COURSE SYLLABUS

Course Title: General Science/Biology
(8th Grade, Pre-Intermediate)
The Asian International School

I. INSTRUCTIONAL RESOURCES:

The textbook for ***Pre-Intermediate*** is Essential Natural Science – II by Santillana, Richmond publishing (1st edition). For the pre-intermediate level (SP1), teachers will cover a good portion of the material in chapters 1-7 essentially the first half of the book.

II. COURSE PREREQUISITE:

Students at the Pre-Intermediate level must have passed Elementary level.

III. COURSE OVERVIEW

During the course of the class, students will examine the basic principles of biology, chemistry and physics, the structure and function of living organisms, and contemporary issues. Students will gain an insight and understanding of life by examining and exploring the concepts stated in the book. The purpose of this class is to shape students into critical thinkers, effective communicators, good citizens and life-long learners of science. In this process students will grow academically and develop strong study skills that enable them to be successful in their future academic endeavors.

IV. COURSE DESCRIPTION

This course is a two-semester sequence (SS1 & SE1) which together constitute a comprehensive and integrated survey of the natural sciences. For our purposes, the term *"natural sciences"* is taken to mean the sciences of the natural world, as set apart from the man-made world. The course sequence is *comprehensive* in that it covers all the natural sciences, biology, chemistry, geology, and physics at scales ranging from that of the atom to that of the universe. The coverage of each discipline cannot, of course, be comprehensive. The course sequence is *integrated* in that attempts will be made throughout the year to show connections among sciences generally treated in isolation (such as biology and chemistry, or physics and geology). Attention will be given to the relevance and usefulness of science and of scientific methodology to humankind. Natural Sciences II covers elements of Physics, Chemistry and General Science in an Intermediate level.

V. COURSE GOAL

The goals of this course are for students to cultivate knowledge of the scientific study of the physical universe and its life forms and to understand and appreciate the interrelationship of science and human beings to each other. And also this course is to give students an opportunity to study and apply key natural science concepts that relate to our own lives and to create groundwork for future science and medical-related courses and professions. This course is a prerequisite course for most of the students' future Science courses. The study of this world is fascinating and students will be amazed at the complexity of even the simplest organisms and how one affects another.

VI. COURSE OBJECTIVES

The General Science course is designed to give students clear picture about the basis of life, nutrition, interaction and coordination, reproduction, the structure of ecosystem, and ecosystem. In short this General Science provides students with the necessary skill for a smooth transition from elementary level to pre-intermediate level. Last but not the least students will do practical experiments to enhance understanding as well as basic lab techniques.

In this course, students are expected to acquire certain upper-level General Science Education competencies. In particular, they should be able to:

1. **"Demonstrate an understanding of the methods and limits of scientific investigation"**: This is the topic of the entire course, and students will demonstrate their understanding of various aspects of the methods and limits of scientific investigation in their writing assignments and exams.

2. **"Apply a scientific approach to answer questions about the earth and environment"**: This competency is one of the main themes of the course, especially in weeks 2 and 3. Students will demonstrate their ability to apply a scientific approach to answering questions in each of the 24 group tasks over the course of the semester.

VII. COURSE REQUIREMENTS

A. Pre-Lecture Assignment:

The pre-lecture assignments are a set of objectives to be answered before the science teacher covers the material in class. The purpose of lecture is to clarify and expand upon these topics. Failure to do daily assignments will result in a loss of participation points. Participation points will be also lost for failure to bring assignments to class.

B. Teacher's Responsibility:

The teacher's responsibility is to assign grades based upon fair and consistent standards and to communicate these practices to each student. Grades are to be determined by student performance on teacher-initiated assignments, tests, homework projects, and class participation. Students will be informed of progress periodically.

C. Homework:

There will be 24 homework assignments during the term (roughly one every two weeks). Questions and problems will be taken from the text and other sources; their purpose will be to get you to think about material presented in lecture and give you practice in problem-solving. Homework is due at the beginning of each class period and will be graded on effort.

D. Tests:

Tests will be given after each unit of study. Grades will be given as a percent of the high score. There will be one monthly test. The second and third tests will be cumulative in the following respects: 10% of the point value on the second exam will come from material covered on the first exam, and 20% of the point value on the third exam will come from material covered on the preceding two exams. The exams will include short-answer (possibly involving simple calculations, multiple-choice and true/false questions.

E. Expected Background:

We recognize that most students enrolled in Natural Sciences **2** are having prior knowledge of scientific principles or methods. All discussions will build from an introduction of principles at a pre-intermediate level, therefore, that students enrolled in the course have some facility with elementary math and elementary science.

VIII. EVALUATION AND GRADING

Student progress made during the course taking will be assessed through achievement tests as well as other assessments designed, planned, and implemented by classroom teachers. The following grading scale will be operated separately in each semester.

Achievement Tests (60%)

- Mid-term (30%)
- Final Exam (30%)

Other Assessments (40%)

- Homework: individual/group projects
- In-class assessments: Quizzes, literary/writing tasks, etc.
- Class Performance: Attendance and Participation

IX. GRADING SCALE

This scale is operated to translate letter grades into point values, and vice versa, when calculating student final grades.

Letter	Range	Percentages
A	90-100	90% (High Distinction)
B	80-89	80% (Distinction)
C	65-79	70% (Pass with merit)
D	50-64	60% (Pass)
F	0-49	Below 60% (Fail)

X. COURSE SCHEDULE

MONTH	TOPIC	CONTENT	UNIT
AUG.	Stay Healthy The Basis of Life	*What is BMI? *What are the ways to stay healthy? *What is the difference between mass and weight? *What is a food pyramid? *What are the vital functions? *What are biomolecules? *What are cells? *What is cellular nutrition? *How many types of Nutrition are there? *What is cellular respiration? *What is cellular division?	1

SEPT.	Interaction and Coordination	*What is interaction? *How do receptors work? *How does coordination work in animals? *How does coordination work in place? *What is tropism? *What are nastic movements?	3
OCT.	Nervous System	*How does the nervous system work? *Structure and function of nervous system. *Structure and function of Eyes and Brain. *How do the responsive organs work? *Structure and function of the Ears	3
NOV.	Circulatory and Respiratory System	*What is a circulatory system? *Structure and function of circulatory system *WBC/RBC *How do animals breathe? *Structure and function of the respiratory system. *Gas exchange	2
DEC.	Digestive system	*What is nutrition? *What is the digestive process? *What digestive systems are there? *What is cellular nutrition?	2
JAN.	Excretory System	*What is excretion? *Structure and function of the excretory system. *Skin	2
FEB.-MAR.	Reproductive system	*What is reproduction? *What is asexual reproduction in animals? *How does sexual reproduction occur?	4
APR.	Structure of ecosystems	*What are the biosphere and ecosphere? *How do living things obtain food?	5

		*What are a habitat and an ecological niche? *What is trophic dynamics? *What are trophic pyramids? *How are matter and energy transmitted? *What are biotic relations?	
MAY	Ecosystem	*What are terrestrial ecosystems? *What are aquatic ecosystems?	6