Resources for Teacher Librarians, Classroom Teachers, Students, and Parents

Annette Lamb

NASA's GENELAB website explores cutting-edge biology experiments conducted in space.

The resource begins with a fascinating video that examines how the GeneLab is used to conduct unique scientific studies.

The Discoveries section features news and information about the data being collected, the strategic plan, and specific experiments.

The Data section links to the GeneLab Data System 1.0 website. This open-access, online searchable data repository houses information collected from space biology experiments. Users can browse sample data sets. This area is just getting started, so more research will be available in the future.

This is useful for secondary students interested in cutting-edge science, and librarians will find a wealth of interesting resources. This website provides "real world" examples of space biology work so students can see how experiments are conducted in space. Although the science is likely to be beyond secondary student understanding, it may provide the foundation for further exploration.

To visit the website, go to http://genelab.nasa.gov/.
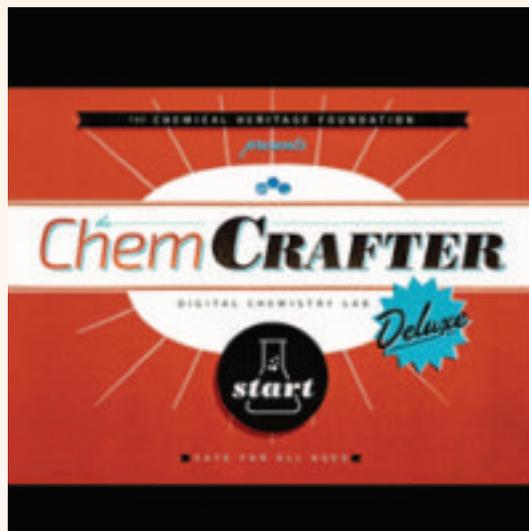
CHEMCRAFTER is a science game app from the Chemical Heritage Foundation.

This creative app lets users build a chemistry lab and try out fun experiments. Users drag and drop combinations of chemicals to create amazing reactions. The Chem-o-convertor measures energy released and unlocks new levels. Users collect tools and chemicals to expand their experiments. Characters help guide users through different types of chemical reactions.

Although designed as a game, the app is a great way to spur interest in science. Involve students in logging their results and learning more about the chemicals and reactions used in the game. Create a display of nonfiction books that students can use as resources to learn more about the chemicals and experiments experienced in the games.

To download the app, go to https://itunes.apple.com/us/app/chemcrafter/id839552862.

The **EAT: THE STORY OF FOOD** website from the National Geographic Channel provides an engaging look at all aspects of food in life.

Users can choose from six areas to explore including Sugar Rushes, Guilty Pleasures, Carnivores, Baked & Buzzed, Hooked on

Seafood, and Food Revolutionaries.

Each section includes short narratives, slide shows, expert videos, tips, recipes, and other connections associated with the theme. Many of the informational pieces contain connections to science and history. Each section is also a video program that can be viewed on the National Geographic Channel.

Librarians will find that this website provides a wonderful opportunity for thematic projects and interdisciplinary approaches. Assign small groups to explore a particular section and report back to the group with their questions. Use this as an opportunity to jump-start personal inquiries into areas of interest.

Pair this website with books by Mark Kurlansky such as Cod and Salt. Or, connect with books like The Omnivore's Dilemma by Michael Pollan. Look for other thematic books in your collection on food related topics such as the history of sugar.

To visit the website, go to http://www.natgeoeat.com/.

THE GREAT WAR ARCHEOLOGY

website explores the work archaeologists are doing to learn more about World War I in France (1914-1918).

This amazing website is divided into five sections titled Called Up to the Front, Archaeological Remains, Day-to-Day Life, Day-to-Day Death, and Underground War and Technical Innovations. Each section provides short text segments, historical photos, maps, video, and other interesting materials.

In addition to the core materials, the chronology section provides an interactive timeline of events along with useful primary source documents and information. The links area provides websites where users can find out more about World War I. Finally, the glossary defines key terms and locations.

Librarians will find the archaeology focus a unique way to explore World War I topics and primary sources. This approach may also attract students who are drawn to the scientific and technical aspects of studying history. Foreign language teachers should note that the website is available in French and German in addition to English.

