

Electron Configurations Through First Row of Transition Metals

| | 1s | 2s | 2p | 2p | 2p | 3s | 3p | 3p | 3p | 4s ¹ | 3d | 3d | 3d | 3d | 3d | |
|----|----|----|----|----|----|----|----|----|----|-----------------|----|----|----|----|----|----|
| H | ↑ | | | | | | | | | | | | | | | |
| He | ↑↓ | | | | | | | | | | | | | | | |
| Li | ↑↓ | ↑ | | | | | | | | | | | | | | |
| Be | ↑↓ | ↑↓ | | | | | | | | | | | | | | |
| B | ↑↓ | ↑↓ | ↑ | | | | | | | | | | | | | |
| C | ↑↓ | ↑↓ | ↑ | ↑ | | | | | | | | | | | | |
| N | ↑↓ | ↑↓ | ↑ | ↑ | ↑ | | | | | | | | | | | |
| O | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | | | | | | | | | | | |
| F | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | | | | | | | | | | | |
| Ne | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | | | | | | | | | | | |
| Na | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | | | | | | | | | | |
| Mg | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | | | | | | | | | | |
| Al | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | | | | | | | | | |
| Si | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | | | | | | | | |
| P | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | ↑ | | | | | | | |
| S | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | | | | | | | |
| Cl | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | | | | | | | |
| Ar | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | | | | | | | |
| K | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | | | | | | |
| Ca | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | | | | | | |
| Sc | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | | | | | |
| Ti | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | | | | |
| V | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | ↑ | | | |
| Cr | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| Mn | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| Fe | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | ↑ | ↑ | ↑ |
| Co | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | ↑ | ↑ |
| Ni | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑ | ↑ |
| Cu | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ |
| Zn | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ | ↑↓ |

¹ The 4s orbital is lower in energy than the 3d orbital for K and Ca, but is higher in energy once we get to Sc. It is shown here because this is the usual way of listing the order of orbitals in terms of energy.