

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- I. Generic Evaluation Criteria _____
- II. Instructional Content Analysis _____
- III. Specific Science Criteria _____

PUBLISHER: Glencoe McGraw-Hill

SUBJECT: Science

COURSE: CATS 9

TITLE: Glencoe Physical Science with Earth Science

COPYRIGHT DATE: 2006

SE ISBN: 0078685540

TE ISBN: 0078685559

PART I GENERIC EVALUATION CRITERIA GROUP V – 2006 TO 2012

COORDINATED AND THEMATIC SCIENCE (CATS 9)

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
<div style="text-align: center;">✓ _____</div>	<div style="text-align: center;">_____ _____</div>	<div style="text-align: center;">_____ _____</div>	<p>I. INTER-ETHNIC</p> <p>The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).</p>	
<div style="text-align: center;">✓ _____</div>	<div style="text-align: center;">_____ _____</div>	<div style="text-align: center;">_____ _____</div>	<p>II. EQUAL OPPORTUNITY</p> <p>The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).</p>	

**PART II – INSTRUCTIONAL CONTENT ANALYSIS
COORDINATED AND THEMATIC SCIENCE (CATS 9)**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

The instructional materials program presents information and opportunities in a manner that enables the student an understanding of:

	1.	<u>History and the Nature of Science</u>				
_____		a. the instructional materials program presents information and opportunities that enable students to demonstrate an understanding that scientists formulate and test their explanations of nature using observation and experiments	✓			
_____	2.	<u>Science as Inquiry</u>				
_____		a. the instructional materials program presents information and opportunities that support a minimum of 50% active inquiry, investigations and hands-on activities	✓			
_____		b. cooperate and collaborate to ask questions, find answers, solve problem, conduct investigations to further an appreciation for scientific discovery	✓			
_____		c. formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data collection	✓			
_____		d. apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe	✓			
_____		e. use a variety of materials and scientific instruments to conduct explorations, investigations and experiments of the natural world	✓			

**PART III - SPECIFIC CRITERIA
COORDINATED AND THEMATIC SCIENCE (CATS 9)**

The Coordinated and Thematic Science Grade Nine (CATS 9) objectives conclude the development of foundational knowledge of biology, chemistry, physics and the earth/space sciences. Through the spiraling, inquiry-based program of study, all students will demonstrate scientific literacy across these major fields of science. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research laboratory skills. Safety instruction is integrated in all activities.

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	1.	<u>The Coordinated and Thematic Science (CATS 9)</u>						
		a. demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models using the scientific method	✓					
		b. demonstrate an understanding of the interconnections of biological, earth/space and physical science concepts (SC.9.4.1)	✓					
	2.	<u>The Cell and Molecular Basis for Heredity</u>						
		a. analyze and explain the principles of genetics: (SC.9.4.2)						
		• monohybrid and dihybrid crosses						
		• mutations						
		• genotypes						
		• phenotypes						
		• X and Y chromosomes						
		• multiple alleles						
		• DNA						
		• probability						
		• diversity			✓			
		b. define meiosis and mitosis as relate to chromosome number in the production of sperm, egg and body cells (SC.9.4.3)				✓		

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3.	<u>The Interdependence of Organisms</u>							
	a. mathematically illustrate changes in populations of organisms (SC.9.4.4):							
	• growth rate and curves					✓		
	• birth and mortality							
	b. identify and describe microscopic organisms and foreign substances in the environment and their harmful effects (SV.9.4.5):							
	• micro-organisms							
	• mutagens and carcinogens							
	• inorganic and organic pollutants						✓	
	c. design an environment that demonstrates the interdependence of plants and animals, energy pyramids, adaptations of structures to obtain nutrition (SC.9.4.6)						✓	
	d. explain how excretory and digestive systems work together in the human body (SC.9.4.7.)							✓
	e. identify and compare the structure and function of cell, tissues and systems of different organisms (SC.9.4.8.)					✓		
	f. trace the transfer of matter and energy in the chemical/molecular processes of photosynthesis and respiration (SC.9.4.10)					✓		
4.	<u>Structure and Properties of Matter</u>							
	a. predict physical and chemical properties using the element's position on the Periodic Table (SC.9.4.11)				✓			
	b. describe the characteristics of radioactivity substances including alpha particles, beta particles and gamma rays; the half-life of a radioactive isotope; a chain reaction and differentiate between fission and fusion (SC.9.4.12)				✓			

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7. **Motions and Forces**

_____	a. relate the forces between charged objects to the charge on the objects and the distance between them (SC.9.4.22)	_____	_____	_____	_____	_____	✓	_____
_____	b. examine speed-time relationships using graphs (SC.9.4.23)	_____	_____	_____	_____	✓	_____	_____
_____	c. identify fundamental principle of dynamics by using Newton’s Laws (SC.9.4.23)	_____	_____	_____	_____	_____	_____	_____
_____	d. list examples of simple machines and include calculations for mechanical advantage (SC.9.4.23)	_____	_____	_____	_____	_____	_____	_____
_____	e. experiment with a pendulum to determine whether amplitude, mass and length will affect the motion of the pendulum (SC.9.4.24)	_____	_____	_____	_____	_____	_____	_____
_____	f. investigate types of waves and their properties including interference, diffraction, refraction and resonance (SC.9.4.25)	_____	_____	_____	_____	_____	_____	_____
_____	g. identify differences and similarities between transverse and longitudinal waves (SC.9.4.25)	_____	_____	_____	_____	_____	_____	_____
_____	h. apply wave equation to determine the relationships among speed, wavelength and frequency (SC.9.4.25)	_____	_____	_____	_____	_____	_____	_____

8. **Energy in the Earth System**

_____	a. investigate formation and destruction of landforms (SC.9.4.26)	_____	_____	_____	_____	_____	_____	_____
_____	b. demonstrate the relationships of temperature, air pressure, wind speed, wind direction and humidity as elements of weather (SC.9.4.28)	_____	_____	_____	_____	_____	_____	_____
_____	c. compare and analyze the characteristics of ocean tides and currents (SC.9.4.28)	_____	_____	_____	_____	_____	_____	_____

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9.	<u>Geochemical Cycles</u>							
	a. employ a variety of tests to identify common rock-forming minerals (SC.9.4.29)					✓		
	b. analyze and describe common rock samples using grain size and shape and mineral composition (SC.9.4.30)					✓		
	c. use models to describe interactive cycles: (SC.9.4.31)							
	• water							
	• nitrogen							
	• carbon dioxide						✓	
10.	<u>Origin and Changes in the Earth Systems and Universe</u>							
	a. examine how scientists use seismographic evidence in determining structure and composition of the Earth's interior (SC.9.4.32)					✓		
	b. determine the relative age of materials using time stratigraphic and bio-stratigraphic relationships (SC.9.4.33)					✓		
	c. estimate the absolute age of materials using existing radio isotopic data (SC.9.4.34)					✓		
	d. describe the effects of the movement of subsurface water (SC.9.4.35)					✓		
	e. relate changes in the Earth's surface to the motion of lithospheric plates (SC.9.4.36)					✓		
	f. summarize and discuss the evidentiary basis for the theory of Plate Tectonics (SC.9.4.37)				✓			
	g. research and describe the life cycles of various stellar types (SC.9.4.38)				✓			
	h. interpret topographic maps, weather maps and charts and astronomical models (SC.9.4.39)						✓	

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

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| II. | Instructional Content Analysis | _____ |
| III. | Specific Science Criteria | _____ |