To explore the website, go to http://archeologie1418.culture.fr/en/.
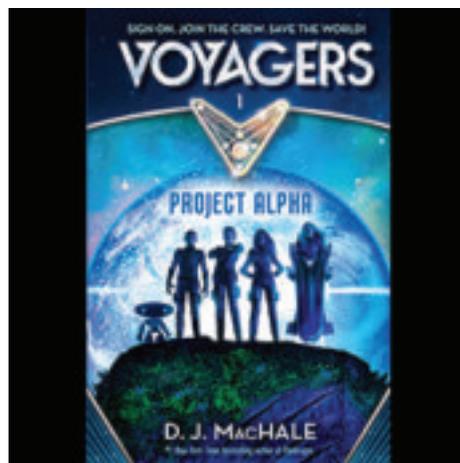
The **VOYAGERS** series is a multi-platform experience including books, an app, and a website filled with engaging activities.

Each book in this science fiction series is written by a different author. The first title, PROJECT ALPHA by D.H. Hale, features four children battling against a wide array of creatures to become part of an elite team that will be sent into space to help save the world. The books contain attractive graphics and cool coded symbols to engage readers.

The Voyagers website contains information about each book. A "Code Entry" area is used to unlock secret information based on the codes found in the books. The "Beyond the Universe" page contains information about the team's ship and fictional information about planets. New sections will be unlocked as each book in the series is launched. The "Project Alpha" area invites participants to take a quiz and become part of the team. Users will also enjoy creating their own ZRK Commander using the "Customizer" tool.

Voyager: The Game is an app that immerses players in the world of the books. Users pilot their space craft through an asteroid field, test their knowledge, complete puzzles, and explore planets.

This multi-platform experience could serve as the focal point for a fun library book club or literature project. Aimed at the middle grades, even reluctant readers will be drawn to the action and multimedia approach. Students would enjoy inventing their own planets and writing their own stories based on the book characters.

To visit the website for the app and games, go to https://www.voyagershq.com/.

Published by Random House Children's Books

The **TED-ED** website is TED's education initiative focusing on short video lessons for students and educators.

As a nonprofit devoted to spreading ideas, TED (Technology, Entertainment, and Design) has covered many educational issues in the past. However, they have recently developed a growing library of lessons aimed specifically at sparking curiosity in learners around the world.

The TED-Ed project contains a number of different elements.

The Lessons area provides access to thousands of lessons. Users can search for topics of interest. Educators are also en-

couraged to build and contribute a lesson around a TED-Ed Original, TED Talk, or YouTube video. The lessons have a standard format including a title, introduction, embedded video, and creator area. They also contain watch, think, dig deeper, and discussion elements. The Customize This Lesson option allows users to add context, questions, discussion items, and follow-up suggestions to any lesson.

The Series area provides organized access to thematic topics such as superhero science, inventions that shaped history, or playing with language.

TED-Ed Clubs support students in presenting their big ideas through TED-style talks. Information is provided about how to start and facilitate a club.

The Get Involved area encourages learners and educators to nominate an exceptional educator or animator to produce a video.

The TED-Ed blog provides information about what's happening at TED-Ed including new lessons, suggestions, and teaching strategies.

Librarians will find a wealth of high quality resources at TED-Ed. Consider collaborating with a teacher to create your own TED-Ed Club!

To explore the website, go to http://ed.ted.com/.
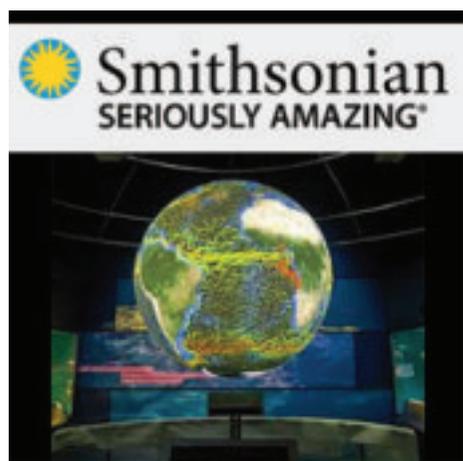
tory and Culture, Science and Technology, Mysteries of the Universe, A Biodiverse Planet, World Cultures, and The American Experience. Each section provides links to activities and games, fact sheets, online exhibitions, online features, reading lists, and research resources. While the resources are designed for the general public, they're very useful for middle and high student projects.

