Define Moore's law and explain why it has now stopped being true. Be sure to describe all of the physical limitations that have prevented Moore's law from continuing to be true.

- Transistors consume power when they switch
- Increasing transistor density leads to increased power consumption
  - Small transistors use less power, but density scaling is faster
- High power leads to high temperature
- **Voltage should scale** with transistor size
- Keeps power consumption, and temperature, low
- Problem: Voltage can't go too low
- Must stay above a **threshold voltage**
- **Noise** problems occur
- Problem: Doesn't consider **leakage power**
- Dennard scaling must stop
- Cannot increase frequency
- Can still add processor cores, without increasing frequency
  - Trend is apparent today
- **Parallel execution is needed to exploit multi-core systems**
- Code made to execute on multiple cores
- Different programs on different cores