

Week 6: Arithmetic from gates: the full adder

Mokxi · one-page lesson plan

OBJECTIVE

Two XORs, two ANDs and an OR add one bit and carry into the next.

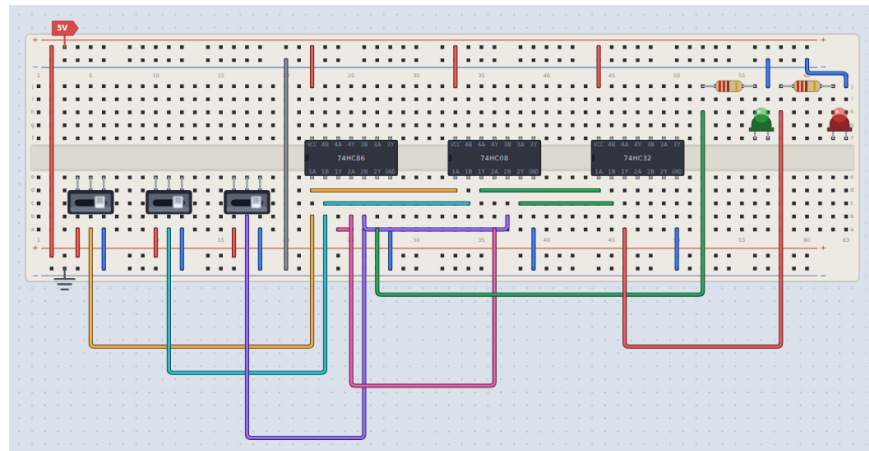
WHAT YOU NEED

74HC86, 74HC08, 74HC32, slide switches, resistors, LEDs, breadboard

STEPS

- Set A, B and the carry-in on the three switches and complete all eight rows of the truth table.
- Then draw what a second bit would need and mark where the carry goes.

THE CIRCUIT



ASSESSMENT IDEA

The eight-row table, plus a hand-drawn two-bit ripple-carry adder with the carry chain marked and the number of gates counted.

<https://mokxi.com/curriculum#week-6>