

STEM Science, Technology, Engineering, Math

Solar S'mores for a Hot Day!

You'll need: large pizza box, pencil, ruler, craft knife, aluminum foil, scissors, glue stick, black construction paper, clear packing tape, clear plastic sheet protectors, stick or dowel, and S'more fixings. Draw a square atop the pizza box that is an inch smaller than the lid all the way around. Cut the square along three sides with the craft knife. Then fold the cardboard up along the uncut line to form a flap. Glue aluminum foil to the bottom of the flap. Glue another piece of foil to the inside bottom of the box, then the bottom of the flap. Tape clear plastic to the underside of the flap. Tape black construction paper on top of the foil. Tape clear plastic toward the top of the flap. Place your oven in direct sunlight with the flap opened toward the sun. On the bottom of the box, top a graham cracker with a marshmallow, another sun, with chocolate, and set beside each other (not on top). Prop the flap open at an angle that reflects the most sunlight into the box. Assemble into S'mores after an hour or so.

Building (Straw) Bridges

Materials:

- 20+ Straws (not the bendy kind)
- Tape • Scissors • Ruler • Paper/Light Cup • Pennies

Procedure:

1. Practice. Find out what shapes work best. Test your ideas with straws.
2. Make a plan. Sketch your ideas and see what will work best. Try to use only 20 straws per bridge.
3. Build your bridge. Put your bridge together using only straws and tape. Make sure the cup can fit on your bridge.
4. Testing. Find a spot to put your bridge where the middle is not supported (like between two chairs). Put the cup on your bridge and add pennies until your bridge breaks.
5. Make it stronger. Figure out where your bridge was weakest and fix this in your next design. See if this bridge can hold more pennies!

What is STEM? Science, Technology, Engineering, Math

Web Picks

STEM in databases and on the Internet. The term STEM (science, technology, engineering, math) is fairly new and isn't always easy to research.

From KidsWeb (right-hand side of ppld.org), click on Homework Help, Kids Databases (on the left), and scroll down to Science in Context. Search for STEM and down below all of the articles on stem cell research, you'll find an audio NPR interview "How Parents are Leading the Revolution for Girls in Tech."

Back on KidsWeb's Homework Help page, take a look at the librarian-chosen math and science websites. For older kids, go back to PPLD's home page and under Research on the left, check out By Subject (for databases) or Recommended Websites to find lots of information on science (including mathematics), computers, and the Internet. Finally, search the Internet for "STEM" and find many websites devoted to that topic. I found searching "STEM science technology engineering math" brought up many more choices than "STEM" alone.

Fiction

Lawn Boy by Gary Paulsen

The Limit by Kristen Landon

An Abundance of Katherine by John Green

Feed by M.T. Anderson

The Maze Runner by James Dashner

Nonfiction

509 H155N

Newton at the Center by Joy Hakim

512 M15K

Kiss My Math:

Showing Pre-Algebra Who's Boss

by Danica McKellar

530.11 O79H

How to Teach Relativity to Your Dog

by Chad Orzel

614.17 W184W

Written in Bone: Buried Lives of Jamestown

and *Colonel Maryland* by Sally M. Walker

Experience STEM with Kids

JEasy (picture books)

Charlie and Kiwi: An Evolutionary Adventure by Eileen Campbell

11 *Experiments that Failed* by Jenny O'Neil

Randi Riley's Really Big Hit by Chris VanDusen

Dot by Randi Zuckerberg

Ask for the "Math in Picture Books" booklist at your local library!

JFiction

The Unknowns: A Mystery by Benedict Carey

Shantorian by Patrick Carman (Trackers series)

The Lemonade War by Jacqueline Davies

Wake Up Missing by Kate Messner

The Alchemist War by John Seven (Time-tripping Faradays series)

JNonfiction

510. C752P *The Book of Perfectly Perilous Math*

by Sean Connolly

607. S399C *Cool Engineering Activities for Girls*

by Heather Schwartz

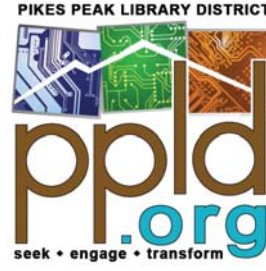
609.51 Y37C *The Chinese Thought Of It: Amazing*

Inventions and Innovations by Ting-xing Ye

624. M649S *Seven Wonders of Engineering*

by Ron Miller

Tell us what you think! We welcome topical ideas to enhance your educational endeavors. Contact gsohns@ppld.org.



