



# Biotechnology I&II for High School Teachers: Standards and Objectives Assessment

	Measurement and Micropipetting	Analysis of Precut Lambda DNA Part I	Analysis of Precut Lambda DNA Part 2	Genomics to Proteomics Desk Activity	Bioinformatics: NCBI, BioEdit and Primers	Bioinformatics: BLASTing through the transcriptome	DNA Extraction from Foods	Sickle Cell Hemoglobin and 3D Molecular Design	Guest Speaker	Beano Biotechnology Enzymes	Restriction Enzymes and Target Gene Insertion Desk Activity	Bioinformatics SDSC Biology Worksite Orientation	Bioinformatics: Molecular Forensics	Chromosome 16: PV92PCR Part 1
<b>National Science Education Standards: Content Standard 9-12; Science as Inquiry</b>														
Identify Questions & Concepts	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Design & Conduct Scientific Investigations	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Use Technology & Math to Investigate and Communicate		√	√		√	√				√		√	√	√
Formulate Explanations and Models		√	√	√	√	√	√	√		√	√	√	√	√
Analyze Alternative Models			√		√	√	√	√		√	√	√	√	
Communicate Scientific Argument			√			√							√	
<b>National Science Education Standards: Content Standard 9-12; Life Science</b>														
Complexity of the Cell		√	√	√			√	√		√	√			√
Molecular Basis of Cell: DNA Structure		√	√	√	√	√	√	√	√		√		√	√
Molecular Basis of Cell: Transmission of DNA Information		√	√	√		√		√			√		√	√
Molecular Basis of Cell: Mutations		√	√	√		√		√			√		√	√
Biological Evolution: Species evolve		√	√	√		√		√			√		√	√
Biological Evolution: Diversity of Organisms		√	√	√		√		√			√		√	√
<b>National Science Education Standards: Content Standard 9-12; Science and Technology</b>														
Abilities of Technological Design: Identify a Problem		√			√	√	√	√		√	√		√	√
Abilities of Technological Design: Propose Designs		√						√					√	√
Abilities of Technological Design: Implement a Proposed Solution		√	√	√	√	√	√	√		√	√		√	√
Abilities of Technological Design: Evaluate the Solution			√	√	√	√	√	√		√	√		√	√



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Abilities of Technological Design: Communicate the Problem									√					
Understandings About Science and Technology: Scientists Ask Questions	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Understandings About Science and Technology: New Technologies Extend Levels of Understanding	√	√	√		√	√	√	√	√	√	√	√	√	√
Understandings About Science and Technology: Creativity and Knowledge Base Necessary	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Understandings About Science and Technology: Meeting Human Needs and Solving Human Problems		√	√		√	√	√		√	√	√	√	√	√
Understandings About Science and Technology: Knowledge is Made Available Through Presentations and Publications					√	√			√			√	√	
<b>National Science Education Standards: Content Standard 9-12; Science in Personal and Social Perspectives</b>														
Personal and Community Health: Understanding of Diseases		√	√				√	√	√	√			√	√
Personal and Community Health: Selection of Foods Determine Nutritional Balance							√			√				
Natural Resources: Human Populations use Resources in the Environment							√		√	√	√	√	√	
Environmental Quality: Resource Use & Capacity of Technology to Solve Problems		√	√		√	√	√		√	√	√	√	√	√
Natural and Human-Induced Hazards: Humans Must Assess Potential Risk										√	√		√	





