

Week 5: Logic gates, as real chips

Mokxi · one-page lesson plan

OBJECTIVE

AND, OR, XOR and NOT on 74HC chips with supply pins and propagation delay.

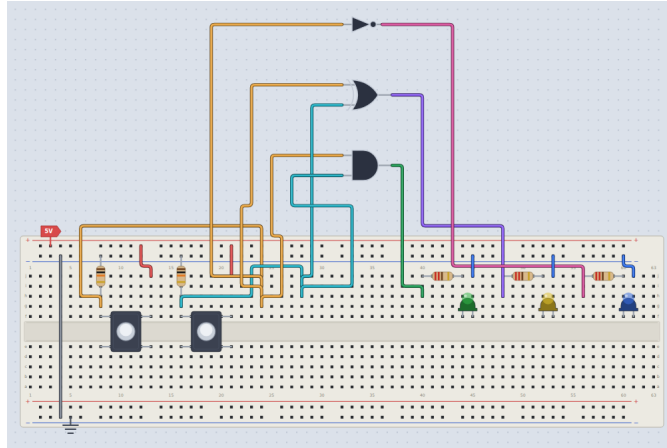
WHAT YOU NEED

74HC08, 74HC86, 74HC04, pushbuttons, resistors, LEDs, breadboard

STEPS

- Press the two buttons in all four combinations and fill in the table for AND, XOR and NOT.
- Then take one chip's VCC wire out and record what the output does.
- Build the same gate twice, once with the ideal gate part and once with the 74HC chip, and describe the difference.

THE CIRCUIT



ASSESSMENT IDEA

A completed truth table sheet plus one paragraph on what the real chip has that the ideal symbol does not: a supply, a threshold that follows it, a propagation delay and a high impedance state when it is off.

<https://mokxi.com/curriculum#week-5>