

WESO Circuit Wizardry 2025-2026

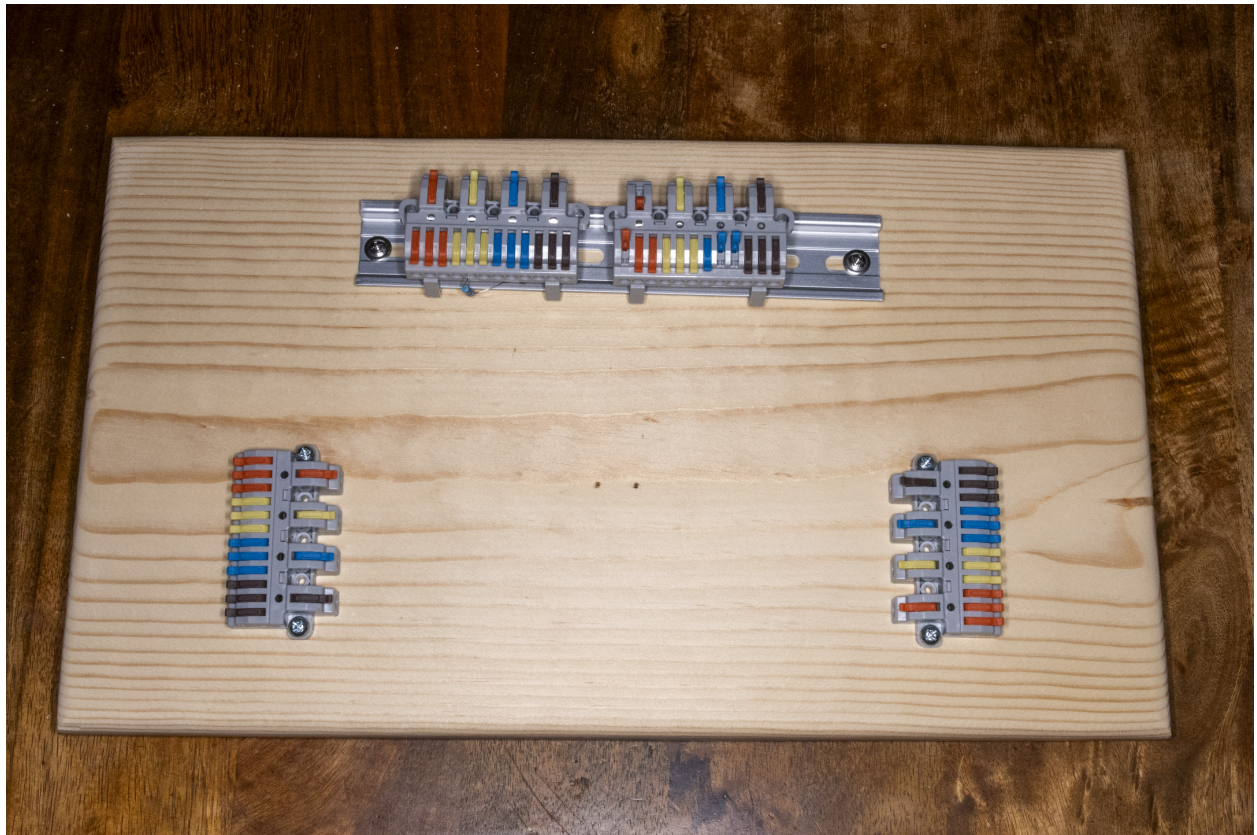
Supplemental Materials Guide – VERY DRAFT

Based on previous experience coaching this event, there are a couple of pitfalls we wanted to address with new material

- Circuits are hard to visualize with wires askew on the table
- Connections are hard to keep sound
 - Especially when poking with a meter

