

Material Covered:

The course is comprised of the following two main themes:

Cell Biology

- Biological Molecules
- Cell Review
- Membrane Structure and Function
- DNA & Protein Synthesis
- Enzymes and Metabolism

Anatomy and Physiology

- Organization of the Human Body
- Digestion
- Circulatory System
- Respiration
- Urinary System and Excretion
- Nervous System
- Endocrine and Reproduction

Textbook:

Inquiry into Life (15th Edition)

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Notebook:

Your notebook should be neatly organized, as this will help you study for tests. Label the unit and topic headings clearly at the top of the page. Answer questions fully, so that the information makes sense and can be used later for studying. Show what page number in the textbook the information comes from so you can look it up again easily.

Projects:

Each of the unit themes has a culminating project. Each project has suggested guiding questions for you to investigate. Or, you can negotiate your own topic with your teacher. Be sure to get permission first if you are investigating your own topic!

Assessment:

This course works on a mastery system. You must pass the cumulative tests in each of the four topic areas to the 80% level before you can go on. These are cumulative tests you can only take once, so studying before them is essential to do well. In addition, there are two theme projects. Your class mark for the course is based 50% on the unit worksheets, 30% on the cumulative tests, and 20% on the theme projects.

Theme:

The topics in the Cell Biology Theme examine homeostasis, DNA and cells.

Goal:

The goal of this unit is to investigate the characteristics of life and biological molecules.

Key Concepts:

While completing this unit you will:

- Learn about the different characteristics of life.
- Investigate the chemistry of water.
- Compare organic and inorganic molecules.
- Identify carbohydrates, proteins, and lipids.
- Understand the effects of lifestyle choices on our bodies.
- Explore the nucleic acid, DNA.

What to Do in this Unit:

- This unit uses Chapter 1 (topic 1.1 only) and Chapter 2 (starting at topic 2.3) in the *Inquiry into Life* textbook.
- Ask your teacher for the Unit 1 Worksheet.
- Read Chapter 1 from page 1-5 and Chapter 2 from page 25. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!

Goal:

The goal of this unit is to review cell structure and function.

Key Concepts:

While completing this unit you will:

- Learn why cells are the building blocks of life.
- Be able to describe the cell theory.
- Identify the difference between bacteria and archaea.
- Identify parts of animal and plant cells.

What to Do in this Unit:

- This unit uses Chapter 3 in the *Inquiry into Life* textbook.
- Ask your teacher for the Unit 2 Worksheet.
- Read Chapter 3 from page 43-62. Remember it is best to read the chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!

Goal:

The goal of this unit is to review cell structure and function.

Key Concepts:

While completing this unit you will:

- Learn about the fluid-mosaic model of membrane structure.
- Be able to describe the importance of proteins in a cell.
- Identify the difference between bacteria and archaea.
- Investigate the permeability of the cell membrane.

What to Do in this Unit:

- This unit uses Chapter 4 in the *Inquiry into Life* textbook.
- Ask your teacher for the Unit 3 Worksheet.
- Read Chapter 4 from page 63-78. Remember it is best to read the chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!

- When you are ready, ask your teacher for the Unit 1-3 Cumulative Test 1. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The goal of this unit is to further investigate DNA.

Objectives:

While completing this unit you will:

- Investigate the structure and function of DNA.
- Learn about DNA replication.
- Explore gene expression in a cell.
- Explain how gene mutations are caused.

What to Do in this Unit:

- This unit uses Chapter 25 and some of Chapter 26 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 4 Worksheet.
- Read Chapter 25 beginning on page 497 until page 518 of Chapter 26. Remember it is best to read the chapter to get an overview of the content before you attempt to answer the questions on the worksheet.

Goal:

The goal of this unit is to learn more about enzymes, metabolism, and the organization of the human body.

Objectives:

While completing this unit you will:

- Learn about the role of ATP within the cell.
- Explain what a metabolic pathway is and how enzymes regulate it.
- Research how environmental factors affect enzyme activity.
- Investigate the types of tissues within the human body.
- Learn to understand how the organ systems of body are arranged and their functions.
- Learn about the integumentary system.
- Research the importance of homeostasis to the human body.

What to Do in this Unit:

- This unit uses Chapter 6 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 4 Worksheet.
- Read only sections 6.2 and 6.3 of Chapter 6 from page 102-107. Also read all of Chapter 11 from page 190. Remember, it is best to read first to get an overview of the content before you attempt to answer the questions on the worksheet.
- When you are ready, ask your teacher for the Unit 4-5 Cumulative Test #2. Remember, you must get 80% to pass, so studying hard is essential to do well.
- The assessment for this main theme includes a project on a topic of your choosing. Ask your teacher for Cell Biology Theme Project #1, then read and complete the work there.

