

## **Jr. / Sr. High School Science**

### **Seventh/ Eighth Grade Science:**

Life Science students will enhance their natural curiosity about living things and their environment through the study of the structure and function of living things, ecosystems, life cycles, energy movement (transfer), energy change (transformation), and changes in populations of organisms through time. Knowledge of these concepts and process of life and environmental science will assist students in making informed choices regarding their lifestyles and the impact they have on communities of living things in their environment.

### **Seventh/Eighth Grade Science:**

Physical Science is a survey of the laws and theories that govern, and allow us to predict the behavior of the world around us. Topics include the laws of motion, energy, electricity and magnetism, atoms and molecules, chemical reactions, light and sound. The knowledge and skills learned in physical science will provide a foundation that is built upon in all the other science courses.

### **General Science:**

General Science is designed to bridge the gap between junior high and high school science programs. It directly addresses Alaska Content Standards **A-1 to A-8, A-15, and A-16**. These state standards describe the understanding of scientific facts, concepts, principles, and theories. In addition, this course provides an opportunity to observe our unique local environment.

### **Biology I:**

The study of biology is concerned with the study of life and living things. After an introduction to general biological principles, our focus will be on ecology. This allows us to take advantage of the fall weather for outdoor activities. As the year progresses we will move our examination to the laboratory. As the weather improves in the spring we will complete the course with a study of plants. The first semester we will focus on biological principles, ecology, and the study of wildlife and natural resource issues. The second semester we will investigate cellular biology, genetics, change and diversity on our planet, and the unit covering botany.

### **Biology II:**

This is an additional course in biology for students preparing for college. The focus will be on zoology, human anatomy and physiology, and microbiology. Each student will be provided an opportunity to develop their study skills with a set of weekly homework assignments, laboratory activities (guided and individual study), and weekly quizzes. Hour exams will be held approximately every three to four weeks.

### **Physics:**

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This course is designed to prepare students for an entry-level college physics course. Each student will be provided the opportunity to develop their study skills with weekly homework assignments, experiments (guided and individual investigations), and quizzes. Hour exams will be given approximately each three to four weeks. Although the focus will be on the basic ideas and concepts of physics, and understanding of elementary algebra is required.

The focus for the first semester will be on mechanics. Students will learn to make observations and measurements of force, mass, velocity, and acceleration. The second semester will examine the properties of electricity, sound, light, and magnetism.

### **Chemistry:**

This course is designed to prepare students of an entry-level college chemistry course. The focus will be on general inorganic chemistry with an emphasis on experimentation and the development of safe laboratory techniques. Each student will be provided the opportunity to develop their study skills with the weekly homework assignments, experiments (guided and individual investigations), and quizzes. Hour exams will be given approximately every three to four weeks.

The first semester will focus on chemical formulas, equations, and stoichiometry. The behavior of ideal gasses will also be introduced. The second semester will investigate the atomic theory, chemical bonding, and solution chemistry emphasizing acid/base reactions and electrochemistry.

### **Hatchery:**

Students in this course will capture, artificially spawn, and raise two species of Pacific salmon (contingent of ADF&G approval). These students will be responsible for the care of our fish and maintaining the school hatchery. Topics that will be examined during the year include the following:

- Fish capture, artificial spawning, and fish rearing
- Net mending, commercial fishing techniques, fish processing
- Water chemistry and water quality measurement
- Hatchery maintenance procedures
- Salmon biology
- Freshwater and marine ecosystems
- Ocean safety and seamanship

\*\*Vocational Education credit may also be earned for this class.

### **Principles of Technology:**

Principles of Technology is a hands on course geared for the broad majority of high school students. Concepts should be taught within the context of how they relate to four energy systems: mechanical, fluid, electrical and thermal.

\*\*Technology / Vocational credit may also be earned for this course.