Life Sciences 11 Course Outline

Material Covered:

The course is comprised of the following three themes:

Living Things
- The Study of Life
- Cell Structure and Function
- Cell Division

Evolution
- Evolution of Life
- Microbiology, Archaea and Bacteria

Taxonomy
- The Taxonomic System
- Protists and Fungi
- Plants

Animal Taxonomy
- Animals – Lower and Higher Invertebrates
- Animals – Phylum Chordata

Textbook:

Life Sciences 11 – Biology Study Guides ISBN: 978-1-927795-30-9 (Prior Educational Resources)
Inquiry into Life (15th Edition) ISBN: 978-1-259-42616-2

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 topic has a final test but there is also the option to do a project instead. You may choose to showcase your knowledge by taking a test, doing a project, or a combination of both. Each section has suggested topics for you to investigate called inquiries in the textbook. Or, you can negotiate your own topic with your teacher. Be sure to get permission first if you are investigating your own topic!

Grading:

This course works on a mastery system. You must pass the mastery tests in each unit to the 80% level before you can go on. In addition, there are cumulative tests from time to time. These are tests you can only take once, so studying before them is essential to do well. Your class mark for the course is based 60% on the mastery unit tests or projects and 40% on the projects.

Theme:

The three topics in the Life Theme examine cells and cell division.

Goal:

The goal of this unit is to investigate the study of life.

Key Concepts:

While completing this unit you will:

- Identify the basic characteristics of life.
- Learn about the different levels of biological organization.
- Recognize how important evolution and adaptation are to life.
- Be able to describe the classification of organisms.
- Learn about the scientific method and analyze an experiment.
- Research some challenges in the field of science.

What to Do in this Unit:

- This unit uses Chapter 1 in the *Inquiry Into Life* textbook.

- Ask your teacher for the Unit 1 Worksheet.

- Read Chapter 1 from page 1-16. 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!

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

Goal:

The goal of this unit is to investigate 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.
- Describe endosymbiosis.

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 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!

- When you are ready, ask your teacher for the Unit 2 test or project. 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 cell division.

Key Concepts:

While completing this unit you will:

- Learn about the cell cycle.
- Describe the difference between mitosis and cytokinesis.
- Compare meiosis with mitosis.
- Describe the human life cycle in terms of diploid and haploid cells.
- Investigate gamete production in males and females.

What to Do in this Unit:

- This unit uses Chapter 5 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 3 Worksheet.
- Read Chapter 5 from page 79-98. 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!

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

- The cumulative assessment for this theme is an inquiry project into a topic of your choosing. Ask your teacher for the Life - Theme Project #1 worksheet, then read and complete the work there.

Theme:

The two topics in the Evolution and Diversity Theme examine evolution and microbiology.

Goal:

The goal of this unit is to investigate the theory of evolution, the evidence behind it, and the processes of microevolution and macroevolution.

Objectives:

While completing this unit you will investigate:

- Differing theories of evolution.
- Evidence for evolution.
- Microevolution and equilibrium in a population.
- Macroevolution and the idea of speciation.
- How classification, phylogeny, and the theory of evolution are interrelated.

What to Do in this Unit:

- This unit uses Chapter 27 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 4 Worksheet.
- Read Chapter 27 beginning on page 535. 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!

- When you are ready, ask your teacher for the Unit 4 Test or project. 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 world of microbiology including archaea and bacteria.

Objectives:

While completing this unit you will:

- Learn about the science of microbiology.
- Investigate the beneficial effects of microbes.
- Differentiate between chemical and biological evolution.
- Learn the difference between archaea and bacteria.
- Research viruses, viroids, and prions.

What to Do in this Unit:

- This unit uses Chapter 28 in the *Inquiry Into Life* textbook.
- Ask your teacher for the Unit 5 Worksheet.
- Read Chapter 28 beginning on page 563. 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!

