***Environmental Science***

**Course Syllabus**

**Teacher:** Mrs. Millicent Drane

**Text:** Environmental Science (Holt)

**Materials:** 3 ring binder Dark blue or black ink pens

 Spiral notebook Pencils

 Notebook paper Coloring items

 Graph paper (optional) Calculator (optional)

**Objectives/Goals:**

1. To encourage the spirit of scientific investigation and with it the attitudes of accuracy in thought and work.

2. To encourage the students to become more knowledgeable in the way that human activity can affect our environment, and to become an environmental steward.

**Standards:**

**SEV1. Obtain, evaluate, and communicate information to investigate the flow of energy and cycling of matter within an ecosystem.**

a. Develop and use a model to compare and analyze the levels of biological organization including organisms, populations, communities, ecosystems, and biosphere.

b. Develop and use a model based on the Laws of Thermodynamics to predict energy transfers throughout an ecosystem (food chains, food webs, and trophic levels). (Clarification statement: The first and second law of thermodynamics should be used to support the model.)

c. Analyze and interpret data to construct an argument of the necessity of biogeochemical cycles (hydrologic, nitrogen, phosphorus, oxygen, and carbon) to support a sustainable ecosystem.

d. Evaluate claims, evidence, and reasoning of the relationship between the physical factors (e.g., insolation, proximity to coastline, topography) and organismal adaptations within terrestrial biomes.

e. Plan and carry out an investigation of how chemical and physical properties impact aquatic biomes in Georgia. (Clarification statement: Consider the diverse aquatic ecosystems across the state such as streams, ponds, coastline, estuaries, and lakes.)

**SEV2. Obtain, evaluate, and communicate information to construct explanations of stability and change in Earth’s ecosystems.**

a. Analyze and interpret data related to short-term and long-term natural cyclic fluctuations associated with climate change. (Clarification statement: Short-term examples include but are not limited to El Niño and volcanism. Long-term examples include but are not limited to variations in Earth’s orbit such as Milankovitch cycles.)

b. Analyze and interpret data to determine how changes in atmospheric chemistry (carbon dioxide and methane) impact the greenhouse effect.

c. Construct an argument to predict changes in biomass, biodiversity, and complexity within ecosystems, in terms of ecological succession.

d. Construct an argument to support a claim about the value of biodiversity in ecosystem resilience including keystone, invasive, native, endemic, indicator, and endangered species.

**SEV3. Obtain, evaluate, and communicate information to evaluate types, availability, allocation, and sustainability of energy resources.**

a. Analyze and interpret data to communicate information on the origin and consumption of renewable forms of energy (wind, solar, geothermal, biofuel, and tidal) and non-renewable energy sources (fossil fuels and nuclear energy).

b. Construct an argument based on data about the risks and benefits of renewable and nonrenewable energy sources. (Clarification statement: This may include, but is not limited to, the environmental, social, and economic risks and benefits.)

c. Obtain, evaluate, and communicate data to predict the sustainability potential of renewable and non-renewable energy resources.

d. Design and defend a sustainable energy plan based on scientific principles for your location.

**SEV4. Obtain, evaluate, and communicate information to analyze human impact on natural resources.**

a. Construct and revise a claim based on evidence on the effects of human activities on natural resources.

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| Human Activities  | Natural Resources |
| Agriculture, Forestry, Ranching, Mining, Urbanization, Fishing, Water use, Pollution, Desalination, & Waste water treatment | Land ,Water, Air, & Organisms |

b. Design, evaluate, and refine solutions to reduce human impact on the environment including, but not limited to, smog, ozone depletion, urbanization, and ocean acidification.

c. Construct an argument to evaluate how human population growth affects food demand and food supply (GMOs, monocultures, desertification, Green Revolution).

**SEV5. Obtain, evaluate, and communicate information about the effects of human population growth on global ecosystems.**

a. Construct explanations about the relationship between the quality of life and human impact on the environment in terms of population growth, education, and gross national product.

b. Analyze and interpret data on global patterns of population growth (fertility and mortality rates) and demographic transitions in developing and developed countries.

c. Construct an argument from evidence regarding the ecological effects of human innovations (Agricultural, Industrial, Medical, and Technological Revolutions) on global ecosystems.

d. Design and defend a sustainability plan to reduce your individual contribution to environmental impacts, taking into account how market forces and societal demands (including political, legal, social, and economic) influence personal choices.

**Course Outline:**

 Lab Procedures, Safety and Equipment

 Geoscience review

 Population, Biomes & Interactions

Energy Sources

Environment & Society

 Resource Use, Products & Pollution

**Grading Scale:** Your nine weeks grade will be computed from daily grades, lab grades, quiz grades and major tests.

1. Your daily grades will mainly come from work, such as class work and homework, this can be an individual activity or a group activity.
2. Labs are generally completed as groups; however each student is responsible for completing and turning in their own lab notebook/report.
3. Quizzes are general open notebook, but some are not due to the nature of the material, like the safety quiz is not open notes.
4. All work in which a student has access to reference materials should contain correct grammar and spelling.
5. Daily grades 15 %, Lab grades 25 %, Quiz grades 20 %, and Tests grades 40%.

3. Your final grade is determined by your two nine week averages and a final exam grade. The averages of these grades are valued as follows:

First nine weeks 40% Second nine weeks 40% Final Exam 20%

**Major Assessment:**There will be approximately 9 unit/ chapter tests in this semester. These tests will be on Fridays at the end of the units.

**Special Projects within the Assessments**: The following is a list of special projects that will be done this semester in addition to the regular assignments. Details will be given at a later date.

* Written Paper on contagious disease or major disease that has been considered to be an epidemic in this or other countries.
* Develop travel brochures to various biomes.
* Develop a City plan with logic for development and growth. Written paper included.

**Other Important Information:**

**Make Up Work Policy**

Students should be prepared to turn in all work due the day before an absence at the beginning of class. You will be expected to take quizzes or tests the day you return except under extenuating circumstances. Students may need to stay in the opportunity center or after school to complete assessments. Students have 3 days to make up missed work except under extenuating circumstances. In the case of a missed lab, there will be an alternate lab assignment assigned by the teacher.

**On-line Resources:**

<https://my.hrw.com/> This is the website that has a digital copy of the textbook.

<http://biology.about.com/> [**www.galileo.usg.edu**](http://www.galileo.usg.edu/)