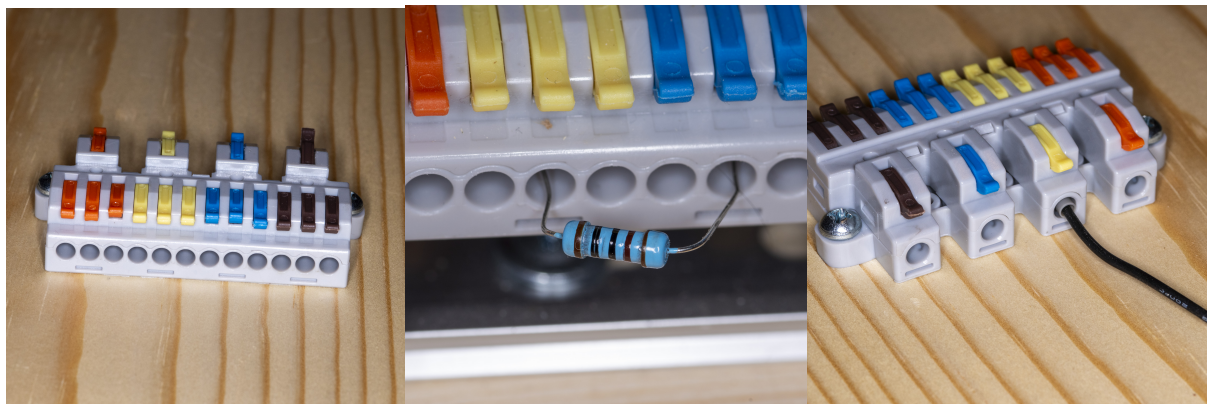
A couple of years ago, an attempt was made to use breadboards. That was sound in principle but in practice, the breadboards were too finicky, the wires were too small for 4th and 5th graders to use and the concept was too abstract. These boards were developed to update that concept:



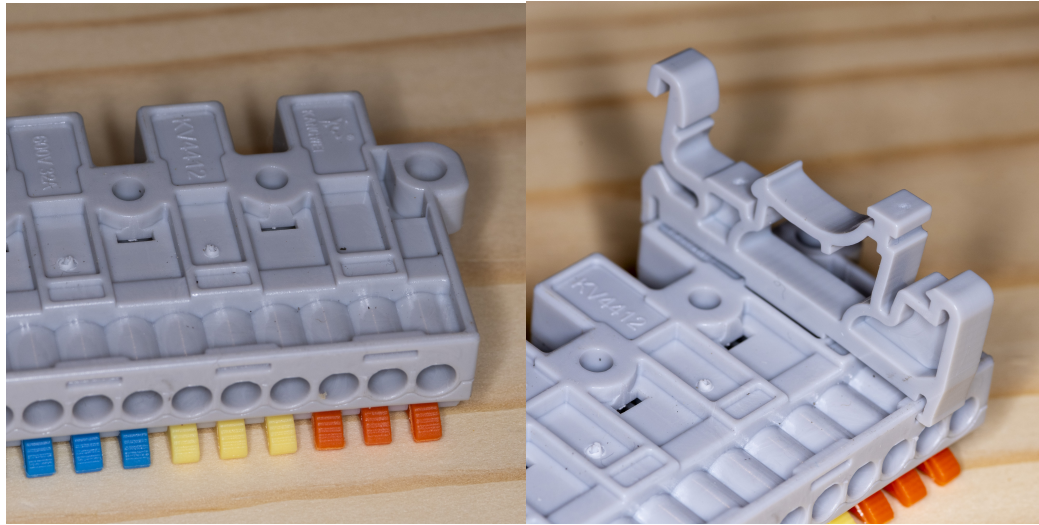


These are simple 1x10 boards with a piece of DIN rail and some lever-lock terminal blocks installed.

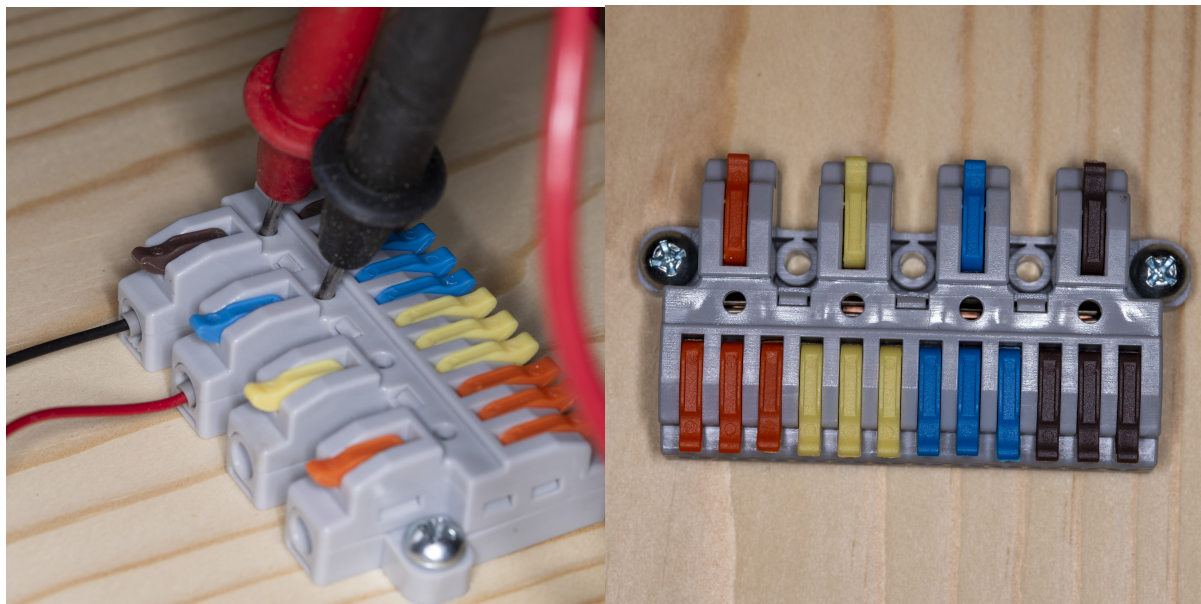
The lever-lock terminals give us something fixed to plug components into