- When you are ready, ask your teacher for the Unit 5 Test or project. Remember, you must get 80% to pass, so studying hard is essential to do well.

- The cumulative assessment for this theme is an inquiry project into a topic of your choosing. Ask your teacher for the Evolution and Diversity Theme Project #2 worksheet, then read and complete the work there.

Theme:

The four topics in the Taxonomy Theme can be found in the Life Sciences 11 Study Guide. These topics will examine the taxonomy of protists, fungi, and plants.

Goal:

The goal of this unit is to learn about taxonomy.

Objectives:

While completing this unit you will:

- Investigate the history of the taxonomic system.
- Learn to understand how the taxonomic system is used to organize living things.
- Learn to use binomial nomenclature.
- Illustrate taxonomic relationships.

What to Do in this Unit:

- This unit uses Unit E in the *Life Sciences 11 Study Guide*.
- Ask your teacher for the Unit 6 Worksheet.
- Read Unit E beginning on page 48. 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!

- When you are ready, ask your teacher for the Unit 6 Test or project. 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 protists and fungi.

Objectives:

While completing this unit you will:

- Investigate the nutrition of protists.
- Be able to describe characteristics of different protists and fungi.
- Explain how protists and fungi are classified in the taxonomic system.
- Be able to describe the impact protists and fungi have on humans and the environment.
- Be able to compare and contrast the sexual and asexual characteristics of different fungi.

What to Do in this Unit:

- This unit uses Unit G and H in the *Life Sciences 11 Study Guide*.
- Ask your teacher for the Unit 7 Worksheet.
- Read Units G and H beginning on page 68. 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!

- When you are ready, ask your teacher for the Unit 7 Test or project. 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 plants.

Objectives:

While completing this unit you will:

- Be able to describe the adaptations that plants may have for survival.
- Compare and contrast the life cycles of mosses and ferns.
- Learn about vascular tissue and photosynthesis.
- Research spermopsids, monocots, and dicots.

What to Do in this Unit:

- This unit uses Unit I in the *Life Sciences 11 Study Guide*.
- Ask your teacher for the Unit 8 Worksheet.
- Read Unit I beginning on page 96. 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!

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

- The cumulative assessment for this theme is a project into a topic of your choosing. Ask your teacher for the Taxonomy Theme Project #3 worksheet, then read and complete the work there.

Theme:

The two topics in the Animal Taxonomy Theme examine the animal classifications of lower and higher invertebrates, as well as the Phylum Chordata.

Goal:

The goal of this unit is to learn about the taxonomic class of lower and higher invertebrates.

Objectives:

While completing this unit you will:

- Be able to relate the body forms of animals to function.
- Learn about sponges and polymorphic life cycles.
- Learn how to differentiate between different classes of animals.
- Research parasitic adaptations of animals.
- Identify the characteristics of both lower and higher invertebrates.
- Learn about arthropods and echinoderms.
- Evaluate the interactions between higher invertebrates and humans.

What to Do in this Unit:

- This unit uses Unit J and K in the *Life Sciences 11 Study Guide.*
- Ask your teacher for the Unit 9 Worksheet.
- Read Unit J and K beginning on page 116. 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!

- When you are ready, ask your teacher for the Unit 9 Test or project. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The goal of this unit is to investigate the Phylum Chordata.

Objectives:

While completing this unit you will:

- Be able to identify the difference between chordates and other phyla of animals.
- Learn about fish and amphibians.
- Research the amniotic egg.
- Identify adaptations and specializations made by vertebrates.

What to Do in this Unit:

- This unit uses Unit L in the *Life Sciences 11 Study Guide.*
- Ask your teacher for the Unit 10 Worksheet.
- Read Unit L beginning on page 156. 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!

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

- The cumulative assessment for this theme is a project into a topic of your choosing. Ask your teacher for the Animal Taxonomy Theme Project #4 worksheet, then read and complete the work there.

Congratulations! You've finished Life Sciences 11!