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# Course Outline – Human Body Systems

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## Unit One- Identity (26 Days)

### Lesson 1: Identity: Human (4 Days)

Activity 1.1.1 - Amazing Facts

Activity 1.1.2 - Orientation to the Maniken® (Directional/Regional Terms)

### Lesson 2: Identity: Tissues (12 Days)

Activity 1.2.1 - Identity of Your Maniken® (Histology Review/Build Face)

Activity 1.2.2 - Skeleton Scavenger Hunt

Project 1.2.3 - Bone Detectives: Forensic Anthropology

Activity 1.2.4 - Height Estimation from Bones

### Lesson 3: Identity: Molecules and Cells (10 Days)

Activity 1.3.1 - DNA Detectives

Activity 1.3.2 - Careers in Identity

Project 1.3.3 - Biometrics: Who Are You?

## Unit Two – Communication (38 Days)

### Lesson 1: The Brain (9 Days)

Activity 2.1.1 - The Power of Communication

Activity 2.1.2 - Build-A-Brain

Project 2.1.3 - Map-A-Brain

### Lesson 2: Electrical Communication (15 Days)

Activity 2.2.1 - The Neuron

Activity 2.2.2 - The Secret to Signals

Project 2.2.3 - Reaction Time

Activity 2.2.4 - It's All in the Reflexes

Activity 2.2.5 - Communication Breakdown

### Lesson 3: Chemical Communication (6 Days)

Activity 2.3.1 - The Hormone Connection

Project 2.3.2 - Hormones Gone Wild

### Lesson 4: Communication with the Outside World (8 Days)

Activity 2.4.1 - Exploring the Anatomy of the Eye

Activity 2.4.2 - Visual Perception

Project 2.4.3 - Put Yourself in Someone Else's Eyes (**Optional, additional 3 Days**)

Activity 2.4.4 - Eye Care Professionals

## **Unit Three - Power (33 Days)**

### **Lesson 1: Introduction to Power (2 Days)**

- Activity 3.1.1 - Resources for Life
- Activity 3.1.2 - The Rule of Threes

### **Lesson 2: Food (12 Days)**

- Project 3.2.1 – Digestive System Design
- Project 3.2.2 – Living in a Material World (**Optional – alternative for Project 3.2.1**)
- Project 3.2.3 - The Amylase Experiment
- Activity 3.2.4 - Metabolism- A Balancing Act
- Activity 3.2.5 - In Search of Energy

### **Lesson 3: Oxygen (8 Days)**

- Activity 3.3.1 - How Does Oxygen Get to Your Cells?
- Activity 3.3.2 - Measuring Lung Capacity
- Activity 3.3.3 - Oxygen Capture by the Lungs
- Activity 3.3.4 - Respiratory Therapy Resume

### **Lesson 4: Water (11 Days)**

- Activity 3.4.1 - Hook up the Plumbing
- Activity 3.4.2 - Spotlight on the Kidney
- Project 3.4.3 - The Blood/Urine Connection
- Activity 3.4.4 - Water Balance
- Activity 3.4.5 - Urinalysis

## **Unit Four - Movement (42 Days)**

### **Lesson 1: Joints and Motion (5 Days)**

- Activity 4.1.1 - Bones, Joints, Action!
- Activity 4.1.2 - Range of Motion

### **Lesson 2: Muscles (15 Days)**

- Activity 4.2.1 - Muscle Rules
- Activity 4.2.2 - Building a Better Body - Muscles of the Deep Chest
- Project 4.2.3 - Maniken<sup>®</sup> Mystery Muscles
- Activity 4.2.4 - Laws of Contraction
- Project 4.2.5 - Rigor Mortis Modeling
- Activity 4.2.6 - You've Got Nerve

### **Lesson 3: Blood Flow (11 Days)**

- Activity 4.3.1 - The Heart of the Matter
- Project 4.3.2 - Varicose Veins
- Activity 4.3.3 - Go With the Flow
- Activity 4.3.4 - Cardiac Output
- Activity 4.3.5 - Smoking Can Cost You an Arm and a Leg!

### **Lesson 4: Energy and Motion: Exercise Physiology (10 Days)**

Project 4.4.1 - The Body's Response to Exercise  
Activity 4.4.2 - Mind Over Muscle  
Activity 4.4.3 - Performance Enhancers (**Optional, additional 2 Days**)  
Problem 4.4.4 - Training A Champion

## **Unit Five – Protection (22 Days)**

### **Lesson 1: The Skin (6 Days)**

Activity 5.1.1 - Under My Skin  
Activity 5.1.2 - Burn Unit  
Activity 5.1.3 - Hurts So Good: Pain as Protection

### **Lesson 2: Bones (8 Days)**

Activity 5.2.1 - Looking Inside Bone  
Activity 5.2.2 - X-ray Vision  
Activity 5.2.3 - Bone Remodeling and Repair

### **Lesson 3: Lymph and Blood Cells (8 Days)**

Activity 5.3.1 - To Drain and Protect  
Activity 5.3.2 - Transfusion Confusion  
Activity 5.3.3 - Fighting the Common Cold  
Project 5.3.4 - Lines of Defense (**Optional, additional 3 Days**)

## **Unit Six – Homeostasis (14 Days)**

### **Lesson 1: Health and Wellness (14 Days)**

Problem 6.1.1 - Surviving the Extremes  
Activity 6.1.2 – Putting it All Together  
Problem 6.1.3 – Building a Case  
Activity 6.1.4 - Finishing Touches