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OK PASS: Science Processes and Inquiry; Inquiry Skills of Experimentation	√	√	√	√	√	√	√	√		√		√	√	√
OK PASS: Content Standard: The Cell		√	√	√			√	√	√	√	√			√
OK PASS: Content Standard: Molecular Basis of Heredity		√	√	√		√		√	√		√		√	√
OK PASS: Content Standard: Biological Diversity		√	√	√		√		√	√		√		√	√
OK PASS: Content Standard: Interdependence of Organisms						√							√	√
OK PASS: Content Standard: Matter, Energy, and Organization in Living Systems		√	√	√		√	√	√	√	√	√		√	√
OK PASS: Content Standard: The Behavior of Organisms									√				√	
OK PASS: Content Standard: Chemical Reactions		√	√				√			√				√
AAAS Project 2061 Benchmarks: Nature of Science: Scientific World View														
Testing, Revising, Offering Explanations and Making Accurate Predictions		√	√	√	√	√	√	√		√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Science: Inquiry														
Exploring new Phenomena, Testing Theories		√	√	√	√	√	√	√		√	√	√	√	√
Hypothesis Determination and Interpretation of Data		√	√			√							√	√
Ethical observation of Natural Occurrences													√	
Value of Evidence and Logic		√	√	√	√	√	√	√	√	√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Science: Scientific Enterprise														



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Progress Often Depends on Scientific and Technological Developments	√	√	√		√	√	√	√	√	√	√	√	√	√
Scientific Analytical Skills Impact Matters of Public Concern		√	√			√	√		√	√	√		√	√
Scientific Peer Review Process/ Communication					√	√			√		√		√	
AAAS Project 2061 Benchmarks: Nature of Technology: Technology and Science														
Availability of new Technology Sparks Scientific Advances	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Math, Creativity, Logic and Originality are Needed to Improve Technology	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Technology Affects Society by Solving Practical Problems and Serving Human Needs	√	√	√	√	√	√	√	√	√	√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Technology: Design and Systems														
Complex Automatic Systems Require Human Control at some Point						√			√		√		√	
The Value of Technology May be Different for Different Groups of People									√		√		√	
Risk Analysis of New Technologies Minimize Unwanted Side Effects of a New Technology									√		√		√	
Performance Testing is Necessary on Small-scale Models, Computer Simulations and Analogous Systems		√	√	√	√	√		√		√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Technology: Issues in Technology														



## Biotechnology I&II for High School Teachers: Standards and Objectives Assessment

Social and Economic Forces Influence Which Technologies Will be Developed and Used.	Measurement and Micropipetting	Analysis of Precut Lambda DNA Part I	Analysis of Precut Lambda DNA Part 2	Genomics to Proteomics Desk Activity	Bioinformatics: NCBI, BioEdit and Primers	Bioinformatics: BLASTing through the transcriptome	DNA Extraction from Foods	Sickle Cell Hemoglobin and 3D Molecular Design	Guest Speaker	Beano Biotechnology Enzymes	Restriction Enzymes and Target Gene Insertion Desk Activity	Bioinformatics SDSC Biology Worksite Orientation	Bioinformatics: Molecular Forensics	Chromosome 16: PV92PCR Part 1
The Human Species has a Major Impact on Other Species (Selective Breeding and Genetic Engineering)		√	√		√	√			√		√	√	√	√
Human Inventiveness has Brought new Risks as well as Improvements to Human Existence		√	√		√	√					√	√	√	√