Users can also explore by topic—from aeronautics to women's history—or by resource type such as activities, games, online features, and teacher resources.

The Kids' Favorites section is specifically designed for children. It provides access to dozens of activities and games found throughout the Smithsonian website. It also provides access to Fact Sheets that would be great for informational reading activities. Online Exhibitions of particular interest to youth are also provided including topics such as Abraham Lincoln, Butterflies, and Dinosaurs. Online Features include Invention Stories, Lewis and Clark resources, and the Dynamic Earth.

Librarians will want to spend some time mining this wonderful online resource matching the information sources with specific curriculum area needs.

To explore the website, go to http://www.si.edu/Encyclopedia.
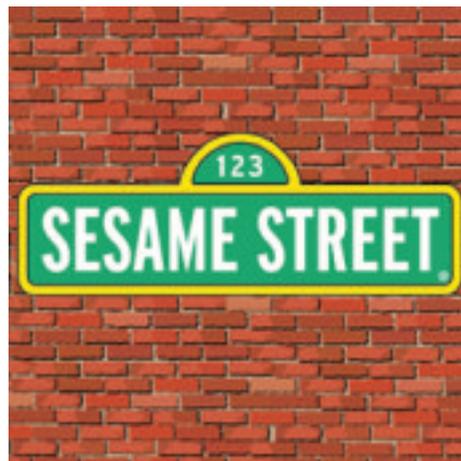
The games section provides age-appropriate games for young children including life skills such as getting dressed and academic games such as letters and numbers. The videos section features short 2-3 minute videos on a variety of topics. Again, the interface is easy enough for small children to use. The Art Maker section provides easy-to-use interactive tools for creating everything from a cookie or pizza to a Jack-O-Lantern. The Muppets section allows users to explore resources related to their favorite character including games, videos, and art projects. Playlists are available based on specific topics and ages.

The bookstore area contains access to eBooks, audio eBooks, animated eBooks, and interactive eBooks. A subscription is required to access most of these books.
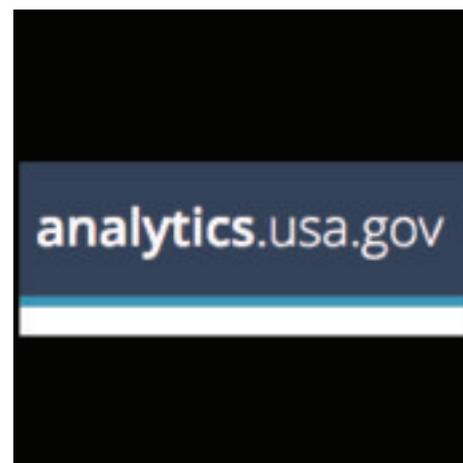
Dozens of apps are available including game apps, story apps, and ebooks. Educational bundles are available for sets of apps. Many of the apps contain the same resources found online.

Librarians will find a wealth of resources for preschool and primary children. Keep in mind that while the general website is free, access to the ebook website and many of the apps requires a license.

To visit the website, go to http://www.sesamestreet.org/.

To visit the ebook area, go to http://ebooks.sesamestreet.org/.

To download apps, go to https://itunes.apple.com/…/develo…/sesame-street/id339077104.

The **SMITHSONIAN ENCYCLOPEDIA** provides access to a multitude of online resources through an easy-to-use interface.

The online encyclopedia is organized into themes including Art and Design, His-

The **SESAME STREET** website, apps, and ebooks contain endless learning resources for preschool and primary children.

The website contains sections focusing on games, videos, art, and the Muppets.

ANALYTICS.USA.GOV is a fascinating statistical website from the U.S.

federal government.

The website shows how many people are currently on government websites and tracks activities over time. Users can view the traffic over the past 90 days and see what devices, browsers, and operating systems are used by visitors. For instance, more than 40% of users are now using Google's Chrome.

Users can also track what government domains have the most traffic. For instance during a 30 day period in Fall 2015, the most visited locations included National Institutes of Health, NOAA's Weather, the Center for Disease Control, the Internal Revenue Service, and NASA. The data comes from Google Analytics.

Librarians will find this to be a captivating website to use with youth. Whether discussing website use with technology students or integrating real-world statistics into a math class, there are many uses for this website across the curriculum. Also, consider an activity that involves students evaluating the most used websites.

