Honors Biology Course Expectations

Teacher: Mrs. Kimberly Mawhiney
School Phone: (252) 453-0014 Ext. 256
Email: kmawhiney@currituck.k12.nc.us

Please see my webpage on the High School website for lesson plans, notes, activities, worksheets or any information regarding your child's class!

Course Description:
Honors Biology is designed to give the student a more challenging and in-depth experience of the North Carolina Standard Course of Study in Biology. In Honors Biology, students are expected to work independently on a variety of assignments and accept greater responsibility for their learning. In addition to the SCS goals and objectives, students are expected to: design and carry out several independent investigations of biological questions, read and report on recent research in biology, and demonstrate a more in-depth conceptual understanding of all biology objectives.

The Biology EOC exam is required to receive credit for this class.

Objectives:

Strands: The strands are: Nature of Science, Science as Inquiry, Science and Technology, and Science in Personal and Social Perspectives. They provide the context for teaching of the content goals and objectives.
Learners will study biological systems. The strands and unifying concepts provide a context for teaching content and process skill goals. Instruction should focus on the following unifying concepts:

- *Systems, Order and Organization.*
- *Evidence, Models, and Explanation.*
- *Constancy, Change, and Measurement.*
- *Evolution and Equilibrium.*
- *Form and Function.*

Competency Goal 1: The learner will develop abilities necessary to do and understand scientific inquiry.
Objectives 1.01 Identify biological questions and problems that can be answered through scientific investigations. 1.02 Design and conduct scientific investigations to answer biological questions. • Create testable hypotheses • Identify variables. • Use a control or comparison group when appropriate. • Select and use appropriate measurement tools. • Collect and record data. • Organize data into charts and graphs. • Analyze and interpret data. • Communicate findings.

1.03 Formulate and revise scientific explanations and models of biological phenomena using logic and evidence to:

- Explain observations.
- Make inferences and predictions.
- Explain the relationship between evidence and explanation.

1.04 Apply safety procedures in the laboratory and in field studies:

- Recognize and avoid potential hazards.
- Safely manipulate materials and equipment needed for scientific investigations.

1.05 Analyze reports of scientific investigations from an informed, scientifically literate viewpoint including considerations of:

- Appropriate sample.
- Adequacy of experimental controls.
- Replication of findings.
- Alternative interpretations of the data.

Competency Goal 2: The learner will develop an understanding of the physical, chemical and cellular basis of life.

Objectives

2.01 Compare and contrast the structure and functions of the following organic molecules:

- Carbohydrates.
- Proteins.
- Lipids.
- Nucleic acids.

2.02 Investigate and describe the structure and functions of cells including:

- Cell organelles.
- Cell specialization.
- Communication among cells within an organism.

2.03 Investigate and analyze the cell as a living system including:

- Maintenance of homeostasis.
- Movement of materials into and out of cells.
- Energy use and release in biochemical reactions.

2.04 Investigate and describe the structure and function of enzymes and explain their importance in biological systems.

2.05 Investigate and analyze the bioenergetic reactions:

- Aerobic Respiration.
- Anaerobic Respiration.
- Photosynthesis.

Competency Goal 3: The learner will develop an understanding of the continuity of life and the changes of organisms over time.

Objectives

3.01 Analyze the molecular basis of heredity including:

- DNA replication.

- Protein synthesis (transcription, translation).
- Gene regulation.

3.02 Compare and contrast the characteristics of asexual and sexual reproduction.
3.03 Interpret and predict patterns of inheritance.

- Dominant, recessive and intermediate traits.
- Multiple alleles.
- Polygenic inheritance.
- Sex-linked traits.
- Independent assortment.
- Test cross.
- Pedigrees.
- Punnett squares.

3.04 Assess the impact of advances in genomics on individuals and society.

- Human genome project.
- Applications of biotechnology.

3.05 Examine the development of the theory of evolution by natural selection including:

- Development of the theory.
- The origin and history of life.
- Fossil and biochemical evidence.
- Mechanisms of evolution.
- Applications (pesticide and antibiotic resistance).

Competency Goal 4: The learner will develop an understanding of the unity and diversity of life.

Objectives
4.01 Analyze the classification of organisms according to their evolutionary relationships.

- The historical development and changing nature of classification systems.
- Similarities and differences between eukaryotic and prokaryotic organisms.
- Similarities and differences among the eukaryotic kingdoms: Protists, Fungi, Plants, Animals.
- Classify organisms using keys.

4.02 Analyze the processes by which organisms representative of the following groups accomplish essential life functions including:

- Unicellular protists, annelid worms, insects, amphibians, mammals, non vascular plants, gymnosperms and angiosperms.
- Transport, excretion, respiration, regulation, nutrition, synthesis, reproduction, and growth and development.

4.03 Assess, describe and explain adaptations affecting survival and reproductive success.

- Structural adaptations in plants and animals (form to function).
- Disease-causing viruses and microorganisms.
- Co-evolution.