PUBLISHER:	Glencoe/McGraw-Hill
SUBJECT:	Science
COURSE:	Human Anatomy Physiology
TITLE:	Hole's Essentials of Human Anatomy and Physiology
COPYRIGHT DATE:	2006
SE ISBN:	0073204811
TE ISBN:	N07-253962-3

PART I - GENERIC EVALUATION CRITERIA GROUP V – 2006 TO 2012

HUMAN ANATOMY & PHYSIOLOGY LEVEL 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
✓ _____	_____ _____	_____ _____	<p>I. INTER-ETHNIC</p> <p>The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).</p>	
✓ _____	_____ _____	_____ _____	<p>II. EQUAL OPPORTUNITY</p> <p>The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).</p>	

**PART II – INSTRUCTIONAL CONTENT ANALYSIS
HUMAN ANATOMY AND PHYSIOLOGY**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

The instructional materials program presents information and opportunities in a manner that enables the student to:

1.	<u>History and the Nature of Science</u>							
_____	a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (HAP.1.1)				✓			
_____	b. communicate that science has practical and theoretical limitations (HAP.1.2)				✓			
_____	c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (HAP.1.3)				✓			
_____	d. explore science as a blend of creativity, logic and mathematics (HAP.1.4)				✓			
_____	e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (HAP.1.5)				✓			
_____	f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (HAP.1.6)				✓			
2.	<u>Science as Inquiry Objectives</u>							
_____	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (HAP.2.1)				✓			

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4.	<u>Scientific Design and Application Objectives</u>							
	a. summarize technological advances in the biological sciences (HAP.5.1)					✓		
	b. provide opportunities to analyze the interdependence of science and technology (HAP.5.2)					✓		
	c. relate how scientific skills and technological tools are used to design solutions that address personal and societal needs (HAP.5.3)					✓		
	d. describe the scientific concepts underlying technological innovations (HAP.5.4)					✓		
	e. integrate appropriate technology solutions to promote scientific inquiry (HAP.5.5)					✓		
5.	<u>Science in Personal and Social Perspectives</u>							
	a. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (HAP.6.1)					✓		
	b. describe occupational opportunities in science and technology (HAP.6.2)							✓
	c. make decisions to resolve science-technology-society issues (HAP.6.3)					✓		

**HUMAN ANATOMY & PHYSIOLOGY LEVEL 11/12
PART III - SPECIFIC CRITERIA**

This advanced course is designed for those students wanting a deeper understanding of the structure and function of the human body. The body will be viewed as a whole using anatomical terminology necessary to describe location. Focus will be at both micro and macro levels reviewing cellular functions, biochemical, tissue interactions, organ systems and the interaction of those systems as it relates to the human organism. Systems covered include integumentary, skeletal, muscular, respiratory, circulatory, digestive, excretory, reproductive immunological, nervous and endocrine. This course will be appropriate for college bound students as well as those choosing a health services career cluster. Students will engage in active inquiries, investigation and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated into all activities.

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1.	<u>Frame of Reference for Anatomical Studies</u>							
	a. use directional terminology necessary for anatomical location such as proximal, dorsal, medial, lateral, visceral, superficial and deep (HAP.4.1)					✓		
	b. cite current literature and research related to human anatomy and physiology (HAP.4.2)					✓		
2.	<u>Chemical Level of Organization</u>							
	a. review foundational chemical concepts including atomic structure, bonding, chemical reactions, water and pH as they relate to living systems (HAP.4.3)					✓		
	b. explain the transfer of energy in chemical molecular processes in the human body (e.g., glycolysis, Krebs cycle, electron transport system) (HAP.4.4)					✓		

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3.	<u>Cellular /Tissue/System Levels of Organization</u>							
	a. describe the role of DNA in transcription and relate it to types of RNA and protein synthesis (HAP.4.5)				✓			
	b. relate the structure, functions and interactions of eukaryotic cell organelles and their products (HAP.4.6)					✓		
	c. describe the organizational levels, interdependency and the interaction of cells, tissues, organs, organ systems (HAP.4.7)					✓		
	d. categorize, by structure and function, the various types of human tissue (HAP.4.8)				✓			
4.	<u>Systems Level of Organization</u>							
	a. relate the structure of the integumentary system to its function as a sensory organ, environmental barrier and temperature regulator (HAP.4.9)					✓		
	b. relate how bone tissue is important to the development of the human skeleton (HAP.4.10)					✓		
	c. identify the structure and function of the skeletal system, including bones, markings on bones and articulations (HAP.4.11)				✓			
	d. show the mechanism of muscle contraction at micro and macro levels (HAP.4.12)					✓		
	e. describe the relationship between the skeletal, neural and muscular systems (HAP.4.13)					✓		
	f. identify muscle groups and types of muscles, including locations, origins, insertions (HAP.4.14)					✓		

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- | | | |
|------|--------------------------------|-------|
| I. | Generic Evaluation Criteria | _____ |
| II. | Instructional Content Analysis | _____ |
| III. | Specific Science Criteria | _____ |

PUBLISHER:	Glencoe/McGraw-Hill
SUBJECT:	Science
COURSE:	Advanced Chemistry
TITLE:	Glencoe Chemistry: Matter and Change
COPYRIGHT DATE:	2005
SE ISBN:	0078664187
TE ISBN:	0078664195

PART I -GENERIC EVALUATION CRITERIA GROUP V – 2006 TO 2012

ADVANCED CHEMISTRY – GRADE 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
<div style="text-align: center;">✓ _____</div>	<div style="text-align: center;">_____ _____</div>	<div style="text-align: center;">_____ _____</div>	<p>I. INTER-ETHNIC</p> <p>The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).</p>	
<div style="text-align: center;">✓ _____</div>	<div style="text-align: center;">_____ _____</div>	<div style="text-align: center;">_____ _____</div>	<p>II. EQUAL OPPORTUNITY</p> <p>The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).</p>	

**PART II – ADVANCED CHEMISTRY – GRADE 11-12
INSTRUCTIONAL CONTENT ANALYSIS**

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The instructional materials program presents information and opportunities in a manner that enables the student to:

1. **History and the Nature of Science**

	a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (AC.1.1)	✓			
	b. communicate that science has practical and theoretical limitations (AC.1.2)	✓			
	c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (AC.1.3)	✓			
	d. explore science as a blend of creativity, logic and mathematics (AC.1.4)		✓		
	e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (AC.1.5)	✓			
	f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (AC.1.6)			✓	

2. **Science as Inquiry Objectives**

	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (AC.2.1)	✓			
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_____					✓	_____	_____	_____
_____					✓	_____	_____	_____
_____					_____	✓	_____	_____
_____					✓	_____	_____	_____
5. _____	<u>Science in Personal and Social Perspectives</u>				_____	_____	_____	_____
_____					✓	_____	_____	_____
_____					_____	✓	_____	_____
_____					✓	_____	_____	_____
_____					✓	_____	_____	_____

SPECIFIC CRITERIA
PART III – ADVANCED CHEMISTRY - GRADE 11-12

An advanced level course designed for students who have completed Coordinated and Thematic Science Ten (CATS 10) and desire a broader, in-depth study of the content found in the science field of chemistry. This course is designed to build upon and extend the Chemistry concepts, skills and knowledge from the CATS 7-10 program. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills.