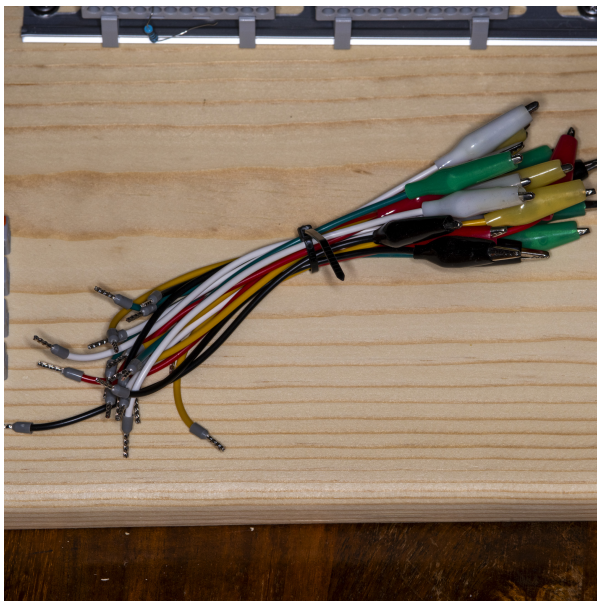
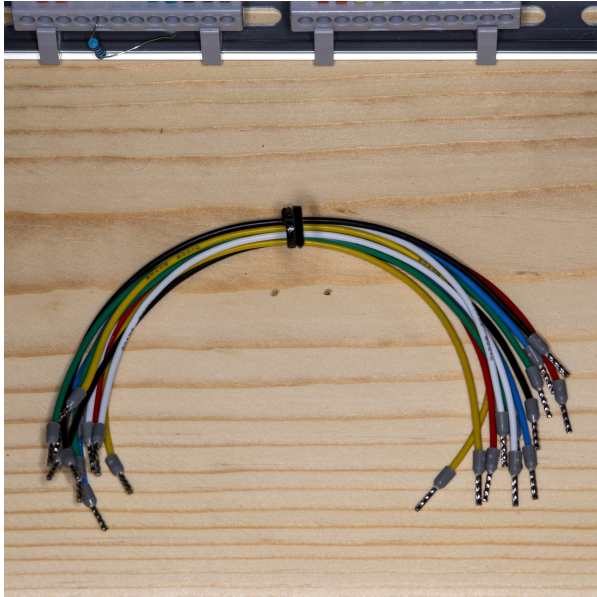
The board has two terminal blocks installed already, and two more with brackets to mount to the DIN rail:



The terminal blocks provide probe points to use with the multimeter:



Unfortunately, the old jumper wires with alligator and hook probes on both ends won't work easily with the terminal blocks (but can obviously still be part of the curriculum). The kit contains a set of ferruled jumper wires and alligator-clip wires:



New Component – Small Motors

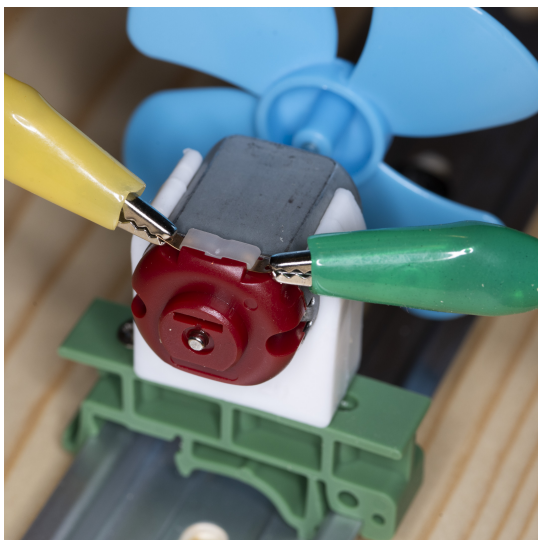
This year's supplemental kit contains 2 DC motors and motor mounts for the DIN rail on the board (and a couple small fan blades and wheels):



Please be careful with these – they will turn when exposed to electricity! The wheels or fan blades should be used with the motors so it's clear to the students when the motor is turning (and they will slow the shaft down).

