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| Month        | Week | Day | Notes     |
|--------------|------|-----|-----------|
| JAN MONTH 01 | 1    | TUE | Week 1 A  |
|              | 2    | WED |           |
|              | 3    | THU |           |
|              | 4    | FRI |           |
|              | 5    | SAT |           |
|              | 6    | SUN |           |
|              | 7    | MON | Week 2 B  |
| FEB MONTH 02 | 1    | FRI |           |
|              | 2    | SAT |           |
|              | 3    | SUN |           |
|              | 4    | MON | Week 6 F  |
|              | 5    | TUE |           |
|              | 6    | WED |           |
|              | 7    | THU |           |
| MAR MONTH 03 | 1    | FRI |           |
|              | 2    | SAT |           |
|              | 3    | SUN |           |
|              | 4    | MON | Week 10 J |
|              | 5    | TUE |           |
|              | 6    | WED |           |
|              | 7    | THU |           |
| APR MONTH 04 | 1    | MON | Week 14 A |
|              | 2    | TUE |           |
|              | 3    | WED |           |
|              | 4    | THU |           |
|              | 5    | FRI |           |
|              | 6    | SAT |           |
|              | 7    | SUN |           |
| MAY MONTH 05 | 1    | WED |           |
|              | 2    | THU |           |
|              | 3    | FRI |           |
|              | 4    | SAT |           |
|              | 5    | SUN |           |
|              | 6    | MON | Week 19 F |
|              | 7    | TUE |           |
| JUN MONTH 06 | 1    | SAT |           |
|              | 2    | SUN |           |
|              | 3    | MON | Week 23 J |
|              | 4    | TUE |           |
|              | 5    | WED |           |
|              | 6    | THU |           |
|              | 7    | FRI |           |
| JUL MONTH 07 | 1    | MON | Week 27 A |
|              | 2    | TUE |           |
|              | 3    | WED |           |
|              | 4    | THU |           |
|              | 5    | FRI |           |
|              | 6    | SAT |           |
|              | 7    | SUN |           |
| AUG MONTH 08 | 1    | THU |           |
|              | 2    | FRI |           |
|              | 3    | SAT |           |
|              | 4    | SUN |           |
|              | 5    | MON | Week 32 F |
|              | 6    | TUE |           |
|              | 7    | WED |           |
| SEP MONTH 09 | 1    | SUN |           |
|              | 2    | MON | Week 36 J |
|              | 3    | TUE |           |
|              | 4    | WED |           |
|              | 5    | THU |           |
|              | 6    | FRI |           |
|              | 7    | SAT |           |
| OCT MONTH 10 | 1    | TUE |           |
|              | 2    | WED |           |
|              | 3    | THU |           |
|              | 4    | FRI |           |
|              | 5    | SAT |           |
|              | 6    | SUN |           |
|              | 7    | MON | Week 41 B |
| NOV MONTH 11 | 1    | FRI |           |
|              | 2    | SAT |           |
|              | 3    | SUN |           |
|              | 4    | MON | Week 45 F |
|              | 5    | TUE |           |
|              | 6    | WED |           |
|              | 7    | THU |           |
| DEC MONTH 12 | 1    | SUN |           |
|              | 2    | MON | Week 49 J |
|              | 3    | TUE |           |
|              | 4    | WED |           |
|              | 5    | THU |           |
|              | 6    | FRI |           |
|              | 7    | SAT |           |
| JAN 2020     | 1    | WED |           |
|              | 2    | THU |           |
|              | 3    | FRI |           |
|              | 4    | SAT |           |
|              | 5    | SUN |           |
|              | 6    | MON | Week 2 B  |
|              | 7    | TUE |           |

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## YEAR OF THE PERIODIC TABLE 2019

