

# The Open Schoolhouse

## A Model for Student Empowerment



**Charlie Reisinger**  
Penn Manor School District  
@charlie3 #CPOSC2016

# PENN MANOR HIGH SCHOOL



[www.pennmanor.net](http://www.pennmanor.net)



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# The Open Schoolhouse

Building a Technology Program to Transform Learning and Empower Students

[Author](#)   [Contact](#)   [Get the Book](#)   [Photos](#)   [Reviews](#)   [Open Source Software for Schools](#)

Go Open Source!

## Now on Amazon!

Schools leaders struggle with budget-breaking software bills while students endure locked-down computers and closed technology policies. Thankfully, there's a better way to empower and inspire students: the open source model.

The Open Schoolhouse is a candid story and practical guidebook for school administrators and educators seeking affordable and powerful technology programs. Follow Penn Manor School District's open technology journey from the server room to the classroom. Learn how open source software and values helped the district cut costs, design a one-to-one laptop program, and create an internationally recognized student help desk. You'll discover:

- The secrets behind free and open source software and how open source principles ignite classroom collaboration, design thinking, and communities of practice
- How LibreOffice, Linux, Moodle, WordPress, and other open source programs can save schools hundreds of thousands of dollars
- How open source culture and software tools can help school technology teams improve infrastructure and support systems
- The step-by-step story of dreaming, planning, and launching an open high school one-to-one laptop program and [student technology help desk](#)
- How a remarkable team of high school technology apprentices created innovative software for thousands of students and teachers



# 21<sup>st</sup> Century Learning



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# 21<sup>st</sup> Century Skills

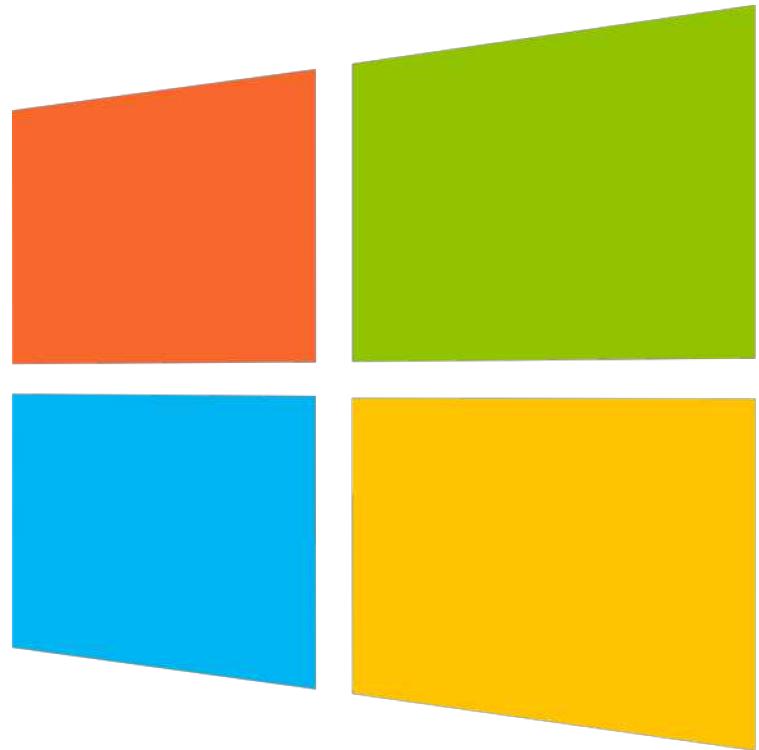
Analytic Thinking  
Creativity  
Collaboration  
Communication  
Media Literacy  
Problem Solving  
Self Direction

**“The scandal of education is that every time you teach something you deprive a child of the pleasure and benefit of discovery.”**

