

## CONTRACT OF EXPECTATIONS

Name: \_\_\_\_\_

Home Phone: \_\_\_\_\_

Class (circle one):

Academic Biology

Honors Biology

AP Biology

1. I will respect all people at all times, and treat everyone as I expect to be treated. This includes the use of vulgar language, inappropriate physical contact, interrupting anyone who is talking, and any other behavior that can be perceived as rude or demeaning to others.
2. I will arrive to class on time unless I hold a valid pass.
3. I will remain in class for the duration of the period and will leave early only if I am asked or in the case of emergency.
4. I will pick up all my trash and dispose of it in an appropriate way.
5. During class or group discussions I will discuss only the topic assigned.
6. I will complete all work and hand it in on time.
7. I will put all my effort into all my work all of the time.
8. I will put my cell phone away as soon as I enter the class and will not use it unless given specific instructions to do so.
9. I understand that there are consequences to my actions.

I agree to observe the above expectations.

\_\_\_\_\_  
Signature

HONORS BIOLOGY  
GRADING PLAN

Mr. Nicolaou  
Room 128

**Chapter Tests:** 40% of the grade for the quarter.

**Quizzes:** 20% of the grade for the quarter.

**Labs and research papers:** 30% of the grade for the quarter.

**Homework, class participation, behavior, and attitude:** 10% of the grade for the quarter.

**Midyear exam and final exam:** 20% of the grade for the semester.

**Late work (except in the case of absence from school):**

Any assignment that is handed in late will be penalized 10 points (out of 100) per day late. Any assignment not handed in by the third day after its due date will receive a 0.

**Wheeler High School Academic Expectations met by this course: *Analysis***

Performance Indicators	Descriptor
<b>Usage of Resources</b>	<i>Able to select a variety of appropriate resources/strategies to use to arrive at a solution for a question, task or problem</i>
<b>Application &amp; Analysis</b>	<i>Analyzes key information, questions/tasks and problems, and makes inferences based on background knowledge, observations and/or information to arrive at a solution</i>
<b>Organization &amp; Evaluation</b>	<i>Evaluates according to a given set of criteria and collects, organizes and communicates information in an appropriate format</i>
<b>Synthesis &amp; Reflection</b>	<i>Evaluates process and validity of results to create new ideas and/or draws appropriate conclusions based upon knowledge and experiences from several areas</i>
<b>Utilization of Technology (if applicable)</b>	<i>Demonstrates an appropriate use of technology to address an objective or task when applicable</i>

<i>Exceeding (4)</i>	Went above and beyond the expectation	Work was completed independently    Y    N
<i>Attaining (3)</i>	Met the expectation	
<i>Emerging (2)</i>	Approaching the expectation	Assessment at grade level            Y    N
<i>Beginning (1)</i>	Expectation yet to be attained	

## BIOLOGY

<b>COURSE OUTLINE</b>		
<b>Unit One</b>	<i>Title of Unit: MOLECULES AND CELLS</i>	<i>Suggested Time Frame: Quarter 1</i>
<b>Unit Two</b>	<i>Title of Unit: GENETICS</i>	<i>Suggested Time Frame: Quarter 2</i>
<b>Unit Three</b>	<i>Title of Unit: EVOLUTION</i>	<i>Suggested Time Frame: Quarter 3</i>
<b>Unit Four</b>	<i>Title of Unit: ECOLOGY</i>	<i>Suggested Time Frame: Quarter 4</i>

Based on Next Generation Science Standards (NGSS)

Text: *Modern Biology*, Holt, Rinehart and Winston (1999)

### 1. Molecules and Cells

*NGSS: HS-LS1 (From Molecules to Organisms: Structures and Processes).*

**Students will explore molecular structure and function, cell structure and function, homeostasis and transport, photosynthesis, cellular respiration, and cell reproduction. (Chapters: 2-8)**

### 2. Genetics

*NGSS: HS-LS3 (Inheritance and Variation of Traits).*

**Students will investigate Mendelian genetics, protein synthesis, gene expression, human genetics, and DNA technology. (Chapters: 9-13)**

### 3. Evolution

*NGSS: HS-LS4 (Biological Evolution: Unity and Diversity).*

**Students will explore the origin of life, absolute dating, theories of evolution, population genetics, human evolution, and classification. (Chapters: 14-18)**

### 4. Ecology

*NGSS: HS-LS2 (Ecosystems: Interactions, Energy, and Dynamics).*

**Students will examine environmental issues affected by human population growth, as well as ecological models, habitats, and niches. (Chapters: 19-23)**

BIOLOGY  
ESSENTIAL QUESTIONS

Mr. Nicolaou  
Room 128

Chapter 2

1. How are ionic bonds different from covalent bonds?
2. How are energy changes involved in chemical reactions?
3. In what ways are acids different from bases?