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The instructional materials program presents information and opportunities in a manner that enables the student to:

	1.	<u>Properties of Matter</u>				
		a. review (AC.4.1)				
		<ul style="list-style-type: none"> • the classification of matter using the periodic table • kinetic molecular theory to explain physical states of matter • physical and chemical properties • physical and chemical changes 	✓			
		<u>Atomic Structure</u>				
		a. review Bohr model of the atom and calculations of subatomic particles (AC.4.2)				
		<ul style="list-style-type: none"> • protons • neutrons • electrons 		✓		
		b. research and evaluate the contributions of Dalton, Planck, Bohr, Einstein, de Broglie, Heisenberg and Schrodinger to the evolution of the atomic theory (AC.4.3)	✓			
		c. identify four types of electron clouds (s, p, d, f) and describe the quantum number (n, l, m, s) for electrons (AC.4.4)		✓		
		d. write electron configurations and associate electron configuration of elements with element location on periodic table (AC.4.5)	✓			

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_____	3.	e. write electron dot structures for representative elements (AC.4.6)				✓		
_____		<u>Bonding</u>						
_____		a. predict the formulas of ionic compounds and molecular compounds (AC.4.7)			✓			
_____		b. analyze the periodic table to predict trends in (AC.4.8):						
_____		• atomic size						
_____		• ionic size						
_____		• electronegativity						
_____		• ionization energy						
_____		• electron affinity				✓		
_____		c. using the periodic table, predict the type of bonding that occurs between atoms and differentiate among properties of ionic, covalent and metallic bonds (AC.4.9)			✓			
_____		d. construct models to explain the structure and geometry of organic and inorganic molecules and the lattice structures of crystals (AC.4.10)				✓		
_____		e. recognize simple organic functional groups and name simple organic compounds (AC.4.11)			✓			
_____	4.	<u>Stoichiometry</u>						
_____		a. predict the products and write balanced equations for the general types of chemical reactions (AC.4.12)			✓			
_____		b. use dimensional analysis to perform unit conversions and to verify experimental calculations (AC.4.13)				✓		
_____		c. use the Avogadro constant to (AC.4.14):						
_____		• define the mole						
_____		• calculate molecular mass						
_____		• calculate molar mass						
_____		• calculate molar volume			✓			
_____		d. perform calculations using the combined and ideal gas laws (AC.4.15)			✓			

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- I. Generic Evaluation Criteria _____
- II. Instructional Content Analysis _____
- III. Specific Science Criteria _____

PUBLISHER: Glencoe/McGraw-Hill

SUBJECT: Science

COURSE: Biology Technical Conceptual

TITLE: Glencoe Biology: An Everyday Experience

COPYRIGHT DATE: 2003

SE ISBN: 0078297494

TE ISBN: 0078297559

**PART I -GENERIC EVALUATION CRITERIA
GROUP V – 2006 TO 2012**

BIOLOGY TECHNICAL CONCEPTUAL – GRADE 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
✓ _____	_____ _____	_____ _____	I. INTER-ETHNIC The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).	
✓ _____	_____ _____	_____ _____	II. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).	

**PART II - BIOLOGY TECHNICAL CONCEPTUAL – GRADE 11-12
INSTRUCTIONAL CONTENT ANALYSIS**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
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The instructional materials program presents information and opportunities in a manner that enables the student to:

	1.	<u>History and the Nature of Science</u>				
_____		a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (BTC.1.1)	_____	✓	_____	_____
_____		b. communicate that science has practical and theoretical limitations (BTC.1.2)	_____	✓	_____	_____
_____		c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (BTC.1.3)	_____	✓	_____	_____
_____		d. explore science as a blend of creativity, logic and mathematics (BTC.1.4)	_____	✓	_____	_____
_____		e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (BTC.1.5)	_____	_____	✓	_____
_____		f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (BTC.1.6)	_____	_____	_____	✓

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

2. **Science as Inquiry Objectives**

_____	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (BTC.2.1)	_____	✓	_____	_____	_____	_____	_____
_____	b. discuss ethical practices for science (e.g., established research protocol, accurate record keeping, replication of results and peer review) (BTC.2.2)	_____	_____	✓	_____	_____	_____	_____
_____	c. apply scientific approaches to seek solutions for personal and societal issues (BTC.2.3)	_____	_____	✓	_____	_____	_____	_____
_____	d. properly and safety manipulate equipment, materials, chemicals, organisms and models (BTC.2.4)	_____	✓	_____	_____	_____	_____	_____
_____	e. explore a variety of environments (e.g., laboratories, museums, libraries, parks and other outdoors locations) (BTC.2.5)	_____	✓	_____	_____	_____	_____	_____
_____	f. use computers and other electronic technologies in an investigative context (BTC.2.6)	_____	_____	✓	_____	_____	_____	_____
_____	g. engage in scientific problem solving and critical thinking (BTC.2.7)	_____	✓	_____	_____	_____	_____	_____
_____	h. design, conduct, evaluate and revise experiments (BTC.2.8)	_____	✓	_____	_____	_____	_____	_____

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Unifying Themes Objectives</u>							
	a. relate biological or technical systems to the natural and designed world (BTC.3.1)					✓		
	b. use models to make predictions about interactions and changes in systems (BTC.3.2)						✓	
	c. use graphs and equations relating changes in systems to rate, scale, patterns, trends and cycles (BTC.3.3)						✓	
	d. cite examples of different characteristics, properties or relationships within a system that might change as its dimensions change (BTC.3.4)						✓	
4.	<u>Scientific Design and Application Objectives</u>							
	a. summarize technological advances in the biological sciences (BTC.5.1)					✓		
	b. analyze the interdependence of science and technology (BTC.5.2)					✓		
	c. relate how scientific skills and technological tools are used to design solutions that address personal and societal needs (BTC.5.3)					✓		
	d. describe the scientific concepts underlying technological innovations (BTC.5.4)					✓		
	e. integrate appropriate technology solutions to promote scientific inquiry (BTC.5.5)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth</i> 80%	<i>A=Adequate</i> 80%	<i>M=Minimal</i> 60%	<i>N=Nonexistent</i> Less than 60%	I	A	M	N

5. **Science in Personal and Social Perspectives**

_____	a. promotes the research of current environmental issues (BTC.6.1)	_____	✓	_____	_____	_____	_____	_____
_____	b. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (BTC.6.2)	_____	✓	_____	_____	_____	_____	_____
_____	c. describe occupational opportunities in science and technology (BTC.6.5)	_____	✓	_____	_____	_____	_____	_____
_____	d. make decisions to resolve science-technology-society issues (BTC.6.6)	_____	✓	_____	_____	_____	_____	_____

**PART III - SPECIFIC CRITERIA
BIOLOGY TECHNICAL CONCEPTUAL – GRADE 11-12**

An advanced level course designed for students who have completed Coordinated and Thematic Science Ten (CATS 10) and desire a broader, in-depth study of the content found in many biological fields of endeavor. This course is designed to build upon and extend the Biology concepts, skills and knowledge from the CATS 7-10 program. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
1. <u>Matter and Energy</u>								
a. trace matter and energy transfers occurring during photosynthesis, cell respiration and fermentation (BTC.4.1)						✓		
b. describe material transport in and out of cells (BTC.4.2)							✓	
c. relate the nature of light to energy transformation in photosynthesis (BTC.4.3)							✓	
d. describe the properties of sound waves and how they affect organisms (BTC.4.4)							✓	
e. describe how electric and magnetic forces affect life (BTC.4.5)							✓	
2. <u>Chemical Foundations</u>								
a. review foundational chemical concepts including atomic structure, bonding, chemical reactions, water and pH as they relate to living systems (BTC.4.6)						✓		
b. describe the basics of biochemistry (BTC.4.7)							✓	
c. relate molecular weight to diffusion (BTC.4.8)								✓

