use resistors, light bulbs, switches, capacitors and coils. The circuits can be powered by an AC/DC power supply or batteries. There is an ammeter, voltmeter, wattmeter and an ohmmeter. There is also a version of the Electrical Circuit Lab in which data can be collected. Students can analyze the collected data by creating graphs of the data and use the graphs in the conclusion tool.  
<http://bit.ly/23iiw4x>

PHYSICAL SCIENCE



**Solve the Outbreak**—Users in the mission get clues and analyze data to solve the disease outbreak and save lives!

Do students quarantine the village? Interview people who are sick? Run more lab tests? The better a student answers, the higher they score - and the quicker they will climb the ranks to become a decorated Disease Detective. The game plays on a WEB app, iOS app and Android. The web app site includes lesson plans for MS and HS.

LIFE SCIENCE

<https://www.cdc.gov/mobile/applications/sto/web-app.html>



**Go Lab– Wind Energy Simulation**—Take control of a wind farm to provide electrical energy to a small town. Understand how random changes - in wind speed and power requirement of the town - affect the use of this natural energy resource.  
<http://windenergy.ea.gr/>

ENGINEERING



### Science Videos



**Physics Girl** is a large collection of physics experiments on video explained by Dianna Cowern and published as PBS Digital Content. Content includes space, everyday physics, and interviews with scientists directed towards preteens/teens. There are also experiments that can be completed in class.  
<https://www.youtube.com/c/physicsgirl>



**Crash Course**, from the PBS Learning Media, has videos ranging from balancing chemical reactions to analyzing famous literature. From Science to Social Studies, Crash Course offers it all in quick-paced, imaginative videos aimed at learners of all ages. **CAUTION:** Content of these videos should be viewed prior to class as there maybe comments or objects in the video that will catch the attention of the class and might cause some reactions. (Nothing inappropriate, just giggles/reactions.)  
<http://www.pbslearningmedia.org/collection/crash-course/>



**Safe Share TV** is a platform to watch YouTube without any additional videos or advertisements appearing on the screen. By copying and pasting the YouTube link into the box on the home page, the website will generate a new LINK to the video. This link will never expire and will go directly to a video display that removes all the unwanted items. Educators can now place this link in a PowerPoint or an assignment in GAFE (Google Apps For Education) that the students can select and they will not be shown "other" items.  
<http://safeshare.tv/>

## Research / Data Tools



Google Scholar provides a simple way to broadly search for scholarly literature. From one place, users can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites. Google Scholar helps users find relevant work across the world of scholarly research.

<https://scholar.google.com/>



TED Ed Periodic Table of Elements videos is a complete collection of Ted Ed videos on all the periodic table of elements. Each of these videos also has lessons attached to them from TEDEd so that educators can have students dive deeper and answer questions on the elements or have further discussion on questions based on the elements.

<http://ed.ted.com/periodic-videos>



Smithsonian Learning Lab has so much to do at this website it is difficult to know where to start. The thrill of discovery awaits students at the Smithsonian Learning Lab. Type the research request after selecting the search icon in the upper left corner. The results will be displayed in pictures below. Results will include photos, videos and documents from many providers. The search can be narrowed by type as well as provider.

<https://learninglab.si.edu/>



## Presentation and Publication Resources



Screencast-o-matic allows users to record on-screen display activity and audio from a computer microphone. Students can open their MS Word or Google Doc essay or report and record their reflections or process on how they developed their hypothesis or experiment. The video can then be saved and uploaded to the class website. The same process could be done for any computer generated work, modeling how to research or conduct a search online, or doing a science experiment with an interactive model and explaining why the reactions are occurring.

<https://screencast-o-matic.com/home>



ThingLink creates an interactive digital graphic by adding "dots" that pop up text or connections to websites, videos or more graphics. Users can upload photos, documents or any graphic and then add points anywhere on the item to show items of interest or further exploration. Students connecting to a science model may have linkable items to the research they have based their data or maybe an interactive experiment proving their hypothesis.

