









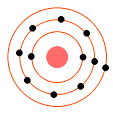
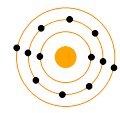
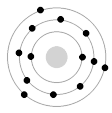
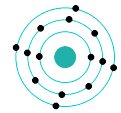
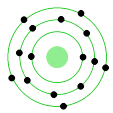
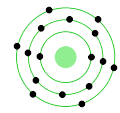
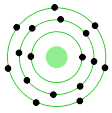
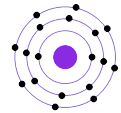
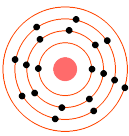
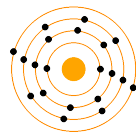
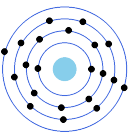
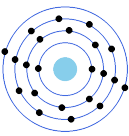
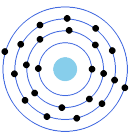
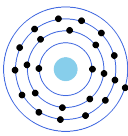
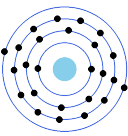
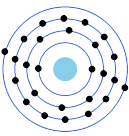
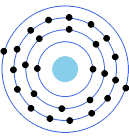
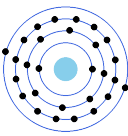
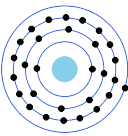
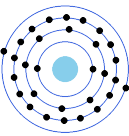
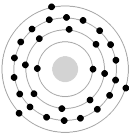
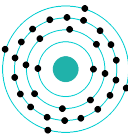
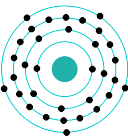
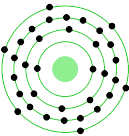
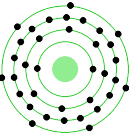
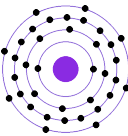
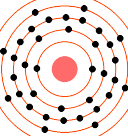
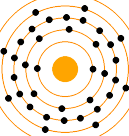
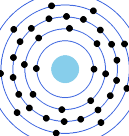
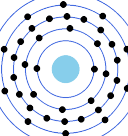
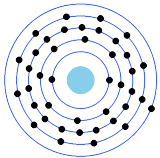
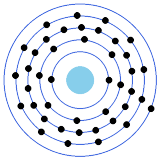
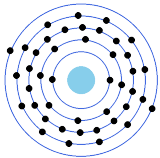
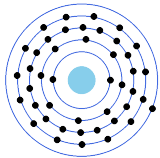
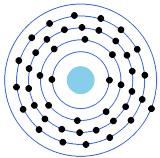
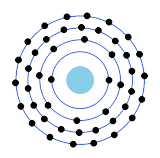
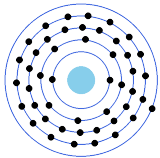
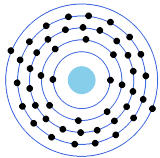
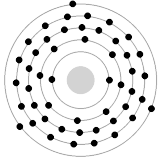
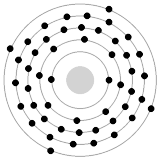
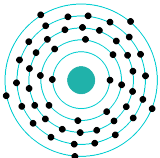
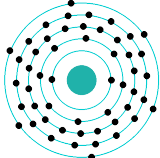
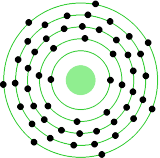
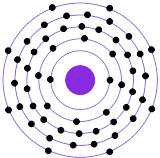
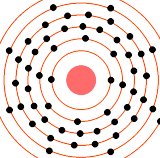
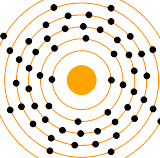
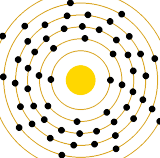
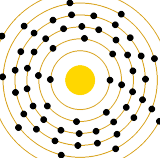
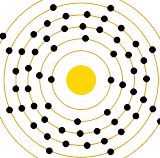
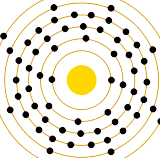
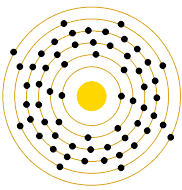

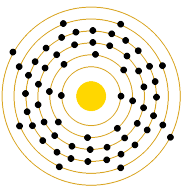
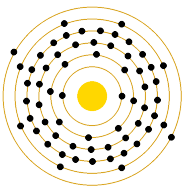
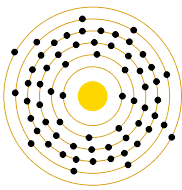
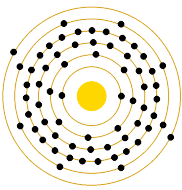
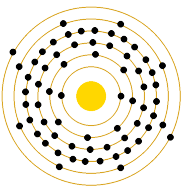
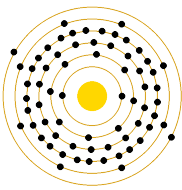
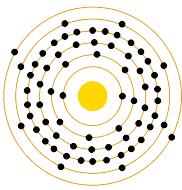
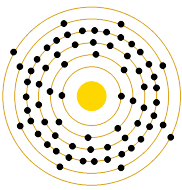
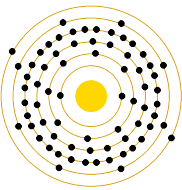
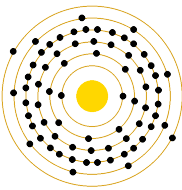
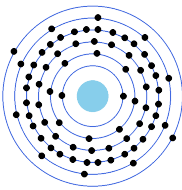
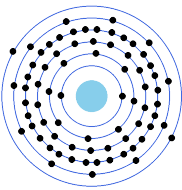
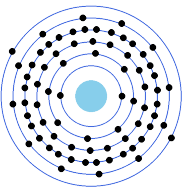
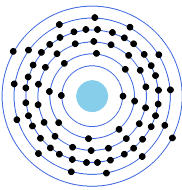
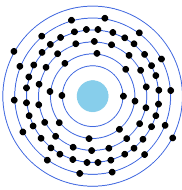
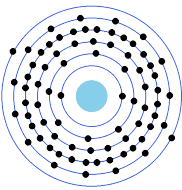
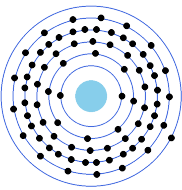
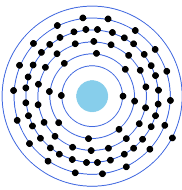
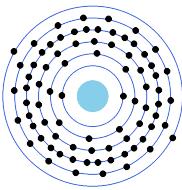


<div>1</div> <div>Fuel</div> <div> <div>H</div> <div>1.008</div> <div>Used as rocket fuel and in hydrogen cars and fusion</div> </div> <div> <div>Hydrogen</div> <div>  </div> <div>Hydrogen is the lightest element and makes up 73.9% of the universe's visible matter</div> </div>	<div>2</div> <div>Balloons</div> <div> <div>He</div> <div>4.0026</div> <div>Used in balloons and as inert atmosphere for</div> </div> <div> <div>Helium</div> <div>  </div> <div>Helium has the lowest boiling point (-269°C) and becomes superfluid with zero viscosity</div> </div>	<div>3</div> <div>Batteries</div> <div> <div>Li</div> <div>7.0</div> <div>Used in rechargeable batteries and mood</div> </div> <div> <div>Lithium</div> <div>  </div> <div>Lithium is the lightest metal that can float on water while violently reacting with it</div> </div>	<div>4</div> <div>Alloys</div> <div> <div>Be</div> <div>9.0122</div> <div>Used in aerospace alloys and nuclear reactors</div> </div> <div> <div>Beryllium</div> <div>  </div> <div>Beryllium is 6 times stronger than steel but weighs only 25% as much, yet highly toxic</div> </div>