To learn more, go to https://analytics.usa.gov/.

WARSAW RISING is a website that tells the story of a the fall and rebirth of the city of Warsaw, Poland.

The website is divided into sections that take users from 1918 through the present. The sections include Warsaw: The Capitol of Poland, Invasion of Poland, German Policy of Terror, De Polnische Untergrundstaat, Battle for Freedom, Insurgent Republic, In Stalin's Grip, Destruction of the City, In the Shadow of Yalta, and Phoenix from the Ashes.

Each section includes short narratives, photographs, primary source documents, videos, and other materials to enhance the experience.

Users can move linearly through the screens or stop to explore through the use of maps and other interactive elements.

Students will find this website to be an engaging way to learn about the impact of war on a city. Involve youth in thinking about how war has impacted other cities around the world. Ask them to build their own timeline incorporating primary source materials.

To explore the website, go to http://warsawrising.eu/.

The **ADMONGO.GOV** website helps tweens learn about advertising so they can become more discerning consumers.

Sponsored by the Federal Trade Commission, the multimedia campaign teaches advertising literacy concepts through engaging interactive games.

After creating a login, students begin the experience by learning to navigate the gaming environment. They then work their way through a series of challenges. For students who prefer to skip the gaming aspect, an interactive text-version of the learning experience is also available.

The learning environment presents participants with a series of experiences where they learn to identify advertising and marketing messages. Then, tweens are asked to apply critical thinking skills to make informed consumer decisions.

Parent and teacher sections provide lesson plans and teacher videos. Educational materials including lessons, worksheets, and family handouts are aligned with national standards. The materials can be downloaded or hard copies can be ordered for free. In addition, a help area and glossary are also available.

Librarians will find this website to be an engaging way to teacher consumer literacy skills.

To learn more, go to http://www.admongo.gov/.

THE CANCER ATLAS is a website providing fascinating information about the global cancer landscape.

Sponsored by the American Cancer Society, World Health Organization, and the Union for International Cancer Control, the attractive and content-rich website contains sections focusing on different aspects of the problem.

The Data section provides access to an interactive map. Users view data based on metrics such as smoking prevalence, air pollution, or most commonly diagnosed cancer. This data can be presented on a world map or by specific country. Users can also display information on a list. A button is available to learn more about a particular metric. A comparison option is provided so users can compare data by country.

The Risk Factors section provides an overview to known risk factors along with specific factors such as tobacco, infections, diet and body composition, and UV radiation.

The Burden area discusses the global issues related to cancer noting issues in specific regions of the world.

The Taking Action area explores opportunities for cancer control.

Other areas include the History of Cancer and Glossary.

Librarians will find this highly-visual approach to cancer engaging for students. Use the website to promote your library's many resources related to healthcare and cancer.

To visit the website, go to http://cancer-atlas.cancer.org/.

HOW TO MAKE ORIGAMI

by Sergey Burlakov is an easy-to-use app demonstrating how to create dozens of origami projects.

The app features patterns in categories including birds, boats, boxes and containers, clothes, flowers, Valentines, and other models. Each project contains a series of easy-to-follow steps. Users are presented with step-by-step instructions presented as text and also visuals. Simple animations show the folding procedure for each step. These animations can be repeated if necessary. The animation speed can also be adjusted.

Perfect for makerspaces, librarians could create a whole station around this app by just providing paper to get students started. Provide students with books for more ideas.

This app is free, but contains ads across the bottom and occasional pop-up ads.

The app developer has other craft apps available including how to quill, make balloon models, how to bead, and how to model clay.

To download the app, go to https://itunes.apple.com/.../app/how-to-make-ori.../id472936700....

DOSOMETHING.ORG is a
website that encourages young people to participate in social change.

Users answer three simple questions: What are you passionate about?

How long do you have?

What would you like to do?

The system then provides suggestions for causes that might be of interest. Or, users can browse current campaigns.

Campaigns include a wide range of topics from science projects to building activity books for children in the hospital.

The What is DoSomething section shares successes and reasons for participating.

Librarians will find lots of ideas for connecting youth with socially relevant service projects.

Visit the website at https://www.dosomething.org/.

The **AMERICAN MUSEUM OF NATURAL HISTORY** YouTube channel contains hundreds of fascinating videos on a wide range of topics.