## Biotechnology I&II for High School Teachers: Standards and Objectives Assesment

	Chromosome 16: PV92PCR Part 2	Laundry Biotechnology Enzymes	Bioinformatics: Tracking the West Nile Virus	Microarray/ Macroarray Desk Activity	Field Trip to OSU Agricultural Research	GECO Web Site and Ethical Dilemmas	Construction of Amylase Evolutionary Tree	Bioinformatics: BLASTp Amylase Organisms	Bioinformatics: Construction of Cladogram	Agricultural Biotechnology	PubMed and Database Resources	$\beta$ -globin 3-D Molecular Design	
<b>National Science Education Standards: Content Standard 9-12; Science as Inquiry</b>													
Identify Questions & Concepts	√	√	√	√	√	√	√	√	√	√	√	√	
Design & Conduct Scientific Investigations	√	√	√	√	√	√	√	√	√	√	√	√	
Use Technology & Math to Investigate and Communicate	√	√	√			√	√	√	√		√		
Formulate Explanations and Models	√	√	√	√			√	√	√			√	
Analyze Alternative Models	√	√	√	√			√	√	√	√		√	
Communicate Scientific Argument	√		√			√	√	√	√		√		
<b>National Science Education Standards: Content Standard 9-12; Life Science</b>													
Complexity of the Cell	√		√	√	√		√	√	√	√		√	
Molecular Basis of Cell: DNA Structure	√		√	√	√	√	√	√	√	√		√	
Molecular Basis of Cell: Transmission of DNA Information	√		√		√	√	√	√	√	√		√	
Molecular Basis of Cell: Mutations	√		√	√		√	√	√	√	√		√	
Biological Evolution: Species evolve	√		√				√	√	√	√			
Biological Evolution: Diversity of Organisms	√		√				√	√	√	√			
<b>National Science Education Standards: Content Standard 9-12; Science and Technology</b>													
Abilities of Technological Design: Identify a Problem		√	√	√		√	√	√	√		√	√	
Abilities of Technological Design: Propose Designs			√					√	√			√	
Abilities of Technological Design: Implement a Proposed Solution	√	√	√	√		√	√	√	√			√	
Abilities of Technological Design: Evaluate the Solution	√	√	√	√		√	√	√	√			√	



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Abilities of Technological Design: Communicate the Problem										√	√		
Understandings About Science and Technology: Scientists Ask Questions	√	√	√	√	√	√	√	√	√	√	√	√	
Understandings About Science and Technology: New Technologies Extend Levels of Understanding	√	√	√	√	√	√	√	√	√	√	√	√	
Understandings About Science and Technology: Creativity and Knowledge Base Necessary	√	√	√	√	√	√	√	√	√	√	√	√	
Understandings About Science and Technology: Meeting Human Needs and Solving Human Problems	√	√	√	√	√	√	√	√	√	√	√	√	
Understandings About Science and Technology: Knowledge is Made Available Through Presentations and Publications					√				√		√		
<b>National Science Education Standards: Content Standard 9-12; Science in Personal and Social Perspectives</b>													
Personal and Community Health: Understanding of Diseases	√		√		√	√			√			√	
Personal and Community Health: Selection of Foods Determine Nutritional Balance					√					√			
Natural Resources: Human Populations use Resources in the Environment		√	√		√	√	√	√	√	√			
Environmental Quality: Resource Use & Capacity of Technology to Solve Problems	√	√	√	√	√	√	√	√	√	√	√		
Natural and Human-Induced Hazards: Humans Must Assess Potential Risk		√	√		√					√	√		



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Science and Technology (Local-->Global) Challenges: Human Decisions Regarding Use of Knowledge		√		√	√			√	√	√		
Science and Technology (Local-->Global) Challenges: Knowledge Should Precede Necessary Ethical Studies				√	√				√			
Science and Technology (Local-->Global) Challenges: Decisions Regarding All Ethical Issues				√	√				√			
<b>NABT: Scientific Inquiry</b>												
NABT: Scientific Inquiry: Skills of Questioning and Prediction	√	√	√	√			√	√	√			√
NABT: Scientific Inquiry: Qualitative and Quantitative Observation and classification	√	√	√	√			√	√	√			√
NABT: Scientific Inquiry: Communication					√			√		√		
NABT: Scientific Inquiry: Testing Hypotheses and Interpreting Data	√	√	√	√		√	√	√	√			√
<b>Oklahoma Priority Academic Student Skills (OK PASS)</b>												
OK PASS: Science Processes and Inquiry; Observe and Measure	√	√										
OK PASS: Science Processes and Inquiry; Classify	√		√	√			√	√	√			
OK PASS: Science Processes and Inquiry; Experiment	√	√	√	√			√	√	√			
OK PASS: Science Processes and Inquiry; Interpret and Communicate	√	√	√	√	√	√	√	√	√	√	√	√
OK PASS: Science Processes and Inquiry; Model Using Data	√						√	√				