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# PERIODIC TABLE OF THE ELEMENTS & THEIR ATOMS

### s BLOCK

| GROUP 1  | 2 |
|--|---|
| 1<br>1.008<br>H<br>Hydrogen<br>1s <sup>1</sup> |   |

|   |   |
|---|---|
| 3<br>6.94<br>Li<br>Lithium<br>1s <sup>2</sup> 2s <sup>1</sup> | 4<br>9.0121831(5)<br>Be<br>Beryllium<br>1s <sup>2</sup> 2s <sup>2</sup> |
|---|---|

|   |  |
|---|--|
| 11<br>22.98976928(2)<br>Na<br>Sodium<br>[Ne]3s <sup>1</sup> | 12<br>24.3050(6)<br>Mg<br>Magnesium<br>[Ne]3s <sup>2</sup> |
|---|--|

|   |   |
|---|---|
| 19<br>39.0983(1)<br>K<br>Potassium<br>[Ar]4s <sup>1</sup> | 20<br>40.078(4)<br>Ca<br>Calcium<br>[Ar]4s <sup>2</sup> |
|---|---|

|   |  |
|---|--|
| 37<br>85.4678(3)<br>Rb<br>Rubidium<br>[Kr]5s <sup>1</sup> | 38<br>87.62(1)<br>Sr<br>Strontium<br>[Kr]5s <sup>2</sup> |
|---|--|

|  |   |
|--|---|
| 55<br>132.90545196(6)<br>Cs<br>Cesium<br>[Xe]6s <sup>1</sup> | 56<br>137.327(7)<br>Ba<br>Barium<br>[Xe]6s <sup>2</sup> |
|--|---|

|  |  |
|--|--|
| 87<br>[223]<br>Fr<br>Francium<br>[Rn]7s <sup>1</sup> | 88<br>[226]<br>Ra<br>Radium<br>[Rn]7s <sup>2</sup> |
|--|--|

**KEY**

- ATOMIC NUMBER
- Naturally Radioactive
- Synthetically Radioactive
- SYMBOL (Note 1)
- Solid
- Liquid (Note 3)
- Gas
- OXIDATION STATES
- NAME
- ATOMIC WEIGHT (Note 2)
- BOILING POINT °C
- MELTING POINT °C
- ELECTRONEGATIVITY (PAULING'S)
- GROUND STATE ELECTRON CONFIGURATION
- METAL
- NON-METAL
- METALLOID

### APPROXIMATE PERCENT IONIC CHARACTER OF A SINGLE CHEMICAL BOND

|                                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Difference in electronegativity | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 | 2.9 | 3.0 | 3.1 | 3.2 |
| Approximate ionic character (%) | 0.5 | 1   | 2   | 4   | 6   | 9   | 12  | 15  | 19  | 22  | 26  | 30  | 34  | 39  | 43  | 47  | 51  | 55  | 59  | 63  | 67  | 70  | 74  | 76  | 79  | 82  | 84  | 86  | 88  | 89  | 91  | 92  |

### d BLOCK

| 3   | 4  | 5  | 6   | 7  | 8  | 9   | 10  | 11  | 12   |
|---|--|--|---|--|--|---|---|---|--|
| 21<br>44.955908(5)<br>Sc<br>Scandium<br>[Ar]3d <sup>1</sup> 4s <sup>2</sup> | 22<br>47.867(1)<br>Ti<br>Titanium<br>[Ar]3d <sup>2</sup> 4s <sup>2</sup> | 23<br>50.9415(1)<br>V<br>Vanadium<br>[Ar]3d <sup>3</sup> 4s <sup>2</sup> | 24<br>51.9961(6)<br>Cr<br>Chromium<br>[Ar]3d <sup>5</sup> 4s <sup>1</sup> | 25<br>54.938044(3)<br>Mn<br>Manganese<br>[Ar]3d <sup>5</sup> 4s <sup>2</sup> | 26<br>55.845(2)<br>Fe<br>Iron<br>[Ar]3d <sup>6</sup> 4s <sup>2</sup> | 27<br>58.933194(4)<br>Co<br>Cobalt<br>[Ar]3d <sup>7</sup> 4s <sup>2</sup> | 28<br>58.6934(4)<br>Ni<br>Nickel<br>[Ar]3d <sup>8</sup> 4s <sup>2</sup> | 29<br>63.546(3)<br>Cu<br>Copper<br>[Ar]3d <sup>10</sup> 4s <sup>1</sup> | 30<br>65.38(2)<br>Zn<br>Zinc<br>[Ar]3d <sup>10</sup> 4s <sup>2</sup> |