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Conservation and Human Impact on the Environment</u>							
	a. identify common problems related to conservation, use, supply and quality of water (BTC.4.9)					✓		
	b. relate recycling to human consumption of natural resources (BTC.4.10)						✓	
	c. describe landfills and sewage treatment facilities and how they work (BTC.4.11)						✓	
	d. analyze the impact that humans have on the quality of the biosphere (BTC.4.12)					✓		
	e. describe how to use topographic maps and Geographic Information Systems (GIS) to show patterns (BTC.4.13)							✓
	f. review global change over time (e.g., climatic trends, fossil fuel depletion, global warming, ozone depletion) (BTC.4.14)						✓	
4.	<u>Populations and Ecosystems</u>							
	a. compare interspecific and intraspecific competition (BTC.4.15)							✓
	b. describe sampling techniques to the study of ecosystems (BTC.4.16)						✓	
	c. investigate variations in ecosystem productivity (BTC.4.17)					✓		
	d. investigate population biology (BTC.4.18)					✓		
	e. identify soil types and the organisms that live in them (BTC.4.19)						✓	
	f. explain the mechanics of composting (BTC.4.20)						✓	
	g. describe the effects of chemicals on the diversity of organisms (BTC.4.21)						✓	
	h. describe the impact of hazardous chemicals can have on living organisms (BTC.4.22)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
5.	<u>Cell Function and Genetics</u>							
	a. review the structure and function of cell membranes (BTC.4.23)					✓		
	b. review DNA as it relates to mitosis, meiosis and protein synthesis (BTC.4.24)					✓		
	c. review basic genetics (BTC.4.25)					✓		
	d. describe karyotypes and pedigrees as diagnostic tools (BTC.4.26)					✓		
	e. describe current genetic engineering in: DNA technology and the social/ethical issues that it raises (BTC.4.27)					✓		
	f. relate gene expression to embryonic development (BTC.4.28)						✓	
6.	<u>Plants</u>							
	a. compare and contrast hydrophytic, mesophytic and xerophytic plants (BTC.4.29)						✓	
	b. relate the diversity of plants to their habitat, transport system, reproduction and life cycle (BTC.4.30)					✓		
	c. investigate methods of plant propagation (BTC.4.31)					✓		
	d. describe forest-management practices (BTC.4.32)						✓	
	e. relate the importance of cultivated and wild plants to human society, economics and the environment (BTC.4.33)					✓		
7.	<u>Animals</u>							
	a. describe animal population distribution patterns (BTC.4.34)						✓	
	b. explain different animal reproductive strategies BTC.4.35					✓		
	c. describe the basics of animal behavior (BTC.4.36)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	<i>(IMR Committee) Responses</i>							
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8. <u>Life Cycles of Organisms</u>								
a. compare the characteristics, structures and life cycles of simple to complex organisms (BTC.4.37)							✓	
9. <u>Application of Biotechnology Techniques</u>								
a. describe techniques of current biotechnology (BTC.4.38)							✓	

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- I. Generic Evaluation Criteria _____
- II. Instructional Content Analysis _____
- III. Specific Science Criteria _____

PUBLISHER: Glencoe/McGraw-Hill

SUBJECT: Science

COURSE: Advanced Biology

TITLE: BSCS Biology: A Molecular Approach

COPYRIGHT DATE: 2006

SE ISBN: 0078664276

TE ISBN: 0078664284

**PART I -GENERIC EVALUATION CRITERIA
GROUP V – 2006 TO 2012**

ADVANCED BIOLOGY – GRADE 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
✓ _____	_____ _____	_____ _____	<p>I. INTER-ETHNIC</p> <p>The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).</p>	
✓ _____	_____ _____	_____ _____	<p>II. EQUAL OPPORTUNITY</p> <p>The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).</p>	

**PART II - ADVANCED BIOLOGY – GRADE 11-12
Instructional Content Analysis**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

The instructional materials program presents information and opportunities in a manner that enables the student to:

1. **History and the Nature of Science**

	a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (AB.1.1)		✓				
	b. communicate that science has practical and theoretical limitations (AB.1.2)		✓				
	c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (AB.1.3)		✓				
	d. explore science as a blend of creativity, logic and mathematics (AB.1.4)	✓					
	e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (AB.1.5)	✓					
	f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (AB.1.6)		✓				

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
2. <u>Science as Inquiry Objectives</u>								
a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (AB.2.1)					✓			
b. discuss ethical practices for science (e.g., established research protocol, accurate record keeping, replication of results and peer review) (AB.2.2)						✓		
c. apply scientific approaches to seek solutions for personal and societal issues (AB.2.3)					✓			
d. properly and safety manipulate equipment, materials, chemicals, organisms and models (AB.2.4)						✓		
e. explore a variety of environments (e.g., laboratories, museums, libraries, parks and other outdoors locations) (AB.2.5)					✓			
f. use computers and other electronic technologies in an investigative context (AB.2.6)					✓			
g. engage in scientific problem solving and critical thinking (AB.2.7)					✓			
h. design, conduct, evaluate and revise experiments (AB.2.8)					✓			

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Unifying Themes Objectives</u>							
	a. relate biological or technical systems to the natural and designed world (AB.3.1)					✓		
	b. use models to make predictions about interactions and changes in systems (AB.3.2)					✓		
	c. use graphs and equations relating changes in systems to rate, scale, patterns, trends and cycles (AB.3.3)				✓			
	d. cite examples of different characteristics, properties or relationships within a system that might change as its dimensions change (AB.3.4)					✓		
4.	<u>Scientific Design and Application Objectives</u>							
	a. summarize technological advances in the biological sciences (AB.5.1)					✓		
	b. analyze the interdependence of science and technology (AB.5.2)					✓		
	c. relate how scientific skills and technological tools are used to design solutions that address personal and societal needs (AB.5.3)					✓		
	d. describe the scientific concepts underlying technological innovations (AB.5.4)					✓		
	e. integrate appropriate technology solutions to promote scientific inquiry (AB.5.5)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

5. **Science in Personal and Social Perspectives**

_____	a. promotes the research of current environmental issues (AB.6.1)	✓	_____	_____	_____	_____	_____	_____
_____	b. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (AB.6.2)	_____	✓	_____	_____	_____	_____	_____
_____	c. describe occupational opportunities in science and technology (AB.6.5)	_____	✓	_____	_____	_____	_____	_____
_____	d. provides decision-making activities to resolve science-technology-society issues (AB.6.6)	_____	✓	_____	_____	_____	_____	_____

