

# Periodic Table of the Elements

## Ground State Electron Configurations

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About Chemistry

| 1A  |   |   |  |  |  |  |  |  |  |  |   | 3A 4A 5A 6A 7A  |  |   |  |   |   | 8A                                       |
|---|---|---|--|--|--|--|--|--|--|--|---|---|--|---|--|---|---|--|
| 1<br>H<br><small>1s<sup>1</sup></small>                 |   |   |  |  |  |  |  |  |  |  |   |   |  |   |  |   |   | 2<br>He<br><small>1s<sup>2</sup></small> |
| 2A  |   |   |  |  |  |  |  |  |  |  |   |   |  |   |  |   |   |  |
| 3<br>Li<br><small>1s<sup>2</sup> 2s<sup>1</sup></small> | 4<br>Be<br><small>1s<sup>2</sup> 2s<sup>2</sup></small> |   |  |  |  |  |  |  |  |  |   | 5<br>B<br><small>1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>1</sup></small>                           | 6<br>C<br><small>1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>2</sup></small>                          | 7<br>N<br><small>1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>3</sup></small>                           | 8<br>O<br><small>1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>4</sup></small>                          | 9<br>F<br><small>1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>5</sup></small>                           | 10<br>Ne<br><small>1s<sup>2</sup> 2s<sup>2</sup> 2p<sup>6</sup></small>                         |  |
| 11<br>Na<br><small>[Ne] 3s<sup>1</sup></small>          | 12<br>Mg<br><small>[Ne] 3s<sup>2</sup></small>          |   |  |  |  |  |  |  |  |  |   | 13<br>Al<br><small>[Ne] 3s<sup>2</sup> 3p<sup>1</sup></small>                                   | 14<br>Si<br><small>[Ne] 3s<sup>2</sup> 3p<sup>2</sup></small>                                  | 15<br>P<br><small>[Ne] 3s<sup>2</sup> 3p<sup>3</sup></small>                                    | 16<br>S<br><small>[Ne] 3s<sup>2</sup> 3p<sup>4</sup></small>                                   | 17<br>Cl<br><small>[Ne] 3s<sup>2</sup> 3p<sup>5</sup></small>                                   | 18<br>Ar<br><small>[Ne] 3s<sup>2</sup> 3p<sup>6</sup></small>                                   |  |
|   |   | 3B  | 4B   | 5B   | 6B   | 7B   | 8B   |  |  | 1B   | 2B  |   |  |   |  |   |   |  |
| 19<br>K<br><small>[Ar] 4s<sup>1</sup></small>           | 20<br>Ca<br><small>[Ar] 4s<sup>2</sup></small>          | 21<br>Sc<br><small>[Ar] 3d<sup>1</sup> 4s<sup>2</sup></small> | 22<br>Ti<br><small>[Ar] 3d<sup>2</sup> 4s<sup>2</sup></small>                  | 23<br>V<br><small>[Ar] 3d<sup>3</sup> 4s<sup>2</sup></small>                   | 24<br>Cr<br><small>[Ar] 3d<sup>5</sup> 4s<sup>1</sup></small>                  | 25<br>Mn<br><small>[Ar] 3d<sup>5</sup> 4s<sup>2</sup></small>                  | 26<br>Fe<br><small>[Ar] 3d<sup>6</sup> 4s<sup>2</sup></small>                  | 27<br>Co<br><small>[Ar] 3d<sup>7</sup> 4s<sup>2</sup></small>                  | 28<br>Ni<br><small>[Ar] 3d<sup>8</sup> 4s<sup>2</sup></small>                  | 29<br>Cu<br><small>[Ar] 3d<sup>10</sup> 4s<sup>1</sup></small>                 | 30<br>Zn<br><small>[Ar] 3d<sup>10</sup> 4s<sup>2</sup></small>                  | 31<br>Ga<br><small>[Ar] 3d<sup>10</sup> 4s<sup>2</sup> 4p<sup>1</sup></small>                   | 32<br>Ge<br><small>[Ar] 3d<sup>10</sup> 4s<sup>2</sup> 4p<sup>2</sup></small>                  | 33<br>As<br><small>[Ar] 3d<sup>10</sup> 4s<sup>2</sup> 4p<sup>3</sup></small>                   | 34<br>Se<br><small>[Ar] 3d<sup>10</sup> 4s<sup>2</sup> 4p<sup>4</sup></small>                  | 35<br>Br<br><small>[Ar] 3d<sup>10</sup> 4s<sup>2</sup> 4p<sup>5</sup></small>                   | 36<br>Kr<br><small>[Ar] 3d<sup>10</sup> 4s<sup>2</sup> 4p<sup>6</sup></small>                   |  |
