Vision Charter School

2011-2012 School year

1. **Course Number and Title:** General Science (Year 1) 53000
2. **Course Description:** A survey of basic science concepts with an emphasis on the life sciences. Ecology, Environmental Science, Marine Science, Freshwater ecosystems, and land-ocean interactions will be emphasized.
3. **Credit Hours:** 2
4. **Course Prerequisites:** none
5. **Course Dates:** 8/17/11 through 5/25/12
6. **Course Times:** There are 3 sections of this class; you are in one of the following sections.
    a. **9:55-11:30 A days (location: G1)**
    b. **12:40-2:15 A days (location: G2)**
7. **Instructor:** Jason George E***mail:*** jasongeorge@visioncsd.org
8. **Required Text and Other Learning Resources:** Resilient Planet (Jason Project); Tectonic Fury (Jason Project); Infinite Potential (Jason Project); Life on Ocean Planet (Current Publishing); Uncovering Student Ideas in Life Science by Page Keeley; Garden Genetics; Surf Science.
9. **Course Calendar/Curriculum (Tentative):**

1st Quarter Topics	**Suggested Activities/Lessons**	**Student Objectives**	
Scientific Investigation	-Start preparing for the ***Siemens we Can change the world challenge 2012***. -Slime Lab *This quarter should be used to develop a good basis for scientific investigation and get off to good start in science competition. **EXAM 1:** Scientific Method and Investigation	1**. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:** a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data. b. Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project. c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.	7.S.1.2.1 Describe how observations and data are evidence on which to base scientific explanations and predictions. (633.02.a) 7.S.1.2.2 Use observations to make defendable inferences. (633.02.b) 7.S.1.2.3 Use models to explain or demonstrate a concept. (633.02.c) 7.S.1.6.1 Identify controls and variables used in scientific investigations. (634.01.b) 7.S.1.6.2 Use appropriate tools and techniques to gather and display data.

		d. Construct scale models, maps, and appropriately labeled diagrams to communicate scientific knowledge (e.g., motion of Earth's plates and cell structure). e. Communicate the steps and results from an investigation in written reports and oral presentations.	(634.01c) 7.S.1.6.3 Evaluate data in order to form conclusions. (634.01.d 7.S.1.6.4 Use evidence and critical thinking to accept or reject a hypothesis. (634.01.e) 7.S.1.6.5 Evaluate alternative explanations or predictions. (634.01.f) 7.S.1.6.6 Communicate and defend scientific procedures and explanations. (634.01.g) 7.S.1.3.1 Identify concepts of science that have been stable over time. (633.03.a) 7.S.1.3.2 Recognize changes that occur within systems. (633.03.b) 7.S.1.3.3 Make metric measurements using appropriate tools. (633.03.c) 7.S.5.2.1 Explain how science and technology are interrelated. (640.01.a) 7.S.5.2.2 Explain how science advances technology. (640.01.b) 7.S.5.3.1 Identify alternative sources of energy. (641.03.a)
Cell Biology	***-Uncovering Student Ideas in***	**2. All living organisms are composed of cells, from just one to**	7.S.1.1.3 Identify

	Life Science: *Formative Assessment Probes: 1, 2, 5, 6, 7, 8, 9.* **-Activity-A-Day:** *Section 6 (6.1-6.11)* -Clay model cells -Cell convention **EXAM 2: Cell parts and function**	**many trillions, whose details usually are visible only through a microscope, as a basis for understanding this concept:** a. Students know cells function similarly in all living organisms. b. Students know the characteristics that distinguish plant cells from animal cells, including chloroplasts and cell walls. c. Students know the nucleus is the repository for genetic information in plant and animal cells. d. Students know that mitochondria liberate energy for the work that cells do and that chloroplasts capture sunlight energy for photosynthesis. e. Students know cells divide to increase their numbers through a process of mitosis, which results in two daughter cells with identical sets of chromosomes. f. Students know that as multi-cellular organisms develop, their cells differentiate.	the different structural levels of an organism (cells, tissues, organs, and organ systems). (633.01.b) 7.S.1.1.1 Define small systems as a part of a whole system. (633.01.a) 7.S.1.1.2 Determine how small systems contribute to the function of the whole. (633.01.a) *All of these standards will be met throughout the year through project based learning and small group scientific investigations 7.S.3.3.1 Explain the relationships among specialized cells, tissues, organs, organ systems, and organisms. (636.01.a) 7.S.3.3.2 Identify the parts of specialized plant and animal cells. (636.01.b) 7.S.3.3.3 Identify the functions of cell structures. (636.01.b) 7.S.3.3.4 Describe cell functions that involve chemical reactions. (630.01.c)
2nd quarter			
Genetics	***-Uncovering Student Ideas in Life Science:*** *Formative Assessment Probes: 21 & 22*	**3. A typical cell of any organism contains genetic instructions that specify its traits. Those traits may be modified by environmental influences. As a basis for understanding**	7.S.3.1.1 Describe how natural selection explains species change over time. (637.01.a) 7.S.3.3.5