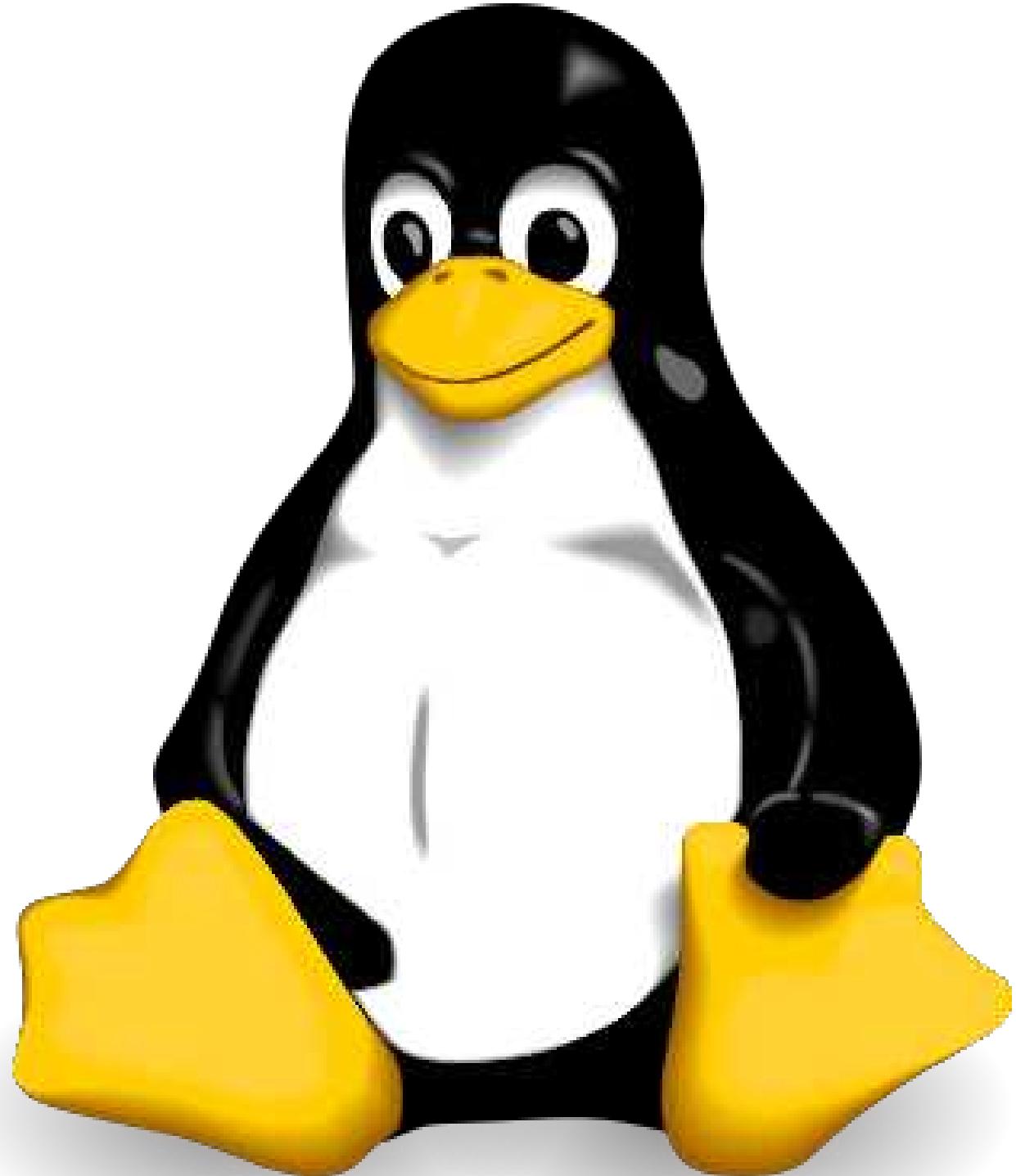
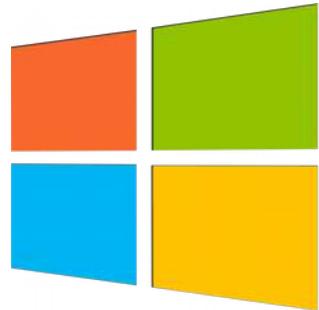
Dr. Seymour Papert

# New Yorker June 25, 1990





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**“I've never heard of this weird open source thing. Is it like Download.com?”**

**“FLOSS is insecure and low quality.”**

**“Students must learn Microsoft and Adobe,  
like in the real world.”**

**“But Adobe, Apple, and Microsoft give education discounts!”**

**“If the IT people are happy teachers are probably unhappy.”**

# Foundations

FEDERAL RESERVE NOTE  
THE UNITED STATES

THIS NOTE IS LEGAL TENDER  
FOR ALL DEBTS, PUBLIC AND PRIVATE

B 3 2



B 03542754 F

2 *Rosa Gumataas Lis*

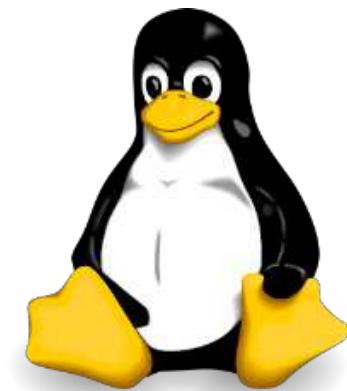
Treasurer of the United States.

