

## CHEMISTRY DATA SHEET

1 mole of any element contains  $6.02 \times 10^{23}$  molecules

FORMULAE OF COMMON IONS	
Positive	Negative
Ag <sup>+</sup>	Br <sup>-</sup>
Al <sup>3+</sup>	Cl <sup>-</sup>
Ca <sup>2+</sup>	CO <sub>3</sub> <sup>2-</sup>
Cu <sup>2+</sup>	HCO <sub>3</sub> <sup>-</sup>
Fe <sup>2+</sup>	HSO <sub>4</sub> <sup>-</sup>
Fe <sup>3+</sup>	I <sup>-</sup>
H <sup>+</sup>	NO <sub>3</sub> <sup>-</sup>
K <sup>+</sup>	O <sup>2-</sup>
Li <sup>+</sup>	OH <sup>-</sup>
Mg <sup>2+</sup>	S <sup>2-</sup>
Na <sup>+</sup>	SO <sub>3</sub> <sup>2-</sup>
NH <sub>4</sub> <sup>+</sup>	SO <sub>4</sub> <sup>2-</sup>
Pb <sup>2+</sup>	PO <sub>4</sub> <sup>3-</sup>
Zn <sup>2+</sup>	HPO <sub>4</sub> <sup>3-</sup>
Ba <sup>2+</sup>	H <sub>2</sub> PO <sub>4</sub> <sup>4-</sup>

REACTIVITY SERIES	
Elements	Reactivity
Potassium	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;"><i>Most reactive</i></div> <div style="margin-bottom: 20px;">↓</div> <div style="margin-bottom: 20px;"><i>Decrease in</i></div> <div style="margin-bottom: 20px;"><i>Reactivity</i></div> <div style="margin-bottom: 20px;">↓</div> <div><i>Least reactive</i></div> </div>
Sodium	
Lithium	
Calcium	
Magnesium	
Aluminium	
(Carbon)	
Zinc	
Iron	
Tin	
Lead	
(Hydrogen)	
Copper	
Silver	
Gold	
Platinum	

### SOLUBILITY OF SALTS AND HYDROXIDES IN COLD WATER

Soluble	Insoluble
All sodium, potassium and ammonium salts	
All nitrates	
Most bromides, chlorides & iodides	Bromides, chlorides & iodides of silver & lead*
Most sulphates	Sulphates of barium, calcium & lead*
Carbonates & hydroxides of sodium, potassium & ammonium	Most other carbonates & hydroxides
Calcium hydroxide is only slightly soluble	*lead salts are more soluble in hot water

