

•
•
•
•
•
•

DR. KEVIN RILEY, EXECUTIVE DIRECTOR
 kevin.riley@cvesd.org
 DR. RYAN SANTOS, LEAD COUNSELOR
 ryan.santos1@cvesd.org
 (619) 934-7000 fax (619) 422-0356
 www.bayfrontcharter.com



BAYFRONT CHARTER HIGH SCHOOL Environmental Science Syllabus

PART I. CONTACT INFORMATION			
Teacher: Richard Ma	Phone: 619-974-4000	Email: Richard.Ma@Bayfrontcharter.com	
Class Website: Google Classroom, announced during class		Period: 2, 3, 4	Location: 15
PART II. OVERVIEW			
	A-G: This course will meet the	D	subject requirement for the University of California
	This course fulfills the graduation requirements for Bayfront Charter High School		
Course Description			
<p>This course will investigate the interconnectedness of humans and their environment, including many different aspects of biology and earth science. The course will study ecology, populations, water, air, land, mineral and energy resources, and our planet’s health and future. It will examine natural and manmade hazards, and will then look at possible solutions to those hazards. It will give students an understanding of our role in the delicate balancing acts that take place on earth. Environmental Science is highly interdisciplinary; it involves the study of various themes that cross topics such as economics, government, biology, chemistry, physics, math, language arts, and many more.</p>			
Course Purpose			
<p>We humans are currently undergoing a non-sustainable population explosion, numbering over 7.3 billion people and growing. Most scientists are convinced that this is an unsustainable population size and that we must reduce our growth rate. While many developed countries have reduced their population growth rates, most developing countries have high birth rates. The United States is the only developed country that is still rapidly increasing in population size, mostly due to immigration rates.</p> <p>Environmental Science offers the opportunity to study and work with these and other exciting, rewarding, and often controversial topics. The study of Environmental Science promotes the development of problem-solving skills. Also, because solving our environmental problems requires a broad knowledge base. As the future leaders and voters of our nation, our students must be educated in this field that was little covered and mostly disregarded in the United States.</p> <p>Our course will cover all 8 of the NGSS Science practices: Asking Questions and Defining Problems,</p>			

•••••

Developing and Using Models, Planning and Carrying out Investigations, Analyzing and Interpreting Data, Using Mathematics and Computational Thinking, Constructing Explanations and Designing Solutions, Engaging in Argument from Evidence, and Obtaining/Evaluating/Communicating Information.

Course Objectives

By the end of this course, students will have an understanding of:

Science As An Ongoing Process: *Students will be able to:*

- Create fair and intelligent experiments to test for issues in our world, or to solve for problems.
- Think critically about testing science, involving collecting and analyzing data, working with other students, and discussing and planning further experimentation.

Ecology: *Students will be able to:*

- Explain the significance and draw the following cycles: water cycle, carbon cycle, and nitrogen cycle. Students will also explain the relationship between these cycles, abiotic factors, and biotic factors
- Create food webs to demonstrate the correlation between producers, consumers, and decomposers. They will also describe how energy is transferred between trophic levels
- Describe how birth, death, immigration and emigration influence population sizes, and how these changes in population sizes affect biodiversity and the environment
- NGSS DCI: HS-LS2C, LS2B, LS4D, LS2A

Global Warming: *Students will be able to:*

- Describe different pieces of evidence that led to the concept of global warming.
- Compare and contrast various methods of affecting the temperature of our environment.
- Explain the process of global warming and describe how humans are impacting it
- Compare and describe renewable energy resources (solar, wind, hydroelectric, biomass, geothermal, ocean, and nuclear fusion) and nonrenewable energy resources (fossil fuels and nuclear fission)
- NGSS DCI: HS-ESS2D, ESS3D, ESS2C, LS2C

Pollution in Air, Land, and Water: *Students will be able to:*

- Explain the different types of pollutants, in particular in air and land.
- Explain how humans use water, air, and land as a resource.
- Describe the ways in which humans pollute and destroy water, air, and land, and illustrate the impact this has on the environment
- Describe the different contributions humans can make to improve the earth's resources
- Explain and demonstrate understanding for the pollutants in our oceans and its effect on our lives.
- NGSS DCI: LS2B, LS4D, ESS3C, ESS3B, ESS3A

Deforestation and Resources: *Students will be able to:*

- Describe the interconnectedness of the use of forests and the impact that humans have.
- Analyze the relationship that we share with the environment in terms of forests and interdependence.
- Debate the various alternatives to deforestation and plan possible solutions.
- NGSS DCI: HS-LS2A, LS2C, LS1B, ESS2A, ESS3A, ESS3B, ESS3C

PART III. ASSIGNMENTS

Course Assignments and Projects

The course will have several interactive projects and assignments. The large projects are:

- **Argumentative Essay:** Students will be writing an argumentative essay on the topic of human impact on our planet.
- **Research project and presentation:** Students will work in teams to research and present on the environmental impact of humans on specific species on our planet, specifically in San Diego.
- **Labs:** Students will work on several labs in the class, from cleaning dirty water, working in the Tijuana Estuaries, working with polymers, and observing, collecting, and sampling plants and animals in the wild, and many more.

Instructional Strategies & Methods

This class will involve hands-on activities, group work, seminars, discussions, lectures, and independent work. Students will complete presentations, projects, labs, journals, and a research paper. Tests will be on units, which encompass several lessons and fit the units seen in the course benchmarks. The final test will be a cumulative test with the majority focusing on latter information.

