

Digital Multimeters and DC Power Supplies

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Electronics & Prototyping



Photo: djhughman from Portland, OR, USA — CC BY 2.0 — via Wikimedia Commons (HP_54602B_150MHz_Oscilloscope,_HP_E3630_Triple_Output_DC_Power_Supply_(0-6V,_2.5A?0-±20V,_0.5A),_HP_34401A_Multimeter,_HP_33120A_15MHz_Function?Arbitrary_Waveform_Generator_-_School_P

Digital multimeters measure voltage, current and resistance in circuits, while bench DC power supplies provide adjustable, regulated voltages for powering and testing projects. Together they are the basic test and power toolkit for every electronics bench.

Key Features

- Multimeter ranges: V, A, ohm, continuity and diode test
- Auto-ranging or manual ranging displays
- Benchtop supplies typically 0-30 V at 0-5 A
- Constant voltage and constant current modes
- Short-circuit and overload protection

Typical Uses in the Workshop

- Check continuity and trace wiring faults
- Measure battery and power supply voltages
- Verify resistor values and diode polarity
- Power prototypes with a regulated bench supply

Safe Operation

1. Select the correct range and function before connecting
2. Connect the probes correctly: red positive, black common
3. Measure in parallel for voltage, in series for current
4. Set the supply limit before powering unknown circuits
5. Read and record the value, then remove the probes

SAFETY NOTES

- Never measure mains voltages with basic school meters
- Do not exceed the meter's rated limits
- Check probe condition and insulation
- Turn the supply off before changing wiring
- Keep test leads and probes in good order

Maintenance & Consumables

- Replace meter batteries promptly
- Check leads and probes for damage
- Calibrate or verify meters against a known source
- Wipe down supplies and keep vents clear
- Store meters in their cases with leads

Specification & Buying Notes

For classrooms buy auto-ranging meters with continuity buzzer and a robust case, plus bench supplies with adjustable current limit and clear displays. A 30 V 5 A supply covers nearly all school project needs.