<div>5</div> <div>Ceramics</div> <div> <div>B</div> <div>10.81</div> <div>Used in ceramics, glass, and as neutron absorber</div> </div> <div> <div>Boron</div> <div>  </div> <div>Boron is the hardest element but essential for plants and harder than most metals when pure</div> </div>	<div>6</div> <div>Steel</div> <div> <div>C</div> <div>12.011</div> <div>Essential for all life and used in steel production</div> </div> <div> <div>Carbon</div> <div>  </div> <div>Carbon is highest for 2 hundred million compounds, melting point of 3823K, and over 500 allotropes</div> </div>	<div>7</div> <div>Fertilizer</div> <div> <div>N</div> <div>14.007</div> <div>Used in fertilizers and as liquid nitrogen coolant</div> </div> <div> <div>Nitrogen</div> <div>  </div> <div>Nitrogen makes up 78% of Earth's atmosphere but is completely inert at room temperature</div> </div>	<div>8</div> <div>Breathing</div> <div> <div>O</div> <div>15.999</div> <div>Essential for breathing and used in steel</div> </div> <div> <div>Oxygen</div> <div>  </div> <div>Oxygen is Earth's most abundant element at 46% of crust mass and paramagnetic both gas and liquid</div> </div>
<div>9</div> <div>Toothpaste</div> <div> <div>F</div> <div>18.998</div> <div>Used in toothpaste and water fluoridation</div> </div> <div> <div>Fluorine</div> <div>  </div> <div>Fluorine is the most reactive element that can corrode glass and concrete on contact</div> </div>	<div>10</div> <div>Lighting</div> <div> <div>Ne</div> <div>20.18</div> <div>Used in neon signs and as inert gas in lighting</div> </div> <div> <div>Neon</div> <div>  </div> <div>Neon produces the most intense light discharge creating the classic orange-red glow</div> </div>	<div>11</div> <div>Salt</div> <div> <div>Na</div> <div>22.99</div> <div>Used in table salt and street lighting</div> </div> <div> <div>Sodium</div> <div>  </div> <div>Sodium lamps are so efficient that one can outshine 100 incandescent bulbs combined</div> </div>	<div>12</div> <div>Flares</div> <div> <div>Mg</div> <div>24.305</div> <div>Used in flares, alloys, and as dietary supplement</div> </div> <div> <div>Magnesium</div> <div>  </div> <div>Magnesium burns with 3000K white light so bright it can cause permanent eye damage</div> </div>
<div>13</div> <div>Cans</div> <div> <div>Al</div> <div>26.982</div> <div>Used in beverage cans, foil, and aircraft parts</div> </div> <div> <div>Aluminum</div> <div>  </div> <div>Aluminum was worth more than gold until 1890s before efficient electrolytic extraction</div> </div>	<div>14</div> <div>Chips</div> <div> <div>Si</div> <div>28.085</div> <div>Used in computer chips, glass, and construction</div> </div> <div> <div>Silicon</div> <div>  </div> <div>Silicon makes up 27% of Earth's crust and enabled the entire computer age revolution</div> </div>	<div>15</div> <div>Matches</div> <div> <div>P</div> <div>30.974</div> <div>Used in fertilizers, matches, and DNA</div> </div> <div> <div>Phosphorus</div> <div>  </div> <div>White phosphorus glows green in darkness but is essential for life despite being toxic</div> </div>	<div>16</div> <div>Gunpowder</div> <div> <div>S</div> <div>32.07</div> <div>Used in rubber vulcanization and</div> </div> <div> <div>Sulfur</div> <div>  </div> <div>Sulfur is second for forming 30+ allotropes and creates yellow crystals in volcanic regions</div> </div>
