APES – Unit 1 2017-18

Note: E = AP Environmental Science text; B = AP Biology text; SS = stream scene materials

Unit 1: Introduction to APES

E - Chp 1: Science and Sustainability: An Introduction to Environmental Science

Objectives - Students will be able to (SWAT):

Describe the field of environmental science

Compare renewable and nonrenewable resources, and explain the importance of natural resources and ecosystem services to our lives

Discuss population growth, resource consumption, and their consequences

Explain what is meant by an ecological footprint

Describe the scientific method and the process of science

Identify and illustrate major pressures on the global environment

Discuss the concept of sustainability, and cite sustainable solutions being pursued on campuses and in the wider world

E - Chp 2: Earth’s Physical Systems: Matter, Energy, and Geology

SWAT:

Explain the fundamentals of matter and chemistry and apply them to real-world situations

Differentiate among forms of energy and explain the first and second laws of thermodynamics

Distinguish photosynthesis, cellular respiration, and chemosynthesis, and summarize their importance to living things

Explain how plate tectonics and the rock cycle shape the landscape around us

List major types of geological hazards and describe ways to minimize their impacts

B - Chp 3: Water and the Fitness of the Environment

SWAT:

Describe how the polarity of water molecules results in hydrogen bonding

Recognize the four emergent properties of water and understand how they contribute to Earth’s fitness for life

Explain how the dissociation of water molecules leads to acidic and basic conditions that affect living organisms

SS – Introduction, watersheds, riparian areas, streambed, streamflow, Habitat Assessment

SWAT:

Describe ecosystem functions of riparian areas

Map a section of Indian Creek including stream features and dominant vegetation

Calculate streamflow and describe natural and human influences on streamflow

Asses water quality using basic chemical tests and an evaluation macroinvertebrates

Complete a habitat assessment for a section of Indian Creek