<https://www.thinkinglink.com/edu>



Adobe Spark is a resource for creating videos, pages and audio. It is unique because users can start in the online platform, then continue on an iPad, then switch to using a Chromebook, etc. Adobe also hosts or stores all the files for easy access from any location, so students can work from home. (Users may use a portable storage device). To further explain the educational uses, Adobe has created a guide for educators that can be found here: Educators Guide. It also includes many lesson ideas.

<https://spark.adobe.com/>



edublogs allows for educators to create a class account and control the postings of the students. Students are also not required to have email accounts. All accounts now have complete access to all resources including more space, templates, teacher controls, privacy controls...etc. Students can maintain a science blog to connect the community to global or local ecological and environment issues or just share the experiments being explored during a local science fair. This will allow them to have feedback from an authentic audience and experience writing for a greater population.

<http://edublogs.org/>

## Website HIGHLIGHTS



The Concord Consortium's Path Finder - Their STEM Resource Finder features some of the best of free, open source educational activities, models and software tools. Educators can search by keyword or filter by subject, grade level and type to find the right resources for learning goals.

**\*\*Educators will need to carefully consider where to include these resources in their curriculum to ensure they are aligned properly to their grade level standards.**

<http://concord.org/ngss/>



Virtual Biology Lab has three Biodiversity Ecology Labs for students to explore how changes can effect the habitats. There is an Island, Stream and Plant model to manipulate. No login is required, the graphics are great and work well with a projector.

<http://virtualbiologylab.org/biodiversity-ecology/>



StemRead is from Northern Illinois University (NIU). Carefully selected books rooted in science, technology, engineering, and math (STEM) topics and explore the science behind the fiction. There is a selection of activities to go along with each one, lesson plans and videos to support the books. Since the creators of this platform are in Illinois, they also offer PD opportunities and local contacts. Checkout their contact information and sign up for their email list.

<http://www.stemread.com/>



PhET Simulations from University of Colorado provides fun, free, interactive, research-based science simulations. The simulations are written in Java, Flash or HTML5, and can be run online or downloaded to the computer. Simulations are all grade levels and subjects are physics, biology, chemistry, earth science and math. Educators can use an account to keep track of students and simulations.

<https://phet.colorado.edu/>



## Even MORE Resources

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- ◆ Technology terms

**Technology in Action—Secondary Science**



# Technology in Action Guide

## Secondary Social Science

### Standards Targets Connections

#### Inquiry

Civics

Geography

Economics and Financial Literacy

History

**Social Emotional Learning Standards Connections— SEL Goal 3—Demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts**

### Inquiry Tools



**Internet Public Library 2** is an online library that has been managed for over 20 years by Drexel University with contributing partners from over 20 universities from across the US, including the University of Illinois- Urbana-Campaign! The website is no longer actively managed and some resources such as "ask a librarian" are no longer available. However, the 20 years of curated data, resources and collections are FANTASTIC and certainly worth visiting! The website also has sections for kids, teens, newspapers, magazines, specials collections and can be searched by subject. <http://www.ipl.org/>



**FactCheck.org** is a website that monitors the factual accuracy of what is said by major U.S. political players in the form of TV ads, debates, speeches, interviews and news releases. The cover many current events in the nation and globally. Their goal is to apply the best practices of both journalism and scholarship, and to increase public knowledge and understanding.

