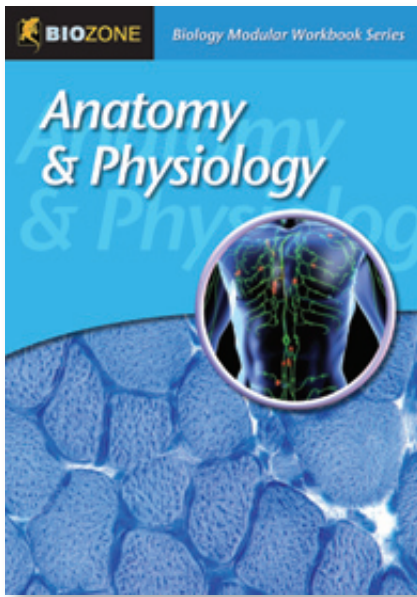


# Anatomy & Physiology



## Anatomy & Physiology

Anatomy and Physiology explores aspects of human structure and function. Sound biological principles are emphasised throughout, with reference to the increasing role of technology in our lives. Combining 3D models and traditional artwork, this supplement covers the 11 body systems as well as reviewing cell biology and tissues.

### Suitability:

- Grades 10-12
- Community College

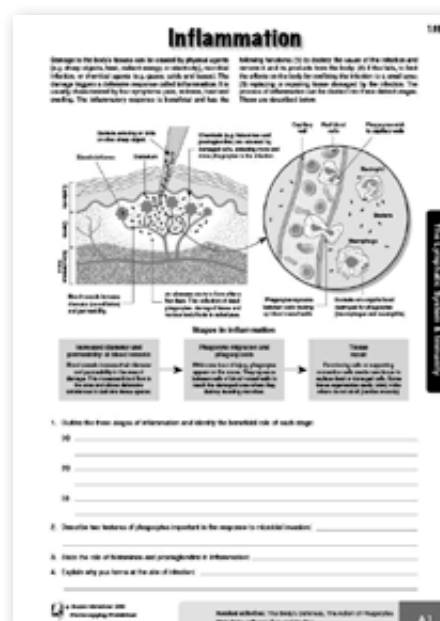
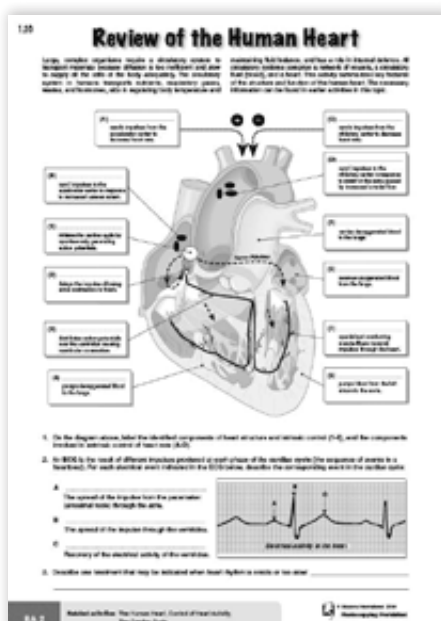
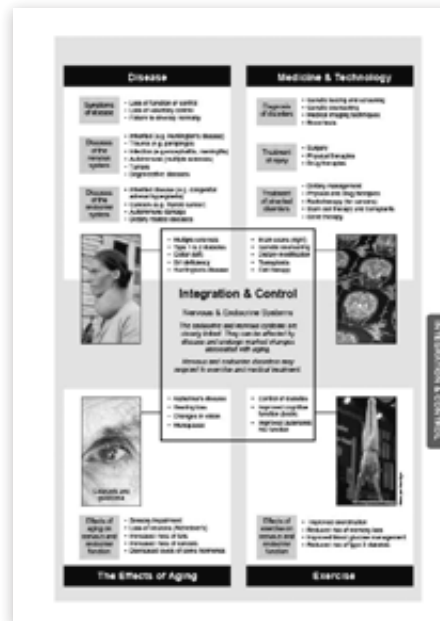
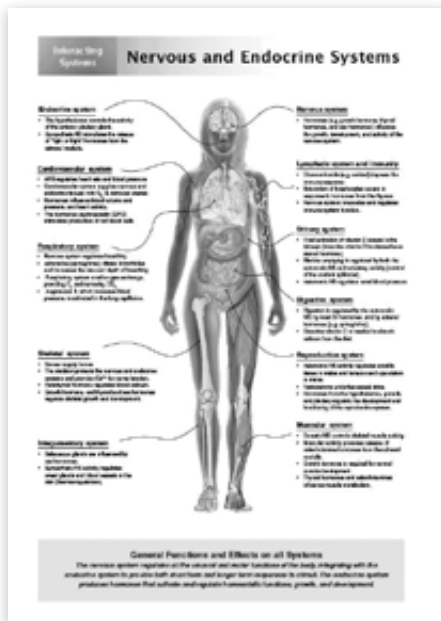
ISBN: 978-1-877462-26-9      Pages: 232

## Chapters

- Cell Tissues
- The Integument & Homeostasis
- The Skeletal System
- The Muscular System
- Nervous System
- The Endocrine System
- Cardiovascular System
- Lymphatic System & Immunity
- Respiratory System
- The Digestive System
- The Urinary System
- Reproduction & Development

## Features

- **Introduction to the topic:**  
A concise introduction to the concepts in the activity.
- **Easy to understand diagrams:**  
Highly visual, clearly annotated diagrams improve the accessibility of information.
- **Consolidation and branching out:**  
Activities provide information to consolidate basic knowledge, while allowing scope for exploring. Differential instruction becomes easier and students at all levels are encouraged to be 'thinkers'.
- **Write-on format:**  
Activities provide information to consolidate basic knowledge, while allowing scope for exploring.
- **Tear-out pages:**  
Each page has a perforation to allow easy removal for marking, or placement in a ring binder.
- **Activity Code:**  
Each activity is coded to identify the skills required for its completion.