As our world becomes more entwined with technology, Bayfront has taken a challenge to be the front runner in 21st century skills and learners. To achieve this, we will be following the 7 International Society for Technology in Education (**ISTE**) standards to ensure that our students are college and career ready for the future. The 7 Standards are: Computational Thinkers, Innovative Designers, Knowledge Constructors, Digital Citizens, Empowered Learners, Global Collaborators, and Creative Communicators.

Environmental Science will be using all 7 of these standards to ensure that students are able to obtain, evaluate, present, and innovate using information from the internet and from each other.

Population growth: *Students will be able to:*

- Relate the issue of energy with overpopulation, global warming, carbon levels, and regulation.
- Explain the methods of change in politics and in regulations.
- Describe the ways in which humans pollute and destroy water, air, and land, and illustrate the impact this has on the environment through increasing population and urbanization.
- Describe the different contributions humans can make to improve the earth's resources and how to change methods of energy collection and storage.
- NGSS DCI: HS-ESS3C, LS3D, LS2D, LS2C

Math Skills: *Students will be able to:*

- Create tables and graphs from scientific data
- Solve simple algebraic problems
- Measure and convert between different units (English and metric system)
- Use scientific notation when appropriate

PART IV. GRADING POLICY

97 - 100	A+	73 - 76	C
93 - 96	A	70 - 72	C-
90 - 92	A -	67 - 69	D+
87 - 89	B+	63 - 66	D
83 - 86	B	60 - 62	D-
80 - 82	B-	0 - 59	F
77 - 79	C+		

Late and Make Up Work

Any homework turned in afterwards will be considered late and receive half credit. Copied work will result in a zero for both parties.

Students with unforeseen circumstances, or if told in advanced, will be able to turn in work late, or given a study packet to be turned back in either online or when they return to class.

The Grading rubric is as follows:

50% Tests and Quizzes

30% Labs and Projects

20% Classwork and Homework

Extra Credit

There is no extra credit offered in this course.

Cheating

Cheating on a test in this course will result in disciplinary action. Depending on circumstances, a student may be asked to take an alternative assessment for reduced credit, may not receive credit for the particular problem that the student cheated on, or may not receive credit at all for the test, resulting in a 0 for the test.

PART V. BEHAVIOR EXPECTATIONS

School-wide Behavior Standards

- Students must be in their seat, on time, and ready to learn every day
- Students must demonstrate respect for other people
- Students must demonstrate respect for the property of others
- Students must demonstrate respect for our culture of learning

Attendance Policy(New as of 1/3/17)

The attendance policy of Bayfront Charter High School is as follows: During each quarter, **students shall not receive credit** for a class in which they have missed **4 or more days (3 tardies of more than 30 minutes** is equivalent to 1 absence). A student who misses 4 or more days can make up each absence by attending Saturday School.

Classroom Policies

- Cell Phones: No cell phones in class.
- Food and drinks: No food or drinks in class. Snacking may be permitted on certain days.
- Tardies: If you are late to class, make sure you have a pass.
- Absences: Students must make up work missed during absences **within 3 school days** of their absence.

Digital Use Policy

The **Bayfront Charter High School Digital Use Policy** is available in the Parent Handbook, the school website, and in the main office.

Students must have their laptops charged and ready for class. The laptops are a powerful tool in the process of education and we will be using them regularly throughout the course. It is expected of them not to be off task during these times, and will foster their strengths in 21st century literacy.

PART VI. RESOURCES FOR PARENTS

- Bayfront Charter High School Website: www.bayfrontcharter.com
- Classroom website: <http://richardmabchs.wix.com/richardmabayfront>
- Jupiter Grades: www.jupiterEd.com
- Common Calendar (listing homework assignments, due dates, events and projects) www.bayfrontcharter.com/calendar
- California Department of Education (CDE): <http://www.cde.ca.gov/index.asp>
- Career Technical Education (CTE): <http://www.cde.ca.gov/ci/ct/>

Important Dates

1/3 – School Begins
1/16 – NO SCHOOL MLK
2/3 – 5-week Progress Reports
2/17-2/20 – NO SCHOOL Presidents Holiday
3/26 – Third Quarter Grades
3/27-4/3 – NO SCHOOL Spring Break
4/21 – 15-week Progress Reports
5/30 – NO SCHOOL, Memorial Day
6/2 – Fourth Quarter Grades

Week	Unit	Goals
1	Intro/Pollution	Introduction to basic environmental science, its backgrounds, and reasons for the course. Strengthening our knowledge on the backbone of science, the Scientific Method. Deep look into our environment and how it works.
2	Scientific Method	
3	Scientific Method	
4	Ecology	
5	Ecology	
6	Ecology	Deep look into how our ecosystems and environments function. Looking at various types of life in our environment, How do they interact? Why is it important? Compare types of biomes, how biodiversity fits in these biomes, and their role on earth
7	Biodiversity	
8	Biodiversity	
9	Biomes	
10	Pollution	A study of air, water, land, and light pollution. We will look at natural and man-made pollutants. How do increasing populations affect our world, ecosystems, and daily lives? A study into HIPPO, Habitat loss, Invasive species, Population Growth, Pollution, and Overharvestation/Overexploitation.
11	Pollution	
12	Population Growth	
13	Population Growth	
14	Population Growth	
15	Global Climate	A study of global warming and climate change from natural events over history to human impact. A look into greenhouse gasses, and their effect on our atmosphere. A look at resources in our environment, and human uses and affects. Timber, soil, and a study of the green revolution.
16	Global Climate	
17	Resources	
18	Projects	A cumulative project that will have students study species in San Diego County and how human impact affects its lives, and the consequences.
19	Projects	
20		FINALS WEEK