### f BLOCK

|  |   |   |  |  |  |   |  |  |  |   |  |   |  |   |
|--|---|---|--|--|--|---|--|--|--|---|--|---|--|---|
| 57<br>138.90547(7)<br>La<br>Lanthanum<br>[Xe]5d <sup>1</sup> 6s <sup>2</sup> | 58<br>140.116(1)<br>Ce<br>Cerium<br>[Xe]4f <sup>1</sup> 5d <sup>1</sup> 6s <sup>2</sup> | 59<br>140.90766(2)<br>Pr<br>Praseodymium<br>[Xe]4f <sup>3</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 60<br>144.242(3)<br>Nd<br>Neodymium<br>[Xe]4f <sup>4</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 61<br>[145]<br>Pm<br>Promethium<br>[Xe]4f <sup>5</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 62<br>150.36(2)<br>Sm<br>Samarium<br>[Xe]4f <sup>6</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 63<br>151.964(1)<br>Eu<br>Europium<br>[Xe]4f <sup>7</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 64<br>157.25(3)<br>Gd<br>Gadolinium<br>[Xe]4f <sup>7</sup> 5d <sup>1</sup> 6s <sup>2</sup> | 65<br>158.92535(2)<br>Tb<br>Terbium<br>[Xe]4f <sup>9</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 66<br>162.500(1)<br>Dy<br>Dysprosium<br>[Xe]4f <sup>10</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 67<br>164.93033(2)<br>Ho<br>Holmium<br>[Xe]4f <sup>11</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 68<br>167.259(3)<br>Er<br>Erbium<br>[Xe]4f <sup>12</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 69<br>168.93422(2)<br>Tm<br>Thulium<br>[Xe]4f <sup>13</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 70<br>173.045(10)<br>Yb<br>Ytterbium<br>[Xe]4f <sup>14</sup> 5d <sup>0</sup> 6s <sup>2</sup> | 71<br>174.9668(1)<br>Lu<br>Lutetium<br>[Xe]4f <sup>14</sup> 5d <sup>1</sup> 6s <sup>2</sup> |
|--|---|---|--|--|--|---|--|--|--|---|--|---|--|---|

### p BLOCK

| 13  | 14  | 15  | 16  | 17   | 18  |
|---|---|---|---|--|---|
| 5<br>10.81<br>B<br>Boron<br>1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>1</sup> | 6<br>12.011<br>C<br>Carbon<br>1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>2</sup> | 7<br>14.007<br>N<br>Nitrogen<br>1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>3</sup> | 8<br>15.999<br>O<br>Oxygen<br>1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>4</sup> | 9<br>18.998403163(6)<br>F<br>Fluorine<br>1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>5</sup> | 10<br>20.1797(6)<br>Ne<br>Neon<br>1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>6</sup> |

|   |  |   |   |  |   |
|---|--|---|---|--|---|
| 13<br>26.9815385(7)<br>Al<br>Aluminium<br>[Ne]3s <sup>2</sup> 3p <sup>1</sup> | 14<br>28.085<br>Si<br>Silicon<br>[Ne]3s <sup>2</sup> 3p <sup>2</sup> | 15<br>30.973761998(5)<br>P<br>Phosphorus<br>[Ne]3s <sup>2</sup> 3p <sup>3</sup> | 16<br>32.06<br>S<br>Sulfur<br>[Ne]3s <sup>2</sup> 3p <sup>4</sup> | 17<br>35.45<br>Cl<br>Chlorine<br>[Ne]3s <sup>2</sup> 3p <sup>5</sup> | 18<br>39.948(1)<br>Ar<br>Argon<br>[Ne]3s <sup>2</sup> 3p <sup>6</sup> |
|---|--|---|---|--|---|