Theme:

The topics in the Anatomy and Physiology Theme continue to examine the human body through research about the organization of its organ systems and how they work to maintain homeostasis.

Goal:

The goal of this unit is to learn about digestion.

Objectives:

While completing this unit you will:

- Investigate the function of each organ in the digestive system.
- Be able to differentiate between the two different types of digestion, chemical and mechanical.
- Explain the location and function of the accessory organs of digestion.

What to Do in this Unit:

- This unit uses Chapter 14 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 6 Worksheet.
- Read Chapter 14 beginning on page 253 to 263 only. Remember it is best to read the chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!

Goal:

The goal of this unit is to learn about the cardiovascular system.

Objectives:

While completing this unit you will:

- Be able to describe the function and location of each of the three main types of blood vessels.
- Summarize the functions and types of blood cells.
- Identify the parts of the heart and the path of blood through the heart.
- Research the flow of blood throughout the body and the factors that affect blood pressure.
- Learn about disorders of the cardiovascular system.

What to Do in this Unit:

- This unit uses Chapter 12 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 7 Worksheet.
- Read Chapter 12 beginning on page 210-228. Remember it is best to read the chapter to get an overview of the content before you attempt to answer the questions on the worksheet.

Goal:

The goal of this unit is to learn about the lymphatic and immune systems.

Objectives:

While completing this unit you will:

- Be able to describe the major functions of the lymphatic system.
- Identify the difference between lymph and blood.
- Describe the purpose of inflammation.
- Learn about the clonal selection theory.
- List the classes and functions of human antibodies.
- Identify the differences between the three different T cells.
- Distinguish between active and passive immunity.
- Identify and describe various vaccines.
- Research adverse effects and disorders of the immune system.

What to Do in this Unit:

- This unit uses Chapter 13 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 8 Worksheet.
- Read Chapter 13 beginning on page 279. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.

- When you are ready, ask your teacher for the Unit 6-8 Cumulative Test #3. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The goal of this unit is to learn about the respiratory system.

Objectives:

While completing this unit you will:

- List the major functions of the respiratory system.
- Learn about the path of air from nose to lungs in the respiratory tract.
- Compare and contrast internal and external respiration.
- Research the gas exchange in the lungs and tissues.
- Learn about disorders of the respiratory system.

What to Do in this Unit:

- This unit uses Chapter 15 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 9 Worksheet.
- Read Chapter 15 beginning on page 279-295. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.

Goal:

The goal of this unit is to investigate the nervous system.

Objectives:

While completing this unit you will:

- Be able to identify the location and function of the parts of both the central and peripheral nervous system.
- Learn about the three different types of neurons.
- Research the location and function of myelin.
- Explain the transmission of nerve impulses.
- Identify the structures and functions of the limbic system.
- Research diseases of the nervous system and the effect of drugs on the nervous system.

What to Do in this Unit:

- This unit uses Chapter 17 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 11 Worksheet.
- Read Chapter 17 beginning on page 313-334 only. Remember it is best to read the chapter to get an overview of the content before you attempt to answer the questions on the worksheet.

Goal:

The goal of this unit is to learn more about the urinary system and excretion.

Objectives:

While completing this unit you will:

- Be able to describe the functions of the urinary system.
- Learn about the organs that make up the urinary system.
- Research homeostasis as it relates to the urinary system.
- Identify disorders of the urinary system.

What to Do in this Unit:

- This unit uses Chapter 16 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 10 Worksheet.
- Read Chapter 16 beginning on page 298. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.

Goal:

The goal of this unit is to investigate the endocrine and reproductive systems of the human body.

Objectives:

While completing this unit you will:

- Introduction to the endocrine system, its glands and hormones.
- Be able to identify the structures and functions of organs within the female and male reproductive systems.
- Learn about the roles of hormones for reproduction.
- Describe the changes that occur in the uterus during menstruation, pregnancy and menopause.
- Identify contraceptive and birth control options.
- Learn about STDs and viral infections.
- Research reproductive disorders.

What to Do in this Unit:

- This unit uses Chapters 20 and 21 in the *Inquiry Into Life* textbook
- Read Chapter 20 from p.392 – 403.
- Ask your teacher for the Unit 12 Worksheet.
- Read Chapter 21 beginning on page 412-424 only.

- When you are ready, ask your teacher for the Unit 10-12 Cumulative Test #4. Remember, you must get 80% to pass, so studying hard is essential to do well.

- The assessment for this main theme is a project into a topic of your choosing. Ask your teacher for the Anatomy and Physiology Theme Project #2, then read and complete the work there.

Congratulations! You've finished Anatomy & Physiology 12!