

Flip-Flops Explained: SR Latch, D and JK Flip-Flops

Mokxi · one-page lesson plan

OBJECTIVE

SR latch, D flip-flop and JK flip-flop truth tables, each on a circuit you can clock: a 74HC00 latch, a 74HC74, and a JK built from a D flip-flop.

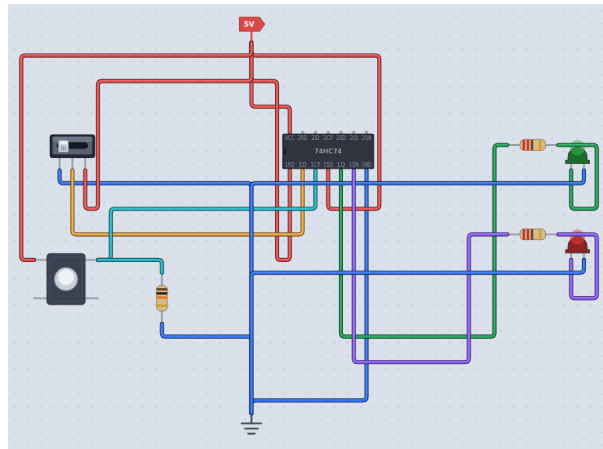
WHAT YOU NEED

Power supply, Ground, Slide switch, Pushbutton, Resistor (3), 74HC74 dual flip-flop, LED (2)

STEPS

- Latch or flip-flop? — A latch responds to the level of its inputs: while it is enabled, its output follows.
- The SR latch — Two NAND gates from a 74HC00, each output fed back into the other gate's input, make an SR latch with active-...
- The D flip-flop — D, clock, next Q: 0 on a rising edge gives 0.
- The JK flip-flop — J, K, next Q: 0 0 holds.

THE CIRCUIT



ASSESSMENT IDEA

Have the student fill in the JK truth table by clocking the circuit, then explain in writing why a bouncing clock button can toggle Q more than once.

<https://mokxi.com/learn/flip-flops>