<div>17</div> <div>Disinfectant</div> <div> <div>Cl</div> <div>35.45</div> <div>Used in pool disinfection and PVC production</div> </div> <div> <div>Chlorine</div> <div>  </div> <div>Chlorine has the highest electron affinity (349 kJ/mol) and was WWI's first poison gas</div> </div>	<div>18</div> <div>Inert</div> <div> <div>Ar</div> <div>39.9</div> <div>Used in welding and incandescent light bulbs</div> </div> <div> <div>Argon</div> <div>  </div> <div>Argon was Earth's first isolated noble gas and makes up nearly 1% of our atmosphere</div> </div>	<div>19</div> <div>Soap</div> <div> <div>K</div> <div>39.098</div> <div>Used in fertilizers and soap production</div> </div> <div> <div>Potassium</div> <div>  </div> <div>Potassium is so violently reactive it ignites spontaneously and must be stored in oil</div> </div>	<div>20</div> <div>Bones</div> <div> <div>Ca</div> <div>40.08</div> <div>Used in concrete production and car</div> </div> <div> <div>Calcium</div> <div>  </div> <div>Calcium phosphate comprises 70% of bone mass giving vertebrates their rigid structure</div> </div>

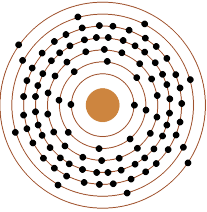
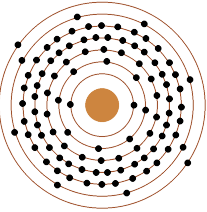
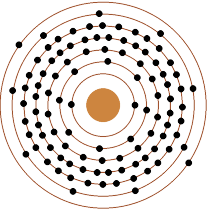
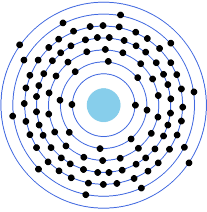
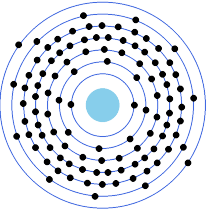
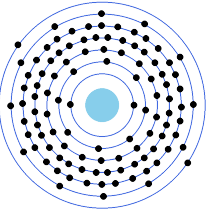
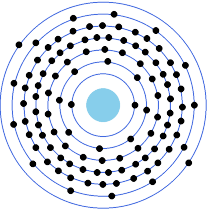
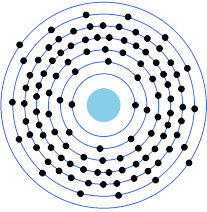
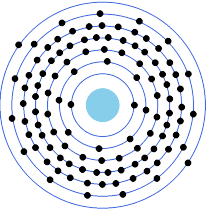
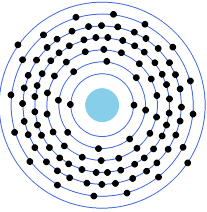
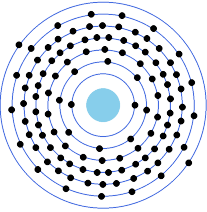
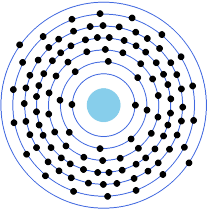
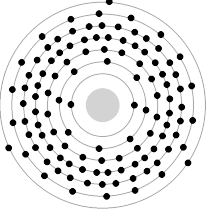
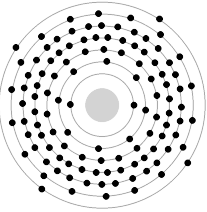
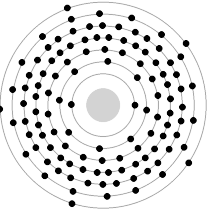
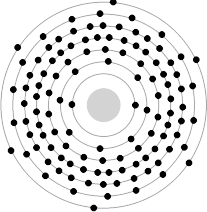
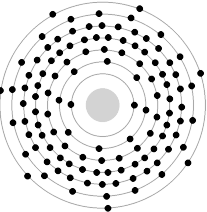
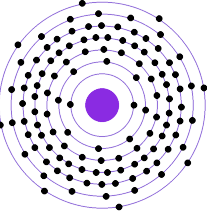
<div>21</div> <div>Aerospace</div> <div>Sc</div> <div>44.956</div> <div>Used in aerospace alloys and baseball bats</div> <div>Scandium</div> <div>  </div> <div>Scandium is paradoxically rarer than many 'rare earth' elements despite being lighter</div>	<div>22</div> <div>Implants</div> <div>Ti</div> <div>47.867</div> <div>Used in aircraft, medical implants, and paints</div> <div>Titanium</div> <div>  </div> <div>Titanium has the highest strength-to-weight ratio of all metals at 45% lighter than steel</div>	<div>23</div> <div>Pigments</div> <div>V</div> <div>50.942</div> <div>Used in steel alloys and as catalyst</div> <div>Vanadium</div> <div>  </div> <div>Vanadium can exist in 5 different oxidation states creating rainbow-colored solutions</div>	<div>24</div> <div>Plating</div> <div>Cr</div> <div>51.996</div> <div>Used in stainless steel and chrome plating</div> <div>Chromium</div> <div>  </div> <div>Chromium gives rubies red and emeralds green color while being the hardest pure metal</div>
<div>25</div> <div>Electrodes</div> <div>Mn</div> <div>54.938</div> <div>Used in steel production and battery electrodes</div> <div>Manganese</div> <div>  </div> <div>Manganese nodules carpet vast ocean floors containing trillions of tons of the element</div>	<div>26</div> <div>Construction</div> <div>Fe</div> <div>55.84</div> <div>Used in construction, tools, and magnets</div> <div>Iron</div> <div>  </div> <div>Iron comprises 32.1% of Earth's total mass with most concentrated in the molten core</div>	<div>27</div> <div>Glass</div> <div>Co</div> <div>58.933</div> <div>Used in magnets, catalysts, and blue glass</div> <div>Cobalt</div> <div>  </div> <div>Cobalt blue glass has been prized for 4000 years and retains color at 1000°C heat</div>	<div>28</div> <div>Currency</div> <div>Ni</div> <div>58.693</div> <div>Used in coins, batteries, and stainless steel</div> <div>Nickel</div> <div>  </div> <div>Nickel-62 has the highest binding energy per nucleon at 8.8 MeV, making it the most stable isotope</div>