<http://www.factcheck.org/>



**Docs Teach**—Turn your students into historians with primary-source based activities. Provide them the unique web address for an activity, or compile a Classroom full of activities. Each activity-creation tool helps students develop historical thinking skills. Pick documents, set up the activity, and write instructions for your students. You can include questions or an assignment in your conclusion. Students can submit and save their responses so that you can access them in My Students' Responses, or have them emailed to you if desired. <https://www.docsteach.org/tools>



**Recap**—by Swivl is a free app/website tool that provides teachers with new, creative way to gather evidence of student thinking using video recordings. Create and assign questions to a student, a group of students or the entire class to be answered during or after a lesson via the devices camera/microphone. This app works on iOS, Android, Chromebooks and desktop machines. <https://letsrecap.com/>

### Civics Activities



**iCivics** is a non-profit organization dedicated to reinvigorating civic learning through interactive and engaging learning resources. The iCivics games place students in different civic roles and give them agency to address real-world problems and issues. They are rooted in clear learning objectives and integrated with lesson plans and support materials. Educators can create accounts and then classes with student usernames and passwords, create assignments and monitor student completion. <https://www.icivics.org/>



**The Constitution Center** hosts many interactive games such as the Interactive Constitution, Seize the Vote and Which Founder Are you? Educator resources for "offline" activities are also available and include many multimedia components. <https://constitutioncenter.org/learn>



**The Migrant Trail** is a single-player simulation game examining the life of migrants and border patrol agents on the U.S.-Mexico border. The game is similar to Oregon Trail. The player may choose to play as one of several individuals on either side (undocumented migrant or border patrol) and is always first introduced to a prologue explaining that character's history and motivations. Both points of view are well structured and offer compelling dialog for students. (Grades 6-12) <http://themigrantrail.com/>



**Change Gamer** promotes the use of digital games to study themes such as energy, climate change, natural disasters, the environment, economics, politics, history and science. The vast majority of games are free, browser-based, and playable on a number of different platforms (e.g. PC, Mac, Chromebook, etc.). <http://www.change gamer.ca/>

### Geography Activities



The **Digital Scholarship Lab** at the University of Richmond has created an interactive resource using animation and layering technologies to create American History maps to reveal patterns that are hard to grasp on static maps. <http://dsl.richmond.edu/historicalatlas/>



**IL Geographic Alliance** -The interactive maps which cover a wide variety of topics including physical geography, historical geography, population, cultural processes and patterns, political geography, agriculture and rural land use, industrialization and economic development, cities and urban land use, as well as general reference maps. <http://arcg.is/2vmVD6F>

## Social Emotional Learning Standards

1A- Identify and manage one's emotions and behavior.	1B- Recognize personal qualities and external supports.	1C- Demonstrate skills related to achieving personal and academic goals.
2A- Recognize the feelings and perspectives of others.	2B- Recognize individual and group similarities and differences	2C- Use communications and social skills to interact effectively with others.
3A- Consider ethical, safety, and societal factors in making decisions.	3B- Apply decision-making skills to deal responsibly with daily academic and social situations	3C- Contribute to the well-being of one's school and community.



### Tools to Support SEL



**Google Slides/PowerPoint** -Have students find photos of activities they would like to learn about or improve on and create a presentation and what it takes to be involved or accomplished in that activity.



**Blabberize**—Students sometimes have a difficult time expressing their emotions or talking about difficult subjects such as what it felt like to be bullied. Using this platform allows students to take any photo or drawing and bring it to life. The “mouths” on the picture will be converted into talking objects and the students can record their story. [www.blabberize.com](http://www.blabberize.com)



**Quick Rubric** - Rubrics are a great way to help students reflect on how things went when working towards a goal. What obstacles were faced and how they were overcome or did they prevent the goal from being reached?

<https://www.quickrubric.com/>



**Brushes 3** app or **Sumo Point** online are great painting tools to allow students to express themselves with art. Whether it is simple splashing colors that might match with a song or their feelings during a situation or more detailed drawings depicting what or how something that occurred made them feel and respond.



Brushes 3- <http://apple.co/2vG2kns> or [www.sumopaint.com](http://www.sumopaint.com)



**Make Beliefs Comix**— Students can create a 4 panel (or more) comic strip on a topic about bullying, sharing, or what do to in a situation that isn't nice. A simple platform of drag and drop to design the comic strip. Accounts aren't need the creation can be downloaded and printed.