**PART III - SPECIFIC CRITERIA
ADVANCED BIOLOGY – GRADE 11-12**

An advanced level course designed for students who have completed Coordinated and Thematic Science Ten (CATS 10) and desire a broader, in-depth study of the content found in many biological fields of endeavor. This course is designed to build upon and extend the Biology concepts, skills and knowledge from the CATS 7-10 program. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
1. <u>Science in Personal and Social Perspectives</u>								
a. investigate and discuss the impact that humans may have on the quality of the biosphere (AB.6.1)						✓		
b. investigate the effects of natural phenomena on the environment (AB.6.2)						✓		
c. promotes research of current environmental issues (AB.6.3)					✓			
d. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (AB.6.4)						✓		
e. describe occupational opportunities in science and technology (AB.6.5)						✓		
f. make decisions to resolve science-technology-society issues (AB.6.6)						✓		
2. <u>Chemical Foundations</u>								
a. review foundational chemical concepts and investigate the molecules of life and their function in the living systems (AB.4.1, 4.2)						✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Cell Function and Genetics</u>							
	a. identify the structure, functions, and interactions of eukaryotic cell organelles and their products and research the diversity/uniqueness of cell types (AB.4.3 & 4.5)				✓			
	b. analyze the chemistry and structure of the cell membrane as it relates to import and export of molecules necessary for life (AB.4.4)					✓		
	c. explore photosynthesis and cellular respiration (AB.4.6)					✓		
	d. describe mitotic and meiotic cell cycles as well as prokaryotic cell cycles (AB.4.8, 4.9)				✓			
	e. investigate DNA, gene expression, regulation and mutations and their effects on the diversity of life (AB.4.10, 4.11, 4.17, 4.18 & 4.20)				✓			
	f. provide for the student evaluation of the advantages of asexual and sexual reproduction (AB.4.12)				✓			
	g. explore the principles of genetics including: Mendel's laws, incomplete dominance, gene interaction, codominance, multi-alleles, crossing over, genetic recombination; influences of environment, development, sex and age (AB.4.13, 4.14)				✓			
	h. describe DNA replication and protein synthesis (AB.4.15, 4.16)				✓			
	i. introduce DNA technologies and the social issues they raise (AB.4.19)				✓			
4.	<u>Evolution</u>							
	a. explain natural selection, speciation and evolution including historical and current ideas (AB.4.21, 4.23)				✓			
	b. investigate causes and effects of animal behavior (AB.4.22)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
5. <u>Classification of Organisms</u>								
a. compare traditional and modern taxonomy and systematics (AB.4.24, 4.25)					✓			
6. <u>Environment and Ecosystems</u>								
a. explore the various systems of the human organism and their interactions (AB.4.26)						✓		
b. investigate responses of organisms to internal and environmental stimuli (AB.4.7, 4.27)						✓		
c. investigate ecology including: energy flow, limiting factors, biotic and abiotic environment, extinction and adaptation (AB.4.28, 4.31)						✓		

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- | | | |
|------|--------------------------------|-------|
| I. | Generic Evaluation Criteria | _____ |
| II. | Instructional Content Analysis | _____ |
| III. | Specific Science Criteria | _____ |

PUBLISHER:	Glencoe/McGraw-Hill
SUBJECT:	Science
COURSE:	Advanced Environmental Earth Science
TITLE:	Glencoe Earth Science: Geology, The Environment and The Universe
COPYRIGHT DATE:	2005
SE ISBN:	0078664233
TE ISBN:	0078664241

PART I -GENERIC EVALUATION CRITERIA GROUP V – 2006 TO 2012

ADVANCED ENVIRONMENTAL EARTH SCIENCE – GRADE 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
✓ _____	_____ _____	_____ _____	I. INTER-ETHNIC The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).	
✓ _____	_____ _____	_____ _____	II. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).	

**PART II - ADVANCED ENVIRONMENTAL EARTH SCIENCE – GRADE 11-12
INSTRUCTIONAL CONTENT ANALYSIS**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

The instructional materials program presents information and opportunities in a manner that enables the student to:

1. **History and the Nature of Science**

	a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (AES.1.1)		✓		
	b. communicate that science has practical and theoretical limitations (AES.1.2)		✓		
	c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (AES.1.3)		✓		
	d. explore science as a blend of creativity, logic and mathematics (AES.1.4)		✓		
	e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (AES.1.5)		✓		
	f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (AES.1.6)				✓

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

2. **Science as Inquiry Objectives**

_____	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (AES.2.1)	_____	✓	_____	_____	_____	_____	_____
_____	b. discuss ethical practices for science (e.g., established research protocol, accurate record keeping, replication of results and peer review) (AES.2.2)	_____	_____	✓	_____	_____	_____	_____
_____	c. apply scientific approaches to seek solutions for personal and societal issues (AES.2.3)	_____	✓	_____	_____	_____	_____	_____
_____	d. properly and safety manipulate equipment, materials, chemicals, organisms and models (AES.2.4)	_____	✓	_____	_____	_____	_____	_____
_____	e. explore a variety of environments (e.g., laboratories, museums, libraries, parks and other outdoors locations) (AES.2.5)	_____	_____	✓	_____	_____	_____	_____
_____	f. use computers and other electronic technologies in an investigative context (AES.2.6)	_____	_____	✓	_____	_____	_____	_____
_____	g. engage in scientific problem solving and critical thinking (AES.2.7)	_____	_____	✓	_____	_____	_____	_____
_____	h. design, conduct, evaluate and revise experiments (AES.2.8)	✓	_____	_____	_____	_____	_____	_____

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Unifying Themes Objectives</u>							
	a. relate earth and environmental systems to the natural and designed world (AES.3.1)					✓		
	b. use models to make predictions about interactions and changes in systems (AES.3.2)					✓		
	c. use graphs and equations relating changes in systems to rate, scale, patterns, trends and cycles (AES.3.3)					✓		
	d. cite examples of different characteristics, properties or relationships within a system that might change as its dimensions change (AES.3.4)					✓		
4.	<u>Scientific Design and Application Objectives</u>							
	a. summarize technological advances in the biological sciences (AES.5.1)				N/A			
	b. analyze the interdependence of science and technology (AES.5.2)					✓		
	c. relate how scientific skills and technological tools are used to design solutions that address personal and societal needs (AES.5.3)					✓		
	d. describe the scientific concepts underlying technological innovations (AES.5.4)					✓		
	e. integrate appropriate technology solutions to promote scientific inquiry (AES.5.5)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

5. **Science in Personal and Social Perspectives**

_____	a. provide opportunities to investigate and discuss the impact that politics may have on the environmental decisions (AES.6.1)	_____	✓	_____	_____
_____	b. provide opportunities investigate the effects of natural phenomena on the environment (AES.6.2)	_____	✓	_____	_____
_____	c. promotes the research of current environmental issues (AES.6.3)	_____	✓	_____	_____
_____	d. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (AES.6.4)	_____	_____	✓	_____
_____	e. describe occupational opportunities in science and technology (AES.6.5)	_____	_____	✓	_____
_____	f. provides decision-making activities to resolve science-technology-society issues (AES.6.6)	_____	✓	_____	_____