<div>29</div> <div>Wiring</div> <div>Cu</div> <div>63.55</div> <div>Used in electrical wiring and plumbing pipes</div> <div>Copper</div> <div>  </div> <div>Copper naturally kills bacteria and viruses within hours making it self-sterilizing</div>	<div>30</div> <div>Galvanizing</div> <div>Zn</div> <div>65.4</div> <div>Used in galvanizing steel and brass alloys</div> <div>Zinc</div> <div>  </div> <div>Zinc deficiency causes loss of taste/smell and affects 2 billion people worldwide</div>	<div>31</div> <div>LEDs</div> <div>Ga</div> <div>69.723</div> <div>Used in semiconductors and LEDs</div> <div>Gallium</div> <div>  </div> <div>Gallium melts at 29.8°C in hand temperature but boils at 2400°C with the widest liquid range</div>	<div>32</div> <div>Transistors</div> <div>Ge</div> <div>72.63</div> <div>Used in fiber optics and transistors</div> <div>Germanium</div> <div>  </div> <div>Germanium was predicted by Mendeleev 15 years before discovery with exact properties</div>
<div>33</div> <div>Preservatives</div> <div>As</div> <div>74.922</div> <div>Used in wood preservatives and</div> <div>Arsenic</div> <div>  </div> <div>Arsenic has been humanity's poison of choice for over 2000 years earning 'King of Poisons'</div>	<div>34</div> <div>Photoconductors</div> <div>Se</div> <div>78.97</div> <div>Used in photoconductors and glass coloring</div> <div>Selenium</div> <div>  </div> <div>Selenium deficiency causes fatal white muscle disease and is toxic in excess amounts</div>	<div>35</div> <div>Antiseptic</div> <div>Br</div> <div>79.9</div> <div>Used as antiseptic and in flame retardants</div> <div>Bromine</div> <div>  </div> <div>Bromine is the only liquid non-metal but it evaporates quickly from 1 mL to 3 liters of toxic gas</div>	<div>36</div> <div>Windows</div> <div>Kr</div> <div>83.8</div> <div>Used in energy-efficient windows and lasers</div> <div>Krypton</div> <div>  </div> <div>Krypton was used in ultra-bright airport runway lighting systems and old camera flashes</div>
<div>37</div> <div>Clocks</div> <div>Rb</div> <div>85.468</div> <div>Used in atomic clocks and medical tracers</div> <div>Rubidium</div> <div>  </div> <div>Rubidium ignites spontaneously in air and was used in early vacuum tubes for electronics</div>	<div>38</div> <div>Fireworks</div> <div>Sr</div> <div>87.62</div> <div>Used in fireworks and flares for red color</div> <div>Strontium</div> <div>  </div> <div>Strontium-90 fallout creates the brilliant red in fireworks but is dangerously radioactive</div>	<div>39</div> <div>Cladding</div> <div>Y</div> <div>88.906</div> <div>Used in lasers and as cancer treatment</div> <div>Yttrium</div> <div>  </div> <div>Yttrium with barium carbon oxide named YBCO makes the highest temperature superconductors at</div>	<div>40</div> <div>Ceramics</div> <div>Zr</div> <div>91.22</div> <div>Used in nuclear reactors and ceramics</div> <div>Zirconium</div> <div>  </div> <div>Zirconium is virtually immune to corrosion up to 1270K and used in nuclear reactors</div>

<p><b>41</b> Superalloys <b>Nb</b> 92.906</p> <p>Niobium</p>  <p>Niobium is superconducting below 9K and was originally called columbium in America</p>	<p><b>42</b> Lubricants <b>Mo</b> 95.95</p> <p>Molybdenum</p>  <p>Molybdenum has the 6th highest melting point at 2896K and strengthens steel dramatically</p>	<p><b>43</b> Isotope <b>Tc</b> [96.906]</p> <p>Technetium</p>  <p>Technetium was the first artificially created element filling Mendeleev's predicted gap</p>	<p><b>44</b> Electronics <b>Ru</b> 101.1</p> <p>Ruthenium</p>  <p>Ruthenium is the scarcest platinum group metal and costs \$1600 per troy ounce</p>
<p><b>45</b> Jewelry <b>Rh</b> 102.91</p> <p>Rhodium</p>  <p>Rhodium is the most expensive precious metal at \$14,000+ per ounce, rarer than gold</p>	<p><b>46</b> Dentistry <b>Pd</b> 106.42</p> <p>Palladium</p>  <p>Palladium can absorb 900 times its volume in hydrogen like a metallic sponge</p>	<p><b>47</b> Photography <b>Ag</b> 107.868</p> <p>Silver</p>  <p>Silver has the highest electrical conductivity of all elements at room temperature</p>	<p><b>48</b> Panels <b>Cd</b> 112.41</p> <p>Cadmium</p>  <p>Cadmium red paint was banned after causing severe poisoning in artists for decades</p>
