

CLASS #	CHAPTER	SECTION	DESCRIPTION	FWI	FRAMEWORK DESCRIPTION	LOCAL OBJECTIVES / COMMENTS / ASSIGNMENTS
1	BEFORE THE TEXT - INTRO TO THE YEAR		INTRODUCTIONS, MATERIALS, GOALS/OBJECTIVES & PROTOCOLS			Problem of the Day, Adage of the Day, Word of the Day, Letter of Introduction & Worksheet Introduction to text "Foundations of Physical Science" - Chapters 1 - 15
2			GETTING TO KNOW ONE - ANOTHER EXERCISE			Physical Science Jeopardy
3			GETTING TO KNOW ONE - ANOTHER			ABOUT MR. MENIN (A BRIEF SLIDE SHOW) & ABOUT YOU
4			SO WHAT ABOUT THE RULES/GRADING - INTERACTIVE REVIEW			WHEN IN ROME - DO LIKE THE ROMANS (e.g. THE PROTOCOLS OF MR. HOLT & MR. CLARKE)
5			GETTING TO KNOW ONE - ANOTHER EXERCISE			Personality Type Review & Establishment of Lab Groups
6			GETTING TO KNOW ONE - ANOTHER EXERCISE			Interests & Math Review Questionnaire
7			THE MEANING OF "PER"			Town of Harvard Pizza Consumption Estimate
8			PROJECTS BEYOND THE TEXT			Massachusetts High School Science Fair - AAPT Photo Contests & Other (Extra) Credit Assignments

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CHAPTER 1 - About measurement and how we use measurements and experiments to learn about the world.						
9	CHAPTER 1 - SCIENCE & MEASUREMENT	1.1	TIME & DISTANCE			
10		1.1	TIME & DISTANCE			
11		1.1	TIME & DISTANCE	1.12	Identify appropriate standard international units of measurement for force, mass, distance, speed, acceleration and time and explain how they are measured.	
12		1.2	INVESTIGATIONS & EXPERIMENTS			
13		1.2	INVESTIGATIONS & EXPERIMENTS			
14		1.2	INVESTIGATIONS & EXPERIMENTS			
15		1.3	SPEED	1.3	Distinguish between and solve problems involving velocity, speed and constant acceleration.	

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16		1.3	SPEED	1.4	Create and interpret graphs of motion (position vs. time, speed vs. time, velocity vs time, constant acceleration vs. time).	
17		1.3	SPEED			
18			CHAPTER 1 REVIEW			QUIZ

CHAPTER 2 - About graphing data from your experiments with the car & ramp.

19	AL MODELS	2.1	USING A SCIENTIFIC MODEL TO PREDICT SPEED			
20		2.1	USING A SCIENTIFIC MODEL TO PREDICT SPEED			
21		2.1	USING A SCIENTIFIC MODEL TO PREDICT SPEED			
22		2.2	POSITION & TIME	1.1	Distinguish between vector quantities (velocity, acceleration & force) and scalar quantities (speed & mass).	

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23	CHAPTER 2 - MATHEMATIC	2.2	POSITION & TIME				
24		2.2	POSITION & TIME				
25		2.3	ACCELERATION			-	
26		2.3	ACCELERATION	1.3	Illustrate how to represent vectors graphically and be able to add them graphically.	-	
27		2.3	ACCELERATION			-	
26				CHAPTER 2 REVIEW			QUIZ
CHAPTER 3 - Following Isaac Newton's brilliant discoveries of the link between force and motion.							
27		3.1	FORCE, MASS & ACCELERATION			-	

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28	CHAPTER 3 - FORCES & MOTION	3.1	FORCE, MASS & ACCELERATION			-
29		3.1	FORCE, MASS & ACCELERATION	1.7	Interpret and apply Newton's first law of motion.	-
30		3.2	WEIGHT, GRAVITY & FRICTION	1.5	Explain the relationship between mass and inertia.	-
31		3.2	WEIGHT, GRAVITY & FRICTION	1.10	Interpret and apply Newton's third law of motion.	-
32		3.2	WEIGHT, GRAVITY & FRICTION			
33		3.2	WEIGHT, GRAVITY & FRICTION			
34		3.3	EQUILIBRIUM, ACTION & REACTION	1.8	Use a free body force diagram with only co-linear forces to show forces acting upon an object, and determine the net force on it.	
35		3.3	EQUILIBRIUM, ACTION & REACTION	1.9	Qualitatively distinguish between static and kinetic friction, what they depend on and their effects on the motion of objects.	
36		3.3	EQUILIBRIUM, ACTION & REACTION			