Dozens of playlists feature video collections of interest to students such as Kid Science, Nature's Fury, Bison, Dinosaurs, Space, and more.

The videos range from very short clips to longer viewing experiences. Some of the videos provide an inside look into how museum exhibits are created and the science behind the exhibits.

Use the search tool to seek out topics of interest within the AMNH YouTube channel.

Librarians will want to mine the channel for videos that can be directly connected to the science curriculum. Also, seek out STEAM related videos such as those related to science, math and origami.

To learn more, go to https://www.youtube.com/user/AMNHorg.

SHAKESPEARE by PlayShakespeare is a free app containing the complete works of Shakespeare.

With 41 plays, 154 sonnets, and 6 poems, students can search by exact or relaxed words or phrases. The free version contains options for changing color combinations along with fonts and text sizes. In addition to the text itself, students can also read detailed scene breakdowns.

The pro-version contains line numbers, a glossary, and other useful additional features.

Librarians will find this to be a practical resource for students seeking the works of

Shakespeare for their English classes.

To learn more about the app, go to http://bit.ly/shakesfaqs.

LEAFSNAP

LEAFSNAP is a comprehensive field guide app focusing on tree species and their leaves.

Developed by researchers at Columbia University, University of Maryland, and Smithsonian Institution, the free app includes high-resolution images of leaves, flowers, fruits, petioles, seeds, and bark to help with tree identification. An onscreen ruler, color guide, and leaf pattern legend is useful in leaf identification.

The Browse section allows users to search for a particular tree and organize trees by common or scientific name. Users can also switch among the leaf mode and other views.

Using location software and mapping tools, the app will identify trees in your area. However this feature is only effective in some areas.

Users can take photos of leaves and create their own database of leaf photos for quick reference. In addition, the app uses visual recognition software to help identify trees based on photographs of their leaves.

Librarians will find this app to be a great addition to their science app collection. Both iPhone and iPad versions are available.

To download the app, go to https://itunes.apple.com/us/app/leafsnap/id430649829?mt=8.

GLOBAL SHARK TRACKER

GLOBAL SHARK TRACKER by Ocearch is a science app and website that allows users to track the movement patterns of sharks using a satellite tracking system.

Both the app and website contain the same features.

In the Shark Tracker section, users can track sharks by recent activity, gender, stage of life, or location tags. Shark locations can be explored on a world map. Clicking a shark presents a photo, date, gender, tag date, and location. Clicking the "view more" option provides additional information including the shark's name, species, stage in life, physical characteristics, and miles traveled. A description provides details such as the shark's life experiences. It's also possible to see the path where the shark has traveled.

The Science section provides detailed information about the science behind the project including the approach, methodology, research projects, expeditions, scientists involved, and papers published.

The Education area provides STEM lessons for Grades 3-5 and 6-8.

Users can also use the website and app to connect with the Facebook, Twitter, YouTube, Instagram, and Blogger social media resources.

Librarians will find this science app to be an engaging way to learn about the navigation patterns of sharks. Pair the app with nonfiction books about sharks and shark conservation.

To visit the website, go to http://www.ocearch.org/.

To download the app, go to https://itunes.apple.com/.../global-shark-tracker/id570772231....

IMAGES OF CHANGE

IMAGES OF CHANGE is a visually-rich science website and app from NASA.

Both the website and app contain similar features.

From natural disasters to growing cities, users take a close-up look at pairs of images that show before and after scenes. Students can see glaciers that have melted, the devastation from floods and wildfires, and the impact of humans in different settings.

Each photo pair contains background information and a map showing its location. Photo pairs are shown side-by-side. With the app version, images can also be viewed individually or overlaid with a curtain slider to make comparisons easier.

Users can browse through the images or select categories including cities, extreme events, ice, human impact, water, land cover, top picks, and most recent. Images can also be viewed on a map.

Librarians will find uses for the images across the curriculum including both science and social science topics and issues. Use the image pairs to jumpstart discussions or as the basis for an exploration of topics related to climate change.

Because the project is from NASA which is a government agency, students can use their images in their projects. The website contains an option to download the image and also shows how to credit the source.

To explore the website, go to http://climate.nasa.gov/state_of_flux.

To download the app, go to https://itunes.apple.com/.../app/images-of-change/id710564941....