APPENDIX IV

TAB J

DR. TRUDY K. PETERMAN
Principal

MR. LARRY R. REDDING
Assistant Principal

MR. WAYNE A. FRANKO
Dean of Students

DOVER AREA HIGH SCHOOL

DOVER AREA SCHOOL DISTRICT • 46 WEST CANAL STREET • DOVER • PA 17315 • (717) 292-3671

RECEIVED
APR 0 2 2003

TO: Mr. Michael Baksa, Assistant Superintendent
Mr. Larry R. Redding, Assistant Principal
Mrs. Bertha Spahr, Science Chair

FROM: Dr. Trudy K. Peterman, Principal

DATE: April 1, 2003

RE: Creationism As It Relates to the Approved School Board Biology I Curriculum

Mrs. Spahr and I had a conversation on April 1, 2003 regarding her conversation with Mr. Baksa, which took place on Monday, March 31, 2003, after school. Mrs. Spahr expressed some definite concerns about the Biology I curriculum since Mr. Baksa mentioned that a board member wanted Creationism taught in Biology I classes. Mrs. Spahr explained to Mr. Baksa that in Biology I one theory of evolution taught is Darwinism. She explained to Mr. Baksa that all Biology teachers state that another theory of evolution is Creationism, but Creationism, per se, is not taught since it is not addressed by the standards. Mr. Baksa further stated to Mrs. Spahr on March 31, 2003, that this board member wanted fifty percent (50%) of the topic of evolution to involve the teaching of Creationism.

In asking for direction in this matter, I have advised all Biology I teachers to teach the approved School Board curriculum for Biology I. I advised them to continue to mention that Creationism is another alternate theory of evolution. However, as Principal, I am uncomfortable with this topic, and I have many questions concerning the teaching of Creationism in a public high school. Some of my questions are as follows:

1. If we are a standards-driven school district, can Creationism be taught if it isn't addressed by either the state standards or by the approved School Board Biology I curriculum?
2. Which theory of Creationism are we to teach since we have students from various religious backgrounds? Are we to teach the Protestant view, the Catholic view, the Jewish view, the Mormon view, the Muslim view, et cetera?
3. Legally speaking, in regard to Creationism and the curriculum, what are the parameters in regard to the issue of the separation of church and state?
4. Are my certified Biology I teachers competent to teach Creationism, for at the present time they are all experts in Darwinism, but they are not all experts in Creationism? In addition, my science teachers also come from diverse backgrounds and what view of Creationism are they to teach?
5. Am I, as Principal, to instruct my teachers to teach topics in their courses that are not listed on the School Board approved curriculum for the school district? Can I expect a non-tenured teacher to disregard teaching the School Board approved Biology I curriculum because one School Board member desires that Creationism be addressed?

These are the questions that must be answered prior to Creationism being taught as fifty percent of the evolution curriculum. In the public school arena, creationism must always be mentioned as an alternate theory, but public school teachers are teachers of their content area and are not to be perceived as teachers of religious instruction. Religious instruction by certified content area teachers is not within the domain or scope of teachers' job descriptions, and religious instruction, legally, is not the mission of the

public schools in this country. The issue of Creationism needs to be addressed by this district's Central Office Administration from a legal standpoint and from the standards-driven curriculum standpoint, for the high school administration and science teachers await the Central Office's direction in regard to this matter.

Cc: Dr. Richard Nilsen, Superintendent

Enc: Biology I Approved Curriculum
Biological Sciences State Standards

DOVER AREA SCHOOL DISTRICT

BIOLOGY I PLANNED INSTRUCTION/CURRICULUM GUIDE

PART A

COURSE DESCRIPTION: The study of life.

