STEM Programs That Engage Youth on a Library Budget



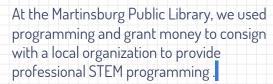
How we present STEM at MBCPL



In - House Programs

At the branch libraries, we think of a theme... or a question and build a program from that. At North Berkeley, our Homeschool Connection programs are monthly. Level Up programs at Hedgesville are offered twice a week (same program twice a Monday). At Musselman–South Berkeley, a monthly GS Badge workshop is STEM filled and open to everyone.





NASA @ My Library & NASA ERC

In WV, we have access to NASA IV&V ERC in Fairmont. Coordinating trainings enables NASA personnel to bring (and leave) equipment for programming. We have used the portable planetarium, the rocketry kits, Lego WeDo robots, Lego NXT robots, and others.

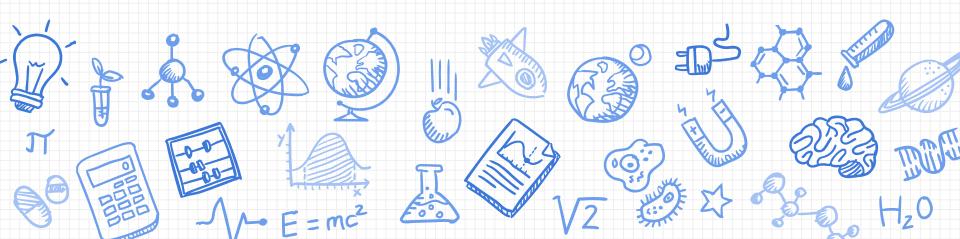
Sarah applied for and received a three year NASA grant that supplies the library with many wonderful kits including the eclipse glasses, UV beads/Sun kit, Moon kits, and other science related activities.







10 (mostly) Free STEM programs



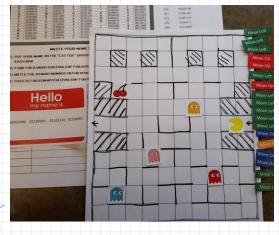






Math / Technology

This is a really easy way to introduce participants to the world of coding.















pH Indicator

Science

pH indicator and

Red Cabbage acts as a pH indicator and you can use household acids and bases to change the indicator color.

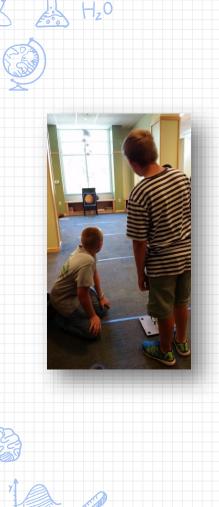






#3 Engineering Challenges **Engineering**

Squashed Tomato Challenge, Build a Bridge, Build a Tower, Drop an Egg, Build a Teepee...

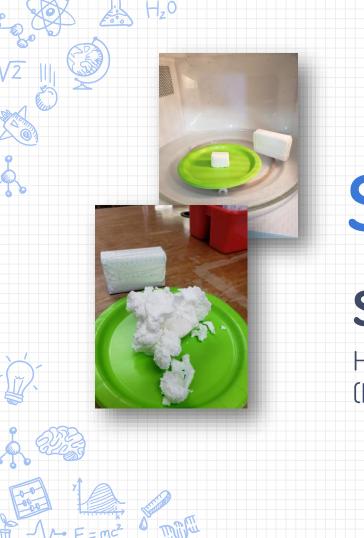


#4 Projectile Motion **Engineering**

Talk Newton's 3 laws, build a rocket, and launch away.





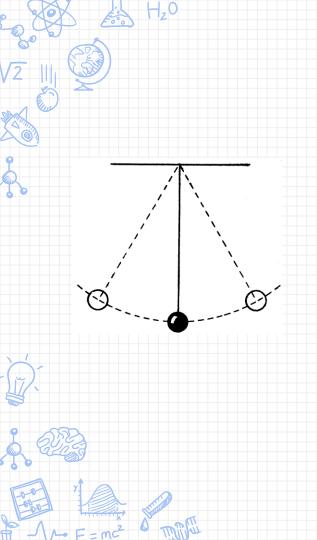


Soap Science

Science

Have you ever put ivory soap in the microwave? (Fun was had by all!)