| 37<br>Rb<br><small>[Kr] 5s<sup>1</sup></small>          | 38<br>Sr<br><small>[Kr] 5s<sup>2</sup></small>          | 39<br>Y<br><small>[Kr] 4d<sup>1</sup> 5s<sup>2</sup></small>  | 40<br>Zr<br><small>[Kr] 4d<sup>2</sup> 5s<sup>2</sup></small>                  | 41<br>Nb<br><small>[Kr] 4d<sup>4</sup> 5s<sup>1</sup></small>                  | 42<br>Mo<br><small>[Kr] 4d<sup>5</sup> 5s<sup>1</sup></small>                  | 43<br>Tc<br><small>[Kr] 4d<sup>5</sup> 5s<sup>2</sup></small>                  | 44<br>Ru<br><small>[Kr] 4d<sup>7</sup> 5s<sup>1</sup></small>                  | 45<br>Rh<br><small>[Kr] 4d<sup>8</sup> 5s<sup>1</sup></small>                  | 46<br>Pd<br><small>[Kr] 4d<sup>10</sup></small>                                | 47<br>Ag<br><small>[Kr] 4d<sup>10</sup> 5s<sup>1</sup></small>                 | 48<br>Cd<br><small>[Kr] 4d<sup>10</sup> 5s<sup>2</sup></small>                  | 49<br>In<br><small>[Kr] 4d<sup>10</sup> 5s<sup>2</sup> 5p<sup>1</sup></small>                   | 50<br>Sn<br><small>[Kr] 4d<sup>10</sup> 5s<sup>2</sup> 5p<sup>2</sup></small>                  | 51<br>Sb<br><small>[Kr] 4d<sup>10</sup> 5s<sup>2</sup> 5p<sup>3</sup></small>                   | 52<br>Te<br><small>[Kr] 4d<sup>10</sup> 5s<sup>2</sup> 5p<sup>4</sup></small>                  | 53<br>I<br><small>[Kr] 4d<sup>10</sup> 5s<sup>2</sup> 5p<sup>5</sup></small>                    | 54<br>Xe<br><small>[Kr] 4d<sup>10</sup> 5s<sup>2</sup> 5p<sup>6</sup></small>                   |  |
| 55<br>Cs<br><small>[Xe] 6s<sup>1</sup></small>          | 56<br>Ba<br><small>[Xe] 6s<sup>2</sup></small>          | 57-71<br>Lanthanides  | 72<br>Hf<br><small>[Xe] 4f<sup>14</sup> 5d<sup>2</sup> 6s<sup>2</sup></small>  | 73<br>Ta<br><small>[Xe] 4f<sup>14</sup> 5d<sup>3</sup> 6s<sup>2</sup></small>  | 74<br>W<br><small>[Xe] 4f<sup>14</sup> 5d<sup>4</sup> 6s<sup>2</sup></small>   | 75<br>Re<br><small>[Xe] 4f<sup>14</sup> 5d<sup>5</sup> 6s<sup>2</sup></small>  | 76<br>Os<br><small>[Xe] 4f<sup>14</sup> 5d<sup>6</sup> 6s<sup>2</sup></small>  | 77<br>Ir<br><small>[Xe] 4f<sup>14</sup> 5d<sup>7</sup> 6s<sup>2</sup></small>  | 78<br>Pt<br><small>[Xe] 4f<sup>14</sup> 5d<sup>9</sup> 6s<sup>1</sup></small>  | 79<br>Au<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>1</sup></small> | 80<br>Hg<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>2</sup></small>  | 81<br>Tl<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>2</sup> 6p<sup>1</sup></small>   | 82<br>Pb<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>2</sup> 6p<sup>2</sup></small>  | 83<br>Bi<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>2</sup> 6p<sup>3</sup></small>   | 84<br>Po<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>2</sup> 6p<sup>4</sup></small>  | 85<br>At<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>2</sup> 6p<sup>5</sup></small>   | 86<br>Rn<br><small>[Xe] 4f<sup>14</sup> 5d<sup>10</sup> 6s<sup>2</sup> 6p<sup>6</sup></small>   |  |
| 87<br>Fr<br><small>[Rn] 7s<sup>1</sup></small>          | 88<br>Ra<br><small>[Rn] 7s<sup>2</sup></small>          | 89-103<br>Actinides   | 104<br>Rf<br><small>[Rn] 5f<sup>14</sup> 6d<sup>2</sup> 7s<sup>2</sup></small> | 105<br>Db<br><small>[Rn] 5f<sup>14</sup> 6d<sup>3</sup> 7s<sup>2</sup></small> | 106<br>Sg<br><small>[Rn] 5f<sup>14</sup> 6d<sup>4</sup> 7s<sup>2</sup></small> | 107<br>Bh<br><small>[Rn] 5f<sup>14</sup> 6d<sup>5</sup> 7s<sup>2</sup></small> | 108<br>Hs<br><small>[Rn] 5f<sup>14</sup> 6d<sup>6</sup> 7s<sup>2</sup></small> | 109<br>Mt<br><small>[Rn] 5f<sup>14</sup> 6d<sup>7</sup> 7s<sup>2</sup></small> | 110<br>Ds<br><small>[Rn] 5f<sup>14</sup> 6d<sup>8</sup> 7s<sup>2</sup></small> | 111<br>Rg<br><small>[Rn] 5f<sup>14</sup> 6d<sup>9</sup> 7s<sup>2</sup></small> | 112<br>Cn<br><small>[Rn] 5f<sup>14</sup> 6d<sup>10</sup> 7s<sup>2</sup></small> | 113<br>Uut<br><small>[Rn] 5f<sup>14</sup> 6d<sup>10</sup> 7s<sup>2</sup> 7p<sup>1</sup></small> | 114<br>Fl<br><small>[Rn] 5f<sup>14</sup> 6d<sup>10</sup> 7s<sup>2</sup> 7p<sup>2</sup></small> | 115<br>Uup<br><small>[Rn] 5f<sup>14</sup> 6d<sup>10</sup> 7s<sup>2</sup> 7p<sup>3</sup></small> | 116<br>Lv<br><small>[Rn] 5f<sup>14</sup> 6d<sup>10</sup> 7s<sup>2</sup> 7p<sup>4</sup></small> | 117<br>Uus<br><small>[Rn] 5f<sup>14</sup> 6d<sup>10</sup> 7s<sup>2</sup> 7p<sup>5</sup></small> | 118<br>Uuo<br><small>[Rn] 5f<sup>14</sup> 6d<sup>10</sup> 7s<sup>2</sup> 7p<sup>6</sup></small> |  |

