

Trigonometry Based Physics I Competencies

	PERFORMANCE/TASK	DELIVERY METHODS	EVALUATION METHODS
1	The student will be able to describe and explain both qualitatively and quantitatively the definitions and relationships of Physics.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
2	The student will be able to use the definitions and relationships of Physics to ask and answer qualitative and quantitative Physics questions.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
3	The student will be able to use the definitions and relationships of Physics and the general problem solving procedure to solve Physics problems.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
4	The student will be able to use the scientific method to evaluate the definitions and relationships of Physics.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
5	The student will be able to state the definitions of measurement, standard, dimensions and units.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
6	The student will be able to state SI units for amounts of space, time, matter, and energy	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
7	The student will be able to use the definitions of measurement, standard, dimensions, and units to ask and answer qualitative and quantitative questions about space, time, matter and energy.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab

		Lab Experiments	Reports
8	The student will be able to use the definitions of measurement, standard, dimensions, and units and the general problem solving procedure to solve measurement, standard, dimensions, and units problems.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
9	The student will be able to use the scientific method and the definitions of measurement, standard, dimensions, and units to evaluate definitions and relationships which include any combination of space, time, matter, and energy.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
10	The student will be able to state the definitions of scalar and vector both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
11	The student will be able to multiply scalars and vectors and describe qualitatively and quantitatively the results of this multiplication.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
12	The student will be able to state both qualitatively and quantitatively the definitions of component vector, resultant vector, unit vector, and rectangular components.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
13	The student will be able to use the definitions of component vector, resultant vector, unit vector, and rectangular components to ask and answer qualitative and quantitative questions about the size and direction of any vector.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
14	The student will be able to use the size and direction of any vector to find the vector's rectangular components.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab

		Lab Experiments	Reports
15	The student will be able to use the rectangular components of any vector to find the vector's size and direction.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
16	The student will be able to represent any vector using the unit vectors and the rectangular components of the vector.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
17	The student will be able to use the rectangular components of vectors to find the rectangular components of the resultant vector of two or more vectors.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
18	The student will be able to define both qualitatively and quantitatively the scalar product of two vectors.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
19	The student will be able to use the definition of the scalar product of two vectors to find the value produced when two vectors are multiplied to produce a scalar.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
20	The student will be able to state both qualitatively and quantitatively the definitions of position, velocity, and acceleration of an object in translational motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
21	The student will be able to use the definitions of position, velocity, and acceleration of an object to qualitatively and quantitatively describe any translational motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports

22	The student will be able to use the definitions of position, velocity, and acceleration to solve translational motion problems.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
23	The student will be able to use the scientific method to evaluate the definitions of position, velocity, and acceleration .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
24	The student will be able to state the definition of force both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
25	The student will be able to describe contact and non contact forces.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
26	The student will be able to describe friction and normal forces and their relationship both qualitatively and quantitatively	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
27	The student will be able to describe and draw free body diagrams showing all contact and non-contact forces acting on the body.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
28	The student will be able to describe and use Newton's First law for translational motion both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
29	The student will be able to describe and use Newton's Second law of	Lectures, Demonstrations,	Answers to Questions on Quizzes

	translational motion both qualitatively and quantitatively.	Discussions, Practicing Problem Solving, and Doing Lab Experiments	and Tests, Analysis and Solutions of Test Problems, & Lab Reports
30	The student will be able to describe and use Newton's Third law of action and reaction forces both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
31	The student will be able to describe and use Newton's law of Universal Gravitation both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
32	The student will be able to define weight both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
33	The student will be able to state the relationship between mass and weight both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
34	The student will be able to use Newton's Laws to ask and answer qualitative and quantitative questions, solve problems, and perform experiments which explain translational motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
35	The student will be able to state and explain both qualitatively and quantitatively the causes of the position, velocity, and acceleration of an object.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
36	The student will be able to use the explanations of position, velocity, and acceleration to ask and answer qualitative and quantitative questions,	Lectures, Demonstrations, Discussions, Practicing Problem	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test

	solve problems, and perform experiments on Translational Motion.	Solving, and Doing Lab Experiments	Problems, & Lab Reports
37	The student will be able to describe the types of mechanical energy associated with translational motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
38	The student will be able to state the definitions of work, kinetic energy, gravitational potential energy, elastic potential energy, and total mechanical energy both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
39	The student will be able to define conservative and non conservative forces both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
40	The student will be able to state the relationship among work, kinetic energy, gravitational potential energy, elastic potential energy, and total mechanical energy both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
41	The student will be able to use the definitions of work, kinetic energy, potential energy, and total mechanical energy to ask and answer questions, solve problems, and perform experiments on the mechanical energy associated with Translational Motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
42	The student will be able to use the relationships among work, kinetic energy, potential energy, and total mechanical energy to ask and answer questions, solve problems, and perform experiments on the mechanical energy associated with Translational Motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
43	The student will be able to state and use the principle of conservation of mechanical energy to ask and answer questions, solve problems, and perform	Lectures, Demonstrations, Discussions, Practicing Problem	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test

	experiments both qualitatively and quantitatively	Solving, and Doing Lab Experiments	Problems, & Lab Reports
44	The student will be able to state the definitions of linear momentum and linear impulse both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
45	The student will be able to state the relationship between linear impulse and linear momentum both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
46	The student will be able to use the definitions of linear momentum, linear impulse and the relationship between linear impulse and linear momentum to ask and answer questions, solve problems and perform experiments both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
47	The student will be able to state and use the principle of conservation of linear momentum to qualitatively and quantitatively ask and answer questions, solve problems, and perform experiments.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
48	The student will be able to state both qualitatively and quantitatively the definitions of angular position, angular velocity, and angular acceleration of an object in rotational motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
49	The student will be able to use the definitions of of angular position, angular velocity, and angular acceleration of an object to qualitatively and quantitatively describe any rotational motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
50	The student will be able to use the definitions of of angular position, angular velocity, and angular acceleration to solve rotational motion problems.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab

