



## 2020-2021 Course Syllabus

### *Biology*

#### **Teacher Information**

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#### **School Philosophy**

##### *Mission Statement*

Luella High School will graduate each student college and career ready–life ready.

##### *Our Vision*

Working together as a complete school community, Luella High School will provide each student and staff member with the highest quality opportunities to grow, explore, and own her/his growth and success.

##### *Our Beliefs*

- We believe that our work is about producing a well-educated, productive community member who will embrace lifelong learning, both traditionally as well as non-traditionally.
- We believe in a safe, orderly, caring environment for all staff and students that builds on individual strengths through personalization.
- We believe that learning and becoming college and career ready is the key to a successful future in all areas of life.
- We believe in the Lion character embodied by personal integrity, honor, courage, personal responsibility, service to the community, determination, self-awareness and commitment.
- We believe in each person accepting responsibility for their own actions.
- We believe each person should be continuously committed to the betterment of their community.
- We believe in the freedom of each individual to voice their perspectives in an appropriate, responsible manner.
- We believe in the value of diverse opinions, backgrounds, and experiences.
- We believe in the importance of self-confidence and one's ability to succeed through personal discipline, determination, and hard work.
- We believe in the importance of an effective system for consistent communication between and among staff, students, and administration.

#### **Science Department Mission**

*The mission of Luella High School's Science Department is to collaborate with the goal of guiding students to become independent as they*

- continuously grow to become life-long readers and writers,
- closely read and intently analyze complex texts from varied media,
- purposefully investigate rigorous and relevant topics,
- passionately communicate original ideas in writing and speech,
- effectively collaborate with others to explore diverse perspectives, and
- confidently develop and apply their understanding of language while reading and communicating.

#### **Course Description**

**Biology** involves the scientific study of living organisms. Students will investigate biological systems at the *micro*-(molecular), *cells* (cellular), and *macro*-(large living organisms) biological levels. This course emphasizes a multi-representational approach using four themes to organize concepts throughout the course: science, technology,

evolution, and society. *Hands-on* and *virtual lab* exercises incorporating: **cellular biology, genetics, DNA technology, evolution, bacteria, viruses, ecology, animal behavior, and the human body** will be provided to assist students in their understanding of biological themes to enhance their preparation for **STEM-related careers**. Projects and reading assignments may be required with each unit of instruction.

This course includes a broad series of lessons and activities that offer a variety of modalities for ultimate student engagement and content retention. Each unit contains a series of lessons that include introduction of content, vocabulary, virtual demonstrations, and repeated opportunity to practice that content, along with quizzes, exam per unit, and a summative at the end of each semester. **Virtual** and **Hands-on** labs will offer students an opportunity to observe, measure, and model the phenomena. The lab activities will be presented in the framework of problems to be solved, and will involve critical thinking, in addition to using the language of mathematics for graphing data. To help evaluate this phenomena, students **must** become familiar with the **on-line textbook** to understand virtual simulations and lab investigations.

Students will be challenged to develop scientific inquiry, critical analysis, reading, writing, argumentative-driven inquiry (ADI), charting, graphing and apply mathematical skills throughout the course. Instructional time will be spent with group discussion and collaboration. Teachers will be reinforcing and summarizing the main ideas of group discussion. Students are expected to actively participate and stay on-task in order to benefit from this style of teaching. Students will be encouraged to take an active part in the learning process. **Biology** is an introductory course for higher-level sciences: **Earth Systems, Environmental, Chemistry, Physics, and Anatomy**.

## Learning Targets

Students who successfully complete Biology will be competent in the following areas:

1. **Introduction to Biology** – Students develop skills needed to design experiments and follow scientific processes. Students learn the disciplines of scientific inquiry.
2. **Understanding Living Things** – Students consider the definition of life. Students explore the needs of living things at a biochemical level.
3. **Understanding Cells** – Students are introduced to the cell theory. They study cell components and functions. Students compare prokaryotes and eukaryotes.
4. **Understanding Genetics** – Students compare and contrast asexual and sexual reproduction. Students consider heredity and differentiate between meiosis and mitosis. Students understand Mendel's pea experiments, ideas of genetics, DNA and RNA. Students are introduced to the concept of genetic engineering.
5. **Understanding Evolution** – Students explore the concept of natural selection and Charles Darwin's contributions to the theory. Students describe the development of life, including fossil evidence, adaptations, geologic time, binomial terminology and a cladogram.
6. **Understanding Viruses** – Students understand viruses, their function and structure. Students compare and contrast viruses with organisms. Students describe ways of how viruses cause diseases and conditions. Students investigate the use of vaccinations to prevent viral diseases.
7. **Understanding Prokaryotes** – Students understand concepts of bacteria, prokaryotic cells, and eukaryotic cells and can explain their basic structures. Students understand how bacteria can affect humans.
8. **Understanding Protists** – Students understand the structure and function of protists. Students classify protists by comparing them to plants, animals and fungi. Students differentiate between types of protists and compare types of eukaryotic cells.
9. **Understanding Fungi** – Students are introduced to fungi, their role in ecosystems (as decomposers) and in human health. Students identify the structure and function of fungi and identify examples as heterotrophic and saprobic.