WASHINGTON

ONE DOLLAR



Mattermost



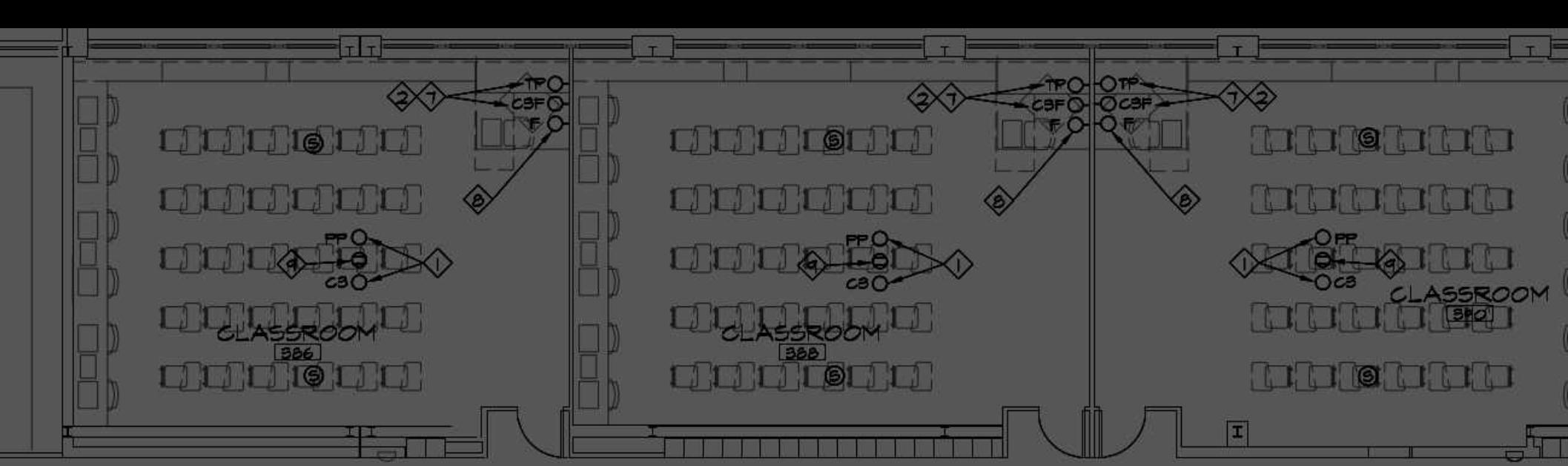
<b>Free &amp; Open Source Software</b>	<b>Commercial Software</b>	<b>Yearly Savings Penn Manor SD</b>
Linux on servers	Windows	\$10,000
Koha Library System	Follett Destiny	\$10,000
Moodle LMS	Blackboard, Schoology	\$20,000
WordPress	Schoolwires website	\$20,000
ownCloud	Crashplan, Dropbox	\$5,000
Mattermost	Slack, MS Lync	\$30,000
sipXecs	Avaya, Cisco	\$15,000