PIKES PEAK LIBRARY DISTRICT

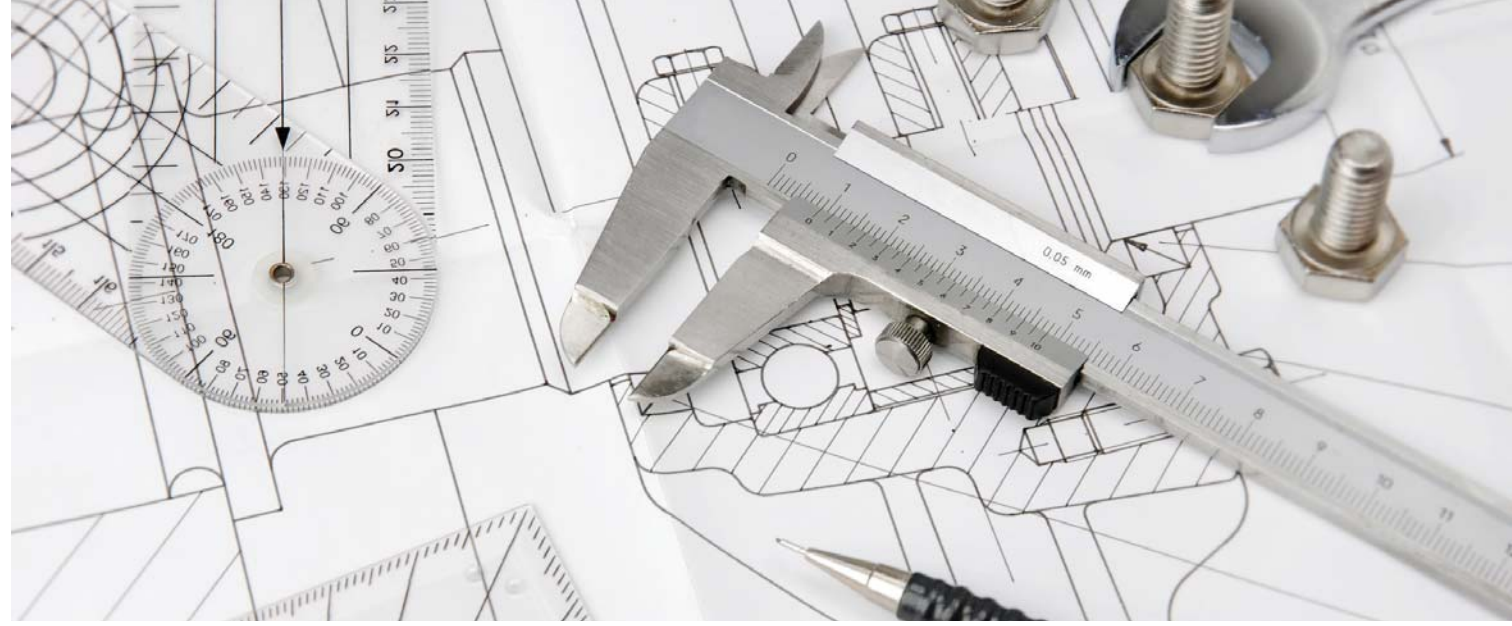
HOMESCHOOL CONNECTIONS

An Educational Resource Tool

Summer
2014

STEM - Science, Technology, Engineering & Mathematics

What does this mean for homeschoolers?



First, kids love **science**. They love discovering things about the world around them, and that is all science really is, especially for elementary years. Take nature walks and name the things you see that are alive. Are these things plants or animals? On the next walk, name the things that are not alive. Summertime is a good time to pack plenty of hands-on, outside science activities: plant a seed, grow a tomato, and watch the clouds pouring over the mountains. The possibilities are endless. Count these summer activities as school time! Check the library shelves in the 500-699s for science experiment/activity books and more ideas. Read about animals. Read about weather. Do some of the activities. Have fun with summer science.

Technology is so much more play for children than work. Check out the touch screen AWE computers in the children's area at any PPLD location for plenty of opportunities for interactive, kid-friendly uses of technology. Tablets and computers at home are certainly

examples of technology. Technology requires the user to learn how to use any device or application, and this is an opportunity to use problem solving skills, which are an underlying element of STEM.