		Lab Experiments	Reports
51	The student will be able to use the scientific method to evaluate the definitions of angular position, angular velocity, and angular acceleration.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
52	The student will be able to state the definition of torque both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
53	The student will be able to describe and draw free body diagrams showing all torques and contact and non-contact forces acting on the body.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
54	The student will be able to describe Newton's First law for rotational motion both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
55	The student will be able to describe Newton's Second law of rotational motion both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
56	The student will be able to describe Newton's Third law of action and reaction torques both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
57	The student will be able to state and use the definition of moment of inertia qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports

58	The student will be able to state and explain both qualitatively and quantitatively the causes of the angular position, angular velocity, and angular acceleration of an object.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
59	The student will be able to use the explanations of angular position, angular velocity, and angular acceleration to ask and answer qualitative and quantitative questions, solve problems, and perform experiments on rotational Motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
60	The student will be able to describe the types of mechanical energy associated with rotational motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
61	The student will be able to state the definitions of rotational work, rotational kinetic energy, and rotational elastic potential energy both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
62	The student will be able to define conservative and non conservative torques both qualitatively and quantitatively.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
63	The student will be able to use the relationships among rotational work, rotational kinetic energy, rotational elastic potential energy, and total mechanical energy both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
64	The student will be able to use the definitions of work, kinetic energy, potential energy, and total mechanical energy to ask and answer questions, solve problems, and perform experiments on the mechanical energy associated with rotational Motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
65	The student will be able to state the	Lectures,	Answers to

	definitions of angular momentum and angular impulse both qualitatively and quantitatively .	Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
66	The student will be able to state the relationship between angular impulse and angular momentum both qualitatively and quantitatively .	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
67	The student will be able to use angular momentum, angular impulse and the relationship between angular impulse and angular momentum to qualitatively and quantitatively ask and answer questions, solve problems and perform experiments.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
68	The student will be able to state and use the principle of conservation of angular momentum to ask and answer questions, solve problems, and perform experiments both qualitatively and quantitatively	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
69	The student will be able to qualitatively and quantitatively describe the position, velocity, and acceleration in oscillatory motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
70	The student will be able to qualitatively and quantitatively explain the position, velocity, and acceleration in oscillatory motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
71	The student will be able to qualitatively and quantitatively describe the amplitude, frequency, period, and total mechanical energy in oscillatory motion.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
72	The student will be able to qualitatively and quantitatively use the amplitude,	Lectures, Demonstrations,	Answers to Questions on Quizzes

	frequency, period, and total mechanical energy of oscillatory motion to ask and answer questions, solve problems and perform experiments.	Discussions, Practicing Problem Solving, and Doing Lab Experiments	and Tests, Analysis and Solutions of Test Problems, & Lab Reports
73	The student will be able to qualitatively and quantitatively describe mechanical waves.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
74	The student will be able to qualitatively and quantitatively explain mechanical waves.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
75	The student will be able to qualitatively and quantitatively describe the amplitude, frequency, period, wavelength and power in mechanical waves.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
76	The student will be able to qualitatively and quantitatively use the amplitude, frequency, period, wavelength and power of mechanical waves to ask and answer questions, solve problems and perform experiments.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
77	The student will be able to qualitatively and quantitatively describe and explain longitudinal and transverse mechanical waves in solids and fluids.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
78	The student will be able to qualitatively and quantitatively describe temperature.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
79	The student will be able to qualitatively and quantitatively use relative temperature scales, absolute temperature scales, and thermometers to ask and	Lectures, Demonstrations, Discussions, Practicing Problem	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test

	answer questions, solve problems and perform experiments.	Solving, and Doing Lab Experiments	Problems, & Lab Reports
80	The student will be able to qualitatively and quantitatively describe heat.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
81	The student will be able to qualitatively and quantitatively describe and explain the effects of heat on matter.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
82	The student will be able to qualitatively and quantitatively use specific heat, latent heat and coefficient of expansion to ask and answer questions, solve problems and perform experiments.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
83	The student will be able to qualitatively and quantitatively describe the relationships between space and time and between matter and energy with special relativity.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
84	The student will be able to qualitatively and quantitatively describe Einstein's Postulates of special relativity.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
85	The student will be able to qualitatively and quantitatively describe and explain time dilation, length contraction and relativistic momentum and use them to ask and answer questions, solve problems.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports
86	The student will be able to qualitatively and quantitatively describe and explain relativistic kinetic energy, rest energy, and total energy and use them to ask and answer questions, solve problems.	Lectures, Demonstrations, Discussions, Practicing Problem Solving, and Doing Lab Experiments	Answers to Questions on Quizzes and Tests, Analysis and Solutions of Test Problems, & Lab Reports

Last Updated on 11/20/00
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