

AP PHYSICS ASSIGNMENT SHEET: UNIT 6 - THERMO PHYSICS

MR. DARLINGTON

Topic (Percent of AP Exam)	Reading I:	HW Problems	
II. Fluid mechanics and thermal physics (15%) - [C2]			
13. TEMPERATURE AND KINETIC THEORY (2%) [C2]			Chapter 13
13.2 Temperature and Thermometers	13.2	<u>page 380</u> 7	0.5 WEEK
*Temperature and thermometer are defined			
13.3 Thermal Equilibrium and the Zeroth Law of Thermodynamics	13.3	8	
*Describe the condition for thermal equilibrium		<u>page 381</u>	
*State the Zeroth law of thermodynamics		32	
13.4 Thermal Expansion	13.4	34	
*Define the coefficient of linear expansion and equation to calculate linear thermal expansion.		38	
13.6 The Gas Laws and Absolute Temperature	13.6	46	
13.7 The Ideal Gas Law	13.7	50	
*Review the gas laws: Boyle's, Charles' and Gay Lussac's			
*Review the Ideal Gas Law			
13.8 Problem Solving with the Ideal Gas Law	13.8		
13.11 Kinetic Theory and the Molecular Interpretation of Temperature	13.11		
*State the postulates of the kinetic theory			
*The average translational energy of molecules in a gas is shown to be directly proportional to the absolute temperature			
14. HEAT [C2]			Chapter 14
14.1 Heat as Energy Transfer	14.1	<u>page 405</u> 34	MORE TO FOLLOW
*Definition of calorie and the mechanical equivalent of heat			
*Heat is defined as the energy transferred from one body to another because of a difference in temperature			
14.2 Distinction between Temperature, Heat and Internal Energy	14.2		
*Differentiate among temperature, heat and internal energy			
14.3 The Internal Energy of an Ideal Gas	14.3		
*The equation for the internal energy of an ideal gas is derived			
14.7 Heat Transfer: Conduction	14.7		
14.8 Heat Transfer: Convection	14.8		
14.9 Heat Transfer: Radiation	14.9		
*Understand and give examples of heat transfer by conduction, convection and radiation			
15. THE LAWS OF THERMODYNAMICS (7%) [C2]			Chapter 15
15.1 The First Law of Thermodynamics	15.1	<u>page 433</u>	1.5 WEEKS
15.2 The First Law of Thermodynamics Applied to Simple Systems	15.2	3	
*The first law of thermodynamics is stated		4	
*Definition of an isothermal process, an adiabatic process and an isobaric process.		5	
*Calculation of the work done by graphical methods		<u>page 434</u>	
15.4 The Second Law of Thermodynamics	15.4	7	
*State the second law of thermodynamics		10	
*Understand the implications of the second law of thermodynamics		17	
15.5 Heat Engines	15.5	18	
*A typical heat engine is described		<u>page 435</u>	
*An internal combustion engine is described		21	
*The efficiency of a heat engine is defined		27	
*A Carnot engine is defined and its efficiency is expressed in terms of the Kelvin temperatures between which it operates			