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37			CHAPTER 3 REVIEW			QUIZ
CHAPTER 4 - Discovering the principles upon which simple machines operate.						
38	CHAPTER 4 - MACHINES & MECHANICAL SYSTEMS	4.1	FORCES IN MACHINES			
39		4.1	FORCES IN MACHINES			
40		4.1	FORCES IN MACHINES			
41		4.2	THE LEVER			
42		4.2	THE LEVER			
43		4.2	THE LEVER			
44		4.3	DESIGNING GEAR MACHINES			
45		4.3	DESIGNING GEAR MACHINES			
46		4.3	DESIGNING GEAR MACHINES			

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47	CHA		CHAPTER 4 REVIEW			QUIZ
CHAPTER 5 - Introduction to the concept of "work".						
48	CHAPTER 5 - WORK, ENERGY & POWER	5.1	WORK			
49		5.1	WORK			
50		5.1	WORK	2.5	Interpret the law of conservation of momentum and provide examples that illustrate it. Calculate the momentum of an object	
51		5.2	ENERGY CONSERVATION	2.1	Interpret and provide examples that illustrate the law of conservation of energy.	
52		5.2	ENERGY CONSERVATION	2.2	Provide examples of how energy can be transformed from kinetic to potential and visa versa.	
53		5.2	ENERGY CONSERVATION	2.3	Apply quantitatively the law of conservation of mechanical energy to simple systems.	
54		5.3	ENERGY TRANSFORMATIONS			
55		5.3	ENERGY TRANSFORMATIONS			

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56		5.3	ENERGY TRANSFORMATIONS			
57			CHAPTER 5 REVIEW			QUIZ
CHAPTER 6 - About electric circuits and electric charge..						
58	CHAPTER 6 - ELECTRICITY & ELECTRIC CIRCUITS	6.1	WHAT IS A CIRCUIT?			
59		6.1	WHAT IS A CIRCUIT?			
60		6.1	WHAT IS A CIRCUIT?			
61		6.2	CHARGE			
62		6.2	CHARGE			
63		6.2	CHARGE			
64		6.2	CHARGE		1.11	Understand conceptually Newton's law of universal gravitation.

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65			CHAPTER 6 REVIEW			QUIZ
CHAPTER 7 - About voltage, the energy of charges, current, the rate of travel of charges, resistance & the ability of objects to carry charges.						
66	CHAPTER 7 - MEASURING ELECTRICITY	7.1	VOLTAGE			
67		7.1	VOLTAGE			
68		7.1	VOLTAGE			
69		7.2	CURRENT			
70		7.2	CURRENT			
71		7.2	CURRENT			
72		7.3	RESISTANCE			
73		7.3	RESISTANCE			
74		7.3	RESISTANCE			
75				CHAPTER 7 REVIEW		

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CHAPTER 8 - The relationships between voltage, current & resistance..						
76	CHAPTER 8 - ELECTRICAL RELATIONSHIPS	8.1	OHM'S LAW			
77		8.1	OHM'S LAW			
78		8.1	OHM'S LAW			
79		8.2	WORK, ENERGY & POWER	2.6	Identify appropriate standard international units of measurement for energy, work, power and momentum.	
80		8.2	WORK, ENERGY & POWER			
81		8.2	WORK, ENERGY & POWER			
82				CHAPTER 8 REVIEW		
CHAPTER 9 - Series Circuits & Parallel Circuits						
83		9.1	MORE ELECTRIC CIRCUITS			
84		9.1	MORE ELECTRIC CIRCUITS			
85		9.1	MORE ELECTRIC CIRCUITS			

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86	CHAPTER 9 - CIRCUITS	9.2	SERIES CIRCUITS				
87		9.2	SERIES CIRCUITS				
88		9.2	SERIES CIRCUITS				
89		9.3	PARALLEL CIRCUITS				
90		9.3	PARALLEL CIRCUITS				
91		9.3	PARALLEL CIRCUITS				
92				CHAPTER 9 REVIEW			QUIZ
CHAPTER 10 - Magnets & Motors							
93	MAGNETS	10.1	PERMANENT MAGNETS				
94		10.1	PERMANENT MAGNETS				