	-Activity-A-Day: *Section 7 (7.1-7.10)* -**Garden Genetics** activities: Section 1-Cucumbers (chapter 1). **Exam 3**: Genetics Basics	**this concept:** a. Students know the differences between the life cycles and reproduction methods of sexual and asexual organisms. b. Students know sexual reproduction produces offspring that inherit half their genes from each parent. c. Students know an inherited trait can be determined by one or more genes. d. Students know plant and animal cells contain many thousands of different genes and typically have two copies of every gene. The two copies (or alleles) of the gene may or may not be identical, and one may be dominant in determining the phenotype while the other is recessive. e. Students know DNA (deoxyribonucleic acid) is the genetic material of living organisms and is located in the chromosomes of each cell.	Describe how dominant and recessive traits are inherited. (636.01.e)
3rd quarter	**Jason project "Resilient Planet"**	Students will read missions 1-5 and complete selected lab activities from Missions 1-5.	
Structure and function in living systems	***-Uncovering Student Ideas in Life Science:*** *Formative Assessment Probes: 10, 11, 12, 13, 14, 15, 16, 17, 23, 24, 25.* -***Life on Ocean Planet*** *PowerPoint Presentations (4, 16, & 17).* ***-Activity-A-Day:*** *Section 10 (10.1-10.10)* ***-Resilient Planet Labs:*** *Mission 1 Lab 1,3,4 Mission 2 Lab 2,4,& Field assignment. Mission 3 Lab 2,3,4,*	**4. The anatomy and physiology of plants and animals illustrate the complementary nature of structure and function. As a basis for understanding this concept:** a. Students know plants and animals have levels of organization for structure and function, including cells, tissues, organs, organ systems, and the whole organism. b. Students know organ systems function because of the contributions of individual organs, tissues, and cells. The failure of any part can affect the entire system. c. Students know how bones and muscles work together to provide a structural framework for movement. e. Students know the structures and processes by which flowering plants generate pollen, ovules, seeds, and	7.S.3.2.1 Describe how energy stored in food is primarily derived from the Sun through photosynthesis. (638.01.a) 7.S.3.2.2 Describe how the availability of resources (matter and energy) limits the distribution and abundance of organisms. (638.01.b) 7.S.3.2.3 Illustrate how atoms and molecules cycle among the living and nonliving components of the biosphere. (638.01.c)

	& Field Assignment Mission 4 Lab 1,2,4, & Field Assignment. Mission 5 Labs 1-4 **EXAM 4:** Living Systems	fruit. f. Students know how to relate the structures of the eye and ear to their functions.	7.S.3.2.4 Identify how energy flows through ecosystems in one direction, from photosynthetic organisms to herbivores, carnivore, and decomposers. (638.01.d)
4th Quarter	***Jason Project "Infinite Potential"***	Students will Read Mission 1 and complete lab activities from Mission 1.	
Physical Principals in living systems	***-Uncovering Student Ideas Vol. 1:*** 19 & 20 **-Brain Powered** *Science Activity #13 "Sound Tube Toys"* **-Brain Powered** *Science Activity #5 "Optical Illusions"* **-Brain Powered** *Science Activity #25 "Optics and Mirrors"* **-Activity-A-Day:** Section 4 (4.1-4.12) **EXAM 5:** Light & Sound	***5. Physical principles underlie biological structures and functions. As a basis for understanding this concept:*** a. Students know visible light is a small band within a very broad electromagnetic spectrum. b. Students know that for an object to be seen, light emitted by or scattered from it must be detected by the eye. c. Students know light travels in straight lines if the medium it travels through does not change. d. Students know how simple lenses are used in a magnifying glass, the eye, a camera, a telescope, and a microscope. e. Students know that white light is a mixture of many wavelengths (colors) and that retinal cells react differently to different wavelengths. f. Students know light can be reflected, refracted, transmitted, and absorbed by matter. g. Students know the angle of reflection of a light beam is equal to the angle of incidence. i. Students know how levers confer mechanical advantage and how the application of this principle applies to the musculoskeletal system.	
	Jason Project "Tectonic Fury"	**Students will Read Missions 1-3 (emphasis on mission 3).**	

Earth and Life History (Earth Sciences)	***-Uncovering Student Ideas Vol 1:*** Probes 21 & 22 **-Life on Ocean Planet** PowerPoint Presentations (4, 16, & 17). **-Activity-A-Day:** *Section 13 (13.1-13.12)* **EXAM 6:** Earth History	**6. Evidence from rocks allows us to understand the evolution of life on Earth. As a basis for understanding this concept:** a. Students know Earth processes today are similar to those that occurred in the past and slow geologic processes have large cumulative effects over long periods of time. b. Students know the history of life on Earth has been disrupted by major catastrophic events, such as major volcanic eruptions or the impacts of asteroids. c. Students know that the rock cycle includes the formation of new sediment and rocks and those rocks are often found in layers, with the oldest generally on the bottom. d. Students know that evidence from geologic layers and radioactive dating indicates Earth is approximately 4.6 billion years old and that life on this planet has existed for more than 3 billion years.	