|  |   |   |   |  |  |
|--|---|---|---|--|--|
| 31<br>69.723(1)<br>Ga<br>Gallium<br>[Ar]3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>1</sup> | 32<br>72.63(1)<br>Ge<br>Germanium<br>[Ar]3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>2</sup> | 33<br>74.921595(6)<br>As<br>Arsenic<br>[Ar]3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>3</sup> | 34<br>78.971(8)<br>Se<br>Selenium<br>[Ar]3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>4</sup> | 35<br>79.904(1)<br>Br<br>Bromine<br>[Ar]3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>5</sup> | 36<br>83.798(2)<br>Kr<br>Krypton<br>[Ar]3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>6</sup> |
|--|---|---|---|--|--|

|   |   |  |   |  |  |
|---|---|--|---|--|--|
| 47<br>107.8682(2)<br>Ag<br>Silver<br>[Kr]4d <sup>10</sup> 5s <sup>1</sup> | 48<br>112.414(4)<br>Cd<br>Cadmium<br>[Kr]4d <sup>10</sup> 5s <sup>2</sup> | 49<br>114.818(3)<br>In<br>Indium<br>[Kr]4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>1</sup> | 50<br>118.710(7)<br>Sn<br>Tin<br>[Kr]4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>2</sup> | 51<br>121.760(1)<br>Sb<br>Antimony<br>[Kr]4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>3</sup> | 52<br>127.60(3)<br>Te<br>Tellurium<br>[Kr]4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>4</sup> |
|---|---|--|---|--|--|

|   |   |
|---|---|
| 53<br>126.90447(3)<br>I<br>Iodine<br>[Kr]4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>5</sup> | 54<br>131.293(6)<br>Xe<br>Xenon<br>[Kr]4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>6</sup> |
|---|---|

|   |   |  |  |  |   |
|---|---|--|--|--|---|
| 81<br>204.38<br>Tl<br>Thallium<br>[Xe]4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>1</sup> | 82<br>207.2(1)<br>Pb<br>Lead<br>[Xe]4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>2</sup> | 83<br>208.98040(1)<br>Bi<br>Bismuth<br>[Xe]4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>3</sup> | 84<br>[209]<br>Po<br>Polonium<br>[Xe]4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>4</sup> | 85<br>[210]<br>At<br>Astatine<br>[Xe]4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>5</sup> | 86<br>[222]<br>Rn<br>Radon<br>[Xe]4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>6</sup> |
|---|---|--|--|--|---|

|   |  |  |  |   |  |
|---|--|--|--|---|--|
| 113<br>[284]<br>Nh<br>Nihonium<br>[Rn]5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>1</sup> | 114<br>[289]<br>Fl<br>Flerovium<br>[Rn]5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>2</sup> | 115<br>[288]<br>Mc<br>Moscovium<br>[Rn]5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>3</sup> | 116<br>[293]<br>Lv<br>Livermorium<br>[Rn]5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>4</sup> | 117<br>[294]<br>Ts<br>Tennessine<br>[Rn]5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>5</sup> | 118<br>[294]<br>Og<br>Oganesson<br>[Rn]5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>6</sup> |
|---|--|--|--|---|--|



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**NOTES**

- Element symbols, names and spelling as recommended by IUPAC<sup>®</sup> (International Union of Pure and Applied Chemistry).
- Atomic weight: Mean relative masses of naturally occurring isotopic mixtures based on <sup>12</sup>C as recommended by IUPAC<sup>®</sup> 2013. A number in parenthesis indicates the uncertainty in the last digit of the atomic weight. Elements with no stable nuclides have the value for the longest lived isotope given in brackets e.g. [209]. Those elements with a range in their atomic weights, due to differing isotopic abundances in different parts of the world, have been given an approximate atomic weight.
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