Curriculum Mapping

School: Illini Bluffs High School **School Year: 2009-2010**

Course: Biology I **Grade Level: Freshman-Sophomores**

Classes	ILS	Content	Skills	Assessments	Resources
6-7	11.A 12.A 13.A 13.B	The Science of Biology	-Identify fields of study relating to Biology -Explain the steps of the scientific method -Design a controlled experiment -Describe the characteristics of all living things -Explain the different levels at which life can be studied -Identify common lab equipment -Explain the use of common lab equipment -Identify the basic metric units of measurement -Identify and demonstrate proper lab safety	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet
10-12	11.A 12.B 13.B	Ecology	-Identify the levels of organization that ecologists study -Describe the methods used to study ecology -Identify the source of energy for life processes -Trace the flow of energy through living systems -Describe how matter cycles among the living and nonliving parts of an ecosystem -Describe how the availability of nutrients affects the productivity of an ecosystem -Explain how Earth's temperature range is maintained -Identify Earth's three main climate zones -Explain how biotic and abiotic factors influence an ecosystem -Identify the interactions that occur within communities -Describe how ecosystems recover from a disturbance -Identify the characteristics of major land biomes	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet
7-8	12.A	Cell Structure &	-Explain cell theory	Worksheets	Textbook

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		Function	-Distinguish between eukaryotes & prokaryotes -Describe the function of the cell nucleus -Describe the function of the major cell organelles -Identify the main roles of the cytoskeleton -Identify the main functions of the cell membrane and cell wall -Describe the process by which cells move materials in and out of the cell -Describe cell specialization -Identify the organization levels in multicellular organisms	Labs Quizzes Tests	Power Points Handouts Internet
6-7	11.A 12.A	Cellular Energy	-Describe the role of ATP in cellular activities -Explain what the experiments of van Helmont, Priestley, and Ingenhousz revealed about how plants grow -State the overall equation of photosynthesis -Describe the function of chloroplasts -Describe what happens in the light-dependent reactions -Explain what happens in the Calvin cycle -Identify factors that affect the rate of photosynthesis -Explain what cellular respiration is -Explain the anaerobic and aerobic pathways used to release energy -Describe the relationship between photosynthesis & cellular respiration	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet
4-5	11.A 12.A	Cell Growth & Division	-Explain the problems that growth causes for cells -Describe how cell division solves the problems of cell growth -Name the events of the cell cycle -Describe what happens during the four phases of mitosis	Worksheets Quizzes Tests	Textbook Power Points Handouts Internet

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			-Describe how the cell cycle is regulated -Explain how cancer cells are different from other cells		
8-9	12.A	Introduction to Genetics	-Describe Mendel's experiments with pea plants -Explain Mendel's principles of inheritance -Explain how geneticists use the principles of probability -Demonstrate the use of Punnett squares -Describe the different patterns of inheritance -Summarize the events of meiosis -Differentiate between the production of male gametes and female gametes -Contrast meiosis and mitosis -Explain the function of a gene map	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet
7-8	12.A	DNA, RNA, and Protein Synthesis	-Summarize the relationship between genes & DNA -Describe the structure of a DNA molecule -Describe the process of DNA replication -Relate the DNA molecule to chromosome structure -Identify how RNA differs from DNA -Describe the process of transcription -Describe the process of translation	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet

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			-Explain the relationship between genes and proteins -Contrast gene mutations and chromosomal mutations -Describe a typical gene -Explain how most eukaryotic genes are controlled		
8-9		Human Heredity	-Identify the types of chromosomes in a karyotype -Explain how sex is determined -Explain how pedigrees are used to study human traits -Describe examples of the inheritance of human traits -Explain how small changes in DNA cause genetic disorders -Identify characteristics of human chromosomes -Describe some sex-linked disorders -Describe nondisjunction -Describe the Human Genome Project	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet Videos
6-7	12.A 12.B	Evolution	-Describe the pattern Darwin observed among organisms of the Galapagos Islands -Describe how Hutton & Lyell described geological change -Identify how Lamarck thought species evolve -Describe Mathus's theory of population growth -Describe artificial selection -Describe natural selection -Identify the evidence Darwin used to present his case for evolution -Summarize the principles behind Darwin's theory of evolution by natural selection	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet Videos

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			-Explain what a gene pool is -Identify the main source of inheritable variation in a population -Describe genetic drift -List the five conditions needed to maintain genetic equilibrium -Identify the conditions necessary for a new species to evolve -Describe the process of speciation in the Galapagos finches		
2-3	11.A 12.B	Classification	-Explain how living things are organized for study -Describe binomial nomenclature -Explain Linnaeus's system of classification -Explain how DNA can help scientists determine evolutionary relationships -Name the six kingdoms -Create a dichotomous key	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet
6-7	12.A 12.B	Zoology	-Describe the major trends in invertebrate evolution -Describe how the different invertebrate phyla carry out their essential life functions -Explain a main trend in the evolution of chordates -Explain how the control of body temperature is an important aspect of vertebrate life -Contrast ecotherms and endotherms -Describe how the organ systems of the different groups of chordates carry out essential life functions	Worksheets Labs Quizzes Tests	Textbook Power Points Handouts Internet Videos