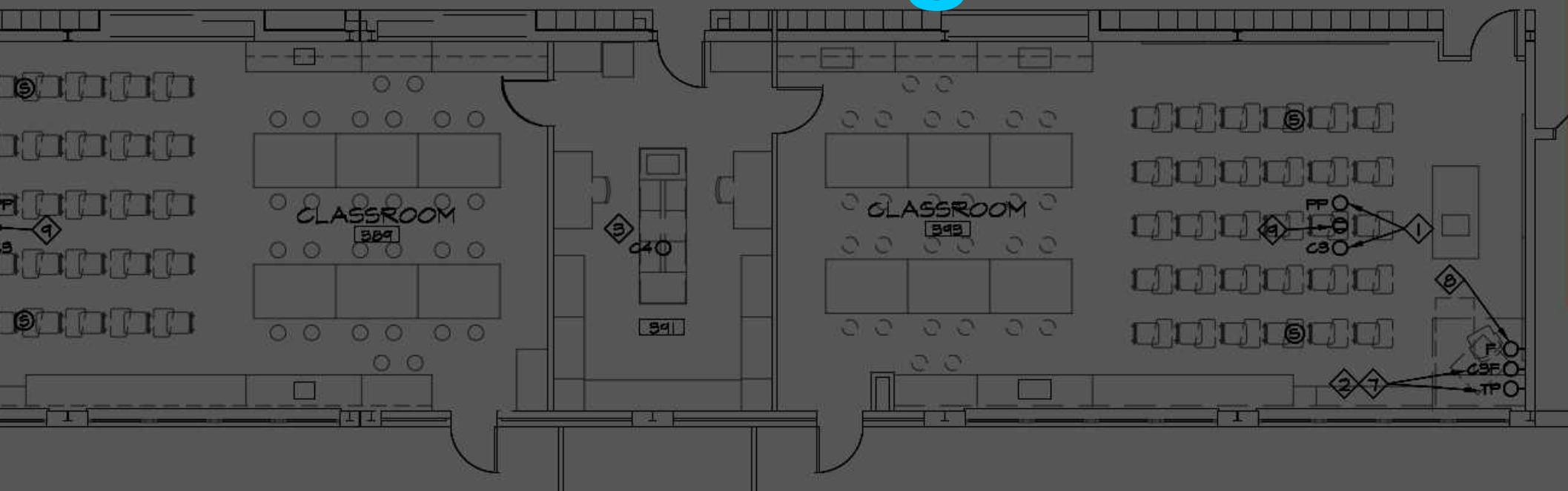
# Elementary



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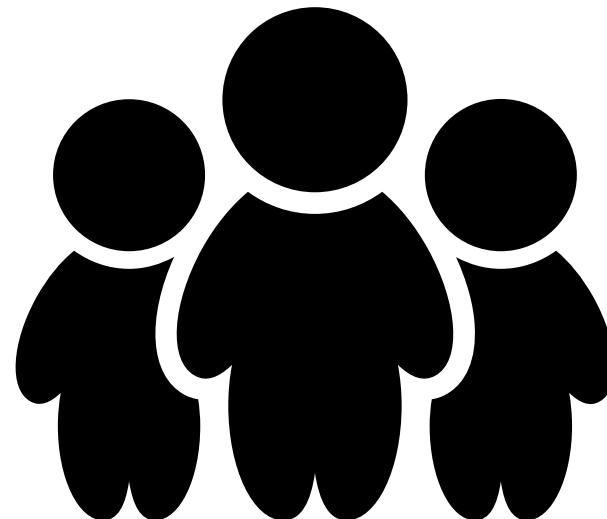
# Middle and High School



# One-to-One Program

Grades 7-12

2500+ Linux Laptops



**\$360,000  
Saved**

**No Windows  
No MS Office  
No Anti-virus**



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# **Equity of Access Science, Tech, Engineering, Math Writing and Language Arts**

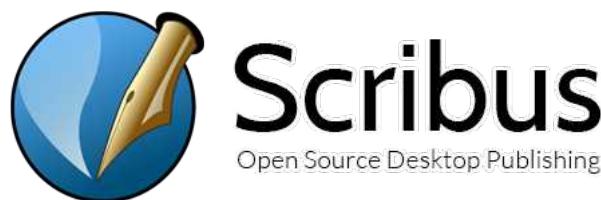
## **Curiosity and Agency**

```
admin@school:~$ sudo ./Embrace_Open.sh
```

Students have  
admin accounts.



musescore



GeoGebra



SCRATCH





musescore



INKSCAPE



LibreOffice®

GeoGebra

DATA RECOGNITION  
**DRC**  
CORPORATION



**SAS** Standards Aligned System



enlive

enShot  
Video Editor

SCRATCH



KRITA

Synfig Studio  
Open-Source Animation Software

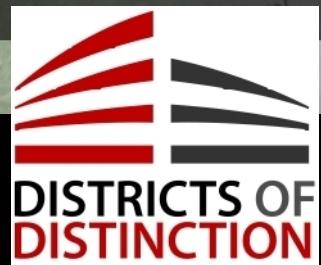


# Professional Development



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# Student Help Desk





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## PMHS 1:1 Help Desk

@pm1to1helpdesk FOLLOW YOU

Student run tech support for the 1:1 Linux laptops at Penn Manor High School.