The leads are more fragile than we anticipated; please take care as they may break with rough use

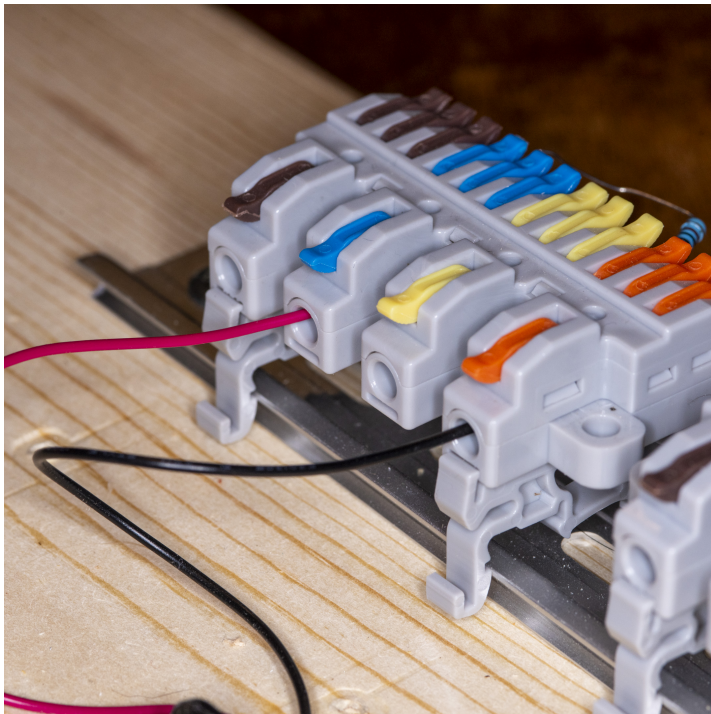
The motors should be placed in the motor mounts and snapped to the DIN rail when in use.



Notes on the AA battery holder



The wires on the battery holders from previous years are tinned threaded wires – they're flimsy. These *do* work with the terminal blocks:



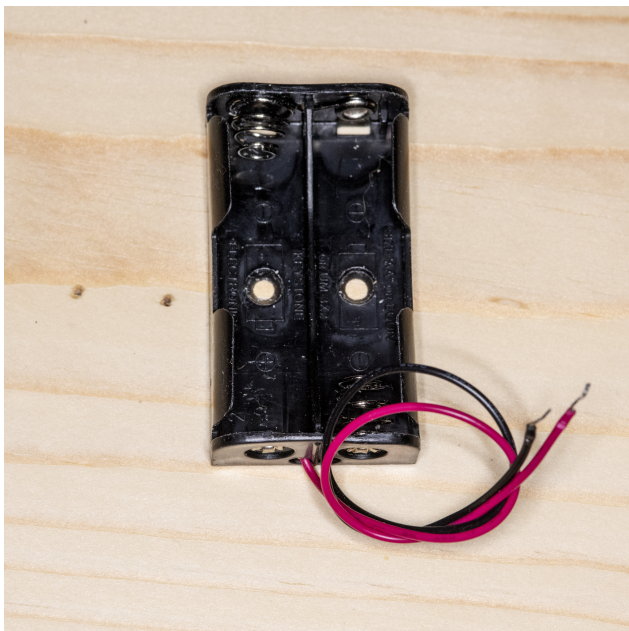
But it is not a good solution- it is difficult to get the wires to hook into the clamps inside the terminal blocks.

