



Computer Science
Illuminated

Nell Dale *and* John Lewis *Fourth Edition*

Chapter 4

Gates and Circuits

Chapter Goals

- Identify the basic **gates** and describe the behavior of each
- Describe how gates are implemented using **transistors**
- Combine basic gates into **circuits**
- Describe the behavior of a gate or circuit using **Boolean expressions, truth tables, and logic diagrams**

Chapter Goals

- Compare and contrast a **half adder** and a **full adder**
- Describe how a **multiplexer** works
- Explain how an **S-R latch** operates
- Describe the characteristics of the four generations of **integrated circuits**