

Electronics Workshop

At the April 2015 Chehalis Valley Amateur Radio Society (CVARS) meeting, we surveyed those present to gauge the level of interest in a hands-on “Electronics Workshop.” This note summarizes the results of the survey and the plans to move forward.

Survey summary:

- 19 out of 29 people were interested
- 6 were willing to lead some projects
- 11 were interested in components, 14 in circuits and 10 in systems
- 13 wanted to meet monthly
- 11 wanted to meet on Thursday
- Suggested meeting locations included Salkum library, LCFD#6 training room, Lewis County PUD, RFA Harrison Ave, Ethel Grange, and a meeting room at The Vintage.

So we are moving forward targeting a monthly Thursday evening activity covering electronic components through complex systems, like Arduino or Raspberry Pi system on a chip based printed circuit boards. The vision is a meeting space where we can share our interest in things electronic – from component fundamentals to soldering to putting kits together to designing something new. There could be several clusters of people working on different projects. Our main issue is where to have these “meetups” to reduce setup, cleanup and teardown times.

CVARS Electronics Workshop Steering Committee

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Projects

- CVARS web site: <http://www.cvars.org/>
- Meetup reference: <http://www.meetup.com/>

Potential Projects:

1. LED based Ohm's Law. Picking a series resistor, measure the actual current, what is the voltage drop across the ammeter?
2. Antenna tester. Measure a composite resistor at different frequencies, a wire wound resistor.
3. MFJ-259 or similar antenna tester. Checking coax, resistors, capacitors, inductors.
4. Harbor Freight digital multimeter. Circuit for field strength meter. How to show its operation? What is effect of a tuned circuit?
5. Crystal radio. Wind your own coils. Add an amplifier – single transistor, op amp?
6. Assemble an electronics kit. ramseyelectronics.com, digikey.com, electronickits.com, makershed.com, canakit.com, jameco.com, ...
7. Soldering fundamentals – through hole, surface mount
8. Using an oscilloscope, multimeter, grid-dip meter, antenna tester, ...
9. Using your handheld, mobile, or desktop transceiver
10. Schematic drawing programs
11. ...

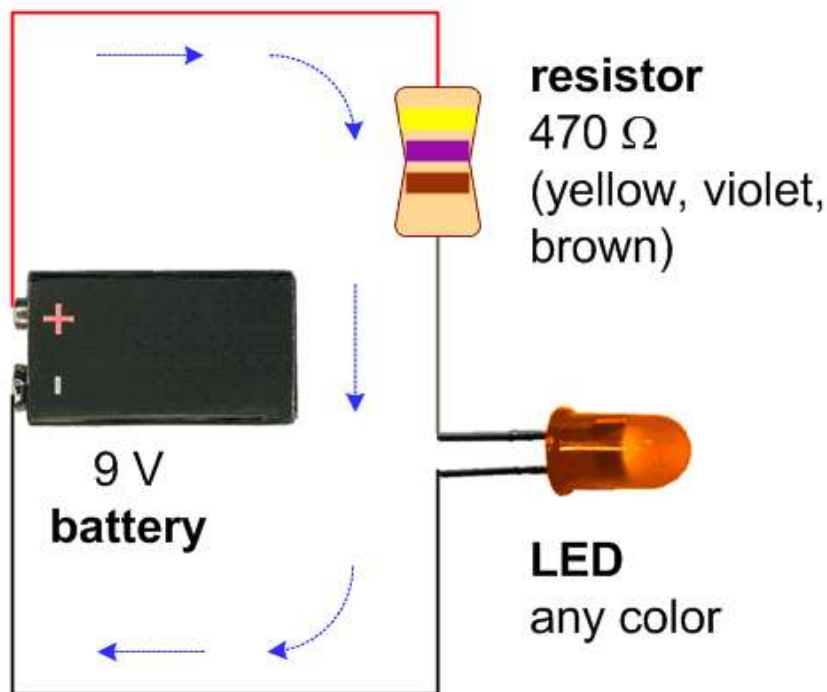
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Example: LED Project Sheet ($E = I * R$)

Parts:

1. 9-volt battery
2. Voltmeter
3. Ammeter
4. LED with specs
5. selection of resistors

Circuit:



Questions:

1. What is the voltage drop across the LED at what current?
2. How do you calculate the resistor value?
3. How do you measure the current flow in the circuit?
4. How do you measure the voltage across each component?
5. What happens if the LED leads are reversed?
6. How would you connect a transistor to turn the LED on and off?