<http://www.makebeliefscomix.com/>



**Sock Puppets** app (iOS only) - Students can create animated movies with sock puppets to share how to be nice, share, or deal with everyday school situations.

<http://apple.co/2vGAVBw>



**Instant Classroom** –Random Grouping, Educators can use this tool to randomly create groups. This allows students to work with everyone in the classroom at anytime. Educators don't need to “select” who is where and the burden is off of the students to create teams within the peer pressure of the classroom.

<http://bit.ly/2umRTBE>



**GoNoodle**— is a website that gets students up and moving to characters on the screen dancing/moving with a purpose. The “calming” category has 26 activities that address compassion, being a good friend, frustration, patience, etc. It is a great way to take a break in a tense situation or when everyone just needs a brain break.

<https://www.gonoodle.com>



**Trading Card Creator**—both an app and online platform. Students can use this resource to create a card of either a fictional “friend” or themselves. They can include why they are friends, what they have done well as a friend. Students can create a friendship biography. <http://bit.ly/20Zg5o5>

### More ideas....Common Sense Media

Social and emotional learning (SEL) skills make us better people at home, at school, in our communities, and in the workplace. These skills include how to "understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions." Unfortunately, SEL is all too often put on the back burner, relegated to a means of "classroom management." *True, SEL might not be core content, but it's the core of all content.* SEL might not be core content, but it's the core of all content.

This is the reason for We All Teach SEL, an 11-part blog series offering quick, practical tips and tools for integrating SEL into any classroom -- no matter the subject or grade. Explore the topics below to find actionable activities and resources that build on tools you might already be using and content you're already teaching. <http://bit.ly/2w5Xu37>



### Even MORE Resources

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- ◆ Technology terms



### Technology in Action—SEL Elementary K-5

# Technology in Action

## Social/Emotional Learning Standards 6-12



### Learning Goals

- Goal 1: Develop self-awareness and self-management skills to achieve school and life success.
- Goal 2: Use social-awareness and interpersonal skills to establish and maintain positive relationships.
- Goal 3: Demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts.



### SEL Targeted Platforms



**Heroes Among Us** - Character Development Lessons and guides provided by the Congressional Medal of Honor Foundation for K-12. Educators can create an account to access grade level specific content and activities. The kindergarten through sixth grade focus on courage, commitment, integrity, sacrifice, citizenship, and patriotism into language and behavior that children can comprehend and embrace. Positive role models demonstrate how we can all choose to be our personal best. Middle and high school appropriate content features non-fiction accounts of Medal of Honor Recipients' and citizen heroes' actions. Assignments for individual and group work, assessment suggestions, and extended activities guide educators and students through this character resource. Videos are moving and geared towards speaking to student populations, making connections to concepts that matter to youth populations today.

<http://themedalofhonor.com/character-development>



**My Pop Studio** is a website that allows students to go behind the scenes within four media platforms and find out how media influences teenagers view of themselves and social relationships. Students can be in a magazine studio designing a layout where they are the celebrity, a TV studio examining viewing choices and ads, music studio looking a lyrics and media or a digital studio discovering the impact of social media. The website includes learning outcomes and secondary outcomes on the "about us" page.

<http://mypopstudio.com/index2.php>



In **Quandary**, players must make difficult decisions in which there are no clear right or wrong answers but important consequences – to themselves, to others in the colony and to the planet. In their interactions with other settlers in the colony, players must consider facts, opinions and solutions, just like in real life. Though the game's setting is a futuristic colony, the genuinely tough situations that players encounter are translatable to the ones they are likely to face day-to-day. The skills players develop while playing Quandary – such as critical thinking, perspective-taking and decision-making – will help them recognize ethical issues and deal with ethical situations in their own lives. Quandary provides a framework for how to approach ethical decision-making without telling players what to think. <http://www.quandarygame.org/>



**InspirED** is a website that gives teens/preteens activities to help develop positive emotions. Research shows that we can promote positive emotions with our actions, mindsets, and goals. The website categorizes the activities based on these emotions/needs shown in the graphic.

