



# Biotechnology

## Classification of Instructional Program (CIP) 26.1201

*Units of Instruction and Task Grid Linked to Pennsylvania Core Standards*

### 100 Demonstrate Good Work Habits

Secondary Competency Task Grid with Unit and Task Numbers	Common Career Technical Core Standards	Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5	Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6	Pennsylvania Core Standards for Mathematics Standard 2.1
<p><b>101</b> Demonstrate professional work habits.</p> <p><b>102</b> Demonstrate the ability to organize, implement, and trouble shoot specific tasks.</p> <p><b>103</b> Demonstrate the ability to work in teams and as an individual.</p>	<p><b>CLUSTER:</b> Health Science Careers</p> <p>Choose Cluster Standards From: 1-2-3-4-5-6</p> <p><b>PATHWAY:</b> Biotechnology Research &amp; Development</p> <p>Choose Pathway Standards From: 1-2-3-4-5-6</p>	<p><b>KEY IDEAS/DETAILS</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.A.</b> Cite specific textual evidence, etc...</p> <p><b>Standard CC.3.5.9-10B &amp;</b> Determine the central ideas or conclusions of a text; etc...</p> <p><b>Standard CC.3.5.9-10.C</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>KEY IDEAS/DETAILS</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12A</b> Cite specific textual evidence, etc...</p> <p><b>Standard CC.3.5.11-12.B.</b> Determine the central ideas or conclusions of a text; etc...</p> <p><b>Standard CC.3.5.11-12.C.</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.D.</b> Determine the meaning of symbols, key terms, and other domain specific words...</p> <p><b>Standard CC.3.5.9-10.E</b> Analyze the structure of the relationships among concepts in a text. etc.</p> <p><b>Standard CC.3.5.9-10.F</b></p>	<p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.A</b> Write arguments focused on discipline specific content.</p> <p><b>Standard CC.3.6.9-10.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12.A</b> Write arguments focused on discipline specific content.</p> <p><b>Standard CC.3.6.11-12.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.C</b> Produce clear and coherent writing...appropriate to task, purpose, and audience.</p> <p><b>Standard CC.3.6.9-10 D</b> Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach,</p>	

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		<p>Analyze the author's purpose in providing an explanation, describing a procedure...</p> <p><b>CRAFT &amp; STRUCTURE GRADES 11-12</b>  <b>Standard CC.3.5.11-12.D.</b> Determine the meaning of symbols, key terms, and other domain specific words...  <b>Standard CC.3.5.11-12.E.</b>  Analyze the structure of the relationships among concepts in a text.  <b>Standard CC.3.5.11-12.F</b>  Analyze the author's purpose in providing an explanation, describing a procedure...</p> <p><b>INTEGRATE KNOWLEDGE/ IDEAS GRADES 9-10</b>  <b>Standard CC.3.5.9-10.G.</b>  Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).  <b>Standard CC.3.5.9-10.H.</b>  Assess the reasoning in a text to support the author's claim for solving a technical problem.  <b>Standard CC.3.5.9-10.I.</b>  Compare and contrast findings presented in a text to those from other sources, etc...</p> <p><b>INTEGRATE KNOWLEDGE/ IDEAS GRADES 11-12</b>  <b>Standard CC.3.5.11-12.G.</b>  Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.  <b>Standard CC.3.5.11-12.H.</b>  Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.  <b>Standard CC.3.5.11-12.I.</b>  Synthesize information from a range of sources into a coherent understanding.</p> <p><b>RANGE OF READING GRADES 9-10-11-12</b>  <b>Standard CC.3.5.9-10.J AND Standard CC.3.5.11-12.J.</b></p>	<p>focusing on addressing what is most significant for a specific purpose and audience.  <b>Standard CC.3.6.9-10.E</b>  Use technology, including the internet, to produce, publish, and update individual or shared writing products.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING GRADES 11-12</b>  <b>Standard CC.3.6.11-12 C</b>  Produce clear and coherent writing...appropriate to task, purpose, and audience.  <b>Standard CC.3.6.9-10 D</b>  <b>Standard CC.3.6.11-12.D.</b> Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.  <b>Standard CC.3.6.11-12.E.</b> Use technology, including the internet, to produce, publish and update individual or shared writing products.</p> <p><b>RESEARCH GRADES 9-10</b>  <b>Standard CC.3.6.9-10.F.</b> Conduct short and more sustained research to answer a question or solve a problem.  <b>Standard CC.3.6.9-10.G.</b> Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.  <b>Standard CC.3.6.9-10.H.</b> Draw evidence from informational texts to support analysis, reflection, and research.</p> <p><b>RESEARCH GRADES 11-12</b>  <b>Standard CC.3.6.11-12.F.</b> Conduct</p>	

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		By the end of grades 9- 10, AND 11-12, read and comprehend technical texts independently and proficiently.	<p>short and more sustained research to answer a question or solve a problem.</p> <p><b>Standard CC.3.6.11-12.G.</b> Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.</p> <p><b>Standard CC.3.6.11-12.H.</b> Draw evidence from informational texts to support analysis, reflection, and research.</p> <p><b>RANGE OF WRITING GRADES 9-10-11-12 Standard CC.3.5.9-10.I Standard CC.3.5.11-12.I.</b></p> <p>Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.</p>	

