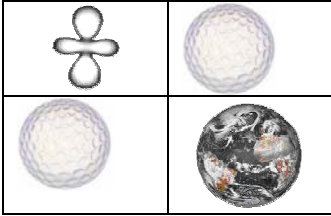
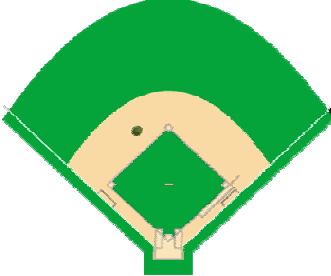

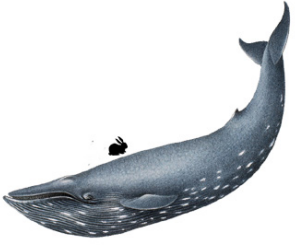


Relative Size of Objects	Actual Ratio	Analogy																
<p>An atom of hydrogen is about a quarter of a billion times smaller than a golf ball</p>	<p>Ratio of diameters =</p> $0.0448 \text{ m} / 1.58 \times 10^{-10} \text{ m} = 2.84 \times 10^8$	<p>If you imagine the hydrogen atom to be the size of a golf ball, then a golf ball would become as wide as the earth</p> $12\,756\,100 \text{ m} = 12\,756.1 \text{ km in diameter}$ 																
<p>The atom is about 50 000 times larger than its nucleus</p>	<p>$R = \text{nuclear radius} = r_0 A^{1/3}$</p> <p>A = Atomic mass number and $r_0 = 1.25 \times 10^{-15} \text{ m}$</p> <table border="1"> <thead> <tr> <th>Element</th> <th>R</th> <th>Atomic radius</th> <th>atom/nucleus</th> </tr> </thead> <tbody> <tr> <td>1H</td> <td>1.25E-15</td> <td>7.90E-11</td> <td>6.32E+04</td> </tr> <tr> <td>12C</td> <td>2.86E-15</td> <td>9.10E-11</td> <td>3.18E+04</td> </tr> <tr> <td>132Cs</td> <td>6.36E-15</td> <td>3.34E-10</td> <td>5.25E+04</td> </tr> </tbody> </table>	Element	R	Atomic radius	atom/nucleus	1H	1.25E-15	7.90E-11	6.32E+04	12C	2.86E-15	9.10E-11	3.18E+04	132Cs	6.36E-15	3.34E-10	5.25E+04	 <p>If you imagine the nucleus as the size of a 0.75 cm pea, then the atom becomes as large as a baseball field.</p>
Element	R	Atomic radius	atom/nucleus															
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<p>The proton is almost 2000 times more massive than the electron.</p>	$= 938.2592 / 0.5110411 = 1835.976$	 <p>If a proton is imagined as a honeydew melon (1200 grams), then the electron is about as massive as a pit (0.6g)</p>																

<p>The sun is over 300 000 times as massive as the earth</p>	$\frac{1.9891 \times 10^{30} \text{ kg}}{5.9736 \times 10^{24} \text{ kg}} = 332\,980$	 <p>From a mass- perspective, if the sun is a blue whale(181 000 kg) then the earth is a little bunny rabbit (540 g)</p>
<p>Compared to the sun, the next closest star (Proxima Centauri) is 250 000 times further from the earth</p>	$\frac{3.966522594 \times 10^{13} \text{ km}}{149\,597\,892 \text{ km}} = 265\,145.620$	<p>If you reduce the Earth to the size of an eraser(1 cm) at the end of a pencil at home plate, the sun(109.7 times wider) becomes a 1 meter beach ball, 117 meters away in shallow left field, but the nearest star would still be triple the distance(31 000 km) between Alaska and India.</p>
		<p>If you made a scale model of the universe, and the model was the size of the earth, how big would the earth be in that model? 10^{-13} m, about 1000 times smaller than a hydrogen atom</p>