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OK PASS: Science Processes and Inquiry; Inquiry Skills of Experimentation	√	√	√				√	√	√		√		
OK PASS: Content Standard: The Cell	√		√	√	√		√	√	√	√		√	
OK PASS: Content Standard: Molecular Basis of Heredity	√		√		√	√	√	√	√	√		√	
OK PASS: Content Standard: Biological Diversity	√		√				√	√	√	√			
OK PASS: Content Standard: Interdependence of Organisms	√		√		√	√	√	√	√	√			
OK PASS: Content Standard: Matter, Energy, and Organization in Living Systems	√		√	√	√	√	√	√	√	√		√	
OK PASS: Content Standard: The Behavior of Organisms			√		√					√			
OK PASS: Content Standard: Chemical Reactions	√	√		√									
AAAS Project 2061 Benchmarks: Nature of Science: Scientific World View													
Testing, Revising, Offering Explanations and Making Accurate Predictions	√	√	√	√			√	√	√			√	
AAAS Project 2061 Benchmarks: Nature of Science: Inquiry													
Exploring new Phenomena, Testing Theories	√	√	√	√			√	√	√		√	√	
Hypothesis Determination and Interpretation of Data	√		√	√			√	√	√			√	
Ethical observation of Natural Occurrences			√		√	√				√			
Value of Evidence and Logic	√	√	√	√	√	√	√	√	√	√	√	√	
AAAS Project 2061 Benchmarks: Nature of Science: Scientific Enterprise													



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Progress Often Depends on Scientific and Technological Developments	√	√	√	√	√	√	√	√	√	√	√	√	
Scientific Analytical Skills Impact Matters of Public Concern	√	√	√		√	√	√	√	√	√	√	√	
Scientific Peer Review Process/ Communication			√		√						√	√	
AAAS Project 2061 Benchmarks: Nature of Technology: Technology and Science													
Availability of new Technology Sparks Scientific Advances	√	√	√	√	√	√	√	√	√	√	√	√	
Math, Creativity, Logic and Originality are Needed to Improve Technology	√	√	√	√	√	√	√	√	√	√	√	√	
Technology Affects Society by Solving Practical Problems and Serving Human Needs	√	√	√	√	√	√	√	√	√	√	√	√	
AAAS Project 2061 Benchmarks: Nature of Technology: Design and Systems													
Complex Automatic Systems Require Human Control at some Point			√		√	√	√	√	√	√	√		
The Value of Technology May be Different for Different Groups of People			√			√					√		
Risk Analysis of New Technologies Minimize Unwanted Side Effects of a New Technology			√			√					√		
Performance Testing is Necessary on Small-scale Models, Computer Simulations and Analogous Systems	√	√	√	√		√	√	√	√	√	√	√	
AAAS Project 2061 Benchmarks: Nature of Technology: Issues in Technology													



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Social and Economic Forces Influence Which Technologies Will be Developed and Used.

The Human Species has a Major Impact on Other Species (Selective Breeding and Genetic Engineering)

Human Inventiveness has Brought new Risks as well as Improvements to Human Existence

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√	√	√	√	√	√	√	√	√	√	√		
√		√		√	√	√	√	√		√		
√	√	√		√	√	√	√	√		√		