4.04 Analyze and explain the interactive role of internal and external factors in health and disease:

- Genetics.
- Immune response.

- Nutrition.
- Parasites.
- Toxins.

4.05 Analyze the broad patterns of animal behavior as adaptations to the environment.

- Innate behavior.
- Learned behavior.
- Social behavior.

Competency Goal 5: The learner will develop an understanding of the ecological relationships among organisms.

Objectives

5.01 Investigate and analyze the interrelationships among organisms, populations, communities, and ecosystems.

- Techniques of field ecology.
- Abiotic and biotic factors.
- Carrying capacity.

5.02 Analyze the flow of energy and the cycling of matter in the ecosystem

- Relationship of the carbon cycle to photosynthesis and respiration.
- Trophic levels - direction and efficiency of energy transfer.

5.03 Assess human population and its impact on local ecosystems and global environments:

- Historic and potential changes in population.
- Factors associated with those changes.
- Climate change.
- Resource use.
- Sustainable practices/stewardship.

Prerequisite:

Student's enrolled in Honor's Biology must have taken Earth Science and receive a recommendation from their teacher to take this course.

Suggested Grade Level:

The suggested grade level for Honor's Biology is the 10th grade. This will allow honor students to participate in AP classes during their junior and senior years of high school.

Materials/Equipment Required:

1 3 ring binder for handouts, notes, labs
1 package of dividers
1 12 pack of colored pencils (Crayola)
2 blue/black ink pens (medium point)

Evaluation:

Grades are done on the computer by using a system called NCWISE. Below are The score items and what percentages of your child's grades they will count.

Score Items: ***Percentage of Grade:***

Major Test	55%
Pop Quiz	10%
Homework	10%
Labs	10%
Projects	15%
Total	**100%**

Grading Scale

A	Superior	100 – 93
B	Good	92 – 85
C	Average	84 – 77
D	Poor	76 – 70
F	Failing	69 and below

Tests:

All major tests will be online using a system called ClassScape. This system is based on the North Carolina EOC and will give the students some practice with the type of test questions that will be asked on the EOC. These tests are not easy and I strongly recommend that students spend at least 30 minutes a night reviewing the days' lesson. This system also breaks down the data from tests and allows me to meet the needs of students based on their individual needs. If you have any questions, please feel free to contact me. I will answer any questions that you may have.

Homework:

Although "written" homework is not given on a daily basis, I strongly suggest that students review what information was covered during class each night.

Each student will also be required to complete a major project each 9wks marking period that will count **15%** of their grade.

Make-Up Work:

Students returning to school following an absence must initiate a request to make up any work missed.

1. Students will be given 3 days to make up daily assignments missed.
2. Labs will be made up only on Wednesdays after school.
3. **Projects will not be accepted after the due date!**

Attendance Policy:

Students enrolled in grades 9-12 must attend a minimum of 83 class periods during a semester in order to receive a unit of credit for a course. To be counted present, a student must be in attendance at least one-half of the student school day.

Tutoring:

Students may get extra help either before school or scheduling a time with the teacher.

Student Conduct:

1. Materials are to be brought to class every period!
   A. biology book
   B. # 2 pencil or blue/black ink pen
   c. 3 ring binder

2. Students are to be seated ready for class to begin when the bell rings! The Teacher will dismiss students when class is over, not the bell!!

3. No food or drinks will be allowed in the laboratory!!

4. Absolutely no horseplay in the laboratory.

5. A new school wide rule is in place that states: NO ELECTRONIC DEVICES DURING THE SCHOOL DAY ALLOWED (8:05-3:15). This includes cell phones, iPods, ipads, laptops, mp3 players etc... Please see the school website for further information.

7. Do not play with laboratory equipment or open cabinets to lab tables. The Teachers' computer and phone are off limits.

8. Anytime a problem of any kind arises, please see me immediately for advice or assistance. **DO NOT WAIT UNTIL THE END OF THE 9 WEEKS MARKING PERIOD!!** My room number is E12.

ATTITUDE:
Class attitude is very important. Students are encouraged to participate in class discussions. This is reflected in both conduct and academic grades. Consideration will be given to class attitude when computing the 9 weeks grades.

All students are encouraged to join the Science Club!!!

Honor's Biology Signature Page:

Please sign the following and have your child return this page to school to signify that you and your child have gone over the course expectations for Honor's Biology. You may keep the course expectations for future reference.

I have read and fully understand the syllabus provided for my child's Honor's Biology class.

Parent signature: _____ Date: _____

Parents Printed Name _____

Student signature: _____ Date: _____

Students Printed Name _____

_____Home Phone Number

_____Work Number

_____Parent's email address

Any health concerns that I should know about?

_____

Is there anything I should know in general to help your child succeed in this class? (Likes/dislikes, interests, hobbies, etc…)