Engineering is another seemingly difficult topic. Schools are still grappling with how to teach this, and few clear answers are available to explain just how this works. Remember that an engineer uses knowledge and skills to solve problems. Most science projects, therefore, will end up with some engineering. *World of Goo* is a computer game/program that combines science, technology, and engineering to solve the problem of getting the Goo balls from one point to another. This requires a basic knowledge of how things work, like gravity, weight of objects, and much more. Read the Wikipedia article for more on this fun puzzle game that is available on the PPLD AWE computer stations. Play with Legos. Download and play with

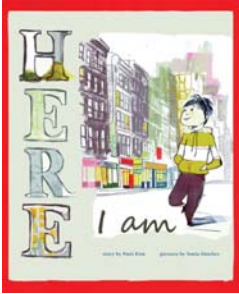
Scratch, available at scratch.mit.edu. **Scratch** is a simple computer programming interface that allows users to experiment and problem solve to create their own simple animations.

Mathematics is seemingly easiest of the four. But what if you, as parent/teacher, just do not understand certain math concepts? Your child could teach you, or you and your child can use **BrainFuse**, a FREE online tutoring service available on the PPLD website. Real live math instructors will help your child work through difficult math concepts, as well as any other school subjects. From ppld.org, go to **KidsWeb** – the icon is on the far right. From there, click on **Homework Help**, and then look for **BrainFuse** in the left-hand column.

STEM topics really cannot be completely separated from one another. Encourage your children to discuss and decide how they would categorize an activity, and always ask them, "why?"

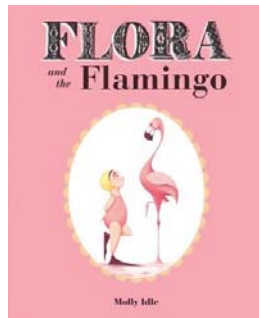
To contact PPLD's Homeschool Committee, please email gsohns@ppld.org.

new
The BookShelf
 great new books for homeschoolers



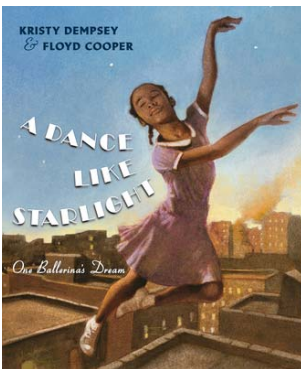
Here I Am by Patti Kim (2014)
 This wordless story tells of a child new to America who is not at all happy to have left home. The author tells about her experience in the end notes, when her family immigrated to America.
 Ages 6 - 12

Flora and the Flamingo
 by Molly Idle (2013)

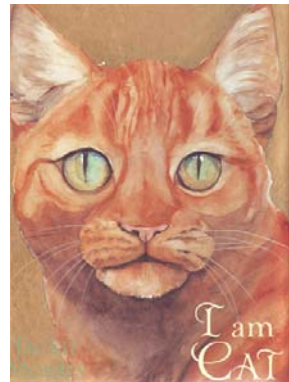


Yet another wordless story, this book won a Caldecott Honor Medal! Flora and the flamingo are dancing, gracefully – most of the time – throughout the story. Count on your children getting up and trying out the poses.
 Ages 3 - 6

Dance Like Starlight: One Ballerina's Dream
 by Kristy Dempsey (2014)



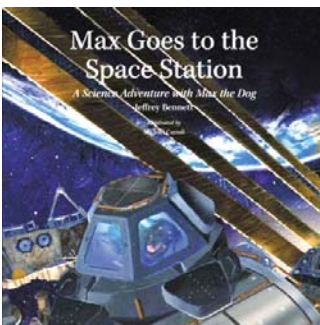
Set in 1950s Harlem, this is both the story of Janet Collins, the first African American prima ballerina, and a little girl, also African American, who dreams of being a ballerina, too.
 Ages 4 - 10



I Am Cat by Jackie Morris (2013)

First published in Great Britain in 2012, cat lovers of all ages will enjoy this lyrical, easy reading story of assorted wild cats living throughout the world. Author includes information in the end pages about these same wild cats.
 Ages 4 - 10

Max Goes to the Space Station: A Science Adventure with Max the Dog
 by Jeffrey Bennett (2014)



Max the Dog has been to Jupiter, Mars, and the Moon in previous books, and this year he is off to visit the International Space Station. This is both a story and science book, with informational sidebars throughout. The author includes a lot of information at the end of the book for additional activities/science lessons.
 Ages 5 - 10

Pikes Peak Library District

Secrets

Little-known resources available through ppld.org!