## Biotechnology I&II for High School Teachers: Standards and Objectives Assesment

	Biotech II: Agricultural Biotech Web Sites	Biotech II: Web Sites	Biotech II: More Interesting Web Sites	Biotech II: Column Chromatography	Biotech II: Protein Electrophoresis	Biotech II: Kool Aid® and Fabric Dye Electrophoresis	Biotech II: Molecular Modeling Database and Cn3D Investigation I	Biotech II: Molecular Modeling Database and Cn3D Investigation II	Biotech II: One Cell, Three Genomes
Abilities of Technological Design: Communicate the Problem	√	√	√	√	√	√	√	√	
Understandings About Science and Technology: Scientists Ask Questions	√	√	√	√	√	√	√	√	√
Understandings About Science and Technology: New Technologies Extend Levels of Understanding	√	√	√	√	√	√	√	√	√
Understandings About Science and Technology: Creativity and Knowledge Base Necessary	√	√	√	√	√	√	√	√	√
Understandings About Science and Technology: Meeting Human Needs and Solving Human Problems	√	√	√	√	√		√	√	√
Understandings About Science and Technology: Knowledge is Made Available Through Presentations and Publications	√	√	√				√	√	√
<b>National Science Education Standards: Content Standard 9-12; Science in Personal and Social Perspectives</b>									
Personal and Community Health: Understanding of Diseases			√				√	√	
Personal and Community Health: Selection of Foods Determine Nutritional Balance	√								
Natural Resources: Human Populations use Resources in the Environment	√	√	√		√				
Environmental Quality: Resource Use & Capacity of Technology to Solve Problems	√	√	√	√	√	√	√	√	√
Natural and Human-Induced Hazards: Humans Must Assess Potential Risk	√	√							





**Biotechnology I&II for High School Teachers: Standards and Objectives Assesment**

	Biotech II: Agricultural Biotech Web Sites	Biotech II: Web Sites	Biotech II: More Interesting Web Sites	Biotech II: Column Chromatography	Biotech II: Protein Electrophoresis	Biotech II: Kool Aid® and Fabric Dye Electrophoresis	Biotech II: Molecular Modeling Database and Cn3D Investigation I	Biotech II: Molecular Modeling Database and Cn3D Investigation II	Biotech II: One Cell, Three Genomes
OK PASS: Science Processes and Inquiry; Inquiry Skills of Experimentation	√	√	√	√	√	√	√	√	√
OK PASS: Content Standard: The Cell	√	√	√	√	√		√	√	√
OK PASS: Content Standard: Molecular Basis of Heredity	√	√	√	√	√	√	√	√	√
OK PASS: Content Standard: Biological Diversity	√	√	√	√	√		√	√	√
OK PASS: Content Standard: Interdependence of Organisms	√	√							√
OK PASS: Content Standard: Matter, Energy, and Organization in Living Systems	√	√	√	√	√	√	√	√	√
OK PASS: Content Standard: The Behavior of Organisms	√	√							
OK PASS: Content Standard: Chemical Reactions	√	√	√	√	√	√	√	√	
AAAS Project 2061 Benchmarks: Nature of Science: Scientific World View									
Testing, Revising, Offering Explanations and Making Accurate Predictions	√	√	√	√	√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Science: Inquiry									
Exploring new Phenomena, Testing Theories	√	√	√	√	√	√	√	√	√
Hypothesis Determination and Interpretation of Data	√	√	√	√	√	√	√	√	√
Ethical observation of Natural Occurrences	√	√							
Value of Evidence and Logic	√	√	√	√	√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Science: Scientific Enterprise									



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	Biotech II: Agricultural Biotech Web Sites	Biotech II: Web Sites	Biotech II: More Interesting Web Sites	Biotech II: Column Chromatography	Biotech II: Protein Electrophoresis	Biotech II: Kool Aid® and Fabric Dye Electrophoresis	Biotech II: Molecular Modeling Database and Cn3D Investigation I	Biotech II: Molecular Modeling Database and Cn3D Investigation II	Biotech II: One Cell, Three Genomes
Progress Often Depends on Scientific and Technological Developments	√	√	√	√	√	√	√	√	√
Scientific Analytical Skills Impact Matters of Public Concern	√	√	√	√	√		√	√	√
Scientific Peer Review Process/Communication	√	√	√	√	√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Technology: Technology and Science									
Availability of new Technology Sparks Scientific Advances	√	√	√	√	√	√	√	√	√
Math, Creativity, Logic and Originality are Needed to Improve Technology	√	√	√	√	√	√	√	√	√
Technology Affects Society by Solving Practical Problems and Serving Human Needs	√	√	√	√	√	√	√	√	√
AAAS Project 2061 Benchmarks: Nature of Technology: Design and Systems									
Complex Automatic Systems Require Human Control at some Point									
The Value of Technology May be Different for Different Groups of People	√	√	√	√	√	√	√	√	√
Risk Analysis of New Technologies Minimize Unwanted Side Effects of a New Technology									
Performance Testing is Necessary on Small-scale Models, Computer Simulations and Analogous Systems							√	√	
AAAS Project 2061 Benchmarks: Nature of Technology: Issues in Technology									