GRADE(S): 9 **COURSE LENGTH:** 90 days **DURATION:** 90 minutes **FREQUENCY:** Daily

WRITTEN BY:

TIME (WEEKS/CLASSES)	UNIT CONTENT/CONCEPTS/ PROCESS	STATE STANDARD (NAT. STANDARD)	INSTRUCTIONAL STRATEGIES, LEARNING PRACTICES ACTIVITIES AND EXPERIENCES	MATERIALS AND RESOURCES
19 days	**Chapter 10 – Natural Selection** **Chapter 11 – The Mechanism of Evolution** **Chapter 12 – The Origins of Biodiversity**			
1 day	Students will be able to discuss Darwin's observations of the living world. Students will be able to discuss the variability found in nature.	3.3.10.D	Lecture Mini lab	Textbook Graph paper
3 days	Students will be able to describe biomes and list the adaptations that organisms have to survive in this environment.	3.3.10.D.6	Research Student reports	Textbook Library Internet Art supplies
1 day	Students will be able to determine how limiting factors work to limit population sizes.	3.3.10.D.6	Lecture Student activity	Green peppers Worksheets Textbook
1 day	Students will be able to define types of competition and how they relate to population size.	3.3.10.D.6	Lecture Video	TV/VCR Video questionnaire
1 day	Students will be able to list evidences used to support Darwin's theory of the Origins of Species.	3.3.10.D.1	Lecture Lab	Evolution Worksheet Biochemical Evidence Lab

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TIME (WEEKS/CLASSES)	UNIT CONTENT/CONCEPTS/ PROCESS	STATE STANDARD (NAT. STANDARD)	INSTRUCTIONAL STRATEGIES, LEARNING PRACTICES · ACTIVITIES AND EXPERIENCES	MATERIALS AND RESOURCES
3 days	Students will be able to make a timeline that demonstrates evolutionary changes during the history of earth.	3.3.10.D.5	Lab	Textbook Register tape Calculator Lab paper
1 day	Students will be able to define natural selection and artificial selection and demonstrate the process.	3.3.10.D.6	Lecture Lab	Textbook Simulating Natural Selection Lab
1 day	Students will be able to design a species placed under climatic pressure. Students will be able to differentiate between disruptive, directional, and stabilizing selection.	3.3.10.D.6	Lecture Student activity	Darwin meets DNA activity Textbook
1 day	Students will be able to graph the types of selection using human height.	3.3.10.D.6	Student activity	Textbook Graph paper Colored pencils
1 day	Students will be able to describe how speciation takes place using Darwin's finches as an example.	3.3.10.D.6	Lecture Lab	Pliers lab
1 day	Students will be able to list how species change due to reproductive isolation.	3.3.10.D.6	Video Discussion	Voyage to the Galapagos video Video questionnaire
1 day	Students will be able to differentiate between adaptive radiation and convergent evolution.	3.3.10.D.6	Lecture Student activity	Textbook Backyard evolution activity
3 days	Students will be able to discuss the importance of biodiversity and list reasons why organisms have become extinct.	3.3.10.D.3	Lecture Student research and activity	Endangered species trading cards

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DOVER AREA SCHOOL DISTRICT

BIOLOGY I PLANNED INSTRUCTION/CURRICULUM GUIDE

PART B

GRADE: 9

OPPORTUNITIES FOR INTEGRATION	ENRICHMENT, AND EXPANDED OPPORTUNITIES	REMEDIATION AND INTERVENTION STRATEGIES	ASSESSMENTS AND PORTFOLIO OPPORTUNITIES
Earth Science Math Writing	Research dinosaur extinction Create a phylogenetic tree on any species Fossil studies of Pennsylvania	Studyguides Extra time on tests One-on-one instruction	Evolution exam Lab write-ups Projects

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Academic Standards for Science and Technology

