

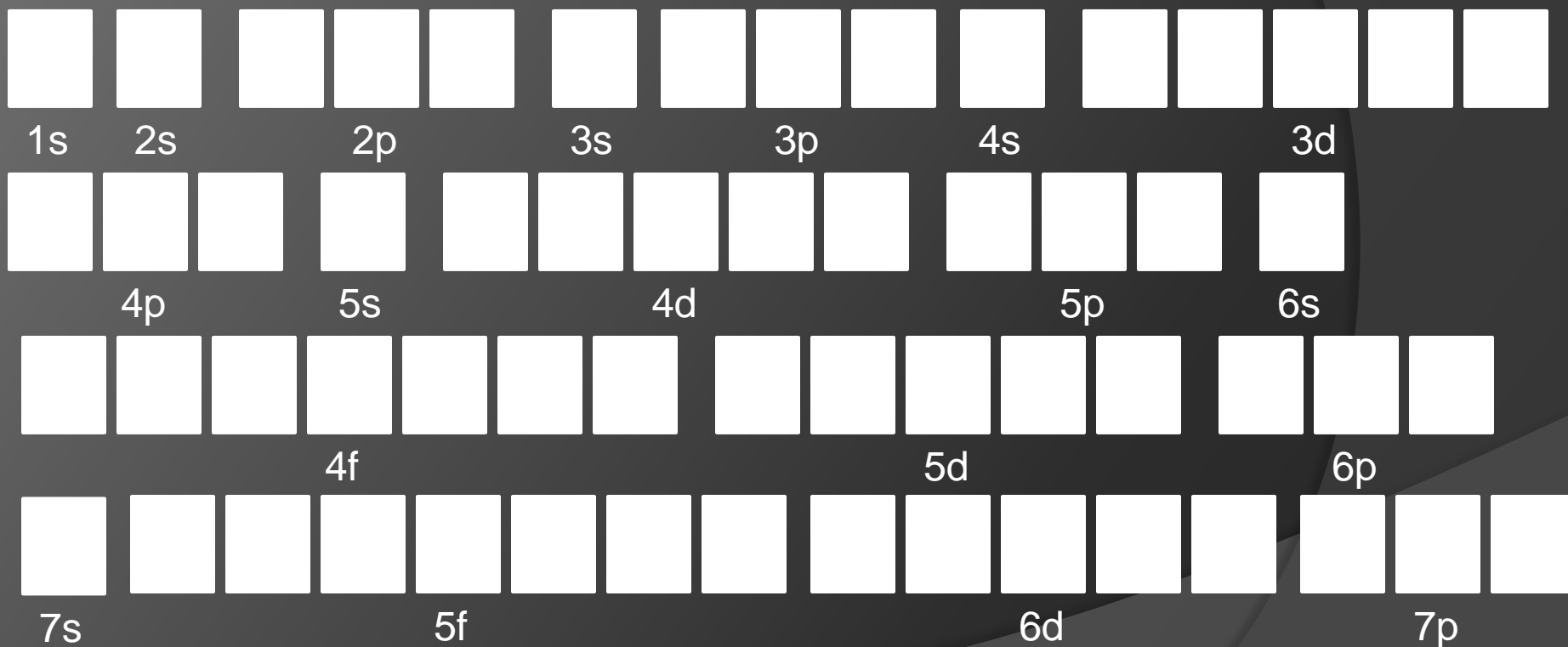
GENERAL CHEMISTRY

STANDARD 3.3

3.3: Using Aufbau's Principle and Hund's Rule, assign electrons to main energy levels and write energy level diagrams for atoms and ions

ENERGY LEVEL DIAGRAMS

- Energy level diagrams show the location and spin of every electron in an atom or ion
- Electrons are represented by arrows...an up arrow represents an electron with positive spin, a down arrow represents an electron with negative spin



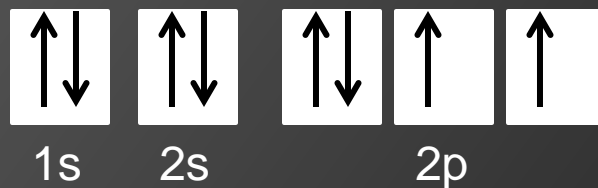
3.3: Using Aufbau's Principle and Hund's Rule, assign electrons to main energy levels and write energy level diagrams for atoms and ions

ENERGY LEVEL DIAGRAMS

- **Hund's Rule:** Every orbital in a subshell must be singly occupied with one electron (up spin) before any one orbital is doubly occupied, and all electrons in singly-occupied orbitals must have the same spin (up)

Example: Write the energy level diagram for Oxygen

First, find the electron configuration: $1s^2 2s^2 2p^4$

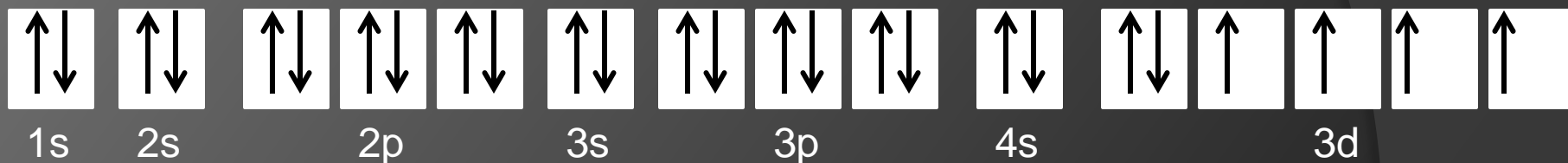


Note oxygen has 8 electrons and there are 8 arrows.

ENERGY LEVEL EXAMPLES

Example: Write the energy level diagram for Iron

First, find the electron configuration: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$



Note oxygen has 26 electrons and there are 26 arrows.

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