Technology is about learning to use devices and software, and ppld.org has several ways for homeschool students to learn more about software through free online tutorials.

Look for Career Compass on the ppld.org homepage. There are excellent databases available for patrons living in the Pikes Peak Library District under this heading.

Learn On Demand is a software tutorial service that is FREE if you are in the library, or at home with a library card that starts with the number 4. You will create your own account with an email address and a password. Once you have an account setup, there are 49 extensive tutorials, covering Access, Excel, Microsoft Office, PowerPoint, Quick Books, SharePoint, Windows 8, and more. Finish one and there is a certificate of completion to print and add to your achievements folder.



Universal Class is the last item under Career Compass and offers FREE online class work, in a wide range of topics. There are some great software/technology classes: Adobe Photoshop, Web Development, Dreamweaver, Building Web Pages, and more. Again, you need to be a resident to use this from home; if you live out of the District, you can use this for FREE in the library.



Technology for the younger set: Try out TumbleBooks, always available on the KidsWeb page. Look for that tumbling blue book, and try some of the activities/reading and literacy activities that are available. Learning to navigate software is a significant step in learning new technology.

Homeschool Programs

FREE! Curriculum Swap

Revitalize your family's learning resources or start your homeschool library! Bring curriculum items you no longer need. Find gently used items other families are ready to part with. This is a totally free event. No money will be exchanged. Contact Gail at gsohns@ppld.org or 531-6333, x1409 if you plan on bringing curriculum to swap so we can reserve a table for you. Hope to see you there!

Thu., June 26 ♦ 1:30 - 2:30 p.m. ♦ East Library

Homeschool Resource Fair

Come visit with local organizations and learn how they can help you educate your children. We'll have enrichment programs, scouting, lessons, field trip destinations, support groups, and other resources represented.

Fri., Aug. 8 ♦ 9 a.m. - noon ♦ Library 21c

Game Day

Come play outdoor games with your family and other homeschoolers in George Fellows Park behind East Library. Bring a kite (if it's windy), favorite game equipment, and a picnic lunch if you want. We'll provide balls, jump ropes, chalk, bubbles, and ideas for some fun games. In case of bad weather, game day will be cancelled. Contact Gail at gsohns@ppld.org or 531-6333, x1409 with questions.

Fri., Aug. 29 ♦ 11 a.m. - 12:30 p.m. ♦ East Library (George Fellows Park)

Other Events & Programs

Teens Wii Sports League!
 Come test out your virtual athletic skills and get a work-out in while playing against friends. Beginners welcome.

Thursdays ♦ 3:30 - 5 p.m.
 High Prairie Library

Tween Art Club

If you are 9 and 12 years old and love to make Art, join us for this biweekly Summer Tween Art Club!

Wed., June 11 and 25, July 9 and 23
 1 - 2 p.m. ♦ Fountain Library

Manga and Anime Clubs

Anime Club
 2nd and 4th Fridays ♦ 4 - 5:30 p.m.
 High Prairie Library

East Manga Club
 3rd Saturdays ♦ 2:30 - 4 p.m.
 East Library

Visit your local library to pick up a calendar with a full listing of Summer Activities!

Summer Reading Program ♦ June 1 - July 31, 2014



Kids: Fizz, Boom, Read!

We have two reading programs for kids this year, "Fizz, Boom, Read for Babies and Toddlers" (ages 0 - 2) and "Fizz, Boom, Read!" (ages 3 and up). For the younger children, parents will read and do some fun activities with their little ones. Older kids will keep track of the amount of time they read. Participants in both programs earn prizes along the way including a free book to take home!

Visit our "Fizz, Boom, Read!" website from ppld.org to register and find dates and locations of our fun summer programming.

Teens: Spark a Reaction!

The teen summer reading program is open to anyone entering grades 6 - 12. Up for grabs are coupon books for free eats and games, books or journals, T-shirts, a tablet, wall climbing lessons, and more! Join other teens at your library and participate in many different programs being offered throughout the summer including movie nights, crafts, and a writing contest!

Visit the teen webpage (ppld.org/teens) for event times and locations and for online registration. Please keep in mind that some teen programs do require registration and may have age restrictions.

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... a Reaction

Would you like to be a Featured Family?
 Contact Tina at tlewis@ppld.org.