**PART III – SPECIFIC CRITERIA – GRADE 11-12
ADVANCED ENVIROMENTAL EARTH SCIENCE**

Advanced Environmental Earth Science (Eleven/Twelve) builds on the fundamentals of geology, oceanography, meteorology and astronomy developed in CATS 7-10 in a rigorous and integrated manner with the traditional disciplines of biology, chemistry and physics where appropriate. As stewards of the earth, an emphasis on environment should be included within the traditional earth science disciplines. Ecology, economics, politics and social considerations all combine to help students develop an understanding of how humans effect and are effected by their environment. Students will engage in active inquiries, investigations, and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated into all activities.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
1. <u>Advanced Environmental Earth Science</u>								
a. demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences (SC.S.4)						✓		
2. <u>Dynamic Earth</u>								
a. identify and describe the structure, origin and evolution of the lithosphere, hydrosphere, atmosphere and biosphere (AES.4.2)						✓		
3. <u>Geology</u>								
a. list, identify and sequence eras, epochs and periods in relation to earth history and geologic development (AES.4.4)					✓			
b. utilize fossil evidence to estimate the relative and absolute ages of rock layers (AES.4.5)						✓		
c. find the absolute age of materials using existing radioisotopic data including half-life (AES.4.6)						✓		
d. identify the type and composition of various minerals (AES.4.7)						✓		
e. investigate and explain the processes of the rock cycle (AES.4.8)						✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
5.	<u>Meteorology</u>							
	a. investigate and explain heat transfer in the atmosphere and its relationship to meteorological processes (AES.4.18)					✓		
	b. compare and contrast meteorological processes related to air masses, weather systems and forecasting by constructing and interpreting weather maps (AES.4.20)					✓		
	c. examine global changes over time (AES.4.21)							
	• climatic trends							
	• global warming							
	• ozone depletion					✓		
6.	<u>Astronomy</u>							
	a. research theories concerning origins of the universe (AES.4.22)					✓		
	b. apply Newton’s Law of Universal Gravitation to the motion of celestial objects (AES.4.23)					✓		
	c. investigate the solar system (AES.4.234)							
	• origin theories							
	• comparing and contrasting the planets							
	• planetary motions							
	• other celestial bodies					✓		
	d. investigate stars and their evolution (AES.4.25)					✓		
	e. explain the relationships between location, navigation and time (AES.4.26)					✓		
	f. compare ancient and modern methods and tools used to study astronomy (AES.4.27)							✓
	g. investigate the electromagnetic spectrum as related to observable phenomena in the universe (AES.4.28)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
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7. <u>Environment</u>								
a. describe the relationship between earth processes and natural disasters (AES.4.29)						✓		
b. investigate the impact of natural disasters on human populations (AES.4.29)						✓		
c. explore the relationships between human consumption of natural resources and the stewardship responsibility for reclamations including disposal of hazardous and non-hazardous waste (AES.4.30)						✓		
d. investigate and describe in detail the physical and chemical properties of water (AES.4.31)						✓		
e. explain common problems related to the conservation, use, supply and the quality of water (AES.4.32)						✓		
f. explore the relationship between the extraction and use of natural resources and the impact on the environment (AES.4.33)						✓		
g. research alternative energy sources (AES.4.34)								
• solar								
• geothermal								
• wind								
• nuclear								
• clean coal technologies						✓		
h. research and explain how the political system influences environmental decisions (AES.4.36)							✓	
i. investigate which federal and state agencies have responsibility for environmental monitoring and actions (AES.4.37)							✓	
j. develop decision-making skills with respect to addressing environmental problems (AES.4.38)						✓		

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- | | | |
|------|--------------------------------|-------|
| I. | Generic Evaluation Criteria | _____ |
| II. | Instructional Content Analysis | _____ |
| III. | Specific Science Criteria | _____ |

PUBLISHER:	Glencoe/McGraw-Hill
SUBJECT:	Science
COURSE:	Advanced Biology
TITLE:	Glencoe Biology: The Dynamics of Life
COPYRIGHT DATE:	2004
SE ISBN:	0078299004
TE ISBN:	0078732379

PART I -GENERIC EVALUATION CRITERIA GROUP V – 2006 TO 2012

ADVANCED BIOLOGY – GRADE 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
✓ _____	_____	_____	I. INTER-ETHNIC The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).	
✓ _____	_____	_____	II. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).	

**PART II - ADVANCED BIOLOGY – GRADE 11-12
Instructional Content Analysis**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

The instructional materials program presents information and opportunities in a manner that enables the student to:

1. **History and the Nature of Science**

	a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (AB.1.1)	✓	—	—	—
	b. communicate that science has practical and theoretical limitations (AB.1.2)	—	✓	—	—
	c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (AB.1.3)	—	✓	—	—
	d. explore science as a blend of creativity, logic and mathematics (AB.1.4)	—	✓	—	—
	e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (AB.1.5)	—	✓	—	—
	f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (AB.1.6)	—	✓	—	—

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

2. **Science as Inquiry Objectives**

	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (AB.2.1)					✓		
	b. discuss ethical practices for science (e.g., established research protocol, accurate record keeping, replication of results and peer review) (AB.2.2)					✓		
	c. apply scientific approaches to seek solutions for personal and societal issues (AB.2.3)					✓		
	d. properly and safety manipulate equipment, materials, chemicals, organisms and models (AB.2.4)							
	e. explore a variety of environments (e.g., laboratories, museums, libraries, parks and other outdoors locations) (AB.2.5)					✓		
	f. use computers and other electronic technologies in an investigative context (AB.2.6)					✓		
	g. engage in scientific problem solving and critical thinking (AB.2.7)					✓		
	h. design, conduct, evaluate and revise experiments (AB.2.8)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Unifying Themes Objectives</u>							
	a. relate biological or technical systems to the natural and designed world (AB.3.1)					✓		
	b. use models to make predictions about interactions and changes in systems (AB.3.2)						✓	
	c. use graphs and equations relating changes in systems to rate, scale, patterns, trends and cycles (AB.3.3)					✓		
	d. cite examples of different characteristics, properties or relationships within a system that might change as its dimensions change (AB.3.4)					✓		
4.	<u>Scientific Design and Application Objectives</u>							
	a. summarize technological advances in the biological sciences (AB.5.1)					✓		
	b. analyze the interdependence of science and technology (AB.5.2)					✓		
	c. relate how scientific skills and technological tools are used to design solutions that address personal and societal needs (AB.5.3)					✓		
	d. describe the scientific concepts underlying technological innovations (AB.5.4)						✓	
	e. integrate appropriate technology solutions to promote scientific inquiry (AB.5.5)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

5. **Science in Personal and Social Perspectives**

_____	a. promotes the research of current environmental issues (AB.6.1)	_____	✓	_____	_____	_____	_____	_____
_____	b. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (AB.6.2)	_____	✓	_____	_____	_____	_____	_____
_____	c. describe occupational opportunities in science and technology (AB.6.5)	_____	✓	_____	_____	_____	_____	_____
_____	d. provides decision-making activities to resolve science-technology-society issues (AB.6.6)	_____	✓	_____	_____	_____	_____	_____

**PART III - SPECIFIC CRITERIA
ADVANCED BIOLOGY – GRADE 11-12**

An advanced level course designed for students who have completed Coordinated and Thematic Science Ten (CATS 10) and desire a broader, in-depth study of the content found in many biological fields of endeavor. This course is designed to build upon and extend the Biology concepts, skills and knowledge from the CATS 7-10 program. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
1. <u>Science in Personal and Social Perspectives</u>								
_____ a. investigate and discuss the impact that humans may have on the quality of the biosphere (AB.6.1)						✓		
_____ b. investigate the effects of natural phenomena on the environment (AB.6.2)						✓		
_____ c. promotes research of current environmental issues (AB.6.3)						✓		
_____ d. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (AB.6.4)						✓		
_____ e. describe occupational opportunities in science and technology (AB.6.5)						✓		
_____ f. make decisions to resolve science-technology-society issues (AB.6.6)						✓		
2. <u>Chemical Foundations</u>								
_____ a. review foundational chemical concepts and investigate the molecules of life and their function in the living systems (AB.4.1, 4.2)						✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Cell Function and Genetics</u>							
	a. identify the structure, functions, and interactions of eukaryotic cell organelles and their products and research the diversity/uniqueness of cell types (AB.4.3 & 4.5)				✓			
	b. analyze the chemistry and structure of the cell membrane as it relates to import and export of molecules necessary for life (AB.4.4)					✓		
	c. explore photosynthesis and cellular respiration (AB.4.6)				✓			
	d. describe mitotic and meiotic cell cycles as well as prokaryotic cell cycles (AB.4.8, 4.9)					✓		
	e. investigate DNA, gene expression, regulation and mutations and their effects on the diversity of life (AB.4.10, 4.11, 4.17, 4.18 & 4.20)					✓		
	f. provide for the student evaluation of the advantages of asexual and sexual reproduction (AB.4.12)					✓		
	g. explore the principles of genetics including: Mendel's laws, incomplete dominance, gene interaction, codominance, multi-alleles, crossing over, genetic recombination; influences of environment, development, sex and age (AB.4.13, 4.14)					✓		
	h. describe DNA replication and protein synthesis (AB.4.15, 4.16)					✓		
	i. introduce DNA technologies and the social issues they raise (AB.4.19)					✓		
4.	<u>Evolution</u>							
	a. explain natural selection, speciation and evolution including historical and current ideas (AB.4.21, 4.23)					✓		
	b. investigate causes and effects of animal behavior (AB.4.22)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
5. <u>Classification of Organisms</u>								
a. compare traditional and modern taxonomy and systematics (AB.4.24, 4.25)						✓		
6. <u>Environment and Ecosystems</u>								
a. explore the various systems of the human organism and their interactions (AB.4.26)						✓		
b. investigate responses of organisms to internal and environmental stimuli (AB.4.7, 4.27)						✓		
c. investigate ecology including: energy flow, limiting factors, biotic and abiotic environment, extinction and adaptation (AB.4.28, 4.31)						✓		