<p><b>49</b> Displays <b>In</b> 114.818</p> <p>Indium</p>  <p>Indium is softer than lead and can be scratched with a fingernail despite being metal</p>	<p><b>50</b> Soldering <b>Sn</b> 118.71</p> <p>Tin</p>  <p>Tin produces a distinctive 'tin cry' scream when bent due to crystal twinning</p>	<p><b>51</b> Flame-retardant <b>Sb</b> 121.76</p> <p>Antimony</p>  <p>Fluoroantimonic acid is 10 quintillion times stronger than sulfuric acid - the strongest known</p>	<p><b>52</b> Solar <b>Te</b> 127.6</p> <p>Tellurium</p>  <p>Tellurium-128 has the longest known half-life at 2.2 septillion years - nearly stable</p>
<p><b>53</b> Medicine <b>I</b> 126.905</p> <p>Iodine</p>  <p>Iodine deficiency affects 2 billion people causing goiter and developmental disability</p>	<p><b>54</b> Anesthesia <b>Xe</b> 131.29</p> <p>Xenon</p>  <p>Xenon is the rarest gas with 90 grams per million kilograms of air</p>	<p><b>55</b> Timekeeping <b>Cs</b> 132.91</p> <p>Cesium</p>  <p>Caesium is the softest metal and its hydroxide is the strongest base ever discovered</p>	<p><b>56</b> Imaging <b>Ba</b> 137.33</p> <p>Barium</p>  <p>Barium compounds create brilliant green fireworks but are lethally toxic if ingested</p>
<p><b>57</b> Lighters <b>La</b> 138.91</p> <p>Lanthanum</p>  <p>Lanthanum remained undiscovered in 'pure' cerium samples for 83 years of confusion</p>	<p><b>58</b> Polishing <b>Ce</b> 140.12</p> <p>Cerium</p>  <p>Cerium is the most abundant rare earth comprising 0.006% of Earth's crust mass</p>	<p><b>59</b> Engines <b>Pr</b> 140.91</p> <p>Praseodymium</p>  <p>Praseodymium means 'green twin' creating emerald-green compounds and yellow metal</p>	<p><b>60</b> Speakers <b>Nd</b> 144.24</p> <p>Neodymium</p>  <p>Neodymium creates the strongest permanent magnets lifting 1000 times their own weight</p>

<div>61</div> <div>Luminous</div> <div>Pm</div> <div>[144.91]</div> <div>Promethium</div> <div>  </div> <div> <p>Promethium is the only radioactive rare earth and powers space missions for decades</p>  </div>	<div>62</div> <div>Reactors</div> <div>Sm</div> <div>150.4</div> <div>Samarium</div> <div>  </div> <div> <p>Samarium magnets work at 350°C and have the highest neutron absorption cross-section</p> </div>	<div>63</div> <div>Phosphors</div> <div>Eu</div> <div>151.96</div> <div>Europium</div> <div>  </div> <div> <p>Europium is the softest rare earth and the most reactive, tarnishing rapidly in air</p> </div>	<div>64</div> <div>Contrast</div> <div>Gd</div> <div>157.25</div> <div>Gadolinium</div> <div>  </div> <div> <p>Gadolinium has the highest magnetic moment and is used in MRI contrast enhancement</p> </div>
<div>65</div> <div>Green</div> <div>Tb</div> <div>158.93</div> <div>Terbium</div> <div>  </div> <div> <p>Terbium glows intense green under UV and is essential for energy-efficient lighting</p> </div>	<div>66</div> <div>Lasers</div> <div>Dy</div> <div>162.5</div> <div>Dysprosium</div> <div>  </div> <div> <p>Dysprosium becomes strongly magnetic only below -180°C with highest magnetic strength</p> </div>	<div>67</div> <div>Devices</div> <div>Ho</div> <div>164.93</div> <div>Holmium</div> <div>  </div> <div> <p>Holmium possesses the strongest magnetic field of any element at 4.5 Tesla saturation</p> </div>	<div>68</div> <div>Fiber</div> <div>Er</div> <div>167.26</div> <div>Erbium</div> <div>  </div> <div> <p>Erbium amplifies light in fiber optic cables enabling global internet communications</p> </div>