3.3. Biological Sciences

3.3.4. GRADE 4	3.3.7. GRADE 7	3.3.10. GRADE 10	3.3.12. GRADE 12
Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to . . .			
A. Know the similarities and differences of living things. • Identify life processes of living things (e.g., growth, digestion, react to environment). • Know that some organisms have similar external characteristics (e.g., anatomical characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat. • Describe basic needs of plants and animals.	A. Describe the similarities and differences that characterize diverse living things. • Describe how the structures of living things help them function in unique ways. • Explain how to use a dichotomous key to identify plants and animals. • Account for adaptations among organisms that live in a particular environment.	A. Explain the structural and functional similarities and differences found among living things. • Identify and characterize major life forms according to their placement in existing classification groups. • Explain the relationship between structure and function at the molecular and cellular levels. • Describe organizing schemes of classification keys. • Identify and characterize major life forms by kingdom, phyla, class and order.	A. Explain the relationship between structure and function at all levels of organization. • Identify and explain interactions among organisms (e.g., mutually beneficial, harmful relationships). • Explain and analyze the relationship between structure and function at the molecular, cellular and organ-system level. • Describe and explain structural and functional relationships in each of the five (or six) kingdoms. • Explain significant biological diversity found in each of the biomes.
B. Know that living things are made up of parts that have specific functions. • Identify examples of unicellular and multicellular organisms. • Determine how different parts of a living thing work together to make the organism function.	B. Describe the cell as the basic structural and functional unit of living things. • Identify the levels of organization from cell to organism. • Compare life processes at the organism level with life processes at the cell level. • Explain that cells and organisms have particular structures that underlie their functions. • Describe and distinguish among cell cycles, reproductive cycles and life cycles. • Explain disease effects on structures or functions of an organism.	B. Describe and explain the chemical and structural basis of living organisms. • Describe the relationship between the structure of organic molecules and the function they serve in living organisms. • Identify the specialized structures and regions of the cell and the functions of each. • Explain how cells store and use information to guide their functions. • Explain cell functions and processes in terms of chemical reactions and energy changes.	B. Analyze the chemical and structural basis of living organisms. • Identify and describe factors affecting metabolic function (e.g., temperature, acidity, hormones). • Evaluate metabolic activities using experimental knowledge of enzymes. • Evaluate relationships between structure and functions of different anatomical parts given their structure. • Describe potential impact of genome research on the biochemistry and physiology of life.

Academic Standards for Science and Technology

C. Know that characteristics are inherited and, thus, offspring closely resemble their parents. • Identify characteristics for animal and plant survival in different climates. • identify physical characteristics that appear in both parents and offspring and differ between families, strains or species. D. Identify changes in living things over time. • Compare extinct life forms with living organisms.	C. Know that every organism has a set of genetic instructions that determines its inherited traits. • Identify and explain inheritable characteristics. • Identify that the gene is the basic unit of inheritance. • Identify basic patterns of inheritance (e.g., dominance, recessive, co-dominance). • Describe how traits are inherited. • Distinguish how different living things reproduce (e.g., vegetative budding, sexual). • recognize that mutations can alter a gene. • Describe how selective breeding, natural selection and genetic technologies can change genetic makeup of organisms. D. Explain basic concepts of natural selection. • Identify adaptations that allow organisms to survive in their environment. • Describe how an environmental change can affect the survival of organisms and entire species. • know that differences in individuals of the same species may give some advantage in surviving and reproducing. • recognize that populations of organisms can increase rapidly. • Describe the role that fossils play in studying the past. • Explain how biologic extinction is a natural process.	C. Describe how genetic information is inherited and expressed. • Compare and contrast the function of mitosis and meiosis. • Describe mutations' effects on a trait's expression. • Distinguish different reproductive patterns in living things (e.g., budding, spores, fission). • Compare random and selective breeding practices and their results (e.g., antibiotic resistant bacteria). • Explain the relationship among DNA, genes and chromosomes. • Explain different types of inheritance (e.g., multiple allele, sex-influenced traits). • Describe the role of DNA in protein synthesis as it relates to gene expression. D. Explain the mechanisms of the theory of evolution. • analyze data from fossil records, similarities in anatomy and physiology, embryological studies and DNA studies that are relevant to the theory of evolution. • Explain the role of mutations and gene recombination in changing a population of organisms. • Compare modern day descendants of extinct species and propose possible scientific accounts for their present appearance. • describe the factors (e.g., isolation, differential	C. Explain gene inheritance and expression at the molecular level. • Analyze gene expression at the molecular level. • Describe the roles of nucleic acids in cellular reproduction and protein synthesis. • Describe genetic engineering techniques, applications and impacts. • Explain birth defects from the standpoint of embryological development and/or changes in genetic makeup. D. Analyze the theory of evolution. • Examine human history by describing the progression from early hominids to modern humans. • apply the concept of natural selection as a central concept in illustrating evolution theory.

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		reproduction) affecting gene frequency in a population over time and their consequences. • describe and differentiate between the roles of natural selection and genetic drift. • Describe changes that illustrate major events in the earth's development based on a time line. • explain why natural selection can act only on inherited traits. • Apply the concept of natural selection to illustrate and account for a species' survival, extinction or change over time.	
Ecosystem Standards are in the Environment and Ecology Standard Category (4.6).			

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