

Digital Electronics on Chromebooks: Labs by Unit

Mokxi · one-page lesson plan

OBJECTIVE

One runnable circuit for each unit of a high school digital electronics course, from logic gates to counters, 555 timers and Arduino, on a Chromebook.

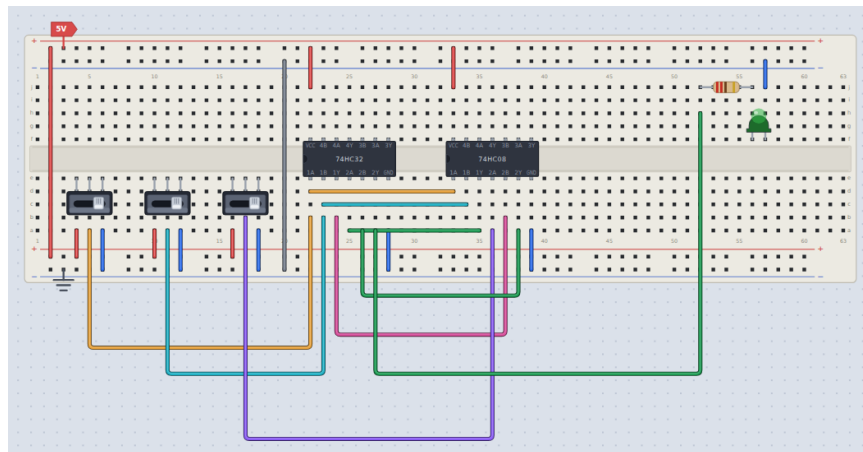
WHAT YOU NEED

Full-size breadboard, Power supply, Ground, Slide switch (3), 74HC32 quad OR, 74HC08 quad AND, Resistor, LED

STEPS

- Breadboards, LEDs and Ohm's law — Before any logic, students need to read a breadboard: which holes connect, where the rails run, and why an LED...
- Logic gates and truth tables — Two buttons feed a real 74HC00 and a real 74HC86.
- Boolean algebra and Karnaugh maps — The workflow students practice is truth table, map, groups, expression, then circuit.
- Adders and combinational logic — A full adder is three chips: two XORs from a 74HC86 for the sum, two ANDs from a 74HC08 and one OR from a 74H...

THE CIRCUIT



ASSESSMENT IDEA

Have the student write the truth table for a three-input function of their own, simplify it with a Karnaugh map, build it from 74HC chips and show all eight rows matching.

<https://mokxi.com/learn/digital-electronics-chromebook>