10. **Understanding Plants** – Students study and identify the structures and functions of plants including tracing water and nutrients through their structures. Students will classify plants according to their structures and compare examples of vascular and non-vascular plants. Students investigate different types of reproduction in plants.
11. **Understanding Animals** – Students compare animal structure, function, and development to those of other organisms. Students examine invertebrates and vertebrates, fishes and amphibians, birds and reptiles, and mammals.
12. **The Human Body** – Students learn how smaller units within the body complex and interact to form tissue and organ systems. Students examine the organ systems of the human body and learn how they work together towards homeostasis.
13. **The Interdependence of Life** – Students explore living and non-living factors in ecosystems. They consider the interdependence of living things within an ecosystem and learn to predict ecosystem change with internal population change. Key concepts include: competition, limiting factors, carrying capacity and succession.
14. **Ecosystems and Human Impact** – Students consider human impact on different types of land and water ecosystems. Students explore examples of interdependence and types of pollution. Students explore the concept of biodiversity and learn about conservation measures to avert extinction of species and trends such as desertification and global warming.

### Course Overview

Please note dates/timeframes are subject to change and are an estimate.

Unit & Topic	Assessments	Dates/Timeframe
Unit 1 - Introducing Biology	Common Formative Assessment (CFA) Unit Assessment	Weekly Week of Sept 7-11
Unit 2 - Cell Structure & Function	Common Formative Assessment (CFA) Unit Assessment	Weekly Week of Oct 12- 16
Unit 3 - Genetics	Common Formative Assessment (CFA) Unit Assessment	Weekly Week of Nov 16-20
Unit 4 - Evolution	Common Formative Assessment (CFA) Unit Assessment	Weekly Week of Jan 25-29
Unit 5 - Ecology	Common Formative Assessment (CFA) Unit Assessment	Weekly Week of Feb 22-26
Unit 6 - Diversity of Life	Common Formative Assessment (CFA) Unit Assessment	Weekly Week of Mar 22-26

### Instructional Framework

Block classes at Luella High School, whether in face-to-face instruction or remote learning, will be organized according to a consistent structure of learning activities that includes an opening (including mini-lesson), work session (comprised of small-group work and independent practice), and a closing (often including formative assessment of student understanding). A combination of synchronous and asynchronous lecture, demonstration, videos, modeling, discussion, graphic organizers, labs, presentations, independent work, cooperative learning, writers’ workshop, and problem-based learning will be used in this course.

### Assessments and Grading

Graded assignments will focus on students' gaining mastery, and grades will be calculated per Henry County Schools policy as follows:

Assessments	40%	End-of-unit tests, essays, presentations, projects
Practice Work	40%	In-class learning activities, homework, discussion, peer review, reflection
Final Exam	20%	End-of-semester cumulative assessment including multiple modalities

### Policy on Missing Work, Late Work, and Re-Assessment

- Students will complete all assignments, including homework, by deadlines.
- After an absence, it is the student's responsibility to ask the teacher for missing work during office hours (not during class time) or via email. They have up to the number of days they were absent to make up that work. If they do not complete it, a zero will be entered into the gradebook.
- Late work will only be accepted for 2 weeks after the due date, and the highest a student may receive on the assignment is 80%. Late work will not be accepted after the 2 weeks nor is late work eligible for re-assessment.
- If students choose to re-assess, they have up to 2 weeks from the day the grade is entered into the gradebook to complete the reassessment. Remediation during IF and/or tutoring will be required before reassessment.

### Plagiarism, Cheating, and Academic Integrity

Plagiarism is the practice of copying words, sentences, images, or ideas for use in written or oral assessments without giving proper credit to the source. Cheating is defined as the giving or receiving of illegal help on anything that has been determined by the teacher to be an individual effort. Both are considered serious offenses and will require a teacher conference. Plagiarism and cheating will result in a grade of 0% on the assignment and may significantly affect your overall course grade as a result. Please refer to the Student Code of Conduct booklet for additional information.

### Attendance Policies

Whether in face-to-face instruction or remote learning, students will follow the Henry County Schools and Luella High School attendance policies.

### Remote Learning Expectations

1. Be on time to class, prepared, and ready to learn. Remain in class the entire period. School attendance will be taken each period, and students will be held accountable.
2. Be in class and actively engage the entire period.
3. Keep Chromebook cameras on during class time, unless the teacher allows cameras off during independent practice.
4. Dress appropriately for class.
5. Complete assignments on time and in compliance with instructions.
6. The teachers and students will work together to create a respectful, safe learning environment. Participation in class and small-group discussions will enhance all students' learning experiences.
7. Follow all other class norms set by the teacher.

**NOTE:** The instructor reserves the right to change or deviate from the syllabus at any given time with or without notice.

### Syllabus Acknowledgement

Please acknowledge that you have read and understand the information explained above.

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#### \*Instructions for inserting signature.

1. Place the cursor in signature box.
2. Click the INSERT tab at top of document (*image below*).
3. Choose DRAWING (*image below*).
4. Select SCRIBBLE in the drawing dropdown options (*image below*).
5. Sign using Chromebook touchscreen.
6. Click SAVE AND CLOSE.

