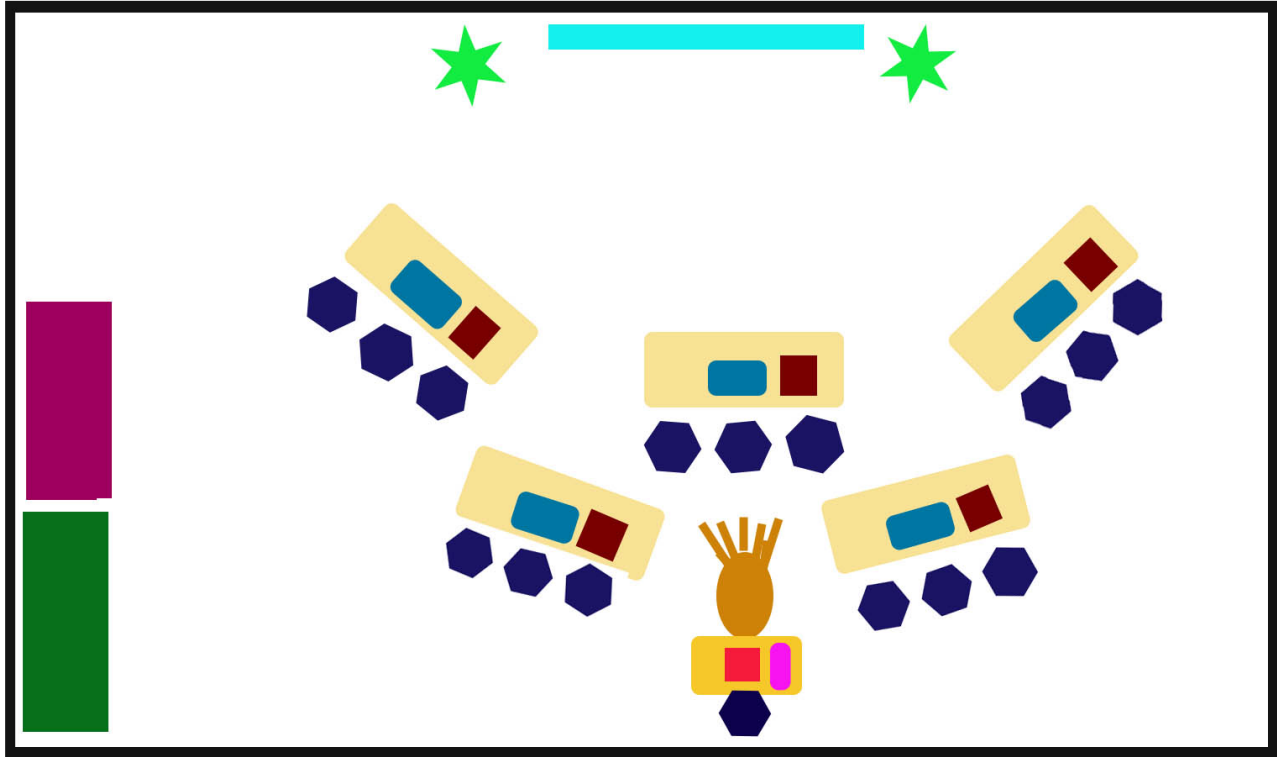# Steam Power For Kids
Streaming Classroom Layout Guide

Streaming Classroom Layout

Student Table   **One to Four Students per Table**

Thermal Work Mat   **Laptop or Desktop PC**

Optional

Teacher

Overhead Camera   **Presentation (Zoom) Computer**

Optional

Video Projector

Projector Screen or Large Flat Screen

Audio Speakers

Robot Kit Parts and Tool Storage Area

Battery and Laptop Charging Station

Minimum Requirements, Suggestions and Options

Students:
Number of students per class is only limited by the room size. All students should have an unobstructed view of the presentation screen and be able to hear the presentation audio.

Number of Robot Kits:
There should be at least one robot kit for each table/group. Group size should be no larger than four students. Optimal students per robot is two, however, we have classes with four. Robot kits can be re-used, but will need to be disassembled at the end of class.

Number of Student Laptops (Computers):
There should be at least one computer per Robot Kit (laptop or tower). During coding exercises, it is beneficial for each student to have a computer, or at least take turns coding. Windows or Mac computers are supported. The student computers need a USB port and can be low performance, however the teacher/presentation computer should be able to stream 1080p high definition video without lagging.

Internet Connection:
Your internet speed at the presentation computer should be at least 5 Mbps, however, 15 Mbps is recommended.

Software Required:
All software is open source and free. Each laptop/computer must have the following software installed;

- mBlock Coding IDE Version 3.4.11
- Scratch Coding (MIT) Version 2
- Aruino IDE (latest)
- Word Processor (LibreOffice)
- Zoom (optional for individual student logins, Required for Teacher/Presentation Laptop)

<u>Video Presentation Device:</u>
There are two options for Video Presentation Devices;
Option 1: A high definition (1080p) video projector and video screen (recommended screen and projection size is at least 60 inches). For individual students a second monitor or PC can serve for presentations.
Option 2: A high definition (1080p) monitor/TV (recommended screen and projection size is at least 60 inches). For individual students a second monitor or PC can serve for presentations.

<u>Audio Device:</u>
Some Projectors and Monitors are capable of loud and clear audio output, however, we recommend a separate audio output device. A simple solution is a bluetooth speaker. Loud and Clear audio is very important. For individual student computers, a headset or ear-buds are fine.

<u>Overhead Document Camera:</u>
It is very useful to have a overhead camera on the presentation computer to be able to show student's project work and robot connections to the presenter for questions and issues.

<u>Thermal Work Mats and Tools:</u>
Basic tools such as micro screwdriver, wire-cutters, wire-strippers, and pliers are required. (Please see our list of recommended tools in our Tools List). Thermal work mats are required and should be at least 12" by 20". (Please see recommended mats in our Tools List).