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95	CHAPTER 10 - MAGNETS & MO	10.1	PERMANENT MAGNETS			
96		10.2	ELECTROMAGNETS			
97		10.2	ELECTROMAGNETS			
98		10.2	ELECTROMAGNETS			
99		10.3	ELECTRIC MOTORS & GENERATORS			
100		10.3	ELECTRIC MOTORS & GENERATORS			
101		10.3	ELECTRIC MOTORS & GENERATORS			
102				CHAPTER 10 REVIEW		
CHAPTER 11 - Harmonic Motion Is Fundamental To Our Understanding Of Nature						
103	ON	11.1	HARMONIC MOTION	4.1	Differentiate between wave motion (simple harmonic nonlinear motion) and the motion of objects (non-harmonic).	
104		11.1	HARMONIC MOTION			
105		11.1	HARMONIC MOTION			

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106	CHAPTER 11 - HARMONIC MOTION	11.2	GRAPHS OF HARMONIC MOTION			
107		11.2	GRAPHS OF HARMONIC MOTION			
108		11.2	GRAPHS OF HARMONIC MOTION			
109		12-4	SIMPLE MECHANICAL OSCILLATORS			
110			SIMPLE MECHANICAL OSCILLATORS			
111			SIMPLE MECHANICAL OSCILLATORS			
				CHAPTER 11 REVIEW		
<p>CHAPTER 12 - To understand the production of sound and how it fits the wave model.</p>						

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99	CHAPTER 12 - WAVES	12.1	WAVES	4.9	Recognize the characteristics of a standing wave and explain the conditions under which two waves on a string or in a pipe can interfere to produce a standing wave.	
100		12.1	WAVES	4.2	Recognize the measurable properties of waves (e.g., velocity, frequency, wave length) and explain the relationships among them.	
101		12.1	WAVES	4.9	Recognize the characteristics of a standing wave and explain the conditions under which two waves on a string or in a pipe can interfere to produce a standing wave.	
102		12.2	WAVES IN MOTION	4.3	Distinguish between transverse and longitudinal waves.	
103		12.2	WAVES IN MOTION	4.8	Explain the relationship between the speed of a wave (e.g., sound) and the medium it travels through.	
104		12.2	WAVES IN MOTION			
105		12.3	NATURAL FREQUENCY & RESONANCE			
106		12.3	NATURAL FREQUENCY & RESONANCE			

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107		12.3	NATURAL FREQUENCY & RESONANCE			
108			CHAPTER 12 REVIEW			QUIZ
CHAPTER 13 - To understand the characteristics of sound.						
109	CHAPTER 13 - SOUND & MUSIC	13.1	SOUND	4.4 & 6.3	Distinguish between mechanical and electromagnetic waves. Calculate the frequency and energy of an electromagnetic wave from the wavelength.	
110		13.1	SOUND	6.1 & 6.2	Describe the electromagnetic spectrum in terms of wavelength and energy. Explain how the various wavelengths in the electromagnetic spectrum have many useful applications such as radio, television, microwave applications and cellular phones.	
111		13.1	SOUND			
112		13.2	PROPERTIES OF SOUND			
113		13.2	PROPERTIES OF SOUND			
114	13.2	PROPERTIES OF SOUND				

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115	CHAPTER 13	13.3	MUSIC	4.6	Recognize the affects of polarization, wave interaction and the Doppler effect.	
116		13.3	MUSIC			
117		13.3	MUSIC			
118			CHAPTER 13 REVIEW			QUIZ
CHAPTER 14 - To understand the characteristics of light.						
119	CHAPTER 14 - LIGHT & COLOR	14.1	INTRODUCTION TO LIGHT	4.5	Interpret and be able to apply the laws of reflection and refraction (qualitatively) to all waves.	
120		14.1	INTRODUCTION TO LIGHT			
121		14.1	INTRODUCTION TO LIGHT			
122		14.2	COLOR			
123		14.2	COLOR			
124		14.2	COLOR			
125			CHAPTER 14 REVIEW			QUIZ

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CHAPTER 15 - Introduction to the Science Of Optics.							
126	CHAPTER 15 - OPTICS	16-1	SEEING AN IMAGE	4.7	Explain, graph and interpret graphs of constructive & destructive interference of waves.		
127			SEEING AN IMAGE				
128		16-2	SEEING AN IMAGE				
129			THE HUMAN EYE	6.4	Recognize and explain the ways in which the direction of visible light can be changed.		
130		16-3	THE HUMAN EYE				
131			THE HUMAN EYE				
132			OPTICAL TECHNOLOGY				
133			OPTICAL TECHNOLOGY				
134			OPTICAL TECHNOLOGY				
135			CHAPTER 15 REVIEW				QUIZ