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- I. Generic Evaluation Criteria _____
- II. Instructional Content Analysis _____
- III. Specific Science Criteria _____

PUBLISHER: Glencoe/McGraw-Hill

SUBJECT: Science

COURSE: Advanced Physics

TITLE: Glencoe Physics: Principles and Problems

COPYRIGHT DATE: 2005

SE ISBN: 0078458137

TE ISBN: 0078458145

**PART I -GENERIC EVALUATION CRITERIA
GROUP V – 2006 TO 2012**

ADVANCED PHYSICS - GRADE 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
✓ _____	_____ _____	_____ _____	I. INTER-ETHNIC The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).	
✓ _____	_____ _____	_____ _____	II. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).	

**PART II - ADVANCED PHYSICS GRADE 11-12
Instructional Content Analysis**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

The instructional materials program presents information and opportunities in a manner that enables the student to:

	1.	<u>History and the Nature of Science</u>				
_____		a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (AP.1.1)	✓			
_____		b. communicate that science has practical and theoretical limitations (AP.1.2)		✓		
_____		c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (AP.1.3)	✓			
_____		d. explore science as a blend of creativity, logic and mathematics (AP.1.4)		✓		
_____		e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (AP.1.5)		✓		
_____		f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (AP.1.6)			✓	

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

2. **Science as Inquiry Objectives**

	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (AP.2.1)	✓						
	b. discuss ethical practices for science (e.g., established research protocol, accurate record keeping, replication of results and peer review) (AP.2.2)		✓					
	c. apply scientific approaches to seek solutions for personal and societal issues (AP.2.3)		✓					
	d. properly and safety manipulate equipment, materials, chemicals, organisms and models (AP.2.4)	✓						
	e. explore a variety of environments (e.g., laboratories, museums, libraries, parks and other outdoors locations) (AP.2.5)		✓					
	f. use computers and other electronic technologies in an investigative context (AP.2.6)		✓					
	g. engage in scientific problem solving and critical thinking (AP.2.7)	✓						
	h. design, conduct, evaluate and revise experiments (AP.2.8)		✓					

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
3.	<u>Unifying Themes Objectives</u>							
	a. relate biological or technical systems to the natural and designed world (AP.3.1)					✓		
	b. use models to make predictions about interactions and changes in systems (AP.3.2)				✓			
	c. use graphs and equations relating changes in systems to rate, scale, patterns, trends and cycles (AP.3.3)				✓			
	d. cite examples of different characteristics, properties or relationships within a system that might change as its dimensions change (AP.3.4)				✓			
4.	<u>Scientific Design and Application Objectives</u>							
	a. summarize technological advances in the biological sciences (AP.5.1)					✓		
	b. analyze the interdependence of science and technology (AP.5.2)					✓		
	c. relate how scientific skills and technological tools are used to design solutions that address personal and societal needs (AP.5.3)					✓		
	d. describe the scientific concepts underlying technological innovations (AP.5.4)					✓		
	e. integrate appropriate technology solutions to promote scientific inquiry (AP.5.5)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth</i> 80%	<i>A=Adequate</i> 80%	<i>M=Minimal</i> 60%	<i>N=Nonexistent</i> Less than 60%	I	A	M	N

5. **Science in Personal and Social Perspectives**

	a. describe the impact of cultural, technological and economic influences on the evolving nature of scientific thought and knowledge (AP.6.4)	_____	✓	_____	_____
	b. describe occupational opportunities in science and technology (AP.6.5)	_____	_____	✓	_____
	c. make decisions to resolve science-technology-society issues (AP.6.6)	_____	✓	_____	_____

**PART III – SPECIFIC CRITERIA
Advanced Physics**

An advanced level course designed for students who have completed Coordinated and Thematic Science Ten (CATS 10) and desire a broader, in-depth study of the content found in the science field of physics. This course is designed to build upon and extend the Physics concepts, skills, and knowledge from the CATS 7-10 program. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

1. **Electricity and Magnetism**

	a. investigate electric and magnetic fields by (AP.4.19):							
	<ul style="list-style-type: none"> • drawing field lines • describing applications 				✓			
	b. use the properties of electrical charge and Coulombs Law to (AP4.20):							
	<ul style="list-style-type: none"> • explain charging by induction and conduction • differentiate between conductors and insulators • calculate electrostatic forces 				✓			
	c. investigate and analyze electrical circuits by (AP.4.21, 4.22):							
	<ul style="list-style-type: none"> • constructing electrical circuits • using Ohms Law • calculating power and energy electrical systems 				✓			

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
2.	<u>Astronomy and Modern Physics</u>							
	a. investigate planetary motions by applying (AP.4.23, 4.24):							
	• Kepler’s Laws				✓			
	• Newton’s Law of Universal Gravitation							
	b. research and evaluate evidence of (AP.4.25, 4.26):							
	• the Big Bang model of the universe							
	• Einstein’s special theory of relativity						✓	
	c. describe nuclear reactions and discuss applications of nuclear energy (AP.4.27)					✓		
3.	<u>Mechanics</u>							
	a. review and apply Newton’s Laws of Motion (AP.4.1, 4.3)				✓			
	b. calculate displacement, velocity and acceleration (AP.4.2, 4.3)				✓			
	c. apply graphical and mathematical methods to (AP.4.4):							
	• find resultant of two or more vectors							
	• resolve a vector into components					✓		
	d. apply the concepts of energy conservation to (AP.4.5):							
	• analyze the motion of objects in free-fall and projectile motion							
	• analyze the motion of an object in simple harmonic motion							
	• analyze the motion of colliding objects				✓			
	e. apply the law of conservation of momentum (AP.4.5)					✓		
	f. investigate and calculate the work, energy, power, mechanical advantage, and efficiency of simple machines (AP.4.6)					✓		