📍 Millersville, PA

🔗 blogs.pennmanor.net/1to1/

Tweet to

Message

👤 23 Followers you know



📸 48 Photos and videos



TWEETS  
96

FOLLOWING  
69

FOLLOWERS  
65

LIKES  
38



Following

Tweets

Tweets & replies

Media



PMHS 1:1 Help Desk @pm1to1helpdesk · Apr 28

How to Format a Flash Drive: [youtu.be/LRRDR8TpvlQ](https://youtu.be/LRRDR8TpvlQ) via @YouTube



How to Format a Flash Drive

This tutorial is on formatting a flash drive.  
[youtube.com](https://youtube.com)



PMHS 1:1 Help Desk @pm1to1helpdesk · Apr 27

Try installing KDE on your student laptop, for a different computing experience! :D [wp.me/p5oO70-Hc](https://wp.me/p5oO70-Hc)



Who to follow · Refresh · View all



PulledApartByHorses

Follow



NSA/CSS

Follow



UN Environment

Follow

Find friends

United States Trends · Change

Rico Gathers

Just started trending

Bobby Shmurda

21.5K Tweets

#IMadeAMovie

Trending for 3 hours now

#SparksEnergy300

Trending for 2 hours now

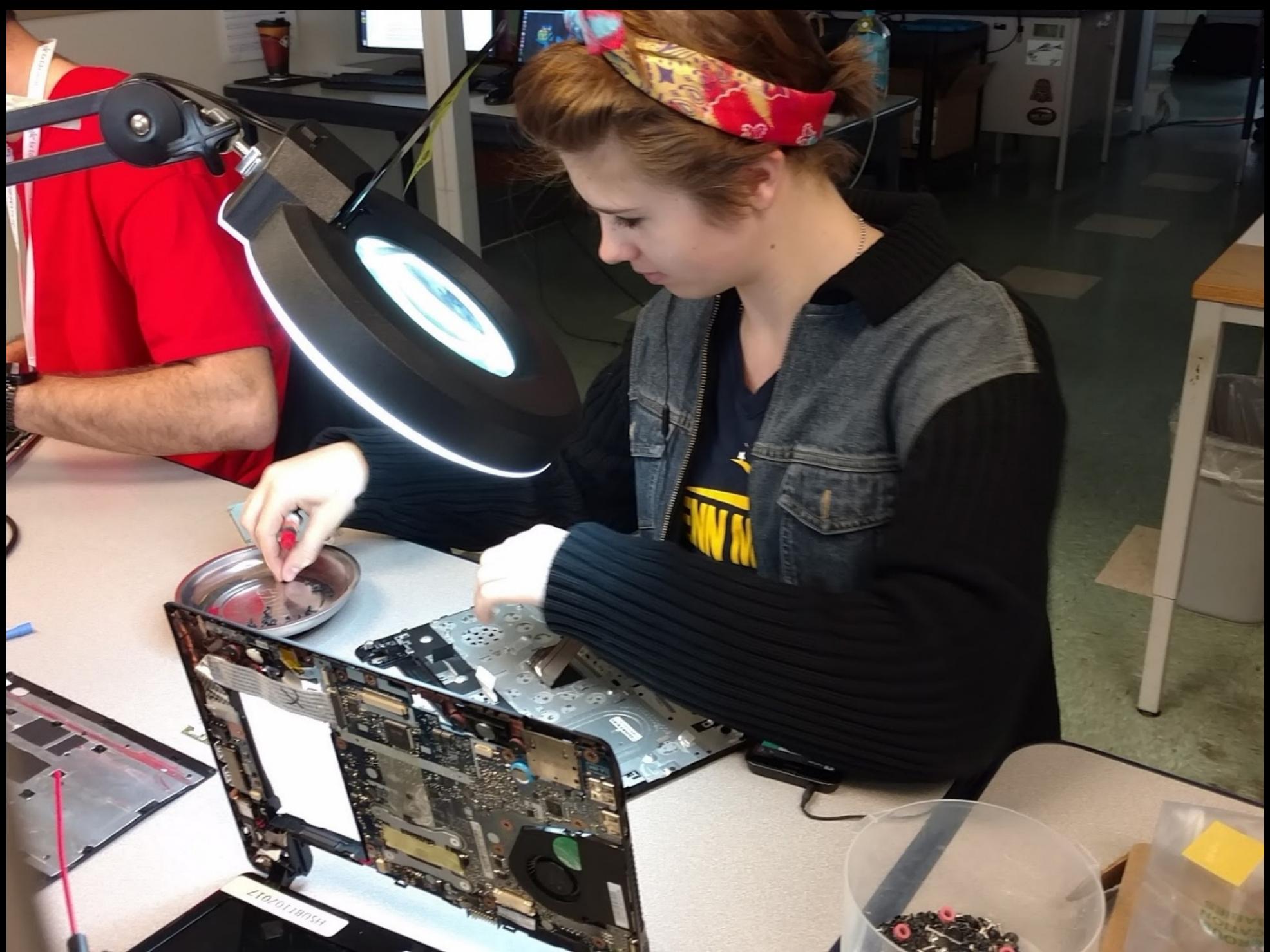
#Independentbookstoreday

13.1K Tweets

#5WordLieToYourSpouse

Just started trending

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# Student Help Desk

Tech Talk 2016



# PM Student Helpdesk

## LittleBits, What are they?

March 31, 2016 by Spencer Creasy



LittleBits are mini magnetic pieces that can be assembled into easy to build circuits. Little bits are designed for ages 8 and up, but since they are so simple to use the student apprentices at the help desk are incorporating the little bits into a robot project. The LittleBits include many little parts which come in kits or they can be purchased separately. Many of the ... [\[Read more...\]](#)

Search the site ...

### HELPFUL PAGES

[1:1 Frequently Asked Questions](#)

[About the 1:1 Laptop Project](#)

[Contact 1:1 Support](#)

### FOLLOW US ON TWITTER

 **PMHS 1:1 Help Desk** @pm1to1helpdesk   
Meet the Student Apprentices - Week 1 -  
Jared Mylin: [youtu.be/bM1nb\\_EJGE?autoplay=1](https://youtu.be/bM1nb_EJGE?autoplay=1)  
via [@YouTube](#)



 **PMHS 1:1 Help Desk** @pm1to1helpdesk   
How has technology improved education?  
Find out from the the students of Hambright  
Elementary @pennmanor

## How to Use Brackets

March 30, 2016 by Brielle Bitts