## Biotechnology I&II for High School Teachers: Standards and Objectives Assesment

Social and Economic Forces Influence Which Technologies Will be Developed and Used.

The Human Species has a Major Impact on Other Species (Selective Breeding and Genetic Engineering)

Human Inventiveness has Brought new Risks as well as Improvements to Human Existence

Biotech II: Agricultural Biotech Web Sites

Biotech II: Web Sites

Biotech II: More Interesting Web Sites

Biotech II: Column Chromatography

Biotech II: Protein Electrophoresis

Biotech II: Kool Aid<sup>®</sup> and Fabric Dye Electrophoresis

Biotech II: Molecular Modeling Database and Cn3D Investigation I

Biotech II: Molecular Modeling Database and Cn3D Investigation II

Biotech II: One Cell, Three Genomes

				√	√	√	√	√	√
√	√								√
√	√	√	√	√					



**Biotechnology I&II for High School Teachers: Standards and Objectives Assesment**

Biotech II: Proteins-  
Historians of Life on  
Earth

Biotech II: HHMI 2002  
Annual Report

Biotech II: HHMI 2002  
Bulletin

**National Science Education Standards:  
Content Standard 9-12; Science as  
Inquiry**

Identify Questions & Concepts	√	√	√
Design & Conduct Scientific Investigations	√		
Use Technology & Math to Investigate and Communicate	√	√	√
Formulate Explanations and Models	√		
Analyze Alternative Models	√		
Communicate Scientific Argument	√	√	√

**National Science Education Standards:  
Content Standard 9-12; Life Science**

Complexity of the Cell	√	√	√
Molecular Basis of Cell: DNA Structure	√	√	√
Molecular Basis of Cell: Transmission of DNA Information	√	√	√
Molecular Basis of Cell: Mutations	√	√	√
Biological Evolution: Species evolve	√	√	√
Biological Evolution: Diversity of Organisms	√	√	√

**National Science Education Standards:  
Content Standard 9-12; Science and  
Technology**

Abilities of Technological Design: Identify a Problem	√		
Abilities of Technological Design: Propose Designs	√		
Abilities of Technological Design: Implement a Proposed Solution	√		
Abilities of Technological Design: Evaluate the Solution	√	√	√



**Biotechnology I&II for High School Teachers: Standards and Objectives Assessment**

	Biotech II: Proteins- Historians of Life on Earth	Biotech II: HHMI 2002 Annual Report	Biotech II: HHMI 2002 Bulletin
Abilities of Technological Design: Communicate the Problem		√	√
Understandings About Science and Technology: Scientists Ask Questions	√	√	√
Understandings About Science and Technology: New Technologies Extend Levels of Understanding	√	√	√
Understandings About Science and Technology: Creativity and Knowledge Base Necessary	√	√	√
Understandings About Science and Technology: Meeting Human Needs and Solving Human Problems	√	√	√
Understandings About Science and Technology: Knowledge is Made Available Through Presentations and Publications	√	√	√
<b>National Science Education Standards: Content Standard 9-12; Science in Personal and Social Perspectives</b>			
Personal and Community Health: Understanding of Diseases		√	√
Personal and Community Health: Selection of Foods Determine Nutritional Balance			
Natural Resources: Human Populations use Resources in the Environment			
Environmental Quality: Resource Use &Capacity of Technology to Solve Problems	√		
Natural and Human-Induced Hazards: Humans Must Assess Potential Risk			