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N
4.	<u>Fluids</u>					✓		
	a.	use the concepts of density and buoyancy to explain why an object would float or sink (AP.4.7)				✓		
	b.	relate the pressure exerted by a fluid to its depth (AP.4.8)				✓		
	c.	apply Bernoulli’s Principle to fluid motion (AP.4.9)				✓		
	d.	apply the Ideal Gas Law to predict the properties of an ideal gas under different conditions (AP.4.10)						
5.	<u>Thermodynamics</u>							
	a.	distinguish between temperature and heat (AP.4.11)				✓		
	b.	investigate and perform calculations using specific heat and heats of fusion and vaporization (AP.4.12)		✓				
6.	<u>Waves, Sound and Optics</u>							
	a.	investigate and apply properties of waves to study mechanical and electromagnetic waves (AP.4.13)		✓				
	b.	investigate the relationship among the wavelength, velocity and frequency of waves (AP.4.14)		✓				
	c.	analyze the properties of sound waves and relate the physical properties of sound waves to the way sound is perceived (AP.4.15)		✓				
	d.	define and identify applications of the Doppler Effect (AP.4.16)				✓		
	e.	investigate image formation by the use of lenses and mirrors (AP.4.17):		✓				
		<ul style="list-style-type: none"> • ray diagrams • mathematics 				✓		
	f.	investigate and analyze optical applications in technology (AP.4.18)						

INSTRUCTIONAL MATERIALS ADOPTION

Score Sheet

- | | | |
|------|--------------------------------|-------|
| I. | Generic Evaluation Criteria | _____ |
| II. | Instructional Content Analysis | _____ |
| III. | Specific Science Criteria | _____ |

PUBLISHER:	Glencoe/McGraw-Hill
SUBJECT:	Science
COURSE:	Chemistry Technical Conceptual
TITLE:	Glencoe Chemistry: Concepts and Applications
COPYRIGHT DATE:	2005
SE ISBN:	0078617987
TE ISBN:	0078617995

PART I -GENERIC EVALUATION CRITERIA GROUP V – 2006 TO 2012

CHEMISTRY TECHNICAL CONCEPTUAL – GRADE 11-12

R-E-S-P-O-N-S-E			CRITERIA	NOTES
Yes	No	N/A		
✓ _____	_____	_____	I. INTER-ETHNIC The instructional material meets the requirements of inter-ethnic: concepts, content and illustrations, as set by West Virginia Board of Education Policy (Adopted December 1970).	
✓ _____	_____	_____	II. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concept, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by West Virginia Board of Education Policy (Adopted May 1975).	

**PART II – CHEMISTRY TECHNICAL CONCEPTUAL – GRADE 11-12
INSTRUCTIONAL CONTENT ANALYSIS**

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IMR Committee) Responses							
	<i>I=In-depth 80%</i>	<i>A=Adequate 80%</i>	<i>M=Minimal 60%</i>	<i>N=Nonexistent Less than 60%</i>	I	A	M	N

The instructional materials program presents information and opportunities in a manner that enables the student to:

1. **History and the Nature of Science**

	a. formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results (CTC.1.1)	_____	✓	_____	_____
	b. communicate that science has practical and theoretical limitations (CTC.1.2)	_____	✓	_____	_____
	c. recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent (CTC.1.3)	_____	✓	_____	_____
	d. explore science as a blend of creativity, logic and mathematics (CTC.1.4)	_____	✓	_____	_____
	e. trace the development of key historical concepts and principles describing their impact on modern thought and life by identifying the scientist's contributions (CTC.1.5)	_____	✓	_____	_____
	f. integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them (CTC.1.6)	_____	✓	_____	_____

2. **Science as Inquiry Objectives**

	a. develop the skills, attitudes and/or values of scientific inquiry (e.g., curiosity, logic, objectivity, openness, skepticism, appreciation, diligence, integrity, ethical practice, fairness, creativity) (CTC.2.1)	_____	✓	_____	_____
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**PART III - SPECIFIC CRITERIA
CHEMISTRY TECHNICAL CONCEPTUAL - GRADE 11-12**

Chemistry Technical Conceptual is the study of matter, its composition and its changes. This course is an alternative to a traditional college preparatory course. It emphasizes real life applications of chemical principles. Mathematical based problem solving is de-emphasized. Emphasis is placed on the important role chemistry plays in a student's personal life, career opportunities, environment and society. Students will engage in active inquiries, investigations and hand-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research laboratory skills. Safety instruction is integrated into all activities.

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The instructional materials program presents information and opportunities in a manner that enables the student to:

1.	<u>Properties of Matter</u>							
	a. review the classification of matter and the properties of metals and nonmetals (CTC.4.1)				✓			
	b. identify sources and uses of elements (CTC.4.2)				✓			
	c. use the kinetic molecular theory to explain physical states of matter (CTC.4.3)				✓			
	d. perform calculations using the gas laws (CTC.4. 4)				✓			
	e. apply the principle of distillation to the separation of liquids (CTC.4.5)				✓			
2.	<u>Atomic Structure</u>							
	a. review the parts of the atom (CTC.4.6)				✓			
	b. review the relationship of an element's group and period position with its properties (CTC.4.7)				✓			
	c. compare atomic and ionic electronic structures (CTC.4.8)						✓	
3.	<u>Bonding</u>							
	a. review formula writing and ionic and covalent bonding (CTC.4.9)				✓			

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		b. recognize the impact of water's unusual physical properties (CTC.4.10)				✓		
		c. predict solute solubility based on molecular polarity (CTC.4.11)				✓		
	4.	<u>Stoichiometry</u>						
		a. review balancing equations (CTC.4.12)				✓		
		b. use dimensional analysis to perform unit conversions and to verify experimental calculations (CTC.4.13)				✓		
		c. apply the mole concept relating to chemical formulas and measuring chemical quantities (CTC.4.14, 15)				✓		
		d. determine the percent composition by mass of the elements in a compound (CTC. 4.16)				✓		
		e. illustrate the concept of a limiting reagent (CTC. 4.18)				✓		
	5.	<u>Solution Chemistry</u>						
		a. review solution properties: solubility, conductivity, density, pH, colligative (CTC. 4.19)				✓		
		b. perform solutions concentration calculations (CTC. 4.21)					✓	
		c. compare and contrast the properties: strong and weak acids, strong and weak bases (CTC. 4.22)				✓		
		d. perform an acid-base neutralization reaction (CTC. 4.23)				✓		
	6.	<u>Electrochemistry</u>						
		a. construct electrolytic cells to observe the reduction of ions into free metals and write the half-reactions that occur (CTC. 4.24)			✓			
		b. predict reactions of metals with aqueous solutions using the Metal Activity Series (CTC. 4.25)			✓			

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7.	<u>Reaction Dynamics</u>							
	a. review temperature and heat (CTC. 4.26)					✓		
	b. measure the flow of energy into or out of chemical reactions (CTC. 4.27)					✓		
	c. predict the effect of temperature and catalysts on reaction rates (CTC.4.28)					✓		
	d. apply LeChatelier’s Principle in determining equilibrium (CTC.4.29)					✓		
8.	<u>Carbon and Petroleum</u>							
	a. draw and construct models for the first ten alkanes (CTC.4.30)					✓		
	b. relate the properties of organize compounds to their functional groups (CTC.4.31)					✓		
	c. demonstrate the formation of polymers from smaller molecules (CTC. 4.32)					✓		
	d. compare and contrast the use of petroleum as either a source of energy or as a fundamental ingredient of synthetic materials (CTC. 4.33)						✓	
9.	<u>Nuclear Chemistry</u>							
	a. review nuclear fusion and fission, isotopes and half-lives (CTC.4.34)					✓		
	b. compare the penetrating energies of nuclear radiation (CTC.4.35)					✓		
	c. balance simple nuclear equations(CTC.4.36)					✓		
	d. explain practical applications of nuclear technology (CTC. 4.37)				✓			