Chapter 3

1. How does water's polar nature affect its ability to dissolve substances?
2. How is a condensation reaction different from hydrolysis?
3. Compare and contrast the four main classes of organic compounds.

Chapter 4

1. What is the relationship between a cell's structure and its function?
2. How are animal cells different from plant cells?
3. How are living things organized?

Chapter 5

1. What is the difference between diffusion and osmosis?
2. How is active transport different from passive transport?

Chapter 6

1. What happens to a water molecule in photosynthesis?
2. What happens to the compounds made in the Calvin cycle?

Chapter 7

1. Compare and contrast lactic acid fermentation and alcoholic fermentation.
2. What is the function of the Krebs cycle?

Chapter 8

1. How are sex chromosomes different from autosomes?
2. How is cytokinesis in animal cells different from cytokinesis in plant cells?
3. Compare the end products of meiosis with the end products of mitosis.

Chapter 9

1. What is the difference between an allele and a gene?
2. How can a testcross be used to determine the genotype of an individual with a dominant phenotype?

Chapter 10

1. What is the role of complementary base pairing in the replication of DNA?
2. How is RNA different from DNA?
3. How is a codon different from an anticodon?

#### Chapter 11

1. What is the difference between an intron and an exon?
2. What are the key characteristics of cancer cells?

#### Chapter 12

1. What is the difference between chromosome mutations and gene mutations?
2. Explain the inheritance of ABO blood groups.

#### Chapter 13

1. How can cloning vectors be used to clone and transfer genes?
2. How may gene therapy be used in humans?
3. How can DNA technology be used to produce medical products?

#### Chapter 14

1. How did Pasteur's experiment disprove the hypothesis of spontaneous generation?
2. What is the possible importance of cell-like structures produced in the laboratory?
3. How are photosynthesis and aerobic respiration thought to be related?

#### Chapter 15

1. How might biogeographic observations suggest descent with modification?
2. How was Darwin's theory of evolution different from Lamarck's?
3. How do similarities in macromolecules and embryos of different species suggest a relationship between them?

#### Chapter 16

1. What are three causes of genetic variation in a population?
2. Contrast the effects of stabilizing, directional, and disruptive selection on variations in a trait over time.
3. What is the difference between the morphological concept and the biological concept of a species?

#### Chapter 17

1. How are hominids different from other primates?
2. How did the discovery of Lucy in 1974 change hypotheses about the evolution of bipedalism?
3. What happened to the Neanderthals?

#### Chapter 18

1. Why was Aristotle's classification system not as functional as Linnaeus's?
2. Why is cladistic taxonomy sometimes in conflict with systematic taxonomy?
3. Explain the principal difference between the six-kingdom system of classification and the three-domain system of classification.

#### Chapter 19

1. What is the role of interconnectedness in ecology?
2. How and why do organisms avoid unfavorable conditions?

#### Chapter 20

1. Contrast population size, population density, and dispersion.
2. How is the logistic model of population growth different from the exponential model? How are they similar?
3. Describe and explain the changes in population growth over the last 10,000 years.

#### Chapter 21

1. Compare and contrast parasitism, mutualism, and commensalism.
2. Explain the difference between species richness and species diversity.
3. Distinguish between primary succession and secondary succession.

#### Chapter 22

1. Contrast producers with consumers and discuss the role of each in energy transfer.
2. Summarize the steps of the carbon cycle, the water cycle, and the nitrogen cycle.
3. Identify characteristics of each of the major biomes.
4. Contrast the aphotic and photic zones in the ocean.

#### Chapter 23

1. Describe the effects of increasing carbon dioxide levels in the atmosphere.
2. Discuss two strategies for conserving biodiversity.
3. Contrast conservation biology with restoration biology.