

A.P.E.S. GUIDE UNIT 2 CHAPTER 4

TERMS AND CONCEPTS TO UNDERSTAND AS RELATED TO E.S.

Exxon Valdez	smelting	organelle
bioremediation	radiocarbon dating	prokaryote
Oil Pollution Control Act	isotopic signature	tissues
hydrocarbon	polar covalent bond	organs
volatile	ionic bond	organ systems
carcinogenic	ionic compounds	energy
microbe	salts	potential energy
residue	solution	kinetic energy
heavy metal	hydrogen bond	chemical energy
element	cohesion	first law of thermodynamics
atom	acid	second law of thermodynamics
proton	base	entropy
neutron	pH scale	autotroph
atomic number	organic compound	primary producer
electron	polymer	cyanobacteria
isotope	macromolecule	photosynthesis
decay	protein	cellular respiration
radioisotope	amino acid	consumers
stable isotope	nucleic acid	heterotrophs
half-life	DNA	geothermal energy
ion	RNA	chemosynthesis
molecule	genome	fossil
compound	carbohydrate	fossil record
phytoremediation	lipid	bacteria
chelating agent	phospholipid	archaea
phytochelatin	cell	ATP (adenosine triphosphate)
vacuole	eukaryote	

AFFIXES phyto= plant photo= light synthesis= formation of/from

MAJOR CONCEPTS: Note that this is not "all" you need to know but it is the framework for which you should learn supporting details and examples.

1. Basic structure of atoms and how bonding generally occurs; significance of atomic variants- how are isotopes useful? Know the structures of living things and their basic roles- always keep in mind the context that could imply for environmental science (lipids, proteins, etc).
2. Significance of properties of the water molecule and its role in living things, the environment.
3. How to interpret pH scale.
4. Process of bioremediation by bacteria.
5. Hierarchy of matter within organisms (Figure 4.15).
6. Laws of energy; how one form of energy can transform to another including processes of photosynthesis, cellular respiration, chemosynthesis.
7. Scientific theories explaining the origin of life; evidence and areas of debate.
8. Geologic Time Scale- start with Figure 4.24; also handout from class. Know the order in which things appeared (i.e. fish before mammals, etc)- realize it is based on the fossil record and changes with new evidence although the eras and periods are not likely to change.