<https://inspired.fb.com/teens>

CONNECTED & SUPPORTED
CONTENTED & BALANCED
ENERGIZED & MOTIVATED
HAPPY & EXCITED
INSPIRED & EMPOWERED
PASSION & PURPOSE
RESPECTED & VALUED
SAFE & COMFORTABLE



**Everfi**—EVERFI's digital curriculums empower teachers to bring critical skills education into their classrooms. Their interactive, game-based lessons help prepare students for success in the real world. Users can create an account, setup classes and add assignments. Resource areas include Financial Education, Social & Emotional Learning, Cultural Literacy, STEM & Career Readiness, Health & Wellness and Summer Learning. Each resources is setup in a scenario-based learning experience that puts the skill in context with the real world. The platform connects the resources to standards and allows for comprehensive reports to track student progress. SEL course offers learning for a strong SEL foundation, Extension activities to engage the whole classroom and intentionally designed to foster emotional literacy. <https://everfi.com/partners/k-12-educators/>

## Social Emotional Learning Standards

1A– Identify and manage one’s emotions and behavior.	1B– Recognize personal qualities and external supports.	1C– Demonstrate skills related to achieving personal and academic goals.
2A– Recognize the feelings and perspectives of others.	2B– Recognize individual and group similarities and differences	2C– Use communications and social skills to interact effectively with others.
2D– Demonstrate an ability to prevent, manage, and resolve interpersonal conflicts in a constructive ways.		
3A– Consider ethical, safety, and societal factors in making decisions.	3B– Apply decision-making skills to deal responsibly with daily academic and social situations	3C– Contribute to the well-being of one’s school and community.



### Tools to Support SEL

**popplet** Popplet is a brainstorming tool that can be used within a small group setting or whole class activity to analyze emotional and behavioral choices or responses students may encounter. This will assist them to identify behaviors in themselves and see them in others. This will also help them to develop a better communication within the classroom as they generate ways to handle stress and create a positive attitude between peers.  
<http://www.popplet.com/>

**CareerOneStop** is a website that students can reflect on their strengths and skills that will allow them to look at how those factors can be connected to careers and colleges. Selecting resources for Students and Career Advisers takes users to a page that offers two exploration links: "Identify Your Interests" and "Explore Careers". On both of these pages is where students can use their list of strengths and skills to identify careers that would match with what most interest them. Take this a "tech step" further and have them create a presentation or Infographic about one of the careers that match their strengths/skills.  
<http://www.careeronestop.org/>

**Lucid Press**—Free premium account for educators...enroll with school email or request upgrade after creating an account.  
<https://www.lucidpress.com>

**Canva**—Free educator account, create a team for students (10max) to share creating. (iOS app as well.)  
<https://www.canva.com>

**SCRATCH** Scratch is a coding application online (Scratch JR is on the iPad) that will allow students to create an interactive game for others to play where they are faced with decisions in the game. There are already many socially based game built by students 3rd through high school on the Scratch website. Many of these games are addressing issues of bullying, cyber-bullying, cheating, dating, socializing, social media...etc. <https://scratch.mit.edu/>

**icivics** iCivics is a free tool funded and sponsored by the US Government and Supreme Court Judge Sandra Day O’Conner. Along with many government concepts this website has games and activities for middle/high school students to tackle the decisions on many cases that have been in front of Juries and the Supreme court.  
<http://www.icivics.org/>

**The Corporation for National & Community Services** can assist educators that have students that want to look into a community or school service project, but are unsure how to start. This is a website that can help with the planning process. There are several tool kits available and many ideas, including a “blank” toolkit if no other category fits the students needs. Resources on how to go about finding the needs in the local area, uncovering if something is already being done to address the same issue, and what steps to take to get started or connected. <https://www.serve.gov/?q=site-page/toolkits>

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### Technology in Action—Social Emotional Learning 6-12