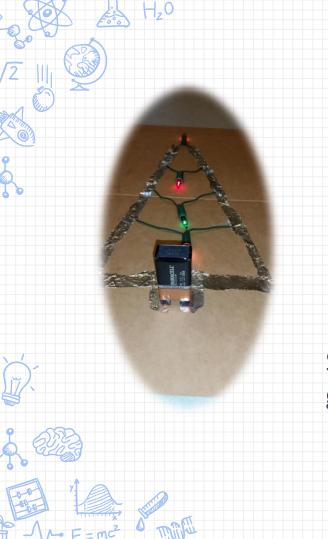
#5



Pendulums Science/Engineering/Math

Swing a large washer or bolt from the ceiling Make a 39.1 inch pendulum clock!

#6



Electricity

#7

Engineering

Save those broken Christmas lights and grab some aluminum foil for this lab.





Static Electricity

Engineering

#8

It's shocking... there are so many FUN things to do with static .



#9

Minor Explosions Chemistry (Science)

A little vinegar... a little baking soda... some food coloring. What could happen?



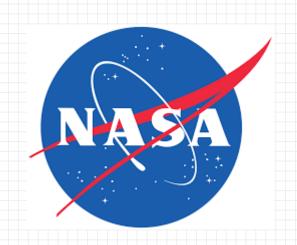
#10

Benham Disk

Science

Optical Illusion using old CD, a marble, and paper.





NASA

And How They Can Help WV Libraries with STEM





IV&V's ERC -

http://www.facebook.com/groups/nasaerc

WV FIRST® LEGO® League (WVFLL) -

http://www.facebook.com/wvfll

http://www.facebook.com/wvvex

West Virginia VEX Robotics -

100 University Dr. Fairmont, WV 26554 X Email: erc@ivv.nasa.gov

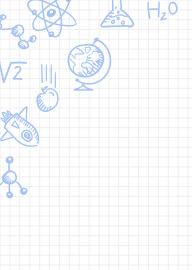
X Phone: 304.367.8200

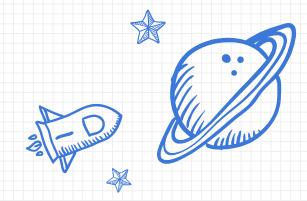
X Phone: 304.367.8438 (ERC)

X https://www.nasa.gov/centers/ivv/education/educators.html

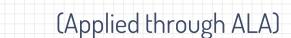
X https://www.nasa.gov/centers/ivv/education/educators.html















Contacts made through NASA @ My Library

- X Space Science Institute (SSI)
 http://spacescience.org/scienceforthepublic.php Activities
- X STARnet
 http://clearinghouse.starnetlibraries.org/ Stem Clearinghouse activities
- X National Center for Interactive Learning (Provided by SSI) http://ncil.spacescience.org/index.html



Resources discovered through NASA @ My Library

NASA Subject Matter Expert (SME) Networks

- X NASA Speakers Bureau
 http://www.nasa.gov/about/speakers/nasa-speakers-howto.html
 Through the NASA Speakers Bureau, libraries may request a presentation about NASA's human space exploration, rockets, or aeronautics programs.
- X NASA Educator Resource Center Network
 www.nasa.gov/offices/education/programs/national/ercn/home
 NASA Educator Resource Centers are located throughout the United States
 and provide educators with demonstrations of educational technologies, such
 as NASA educational websites, as well as training using NASA instructional
 products.



Resources discovered through NASA @ My Library

NASA Subject Matter Expert (SME) Networks continued...

X NASA Night Sky Network http://nightsky.jpl.nasa.gov | Find an Event or Club

A coalition of over 450 astronomy clubs across the US. They share their time and telescopes to provide you with unique astronomy experiences both inside and under the real night sky. The collaboration possibilities are endless.

X NASA Solar System Ambassadors http://solarsystem.nasa.gov/ssa

Solar System Ambassadors Program is a public outreach program designed to work with volunteers across the nation who communicate the excitement of NASA's space exploration missions and information about recent discoveries to people in their local communities.





THANKS! Any questions?

You can find us at

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X sarah.shewbridge@mbcpl.org

This presentation and Handouts can be found at:

www.MBCPL.org/wvla-stem-2018



Credits

Special thanks to all the people who made and released these awesome resources for free:

- X Presentation template by <a>SlidesCarnival
- X Photographs by <u>Unsplash</u>