|             |   |   |  |   |  |  |   |  |  |   |  |   |   |  |  |
|-------------|---|---|--|---|--|--|---|--|--|---|--|---|---|--|--|
| Lanthanides | 57<br>La<br><small>[Xe] 5d<sup>1</sup> 6s<sup>2</sup></small> | 58<br>Ce<br><small>[Xe] 4f<sup>1</sup> 6s<sup>2</sup></small> | 59<br>Pr<br><small>[Xe] 4f<sup>2</sup> 6s<sup>2</sup></small>                | 60<br>Nd<br><small>[Xe] 4f<sup>3</sup> 6s<sup>2</sup></small>               | 61<br>Pm<br><small>[Xe] 4f<sup>4</sup> 6s<sup>2</sup></small>                | 62<br>Sm<br><small>[Xe] 4f<sup>6</sup> 6s<sup>2</sup></small>                | 63<br>Eu<br><small>[Xe] 4f<sup>7</sup> 6s<sup>2</sup></small> | 64<br>Gd<br><small>[Xe] 4f<sup>7</sup> 5d<sup>1</sup> 6s<sup>2</sup></small> | 65<br>Tb<br><small>[Xe] 4f<sup>9</sup> 6s<sup>2</sup></small>                | 66<br>Dy<br><small>[Xe] 4f<sup>10</sup> 6s<sup>2</sup></small>                | 67<br>Ho<br><small>[Xe] 4f<sup>11</sup> 6s<sup>2</sup></small> | 68<br>Er<br><small>[Xe] 4f<sup>12</sup> 6s<sup>2</sup></small>  | 69<br>Tm<br><small>[Xe] 4f<sup>13</sup> 6s<sup>2</sup></small>  | 70<br>Yb<br><small>[Xe] 4f<sup>14</sup> 6s<sup>2</sup></small>                 | 71<br>Lu<br><small>[Xe] 4f<sup>14</sup> 5d<sup>1</sup> 6s<sup>2</sup></small>  |
| Actinides   | 89<br>Ac<br><small>[Rn] 6d<sup>1</sup> 7s<sup>2</sup></small> | 90<br>Th<br><small>[Rn] 6d<sup>2</sup> 7s<sup>2</sup></small> | 91<br>Pa<br><small>[Rn] 5f<sup>2</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 92<br>U<br><small>[Rn] 5f<sup>3</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 93<br>Np<br><small>[Rn] 5f<sup>4</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 94<br>Pu<br><small>[Rn] 5f<sup>6</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 95<br>Am<br><small>[Rn] 5f<sup>7</sup> 7s<sup>2</sup></small> | 96<br>Cm<br><small>[Rn] 5f<sup>7</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 97<br>Bk<br><small>[Rn] 5f<sup>9</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 98<br>Cf<br><small>[Rn] 5f<sup>10</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 99<br>Es<br><small>[Rn] 5f<sup>11</sup> 7s<sup>2</sup></small> | 100<br>Fm<br><small>[Rn] 5f<sup>12</sup> 7s<sup>2</sup></small> | 101<br>Md<br><small>[Rn] 5f<sup>13</sup> 7s<sup>2</sup></small> | 102<br>No<br><small>[Rn] 5f<sup>14</sup> 6d<sup>1</sup> 7s<sup>2</sup></small> | 103<br>Lr<br><small>[Rn] 5f<sup>14</sup> 5d<sup>1</sup> 7s<sup>2</sup></small> |

\* values are based on theory and are not verified