# Chemistry Data Sheet

## The Periodic Table of Elements

I	II											III	IV	V	VI	VII	VIII																																										
<div style="display: flex; justify-content: space-between;"> <span>atomic number</span> <span>mass number †</span> </div> <div style="display: flex; justify-content: space-between;"> <span>←</span> <span>←</span> </div>	<div style="display: flex; justify-content: space-between;"> <span>1</span> <span>2</span> </div> <div style="display: flex; justify-content: space-between;"> <span>H</span> <span>He</span> </div> <div style="display: flex; justify-content: space-between;"> <span>1</span> <span>4</span> </div>											<div style="display: flex; justify-content: space-between;"> <span>5</span> <span>6</span> <span>7</span> <span>8</span> <span>9</span> <span>10</span> </div> <div style="display: flex; justify-content: space-between;"> <span>B</span> <span>C</span> <span>N</span> <span>O</span> <span>F</span> <span>Ne</span> </div> <div style="display: flex; justify-content: space-between;"> <span>11</span> <span>12</span> <span>14</span> <span>16</span> <span>19</span> <span>20</span> </div>						<div style="display: flex; justify-content: space-between;"> <span>13</span> <span>14</span> <span>15</span> <span>16</span> <span>17</span> <span>18</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Al</span> <span>Si</span> <span>P</span> <span>S</span> <span>Cl</span> <span>Ar</span> </div> <div style="display: flex; justify-content: space-between;"> <span>27</span> <span>28</span> <span>31</span> <span>32</span> <span>35</span> <span>40</span> </div>											<div style="display: flex; justify-content: space-between;"> <span>19</span> <span>20</span> <span>21</span> <span>22</span> <span>23</span> <span>24</span> <span>25</span> <span>26</span> <span>27</span> <span>28</span> <span>29</span> <span>30</span> <span>31</span> <span>32</span> <span>33</span> <span>34</span> <span>35</span> <span>36</span> </div> <div style="display: flex; justify-content: space-between;"> <span>K</span> <span>Ca</span> <span>Sc</span> <span>Ti</span> <span>V</span> <span>Cr</span> <span>Mn</span> <span>Fe</span> <span>Co</span> <span>Ni</span> <span>Cu</span> <span>Zn</span> <span>Ga</span> <span>Ge</span> <span>As</span> <span>Se</span> <span>Br</span> <span>Kr</span> </div> <div style="display: flex; justify-content: space-between;"> <span>39</span> <span>40</span> <span>45</span> <span>48</span> <span>51</span> <span>52</span> <span>55</span> <span>56</span> <span>59</span> <span>59</span> <span>64</span> <span>65</span> <span>70</span> <span>73</span> <span>75</span> <span>79</span> <span>80</span> <span>84</span> </div>						<div style="display: flex; justify-content: space-between;"> <span>37</span> <span>38</span> <span>39</span> <span>40</span> <span>41</span> <span>42</span> <span>43</span> <span>44</span> <span>45</span> <span>46</span> <span>47</span> <span>48</span> <span>49</span> <span>50</span> <span>51</span> <span>52</span> <span>53</span> <span>54</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Rb</span> <span>Sr</span> <span>Y</span> <span>Zr</span> <span>Nb</span> <span>Mo</span> <span>Tc</span> <span>Ru</span> <span>Rh</span> <span>Pd</span> <span>Ag</span> <span>Cd</span> <span>In</span> <span>Sn</span> <span>Sb</span> <span>Te</span> <span>I</span> <span>Xe</span> </div> <div style="display: flex; justify-content: space-between;"> <span>85</span> <span>88</span> <span>89</span> <span>91</span> <span>93</span> <span>96</span> <span>(98)</span> <span>101</span> <span>103</span> <span>106</span> <span>108</span> <span>112</span> <span>115</span> <span>119</span> <span>122</span> <span>128</span> <span>127</span> <span>131</span> </div>						<div style="display: flex; justify-content: space-between;"> <span>55</span> <span>56</span> <span>57</span> <span>58</span> <span>59</span> <span>60</span> <span>61</span> <span>62</span> <span>63</span> <span>64</span> <span>65</span> <span>66</span> <span>67</span> <span>68</span> <span>69</span> <span>70</span> <span>71</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Cs</span> <span>Ba</span> <span>Hf</span> <span>Ta</span> <span>W</span> <span>Re</span> <span>Os</span> <span>Ir</span> <span>Pt</span> <span>Au</span> <span>Hg</span> <span>Tl</span> <span>Pb</span> <span>Bi</span> <span>Po</span> <span>At</span> <span>Rn</span> </div> <div style="display: flex; justify-content: space-between;"> <span>133</span> <span>137</span> <span>178</span> <span>181</span> <span>184</span> <span>186</span> <span>190</span> <span>192</span> <span>195</span> <span>197</span> <span>201</span> <span>204</span> <span>207</span> <span>209</span> <span>(209)</span> <span>(210)</span> <span>(222)</span> </div>						<div style="display: flex; justify-content: space-between;"> <span>87</span> <span>88</span> <span>89</span> <span>90</span> <span>91</span> <span>92</span> <span>93</span> <span>94</span> <span>95</span> <span>96</span> <span>97</span> <span>98</span> <span>99</span> <span>100</span> <span>101</span> <span>102</span> <span>103</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Fr</span> <span>Ra</span> <span>Rf</span> <span>Db</span> <span>Sg</span> <span>Bh</span> <span>Hs</span> <span>Mt</span> <span>Ds</span> <span>Rg</span> <span>Cn</span> <span>Uut</span> <span>Uuq</span> <span>Uup</span> <span>Uuh</span> <span>Uus</span> <span>Uuo</span> </div> <div style="display: flex; justify-content: space-between;"> <span>223</span> <span>226</span> <span>(261)</span> <span>(262)</span> <span>(266)</span> <span>(264)</span> <span>(277)</span> <span>(268)</span> <span>(281)</span> <span>(272)</span> <span>(285)</span> <span>(284)</span> <span>(289)</span> <span>(288)</span> <span>(292)</span> <span>(291)</span> <span>(294)</span> </div>						<div style="display: flex; justify-content: space-between;"> <span>57</span> <span>58</span> <span>59</span> <span>60</span> <span>61</span> <span>62</span> <span>63</span> <span>64</span> <span>65</span> <span>66</span> <span>67</span> <span>68</span> <span>69</span> <span>70</span> <span>71</span> </div> <div style="display: flex; justify-content: space-between;"> <span>La</span> <span>Ce</span> <span>Pr</span> <span>Nd</span> <span>Pm</span> <span>Sm</span> <span>Eu</span> <span>Gd</span> <span>Tb</span> <span>Dy</span> <span>Ho</span> <span>Er</span> <span>Tm</span> <span>Yb</span> <span>Lu</span> </div> <div style="display: flex; justify-content: space-between;"> <span>139</span> <span>140</span> <span>141</span> <span>144</span> <span>(145)</span> <span>150</span> <span>152</span> <span>157</span> <span>159</span> <span>163</span> <span>165</span> <span>167</span> <span>169</span> <span>173</span> <span>175</span> </div>						<div style="display: flex; justify-content: space-between;"> <span>89</span> <span>90</span> <span>91</span> <span>92</span> <span>93</span> <span>94</span> <span>95</span> <span>96</span> <span>97</span> <span>98</span> <span>99</span> <span>100</span> <span>101</span> <span>102</span> <span>103</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Ac</span> <span>Th</span> <span>Pa</span> <span>U</span> <span>Np</span> <span>Pu</span> <span>Am</span> <span>Cm</span> <span>Bk</span> <span>Cf</span> <span>Es</span> <span>Fm</span> <span>Md</span> <span>No</span> <span>Lr</span> </div> <div style="display: flex; justify-content: space-between;"> <span>(227)</span> <span>232</span> <span>231</span> <span>238</span> <span>(237)</span> <span>(244)</span> <span>(243)</span> <span>(247)</span> <span>(247)</span> <span>(251)</span> <span>(252)</span> <span>(257)</span> <span>(258)</span> <span>(259)</span> <span>(262)</span> </div>

† mass number relates to the commonest isotope.  
 For all calculations assume relative atomic mass = mass number, except for CHLORINE.  
 For chlorine, relative atomic mass = 35.5