

<b>PHYS 110 Things you need to KNOW NOW – Part 1</b>		
1	Giga = ? (power of ten)	
2	Centi = ? (power of ten)	
3	Kilo = ? (power of ten)	
4	Milli = ? (power of ten)	
5	Micro = ? (power of ten)	
6	Mega = ? (power of ten)	
7	2 definitions of Force	1. 2.
8	3 definitions of mass	1. 2. 3.
9	2 definitions of displacement	1. 2.
10	2 definitions of velocity	1. 2.
11	Definition of volume	
12	Definition of time	
13	Definition of acceleration	
14	4 fundamental forces in the universe	1. 2. 3. 4.
15	Discovered the moons of Jupiter	
16	Adherent of Pythagorean philosophy	
17	Created 1 <sup>st</sup> comprehensive heliocentric model	
18	Geocentric explanation for planets' retrograde motion	
19	Occam's Razor	
20	Discovered phases of Venus	
21	Developed explanations of planetary motion based on fundamental laws of physics	

22	Created comprehensive geocentric model of universe	
23	Wrote the "Principia"	
24	Author of the Scientific Method	
25	Sought to remove supernatural causation from science	
26	Went through tribunal for seeking to reconcile Scripture with heliocentric model	
27	Newton's thought experiment leading to explanation of orbits	
28	Discovered craters and mountains on moon	
29	Tutored Alexander the Great	
30	First to use telescope for astronomy	
31	Definition of a scientific theory	
32	Definition of a hypothesis	
33	Definition of "limiting the scope of inquiry"	
34	Definition of "idealization"	
35	Father of scientific reasoning	
36	Standard metric unit of mass	
37	U.S. standard unit of displacement	

38	Standard metric unit of force	
39	U.S. standard unit of acceleration	
40	Standard metric unit of velocity	
41	U.S standard unit of volume	
42	U.S standard unit of velocity	
43	U.S. standard unit of mass	
44	Standard metric unit volume	
45	Standard metric unit of velocity	
46	Standard metric unit of acceleration	
47	Standard metric unit of displacement	
48	Standard metric unit of force	
49	1 "G" = ? (both metric and U.S. standard)	
50	Standard metric unit of mass	
51	Standard unit of time	
52	1 hour = ? seconds	
53	1 mile = ? feet	
54	1 mile = ? meters	
55	1 kilometer = ? meters	
56	1 kilogram = ? grams	
57	Particle with positive charge	
58	Particle with negative charge	
59	Particle with neutral charge	
60	Has 1/2000 <sup>th</sup> the mass of a proton	
61	Has slightly more mass than a proton	
62	Contains over 99% of the mass of an atom	
63	By volume an atom is over ? % empty space	

64	On average the radius of an atom is ? times the radius of its nucleus	
65	First to come up with idea of "atoms"	
66	What is the "billiard ball" model of the atom and who came up with it?	
67	Who discovered that the atom is mostly empty space?	
68	Who came up with the "plum pudding" model and what did he discover?	
69	Developed the Uncertainty Principle (two names)	
70	What is the Uncertainty Principle?	
71	Discovered the neutron	
72	What is the "plum pudding" model of the atom?	
73	Who posited that electrons travel in circular orbits and that only certain orbits are allowed?	
74	Place in chronological order: Uncertainty Principle Billiard Ball Model Discovery of neutron Discovery of electron Plum Pudding Model Electron Circular Orbits Concept of "atoms"	1. 2. 3. 4. 5. 6. 7.
75	Standard metric unit of mass density	
76	1 mL = ? and ?	

77	$1 \text{ m}^3 = ? \text{ cm}^3$	
78	Definition of scalar measures	
79	Definition of vector measures	
80	The sum of 2 or more vectors	
81	Sine $\theta =$	
82	Cosine $\theta =$	
83	Tangent $\theta =$	
84	Archaeopteryx is an example of a ? (in terms of evolution theory)	
85	The Intelligent Design idea of "irreducible complexity" is an example of ?	
86	In the Dover case, why were the plaintiffs unable to use the example of "Tiktaalik?"	
87	In the Dover case, witness for the defense Dr. Michael Behe defined a "scientific theory" as articulated by ? or ?	
88	What did Newton <b>emphasize</b> that is essential for a scientific theory to be valid?	

### Things you need to know how to do NOW:

1. Factor-Label conversions (MPH to ft/sec, grams/cm<sup>3</sup> to Kg/m<sup>3</sup>, etc)
2. Metric conversions in scientific notation (EX:  $3.57 \times 10^4$  Kg = ? milligrams)
3. Conversions from scientific notation to standard notation and vice-versa
4. Determine the mass density of a sample of material based on its measured mass and volume, and identify the material based on its mass density
5. Determine the mass of a sample of material based on its measured volume and known mass density
6. Using trig, calculate the resultant force ( $V_{res}$ ) of multiple vectors of force
7. Using trig, calculate the "equilibrant" ( $V_{eq}$ ) to create a static system of forces
8. Using the "inventory" - "odd man out" method of analysis, solve mathematical problems in acceleration and/or gravity