# Anatomy & Physiology

## Content Overview

### CELL TISSUES

Animal Cells  
Cell Processes  
The Structure of Cellular Membranes  
The Role of Membranes in Cells  
Cell Structures and Organelles  
Diffusion and Osmosis  
Ion Pumps  
Endocytosis and Exocytosis  
Mitosis and the Cell Cycle  
Cancer—Cells Out of Control  
Levels of Organisation  
Tissues and Organs  
Human Organ Systems

### THE INTEGUMENT & HOMEOSTASIS

Principles of Homeostasis  
The Body's Membranes and Cavities  
Maintaining Homeostasis  
Diagnosis of Homeostatic Disorders  
The Integumentary System  
Thermoregulation  
Support & Movement

### THE SKELETAL SYSTEM

Bone  
The human Skeleton  
Joints  
Aging and the Skeleton

### THE MUSCULAR SYSTEM

Skeletal Muscle  
Structure & Function  
The Sliding Filament Theory  
The Mechanics of Locomotion  
Energy for Muscle Contraction  
The Muscle Spindle  
Muscle Fatigue  
Muscle Physiology & Performance  
Integration and Control

### NERVOUS SYSTEM

Nervous Regulatory Systems  
The Mammalian Nervous System  
The Autonomic Nervous System  
The Human Brain  
Neuron Structure and Function  
Reflexes  
Transmission of Nerve Impulses  
Chemical Synapse  
Integration at Synapses  
Drugs at Synapses  
Aging and the Brain  
Detecting Changing States  
The basis of Sensory Perception  
The Structure of the Eye  
The Physiology of Vision  
Hearing  
Skin Senses  
Taste and Smell

### THE ENDOCRINE SYSTEM

Hormonal Regulatory Systems  
Cell Signaling  
Signal Transduction  
The Endocrine System  
The Hypothalamus  
The Stress Response  
The Pituitary  
Control of Blood Glucose  
Diabetes Mellitus Type 1  
Aging and the Endocrine System  
Internal Transport

### CARDIOVASCULAR SYSTEM

Arteries  
Veins  
Capillaries and Tissue Fluid  
Blood  
Hematopoiesis  
Transport System in Humans  
The human Heart  
Control of Heart Activity  
The Cardiac Cycle  
Review of the Human Heart  
Cardiovascular Disease  
Correcting Heart Problems  
Exercise and Health  
Exercise and Blood Flow  
Effects of Aerobic Training

### LYMPHATIC SYSTEM & IMMUNITY

Targets for Defence  
Blood Group Antigens  
The Body's Defenses  
Blood Clotting and Defense  
The Action of Phagocytes  
Inflammation  
Fever  
The Lymphatic System  
Asthma and Hypersensitivity  
The Immune System  
Antibodies  
Acquired Immunity  
HIV and the Immune System  
Transplants  
Stem Cell Technology  
Monoclonal Antibodies  
Autoimmune Diseases  
SCID—Gene Therapy  
Taking a Breath

### RESPIRATORY SYSTEM

Breathing in Humans  
The Human Respiratory System  
Measuring Lung Function  
Gas Transport in Humans  
Control of Breathing  
Review of Lung Function  
The Effects of Altitude  
Homeostasis During Exercise  
Respiratory Diseases  
Smoking and the Lungs  
Eating to Live

### THE DIGESTIVE SYSTEM

The Human Diet  
The Mouth and Pharynx  
The Human Digestive Tract  
Stomach and Small Intestine  
The Large Intestine  
Absorption and Transport  
The Control of Digestion  
The Liver's Role in Digestion  
The Liver's Role in Homeostasis  
Foodborne Disease  
Malnutrition and Obesity  
Deficiency Diseases  
Diabetes Mellitus Type 2  
Waste Removal

### THE URINARY SYSTEM

Waste Products in Humans  
Water Budget in a Human  
Urine Analysis  
The Urinary System  
The Physiology of the Kidney  
Control of Kidney Function  
Fluid and Electrolyte Balance  
Acid-base Balance  
Kidney Dialysis  
Kidney Transplants  
The Human Life Span

### REPRODUCTION & DEVELOPMENT

Female Reproductive System  
The Menstrual Cycle  
Control of the Menstrual Cycle  
Male Reproductive System  
Fertilization and Early Growth  
The Placenta  
The Hormones of Pregnancy  
Detecting Pregnancy  
Contraception  
Treating Female Infertility  
Human Reproductive Technology  
Birth and Lactation  
Growth  
Programmed Cell Death  
Breast Cancer  
Sexual Development

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