Brackets is a free application that is pre-downloaded on your student laptop to type coding into such as HTML(Hypertext Markup Language, a standardized system for tagging text files to achieve font, color, graphic, and hyperlink effects on World Wide Web pages), CSS("Cascading Style Sheet." Cascading style sheets are used to format the layout of Web pages), or JavaScript(an ... [\[Read more...\]](#)

## Podcast 009 – Robotics and AI Technology

March 23, 2016 by mhaag

Recorded by Isaac Lewis & Mitch Haag Discussing and reviewing "Atlas", the upgraded robot out of Boston

# Ben



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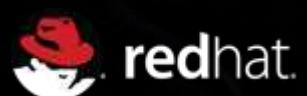
[Home](#)[My Tickets](#)[New Ticket](#)[Feedback](#)[Admin](#)[Logout](#)

# Student Help Desk

No one is currently at the Student Help Desk. You are welcome to [submit a ticket](#).

[Submit a Ticket](#)[Send Feedback](#)[Read the Blog](#)

Remember to login with your Penn Manor Google Docs user name and password



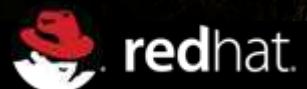
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The background of the slide is a photograph of a rural landscape at sunset. The sky is a gradient from blue to orange and yellow. In the center, there's a white barn with two dark silos attached to it. The foreground is a field of tall grass.

# OPEN SOURCE STORIES

## PENN MANOR

The power of open in education



# Susan



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194

11

8

1

1

## Student-run help desk introduces teens to Linux

Posted 26 Jan 2016 | Susan Black  | 88  | 14 comments



Image by : opensource.com



### About the author

**Susan Black** - Susan Black is currently a senior at Penn Manor High School, and a member of the Penn Manor Student Technology Team. She loves music, video games, tea, and technology.

- » [More about me](#)
- » [Learn how you can contribute](#)

I was the first young woman to join the [Penn Manor High School Student Help Desk](#), an independent study course where we learn about software, hardware, technical support, and customer service skills.

**“I think of our help desk room not as a class, but as a family. We motivate and teach each other.**

**I don't have to hide who I am in this class.**

**Nobody dares to judge one another, and we become closer by our differences.”**

**Susan Black**

```
admin@school:~$ sudo ./Embrace_Open.sh
```

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**theopenschoolhouse.com**

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Charlie Reisinger & Penn Manor School School District  
Red Hat Open Studio

