Piper Computer Hardware Making Summer Camp

For Curious Beginners Ages 9-18

Somerset County Library invites kids and teens ages 9 and up to collaborate in classroom instruction, hands on activities, and PiperCraft* game-play to learn basic engineering skills and build computers and electronics. Let's turn screen time into build time!

PiperCraft is a version of the Minecraft game in which players engineer real-world electronics to use in the game.

Class space is limited to 18 participants.
Bring registration form to the library or the bookmobile or register online, by email, by fax, or by phone:

Somerset County Library

6022 Glades Pike, Ste. 120

Somerset, Pa 15501-4300

http://somersetcolibrary.org/events/piper/

tweigle@somersetcolibrary.org

Fax: (814) 443-0650

This camp is made possible by a grant from the Somerset County Community Fund of the Community Foundation for the Alleghenies.

COMMUNITY FOUNDATION
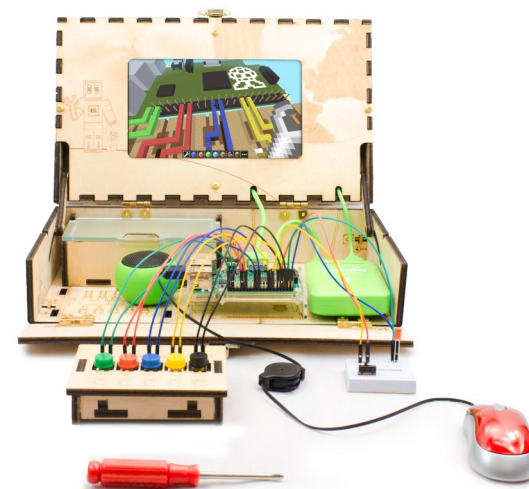FOR THE ALLEGHENIES

Somerset County LIBRARY

Come grow with us.

Piper Computer Hardware Making Summer Camp

For Curious Beginners Ages 9-18

Monday, July 31—Friday, August 4
10 AM—1:30 PM

(hot lunch provided daily through the USDA Summer Food Service Program)

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REGISTRATION FORM: Piper Computer Hardware Making Camp, for ages 9 through 18

Maximum class size: 18

Name of Adult Participant, Parent ,or Guardian _____

Address _____

email address _____

Opt-in to receive Library Flyers and News by email? ___ YES ___ NO

Attendee's name	Age	Grade in Fall	School/Homeschool

Phone _____

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Please complete optional photo/video release form on reverse side & ask for pre-course survey.

Piper Computer Hardware Making Camp

Somerset County Library presents five action-packed days of PiperCraft game play and instruction designed to turn screen time into build time. This camp is organized and presented by staff of the Somerset County Library making use of Piper Computer Kits. During the camp, kids and teens will work in teams of up to 3 to assemble their computer themselves, advance through a Raspberry Pi Edition of Minecraft Story, and learn physical engineering and electronics in the process. Each lesson builds on the last. It is our ultimate goal to increase participant's creative confidence around computers and electronics. Pre– and post–course surveys will be used to help us measure our success.

Monday, July 31—Friday, August 4 at 10 AM—1:30 PM (with a hot lunch provided daily through the USDA Summer Food Service Program)

Piper Lesson 1 – Computer Hardware Overview + Piper Build. The goal of this lesson is for students to begin gaining literacy of the Piper hardware components. Students will gain an understanding of microcomputer system parts and their purpose, specifically:

- Purpose of basic input/output devices
- Purpose of different cables: RPi power, display power, HDMI, Audio power.
- Purpose of basic electronic components: breadboard, buttons, wires, switches,
- Purpose of case parts and hardware.

Piper Lesson 2 – Buttons and Breadboards. Having built the kit and learned the physical structure and functions/purposes of the all parts, students will now go through the fundamental concept of wiring a circuit and understanding how circuits on the breadboard work. Students will need to correctly set up an input circuit featuring a RPi, GPIO pins, wires, breadboard and momentary buttons in order to win levels 1 and 2 of the PiperCraft game during this lesson.

Piper Lesson 3 – Basic GPIO (LEDs, button and switches). Having learned the basics of circuits and breadboards, students will understand the difference between an output and input by comparing LED behavior against button and switch behavior. Students will need to correctly set up output and input circuits featuring a RPi, GPIO pins, wires, breadboard, LEDs, momentary buttons, and switches in order to win levels 3 and 4 of the PiperCraft game.

Piper Lesson 4 – More Buttons and Switches + Polarity and Audio Output. While playing levels 5 and 6 of the PiperCraft game, students will learn about diodes, resistors, and other electronic components; polarity; and audio output.

Piper Lesson 5 – Parallel Circuits. Students will use buttons and switches in parallel circuits in order to win levels 7 and 8 of the PiperCraft game.

This free program is made possible by a grant from the Somerset County Community Fund of the Community Foundation for the Alleghenies.

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