Therefore, we have provided a new battery holder with ferruled wires:

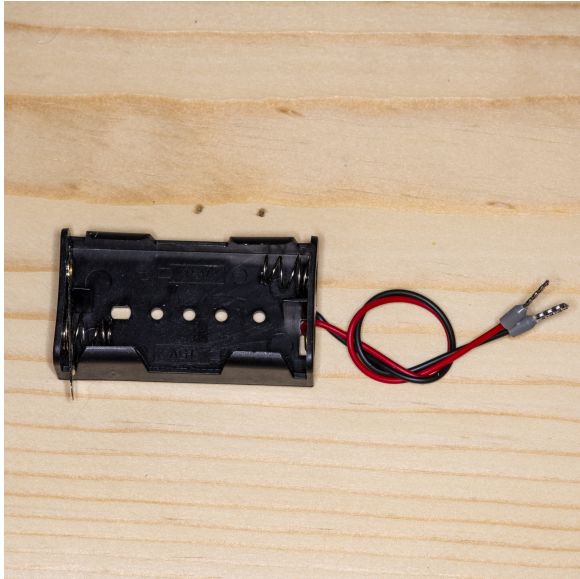


These are equivalent the old ones, but the wire ends will be more durable; they do have an integral switch which is new (and probably beneficial).

One shortcoming is that we put holes in the middle of the boards to match the old holders:



And the holes in the new holders don't quite line up:

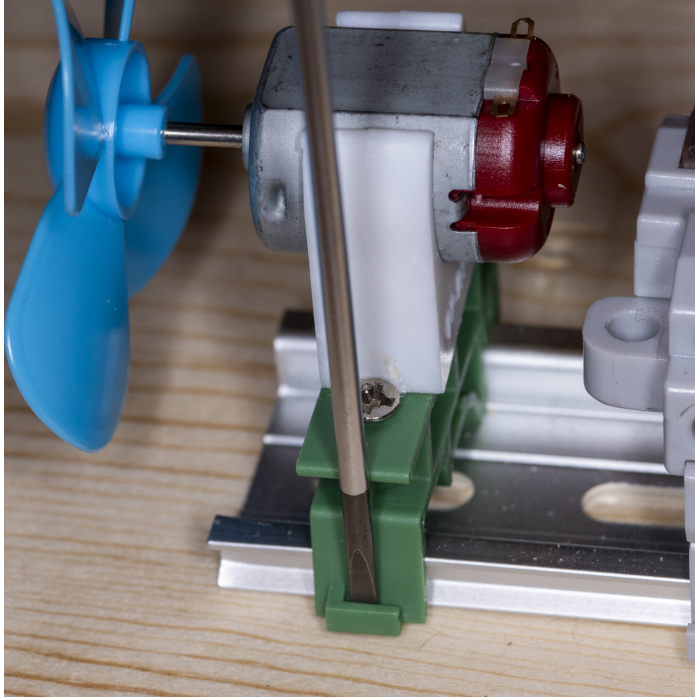


Dang.

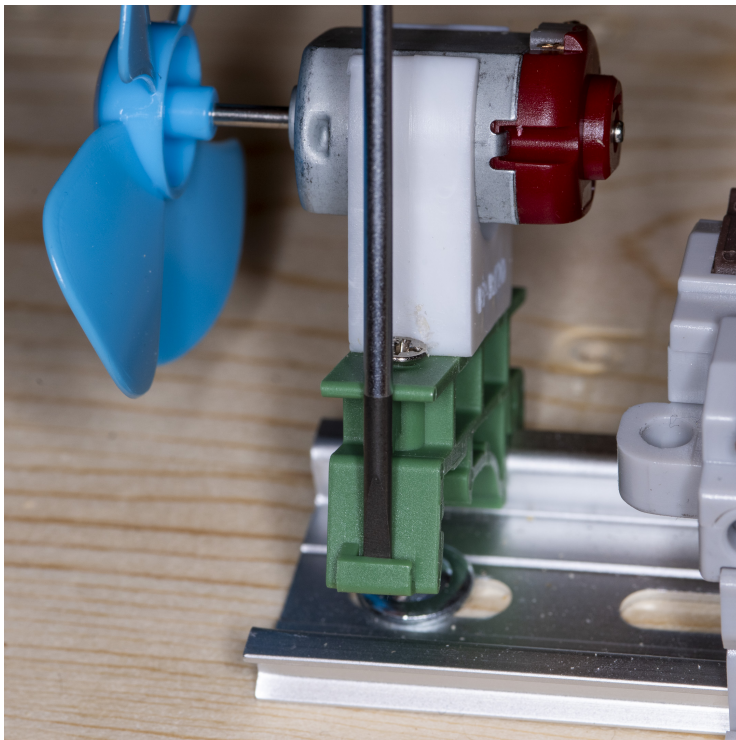
DIN rail – component release

Most DIN rail components can be easily snapped into place and removed.

To release from the rail, poke a small screwdriver into the slotted foot:



And gently pry it out:



Last photos – new components set up by a dedicated beta tester:

Note – using the wire end as a switch is probably not a best practice

