

# Contents

Activity	Topic	Page
	<b>Levels of Organization</b>	
Model 1	Anatomy and Levels of Organization	2
	<b>Introduction to Medical Terminology</b>	
Model 1	The Anatomy of a Medical Term	5
	<b>Introduction to Homeostasis</b>	
Model 1	Thermostat-controlled Heating System	9
Model 2	Homeostatic Feedback Loop	12
	<b>Membrane Transport</b>	
Model 1	Active Versus Passive Transport	17
Model 2	Osmosis	20
Model 3	Tonicity	22
	<b>Epithelial Tissue Histology</b>	
Model 1	Structure of Epithelial Tissue	25
	<b>PTH, Osteoporosis, and Calcium Homeostasis</b>	
Model 1	Test Results	29
Model 2	Histology of Bone Tissue	31
Model 3	Hormones and Calcium Level Regulation	32
	<b>Muscle Contraction</b>	
Model 1	Anatomy of a Sarcomere	35
Model 2	Comparing Relaxed and Contracted Sarcomeres	37
Model 3	Cross Sections Through a Sarcomere	38
	<b>Heart Valves and the Cardiac Cycle</b>	
Model 1	Opening and Closing of Heart Valves	41
Model 2	ECG & Left Heart Pressure Changes During Two Cardiac Cycles	43
	<b>Electrical Activity in the Heart</b>	
Model 1	The Excitation-Conduction System of the Heart	47
Model 2	The Sequence of Electrical Excitation in the Heart	49
Model 3	Electrocardiogram (EKG or ECG)	50
Model 4	ECG and Selected Arrhythmias	52
Model 5	Ventricular Fibrillation	54

	<b>Parameters of Vascular Function</b>	
Model 1	Relationships between Pressure and Flow in a Single Vessel	57
Model 2	Pressures in the Circulation	61
	<b>Blood Glucose Metabolism</b>	
Model 1	The Oral Glucose Tolerance Test (OGTT)	65
Model 2	Blood Glucose and Blood Insulin Levels	67
Model 3	Glycemic Index and Changes in Blood Glucose	69
	<b>Determinants of Fluid Exchange (Filtration) across the Capillary Wall</b>	
Model 1	Hydrostatic Pressure	73
Model 2	Colloid Osmotic Pressure	75
Model 3	Movement of Fluid Across the Capillary Wall (Filtration)	77
	<b>Determinants of Blood Oxygen Content</b>	
Model 1	Oxygen Binding to a Single Hemoglobin Molecule	81
Model 2	Hemoglobin (Hb) Values and Their Effect on Oxygen Carrying Capacity	83
Model 3	Oxyhemoglobin Dissociation Curve	85
	<b>Action Potential</b>	
Model 1	Alteration of Resting Membrane Potential	91
Model 2	Ion Movement Across Neuronal Membrane	93
Model 3	Action Potential	95
	<b>The Menstrual Cycle</b>	
Model 1	Ovarian Events	99
Model 2	Ovarian Events + Plasma Levels of Sex Steroid Hormones	101
Model 3	Ovarian Events and Plasma Levels of Gonadotropins and Sex Steroid Hormones	103
Model 4	Ovarian Events + Plasma Levels of Gonadotropins and Sex Steroid Hormones + Uterine Cycle	104