

St. Lucie County Biology I EOC Study Guide:

The St. Lucie County **Biology District Semester Exam (December 2017)** will include standards from Units 1-7 and has a total of 50 questions. The Semester Exam is divided into two sections, each containing 25 questions. The following standards will be included on the **Semester Exam** for St. Lucie County Biology Students.

The standards below with [Hyperlinks](#), direct you to [Escambia County's Biology EOC Review site](#). [CPALMS hyperlinks](#) direct you to additional resources for each standard located on [CPALMS.org](#). There are also additional resources listed at the end of this document.

Body of Knowledge: Nature of Science

Standard 1: The Practice of Science

[SC.912.N.1.1](#)

Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:

1. **Pose questions about the natural world**, (Articulate the purpose of the investigation and identify the relevant scientific concepts).
2. **Conduct systematic observations**, (Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines).
3. **Examine books and other sources of information to see what is already known**,
4. **Review what is known in light of empirical evidence**, (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models).
5. **Plan investigations**, (Design and evaluate a scientific investigation).
6. **Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs)**, (Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).
7. **Pose answers, explanations, or descriptions of events**,
8. **Generate explanations that explicate or describe natural phenomena (inferences)**,
9. **Use appropriate evidence and reasoning to justify these explanations to others**,
10. **Communicate results of scientific investigations, and**
11. **Evaluate the merits of the explanations produced by others.**

(Also assesses SC.912.N.1.4, SC.912.N.1.6, and SC.912.L.14.4 on EOC.)

[CPALMS \(67 total resources and 2 original student tutorials\)](#)

Standard 3: The Role of Theories, Laws, Hypothesis, and Models

[SC.912.N.3.1](#)

Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have to offer.

[CPALMS \(8 total resources and 1 original student tutorial\)](#)

[SC.912.N.3.4](#)

Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.

[CPALMS \(4 total resources and 1 original student tutorial\)](#)

Body of Knowledge: Life Science

Standard 14: Organization and Development of Living Organisms

[SC.912.L.14.1](#)

Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.

Remarks/Examples

Describe how continuous investigations and/or new scientific information influenced the development of the cell theory. Recognize the contributions of scientists in the development of the cell theory.

(Also assesses SC.912.N.1.3, SC.912.N.2.1, SC.912.N.3.1, and SC.912.N.3.4 on EOC.)

[CPALMS \(12 related resources and 1 original student tutorial\)](#)

[SC.912.L.14.2](#)

Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).

(Assessed on EOC as SC.912.L.14.3)

[CPALMS \(52 total resources and 1 original student tutorial\)](#)

[SC.912.L.14.3](#)

Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.

(Also assesses SC.912.L.14.2 on EOC)

[CPALMS \(17 total resources and 1 original student tutorial\)](#)

[SC.912.L.14.4](#)

Compare and contrast structure and function of various types of microscopes.

(Assessed on EOC as SC.912.N.1.1)

[CPALMS \(14 total resources and 2 original student tutorials\)](#)

Body of Knowledge: Life Science

Standard 16: Heredity and Reproduction

[SC.912.L.16.1](#)

Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.

(Also assesses SC.912.L.16.2 on EOC)

[CPALMS \(16 total resources and 1 original student tutorial\)](#)

[SC.912.L.16.2](#)

Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, co-dominant, sex-linked, polygenic, and multiple alleles.

(Assessed as SC.912.L.16.1 on EOC)

[CPALMS \(26 total resources and 1 original student tutorial\)](#)

[SC.912.L.16.8](#)

Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.

(Assessed on EOC as SC.912.L.16.17)

[CPALMS \(29 total resources and 1 original student tutorial\)](#)

[SC.912.L.16.14](#)

Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.

(Assessed on EOC as SC.912.L.16.17)

[CPALMS \(24 total resources and 1 original student tutorial\)](#)

SC.912.L.16.16

Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.

(Assessed on EOC as SC.912.L.16.17)

[CPALMS \(20 total resources and 1 original student tutorial\)](#)

SC.912.L.16.17

Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.

(Also assesses SC.912.L.16.8, SC.912.L.16.14, and SC.912.L.16.16 on EOC)

[CPALMS \(20 total resources and 2 original student tutorials\)](#)

Body of Knowledge: Life Science**Standard 18: Matter and Energy Transformations****SC.912.L.18.1**

Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.

(Also assesses SC.912.L.18.11 on EOC)

[CPALMS \(25 total resources and 5 original student tutorials\)](#)

SC.912.L.18.7

Identify the reactants, products, and basic functions of photosynthesis.

(Assessed on EOC as SC.912.L.18.9)

[CPALMS \(30 total resources and 1 original student tutorial\)](#)

SC.912.L.18.8

Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.

(Assessed on EOC as SC.912.L.18.9)

[CPALMS \(28 total resources and 1 original student tutorials\)](#)

SC.912.L.18.9

Explain the interrelated nature of photosynthesis and cellular respiration. (Also assesses SC.912.L.18.7, SC.912.L.18.8, and SC.912.L.18.10 on EOC)

[CPALMS \(14 total resources and 1 original student tutorial\)](#)

SC.912.L.18.10

Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.

(Assessed on EOC as SC.912.L.18.9)

[CPALMS \(9 total resources and 2 original student tutorials\)](#)

SC.912.L.18.11

Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.

(Assessed on EOC as SC.912.L.18.1)

[CPALMS \(15 total resources and 1 original student tutorial\)](#)

SC.912.L.18.12

Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.

(Annually assessed on EOC)

[CPALMS \(11 total resources and 1 original student tutorial\)](#)

St. Lucie County Biology Study Guide:

Additional Resources:

- **SharePoint:**
 - From your email, go to SharePoint, then -Office of Teaching and Learning, -Curriculum, -6-12 Science, -9-12 Documents, -Biology Resources, -EOC Review.
- **Florida Virtual School:**
 - [Practice Test](#)
 - [Answer Key](#)
- **Khan Academy:**
 - [Biology Tutorial Videos](#)
- [Biology EOC Fact Sheet](#)
- [Sample Questions from FLDOE](#)