<div>69</div> <div>Sources</div> <div>Tm</div> <div>168.93</div> <div>Thulium</div> <div>  </div> <div> <p>Thulium is the least abundant rare earth metal and possibly the most useless natural element</p> </div>	<div>70</div> <div>Sensors</div> <div>Yb</div> <div>173.05</div> <div>Ytterbium</div> <div>  </div> <div> <p>Ytterbium expands 26% during phase transition and is used in atomic clocks</p> </div>	<div>71</div> <div>Catalysis</div> <div>Lu</div> <div>174.97</div> <div>Lutetium</div> <div>  </div> <div> <p>Lutetium is the hardest, densest rare earth and was the last lanthanide discovered</p> </div>	<div>72</div> <div>Cutting</div> <div>Hf</div> <div>178.49</div> <div>Hafnium</div> <div>  </div> <div> <p>Hafnium has nearly identical properties to zirconium due to lanthanide contraction</p> </div>
<div>73</div> <div>Capacitors</div> <div>Ta</div> <div>180.95</div> <div>Tantalum</div> <div>  </div> <div> <p>Tantalum is virtually immune to all acids except hydrofluoric at high temperatures</p> </div>	<div>74</div> <div>Filaments</div> <div>W</div> <div>183.84</div> <div>Tungsten</div> <div>  </div> <div> <p>Tungsten has the highest melting point at 3695K and tensile strength of all metals</p> </div>	<div>75</div> <div>Coatings</div> <div>Re</div> <div>186.21</div> <div>Rhenium</div> <div>  </div> <div> <p>Rhenium has the highest boiling point at 5869K and is the last stable element found</p> </div>	<div>76</div> <div>Contacts</div> <div>Os</div> <div>190.2</div> <div>Osmium</div> <div>  </div> <div> <p>Osmium is the densest element at 22.6 g/cm³ - a cubic centimeter weighs as a golf ball</p> </div>
<div>77</div> <div>Plugs</div> <div>Ir</div> <div>192.22</div> <div>Iridium</div> <div>  </div> <div> <p>Iridium is the most corrosion-resistant element and 2nd densest element at 22.42</p> </div>	<div>78</div> <div>Refining</div> <div>Pt</div> <div>195.08</div> <div>Platinum</div> <div>  </div> <div> <p>Platinum is 30 times rarer than gold and catalyzes 20% of all chemical processes</p> </div>	<div>79</div> <div>Bullion</div> <div>Au</div> <div>196.97</div> <div>Gold</div> <div>  </div> <div> <p>Gold is so chemically inert it never tarnishes and has been treasured for 6000 years</p> </div>	<div>80</div> <div>Switches</div> <div>Hg</div> <div>200.59</div> <div>Mercury</div> <div>  </div> <div> <p>Mercury is the only metal liquid at room temperature and expands linearly with heat</p> </div>



<div>81</div> <div>Screens</div> <div>Thallium</div> <div> <div>204.38</div> <div>Used in electronics and medical imaging</div> </div> <div> </div> <div>Thallium is 10 times more toxic than lead and was once sold as rat poison</div>	<div>82</div> <div>Radiation</div> <div>Lead</div> <div> <div>207</div> <div>Used in car batteries, bullets, and radiation</div> </div> <div> </div> <div>Lead's toxicity may have contributed to the fall of Rome through poisoned water pipes</div>	<div>83</div> <div>Cosmetics</div> <div>Bismuth</div> <div> <div>208.98</div> <div>Used in medicine and cosmetics</div> </div> <div> </div> <div>Bismuth forms spectacular rainbow-colored oxide crystals and expands when solidifying</div>	<div>84</div> <div>Antistatic</div> <div>Polonium</div> <div> <div>[208.98]</div> <div>Used in antistatic devices and neutron sources</div> </div> <div> </div> <div>Polonium is 250 billion times more toxic than cyanide and the most radioactive natural element</div>
<div>85</div> <div>Therapy</div> <div>Astatine</div> <div> <div>[209.99]</div> <div>Used in medicine and scientific research</div> </div> <div> </div> <div>Astatine is Earth's rarest element with less than 1 gram existing at any time</div>	<div>86</div> <div>Tracing</div> <div>Radon</div> <div> <div>[222.02]</div> <div>Used as tracer gas and in dating</div> </div> <div> </div> <div>Radon gas seepage causes 21,000 lung cancer deaths annually in the US alone</div>	<div>87</div> <div>Experiments</div> <div>Francium</div> <div> <div>[223.02]</div> <div>Used in research and atomic clocks</div> </div> <div> </div> <div>Francium is the most reactive metal with largest atomic radius and shortest half-life of 22 minutes</div>	<div>88</div> <div>Treatment</div> <div>Radium</div> <div> <div>[226.03]</div> <div>Used in cancer treatment and luminous paints</div> </div> <div> </div> <div>Radium was worth more than gold and glowed green due to intense radioactive decay</div>
