

Biology I Syllabus

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GRADING

Grades are based upon the effort and quality work. Once a nine-week ends, grades start over. Each semester stands alone. ACS grading policy will be used.



COURSE DESCRIPTION

Biology I is a laboratory course required for high school graduation and college. We will cover topics including cell biology, photosynthesis, protein synthesis, interdependence, ecology and genetics. Students will participate in labs and other hands-on activities as well as develop science literacy through rigorous reading in the content area, building scientific vocabulary, and higher-order application to biological concepts. This curriculum is aligned with the Tennessee State Standards in Biology.

Continued on page 2

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LAB SAFETY PROCEDURES

Laboratory safety rules and procedures must be followed and will be reviewed before each activity. Responsible and appropriate behavior is required of each student when participating in lab activities. Appropriate behavior includes cooperating and collaborating with others as well as proper handling of supplies and equipment.

LAB SAFETY RULES

1. Follow teacher instructions.
2. There will be no running in the lab or inappropriate use of lab materials and equipment.
3. Lab equipment such as microscopes, beakers, and test tubes will be handled with care.
4. Spills, accidents and broken equipment must be reported to the teacher immediately.
5. If instructed by the teacher, goggles must be worn throughout the entire lab.
6. If acids or alkalis come in contact with the skin, wash the area with water for at least 10 minutes.
7. If acids or alkalis come in contact with eyes, rinse at the eyewash for at least 15 minutes.
8. Never touch, smell, or taste chemicals unless instructed to do so by your teacher.
9. Loose clothes should not be worn during the lab. Dangling earrings should be removed. Loose hair should be tied back. Open-toed shoes are not encouraged in the lab.
10. No eating, drinking, chewing gum or applying makeup during lab.



Humming-bird Hawk-moth (*Macroglossum stellatarum*)
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**BIOLOGY IS BEAUTY ALL
AROUND US!**

CLASS PROCEDURES

1. Students enter the classroom quietly and go straight to their desks.
2. Students must have a pencil / pen and paper out on desk before bell rings.
3. When the bell rings, students must be at their desks working on the warm-up quietly and by themselves.
4. When teacher raises her hand, students stop what they are doing and look at the teacher quietly. Teacher will repeat this procedure until class is silent.
5. All papers should have the student's name. Papers without a name will be deducted points.
6. Students get one (1) bathroom passes per nine weeks.
7. Inappropriate class discussion/questions are unwarranted disturbances which are not tolerated.
8. On assembly days, students must see teacher to make up work according to allowed schedule.
9. Teacher dismisses the class at the end of the period, not the bell.



Research Based Theory of Developmental Stages of Cognitive Learning. By: Jean Piaget

Stages of Cognitive Development. Piaget identified four [stages in cognitive development](#):

1. Sensorimotor stage (Infancy). In this period (which has 6 stages), intelligence is demonstrated through motor activity without the use of symbols. Knowledge of the world is limited (but developing) because its based on physical interactions / experiences. Children acquire object permanence at about 7 months of age (memory). Physical development (mobility) allows the child to begin developing new intellectual abilities. Some symbolic (language) abilities are developed at the end of this stage.
2. Pre-operational stage (Toddler and Early Childhood). In this period (which has two sub stages), intelligence is demonstrated through the use of symbols, language use matures, and memory and imagination are developed, but thinking is done in a nonlogical, nonreversible manner. Egocentric thinking predominates
3. Concrete operational stage (Elementary and early adolescence). In this stage (characterized by 7 types of conservation: number, length, liquid, mass, weight, area, volume), intelligence is demonstrated through logical and systematic manipulation of symbols related to concrete objects. Operational thinking develops (mental actions that are reversible). Egocentric thought diminishes.
4. Formal operational stage (Adolescence and adulthood). In this stage, intelligence is demonstrated through the logical use of symbols related to abstract concepts. Early in the period there is a return to egocentric thought. Only 35% of high school graduates in industrialized countries obtain formal operations; many people do not think formally during adulthood.