10. Grading Policy:

a. Grades will be weighted based on the following categories:

- **i. Labs/Activities/Projects: 40%**
- **ii. Exams/Tests: 30%**
- **iii. Portfolio/Homework/Quizzes: 20%**
- **iv. Science Journal/Classroom Participation: 10%**

b. Absolutely no late work will be accepted past the assignment due dates.

c. Students must pass class with a C or higher to receive credit for class. Please refer to the following grading scale: For both middle school and high school transcripts, grades are dependent on semesters, not quarters. Quarters are essentially a progress report grade for the semester. VCS will continue to give quarter grades, but the semester grades will be based on the entire points for the semester instead of an average of the two quarter grades.

4.0 Scale
Percentage Letter Scale

Grade	Value
100-98	A+ 4.0
97-94	A 4.0
93-90	A- 3.67
89-87	B+ 3.33
86-84	B 3.0
83-80	B- 2.67
79-77	C+ 2.33
76-74	C 2.0
73-70	C- 1.67
69-67	D+ 1.33
67-60	D 1.0
59-0	F 0.0

11. Course Policies:

a. **Assignments:** all assignments are due at the beginning of the period on the assignment due date. Assignments must be completed in pencil or ink (if an assignment is turned in otherwise, it won't be accepted) and all questions must be answered in complete sentences. It is the student's responsibility to turn their assignment into the in-box during the first 5 minutes of class (unless we are grading the assignment in class that day). An assignment will be considered late, if it is turned in beyond this time.

b. **Late Work:** Unexcused late work will NOT be accepted. Unexcused late work will be an automatic zero.

c. **Make-up work (due to excused absences):** It is the student's responsibility to check their class folder and check with the teacher concerning any make-up work following an excused absence. This should be done before or after school, during nutrition break, or at the beginning of lunch. All labs and exams must be made up at school during a time scheduled by the teacher and the student. Students will have two calendar days for an excused absence to make up work. (For example, if a student is absent Thursday, they will request their make-up work on Friday and the work will be due Tuesday. It is the student's responsibility to request make-up work. For a pre-arranged absence, make-up work will be requested from the teacher before the absence. When a student has had an excused absence for three consecutive days, the parent may request make-up work be sent to the office for pick up. Requested work will be available the next school day by 3:30 pm. This should be done before or after school, during nutrition break, or at the beginning of lunch. All labs and exams must be made up at school during a time scheduled by the teacher and the student.

d. **Attendance & Tardiness:** Students who miss more than 6 days during a semester will not receive credit for the class even if they held a passing grade prior to the absences (please refer to the VCS handbook for more detail). A student is considered tardy if they are not in their seat and started on their Science Journal when class begins. All bathroom and water breaks must be taken in between classes.

12. **Class Guidelines & Procedures:** I only have 5 rules.

    i. Respect your teacher, your classmates, the class environment, and yourself.

ii. Do not talk while the teacher is talking or another student is sharing information with the class.
iii. When I want your attention I will raise my hand. You will raise your hand, stop what you are doing, and put your eyes on me.
iv. Don't compare yourself to others, do your best and take pride in your work.
v. Have fun, but never at the expense of others.

13. **Consequences for not following classroom procedures**:
    a. First student will be warned privately.
    b. Second students will be removed from class for the day and will need to make up the time wasted either through extra physical activity or giving up their lunchtime for detention.
    c. Third, student's parents will be contacted for possible conference and behavioral plan.
    d. Fourth, Students will receive discipline referral (loss of school socials, zero for the day, and meeting with administrator) which might include community service hours or possible suspension.

*This Syllabus is your roadmap for this school year, please print a copy and do not lose it. Your first assignment this year is to review the syllabus with your parent(s) or guardian and both parties need to sign stating that they understand and agree to the information presented here in the syllabus. Let's make this an amazing year. Please fill out the following information, sign, detach, and return to your student's teacher.

Please fill out information below, sign, and return to your student's teacher.

Student Name:_____

Parent/Guardian Name:_____

Contact information: (phone)_____(email)_____

Student Signature:_____Date:_____

Parent/Guardian Signature:_____Date:_____