<div>89</div> <div>Radiotherapy</div> <div>Actinium</div> <div> <div>[227.03]</div> <div>Used in cancer treatment and neutron sources</div> </div> <div> </div> <div>Actinium glows blue-white in darkness and is 150 times more radioactive than radium</div>	<div>90</div> <div>Mantles</div> <div>Thorium</div> <div> <div>[232.04]</div> <div>Used in gas mantles and nuclear fuel</div> </div> <div> </div> <div>Thorium is 3 times more abundant than uranium and could power civilization for millennia</div>	<div>91</div> <div>Dating</div> <div>Protactinium</div> <div> <div>[231.04]</div> <div>Used in nuclear research and dating</div> </div> <div> </div> <div>Protactinium is one of the rarest elements, with only about 125 grams found in nature</div>	<div>92</div> <div>Weapons</div> <div>Uranium</div> <div> <div>[238.03]</div> <div>Used in nuclear fuel and weapons</div> </div> <div> </div> <div>Uranium-235's 1 gram releases energy equal to burning 3 tons of coal completely</div>
<div>93</div> <div>Detectors</div> <div>Neptunium</div> <div> <div>[237.05]</div> <div>Used in smoke detectors and research</div> </div> <div> </div> <div>Neptunium was the first transuranium element created and is named after planet Neptune</div>	<div>94</div> <div>Power</div> <div>Plutonium</div> <div> <div>[244.06]</div> <div>Used in nuclear weapons and power</div> </div> <div> </div> <div>Plutonium feels warm due to radioactive decay and is illegal for civilians to possess</div>	<div>95</div> <div>Alarms</div> <div>Americium</div> <div> <div>[243.06]</div> <div>Used in smoke detectors and neutron sources</div> </div> <div> </div> <div>Americium is the only man-made element available to the public in stores</div>	<div>96</div> <div>Missions</div> <div>Curium</div> <div> <div>[247.07]</div> <div>Used in research and space missions</div> </div> <div> </div> <div>Curium glows purple-blue in darkness due to intense radioactivity and rapid decay</div>
<div>97</div> <div>Cyclotron</div> <div>Berkelium</div> <div> <div>[247.07]</div> <div>Used in research and as electron source</div> </div> <div> </div> <div>Berkelium was first synthesized at UC Berkeley using the 60-inch cyclotron in 1949</div>	<div>98</div> <div>Starters</div> <div>Californium</div> <div> <div>[251.08]</div> <div>Used in research and neutron sources</div> </div> <div> </div> <div>Californium costs \$27 million per gram and is used to start nuclear reactors</div>	<div>99</div> <div>Research</div> <div>Einsteinium</div> <div> <div>[252.08]</div> <div>Used in research and medical applications</div> </div> <div> </div> <div>Einsteinium was discovered in hydrogen bomb debris from the first H-bomb test in 1952</div>	<div>100</div> <div>Research</div> <div>Fermium</div> <div> <div>[257.1]</div> <div>Used in research only</div> </div> <div> </div> <div>Fermium was found in H-bomb fallout like einsteinium and named after physicist Enrico Fermi</div>

