| hydrogen | | | | | | | | | | | | | | | | | helium 2 |
|--------------|-----------------|-----------|---------------|----------|------------|------------|-----------|------------|--------------|-------------|---------|-----------------|---------------|------------------|--------------|----------------|-------------|
| ا نا ا | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | He |
| 1.0079 | | ı | | | | | | | | | | | | | | | 4.0026 |
| lithium 3 | beryllium 4 | | | | | | | | | | | boron 5 | carbon 6 | nitrogen 7 | oxygen 8 | fluorine 9 | neon 10 |
| ı | _ ' | | | | | | | | | | | | | | Å | _ | 1 1 |
| LI | Be | | | | | | | | | | | В | | N | U | F | Ne |
| 6.941 | 9.0122 | | | | | | | | | | | 10.811 | 12.011 | 14.007 | 15.999 | 18.998 | 20.180 |
| sodium 11 | magnesium 12 | | | | | | | | | | | aluminium 13 | silicon 14 | phosphorus 15 | sulfur 16 | chlorine 17 | argon 18 |
| 1 | | | | | | | | | | | | _ | l | | | <u> </u> | 1 _ 1 |
| Na | Mg | | | | | | | | | | | Al | Si | Р | 5 | Cl | Ar |
| 22.990 | 24.305 | | | | | | | | | | | 26.982 | 28.086 | 30.974 | 32.065 | 35.453 | 39.948 |
| potassium | calcium | scandium | titanium | vanadium | chromium | manganese | iron | cobalt | nickel | copper | zinc | gallium | germanium | arsenic | selenium | bromine | krypton |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 N A | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| K | Ca | Sc | | V | Cr | Mn | Fe | Co | Ni | Cu | Zn | Ga | Ge | As | Se | Br | Kr |
| 39.098 | 40.078 | 44.956 | 47.867 | 50.942 | 51.996 | 54.938 | 55.845 | 58.933 | 58.693 | 63.546 | 65.38 | 69.723 | 72.64 | 74.922 | 78.96 | 79.904 | 83.798 |
| rubidium | strontium | yttrium | zirconium | niobium | molybdenum | technetium | ruthenium | rhodium | palladium | silver | cadmium | indium | tin | antimony | tellurium | iodine | xenon |
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 |
| Rb | Sr | Υ | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd | In | Sn | Sb | Te | | Xe |
| 85.468 | 87.62 | 88.906 | 91.224 | 92.906 | 95.96 | [98] | 101.07 | 102.91 | 106.42 | 107.87 | 112.41 | 114.82 | 118.71 | 121.76 | 127.60 | 126.90 | 131.29 |
| caesium | barium | lanthanum | hafnium | tantalum | tungsten | rhenium | osmium | iridium | platinum | gold | mercury | thallium | lead | bismuth | polonium | astatine | radon |
| 55 | 56 | 57 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 |
| Cs | Ba | La | Hf | Ta | W | Re | Os | l Ir | Pt | Au | Hg | | Pb | Bi | Po | At | Rn |
| 132.91 | 137.33 | 138.91 | 178.49 | 180.95 | 183.84 | 186.21 | 190.23 | 192.22 | 195.08 | 196.97 | 200.59 | 204.38 | 207.2 | 208.98 | [209] | [210] | [222] |
| francium | radium | actinium | rutherfordium | dubnium | seaborgium | bohrium | hassium | meitnerium | darmstadtium | roentgenium | | | | | | | |
| 87 | 88 | 89 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | | | | | | | |
| Fr | Ra | Ac | Rf | Db | Sg | Bh | Hs | Mt | l Ds | Rg | | | | | | | |
| [223] | [226] | [227] | [261] | [262] | [266] | [264] | [277] | [268] | [271] | [272] | | | | | | | |

| cerium | praseodymium | neodymium | promethium | samarium | europium | gadolinium | terbium | dysprosium | holmium | erbium | thulium | ytterbium | lutetium |
|---------|--------------|-----------|------------|-----------|-----------|------------|-----------|-------------|-------------|---------|-------------|-----------|------------|
| 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 |
| Ce | Pr | Nd | Pm | Sm | Eu | Gd | Tb | Dy | Но | Er | Tm | Yb | Lu |
| 140.12 | 140.91 | 144.24 | [145] | 150.36 | 151.96 | 157.25 | 158.93 | 162.50 | 164.93 | 167.26 | 168.93 | 173.05 | 174.97 |
| thorium | protactinium | uranium | neptunium | plutonium | americium | curium | berkelium | californium | einsteinium | fermium | mendelevium | nobelium | lawrencium |
| 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 |
| Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No | Lr |
| 232.04 | 231.04 | 238.03 | [237] | [244] | [243] | [247] | [247] | [251] | [252] | [257] | [258] | [259] | [262] |