Broome Discipline Policies

CLASS RULES

1. Show respect to the teacher, others, room, and yourself.
 2. Don't talk while the teacher is talking.
 3. No swearing, vulgar or offensive language.
 4. Clean up after yourself.
 5. Stay on task and in seat.
- *Follow all ACS and AHS school policies including no electronic devices, no eating in class, and no makeup*

CONSEQUENCES (IF YOU CHOOSE TO BREAK A RULE)

The Discipline Policy will be implemented in the classroom as follows for infractions of the rules:

1. Verbal Warning.
 2. Teacher Conference.
 3. Phone Call Home.
 4. Administrative Disciplinary Detention and Phone Call Home.
 5. Severe disruptions: student sent immediately to office.
- Name-calling, bullying, fighting, illegal substance and defiance in class will result in immediate administrative process and/or law enforcement intervention.***

DISCIPLINE PLAN

The discipline plan is for students to explain what they did wrong in their own language, understand which rule they broke, and explain their excuse while creating their own solution. All action plans are signed, dated, and approved by the teacher. The three questions of the action plan consist of: 1) What is the problem? 2) What's causing the problem? (Please list the factors)? 3) How will WE solve the problem so that it is not repeated?



SPECIAL PROCEDURES

- **If you are Tardy:** When you arrive tardy, complete tardy slip and leave with teacher. Move quietly to your seat and start working. Be aware that **tardies are collected and kept in office for further determination of Detentions, ISS, OSS, etc.**
- **If you were absent:** I will not address concerns from students who were absent during class time--please talk to me before or after class only. Students are responsible for obtaining missed work, Warm Ups, and Notes from his/her peers. If you do not clear your absence with the Attendance Office, make-up work will be held until student has done so.
- **Makeup Work:** It is the student's responsibility to consult the "Student Information" area in "Schoology", ask another student, or ask teacher for missing assignments. You will indicate what date you were absent and the assignments you need to makeup. Full credit assignments must be in by next class or earlier.
- **Late work policy:** All Late work will be deducted points because it is late. Only work turned in on time receives full credit. It is your responsibility to be aware of your missing assignments, quizzes, tests, and labs.

First Nine Weeks

- I. Introduction and review
 - A. Lab safety
 - B. Scientific method
 - C. Metric measurements
 - D. Properties of life
 - E. Microscope
- II. Cells
 - A. Macromolecules/Biomolecules
 - B. Cell organelles
 - B. Plant vs. animal cells
 - C. Active / Passive transport
 - D. Permeability of the cell membrane
 - E. Homeostasis
- III. Mitosis and cell cycle
 - A. Mitosis and cell cycle
 - B. Meiosis and genetic variability
 - C. Chromosome number in mitosis and meiosis

Second Nine Weeks

- I. Photosynthesis / Respiration
 - A. Reactants and products photosynthesis and respiration
 - B. Cellular organelles
 - C. Aerobic / anaerobic reactions
 - D. Interdependence of photosynthesis and respiration
 - E. Transfer of energy from respiration to cellular work
 - F. Carbon, Nitrogen, Oxygen, and Water cycles
- II. Genetics and Biotechnology
 - A. Reproduction: sexual /asexual
 - B. DNA structure
 - C. DNA replication and protein synthesis
 - D. Dominant and recessive genes
 - E. Monohybrid and Dihybrid crosses
 - F. Mutations
 - G. Genetic diseases
 - H. Genetic engineering / gel electrophoresis

Third Nine Weeks

- I. Interactions
 - A. Symbiosis
 - B. Organisms as producers, consumers and decomposers
 - C. Abiotic and biotic factors
 - D. Population growth curves
 - E. Energy flow through trophic levels
 - F. Effects of human activity on an ecosystem
 - G. Innate and learned behaviors
- II. Evolution/DNA Sequencing:
 - A. Analyze DNA bases for mutations
 - B. DNA fingerprints
- III. Infectious Diseases
 - A. AIDS
 - B. Vectors
 - C. Vaccines

Fourth Nine Weeks

- I. Evolution
 - A. Speciation
 - B. Divergent evolution
 - C. Homologous and analogous structures
 - D. Natural and artificial selection
 - E. Biochemical comparison
- II. Diversity
 - A. Biomes
 - B. Taxonomy
 - C. Dichotomous key
 - D. Life cycles
 - E. Symmetry
 - F. Organ structure and function