<div>101</div> <div>Research</div> <div>Md</div> <div>[258.1]</div> <div>Mendelevium</div> <div>  </div> <div>Used in research only</div> <div>Mendelevium was the first element created one atom at a time using particle accelerators</div>	<div>102</div> <div>Research</div> <div>No</div> <div>[259.1]</div> <div>Nobelium</div> <div>  </div> <div>Used in research only</div> <div>Nobelium discovery was disputed for decades with Soviet, American, and Swedish claims</div>	<div>103</div> <div>Research</div> <div>Lr</div> <div>[266.12]</div> <div>Lawrencium</div> <div>  </div> <div>Used in research only</div> <div>Lawrencium completes the actinide series and was synthesized at Berkeley in 1961</div>	<div>104</div> <div>Research</div> <div>Rf</div> <div>[267.12]</div> <div>Rutherfordium</div> <div>  </div> <div>Used in research only</div> <div>Rutherfordium was claimed by both Soviet and American teams causing naming disputes</div>
<div>105</div> <div>Research</div> <div>Db</div> <div>[268.13]</div> <div>Dubnium</div> <div>  </div> <div>Used in research only</div> <div>Dubnium was named after Dubna, Russia where Soviet scientists first claimed discovery</div>	<div>106</div> <div>Research</div> <div>Sg</div> <div>[269.13]</div> <div>Seaborgium</div> <div>  </div> <div>Used in research only</div> <div>Seaborgium honors Glenn Seaborg, the only living person to have an element named for them</div>	<div>107</div> <div>Research</div> <div>Bh</div> <div>[270.13]</div> <div>Bohrium</div> <div>  </div> <div>Used in research only</div> <div>Bohrium was named after Niels Bohr who developed quantum mechanical model of atoms</div>	<div>108</div> <div>Research</div> <div>Hs</div> <div>[269.13]</div> <div>Hassium</div> <div>  </div> <div>Used in research only</div> <div>Hassium was named after Hesse, Germany where GSI laboratory first synthesized it</div>
<div>109</div> <div>Research</div> <div>Mt</div> <div>[277.15]</div> <div>Meitnerium</div> <div>  </div> <div>Used in research only</div> <div>Meitnerium honors Lise Meitner who theorised nuclear fission</div>	<div>110</div> <div>Research</div> <div>Ds</div> <div>[282.17]</div> <div>Darmstadtium</div> <div>  </div> <div>Used in research only</div> <div>Darmstadtium was named after Darmstadt, the latest city to receive elemental recognition</div>	<div>111</div> <div>Research</div> <div>Rg</div> <div>[282.17]</div> <div>Roentgenium</div> <div>  </div> <div>Used in research only</div> <div>Roentgenium honors X-ray discoverer Wilhelm Röntgen though it doesn't emit X-rays</div>	<div>112</div> <div>Research</div> <div>Cn</div> <div>[286.18]</div> <div>Copernicium</div> <div>  </div> <div>Used in research only</div> <div>Copernicium was named after Copernicus who placed the Sun at the solar system's center</div>
<div>113</div> <div>Research</div> <div>Nh</div> <div>[286.18]</div> <div>Nihonium</div> <div>  </div> <div>Used in research only</div> <div>Nihonium was named after Japan (Nihon) where RIKEN laboratory first synthesized it in 2004</div>	<div>114</div> <div>Research</div> <div>Fl</div> <div>[290.19]</div> <div>Flerovium</div> <div>  </div> <div>Used in research only</div> <div>Flerovium honors Soviet physicist Flerov who founded heavy element research in USSR</div>	<div>115</div> <div>Research</div> <div>Mc</div> <div>[290.2]</div> <div>Moscovium</div> <div>  </div> <div>Used in research only</div> <div>Moscovium was named after Moscow where Russian scientists contributed to superheavy research</div>	<div>116</div> <div>Research</div> <div>Lv</div> <div>[293.21]</div> <div>Livermorium</div> <div>  </div> <div>Used in research only</div> <div>Livermorium honors Lawrence Livermore Laboratory's contributions to superheavy</div>
<div>117</div> <div>Research</div> <div>Ts</div> <div>[294.21]</div> <div>Tennessee</div> <div>  </div> <div>Used in research only</div> <div>Tennessee was named after Tennessee, discovered most recently in 2010 at Oak Ridge</div>	<div>118</div> <div>Research</div> <div>Og</div> <div>[295.22]</div> <div>Oganesson</div> <div>  </div> <div>Used in research only</div> <div>Oganesson is the heaviest and most radioactive element with the shortest 0.7ms half-life</div>		