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Science and Technology (Local-->Global) Challenges: Human Decisions Regarding Use of Knowledge	√	√	√
Science and Technology (Local-->Global) Challenges: Knowledge Should Precede Necessary Ethical Studies			
Science and Technology (Local-->Global) Challenges: Decisions Regarding All Ethical Issues			
<b>NABT: Scientific Inquiry</b>			
NABT: Scientific Inquiry: Skills of Questioning and Prediction	√		
NABT: Scientific Inquiry: Qualitative and Quantitative Observation and classification	√		
NABT: Scientific Inquiry: Communication	√	√	√
NABT: Scientific Inquiry: Testing Hypotheses and Interpreting Data	√	√	√
<b>Oklahoma Priority Academic Student Skills (OK PASS)</b>			
OK PASS: Science Processes and Inquiry; Observe and Measure	√		
OK PASS: Science Processes and Inquiry; Classify	√		
OK PASS: Science Processes and Inquiry; Experiment	√		
OK PASS: Science Processes and Inquiry; Interpret and Communicate	√	√	√
OK PASS: Science Processes and Inquiry; Model Using Data	√	√	√



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	Biotech II: Proteins- Historians of Life on Earth	Biotech II: HHMI 2002 Annual Report	Biotech II: HHMI 2002 Bulletin
OK PASS: Science Processes and Inquiry; Inquiry Skills of Experimentation	√		
OK PASS: Content Standard: The Cell	√	√	√
OK PASS: Content Standard: Molecular Basis of Heredity	√	√	√
OK PASS: Content Standard: Biological Diversity	√	√	√
OK PASS: Content Standard: Interdependence of Organisms	√		
OK PASS: Content Standard: Matter, Energy, and Organization in Living Systems	√		
OK PASS: Content Standard: The Behavior of Organisms			
OK PASS: Content Standard: Chemical Reactions			
AAAS Project 2061 Benchmarks: Nature of Science: Scientific World View			
Testing, Revising, Offering Explanations and Making Accurate Predictions	√		
AAAS Project 2061 Benchmarks: Nature of Science: Inquiry			
Exploring new Phenomena, Testing Theories	√	√	√
Hypothesis Determination and Interpretation of Data	√		
Ethical observation of Natural Occurrences			
Value of Evidence and Logic	√	√	√
AAAS Project 2061 Benchmarks: Nature of Science: Scientific Enterprise			



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	Biotech II: Proteins-Historians of Life on Earth	Biotech II: HHMI 2002 Annual Report	Biotech II: HHMI 2002 Bulletin
Progress Often Depends on Scientific and Technological Developments	√	√	√
Scientific Analytical Skills Impact Matters of Public Concern	√	√	√
Scientific Peer Review Process/Communication	√	√	√
AAAS Project 2061 Benchmarks: Nature of Technology: Technology and Science			
Availability of new Technology Sparks Scientific Advances	√	√	√
Math, Creativity, Logic and Originality are Needed to Improve Technology	√	√	√
Technology Affects Society by Solving Practical Problems and Serving Human Needs	√	√	√
AAAS Project 2061 Benchmarks: Nature of Technology: Design and Systems			
Complex Automatic Systems Require Human Control at some Point			
The Value of Technology May be Different for Different Groups of People	√		
Risk Analysis of New Technologies Minimize Unwanted Side Effects of a New Technology			
Performance Testing is Necessary on Small-scale Models, Computer Simulations and Analogous Systems			
AAAS Project 2061 Benchmarks: Nature of Technology: Issues in Technology			



**Biotechnology I&II for High School Teachers: Standards and Objectives Assesment**

Social and Economic Forces Influence Which Technologies Will be Developed and Used.	Biotech II: Proteins- Historians of Life on Earth	Biotech II: HHMI 2002 Annual Report	Biotech II: HHMI 2002 Bulletin
	√	√	√
The Human Species has a Major Impact on Other Species (Selective Breeding and Genetic Engineering)	√		
Human Inventiveness has Brought new Risks as well as Improvements to Human Existence		√	√