## 200 Demonstrate Knowledge of Biotechnology

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<p><b>201</b> Define biotechnology and its role.</p> <p><b>202</b> Demonstrate knowledge of the history of biotechnology.</p> <p><b>203</b> Describe the lifecycle of biotechnology product development.</p> <p><b>204</b> Identify the application of the biotechnology industry.</p> <p><b>205</b> Describe careers in biotechnology.</p>	<p><b>CLUSTER:</b> Health Science Careers</p> <p>Choose Cluster Standards From: 1-2-3-4-5-6</p> <p><b>PATHWAY:</b> Biotechnology Research &amp; Development</p> <p>Choose Pathway Standards From: 1-2-3-4-5-6</p>	<p><b>KEY IDEAS/DETAILS</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.A.</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.9-10B &amp;</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.9-10.C</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>KEY IDEAS/DETAILS</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12A</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.11-12.B.</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.11-12.C.</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.9-10.E</b> Analyze the structure of the relationships among concepts in a text. etc. <b>Standard CC.3.5.9-10.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.11-12.E.</b> Analyze the structure of the relationships among concepts in a text. <b>Standard CC.3.5.11-12.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p>	<p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.A</b> Write arguments focused on discipline specific content. <b>Standard CC.3.6.9-10.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12.A</b> Write arguments focused on discipline specific content. <b>Standard CC.3.6.11-12.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.C</b> Produce clear and coherent writing...appropriate to task, purpose, and audience. <b>Standard CC.3.6.9-10 D</b> Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. <b>Standard CC.3.6.9-10.E</b> Use technology, including the internet, to produce, publish, and update individual or shared writing products.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12 C</b> Produce clear and coherent</p>	

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## 300 Demonstrate Laboratory Knowledge and Skills

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<p><b>301</b> Demonstrate competency in validating and using laboratory equipment.</p> <p><b>302</b> Demonstrate competency in using computer office applications.</p> <p><b>303</b> Perform basic laboratory math skills.</p> <p><b>304</b> Apply statistical analysis to interpret data.</p> <p><b>305</b> Demonstrate the ability to use the scientific method.</p> <p><b>306</b> Properly prepare buffers and solutions.</p> <p><b>307</b> Demonstrate the concepts of recombinant technology.</p> <p><b>308</b> Demonstrate the principles of DNA isolation.</p> <p><b>309</b> Perform Polymerase Chain Reaction (PCR).</p> <p><b>310</b> Perform electrophoresis.</p> <p><b>311</b> Perform separation techniques.</p> <p><b>312</b> Explain and perform aseptic technique.</p> <p><b>313</b> Demonstrate the concepts of microbial culture.</p> <p><b>314</b> Demonstrate the concept of mammalian cell culture.</p> <p><b>315</b> Demonstrate the concept of laboratory automation.</p> <p><b>316</b> Perform basic spectrophotometer assays.</p>	<p><b>CLUSTER:</b> Health Science Careers</p> <p>Choose Cluster Standards From: 1-2-3-4-5-6</p> <p><b>PATHWAY:</b> Biotechnology Research &amp; 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DISTRIBUTION OF WRITING</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12 C</b> Produce clear and coherent</p>	<p><b>ALGEBRA 1</b> <b>Standard. 2.1.HS.F.1</b> Apply and extend the properties of exponents to solve problems with rational exponents. <b>Standard. 2.1.HS.F.2</b> Apply properties of rational and irrational numbers to solve real world or mathematical problems. <b>Standard. 2.1.HS.F.4</b> Use units as a way to understand problems and to guide the solution of multistep problems. <b>Standard. 2.1.HS.F.5</b> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. <b>Standard. 2.1.HS.F.6</b> Extend the knowledge of arithmetic operations and apply to complex numbers.</p> <p><b>ALGEBRA II</b> <b>Standard 2.4.HS.B.2</b> Summarize, represent, and interpret data on two categorical and quantitative variables. <b>Standard CC.2.4.HS.B.4</b> Recognize and evaluate random processes underlying statistical experiments. <b>Standard CC.2.4.HS.B.5</b> Make inferences and justify conclusions based on sample surveys, experiments, and observational studies. <b>StandardCC.2.2.HS.D.1</b> Interpret the structure of expressions to represent a quantity in terms of its context. <b>StandardCC.2.2.HS.D.2</b> Write expressions in equivalent forms to solve problems. <b>StandardCC.2.2.HS.D.3</b></p>



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## 400 Ethics

Secondary Competency Task Grid with Unit and Task Numbers	Common Career Technical Core Standards	Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5	Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6	Pennsylvania Core Standards for Mathematics Standard 2.1
<p><b>401</b> Demonstrate the knowledge of bioethics.</p> <p><b>402</b> Demonstrate the knowledge of professional ethics.</p>	<p><b>CLUSTER:</b> Health Science Careers</p> <p>Choose Cluster Standards From: 1-2-3-4-5-6</p> <p><b>PATHWAY:</b> Biotechnology Research &amp; Development</p> <p>Choose Pathway Standards From: 1-2-3-4-5-6</p>	<p><b>KEY IDEAS/DETAILS</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.A.</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.9-10B &amp;</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.9-10.C</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>KEY IDEAS/DETAILS</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12A</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.11-12.B.</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.11-12.C.</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.9-10.E</b> Analyze the structure of the relationships among concepts in a text. etc. <b>Standard CC.3.5.9-10.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.11-12.E.</b> Analyze the structure of the relationships among concepts in a text. <b>Standard CC.3.5.11-12.F</b> Analyze the author's purpose in providing</p>	<p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.A</b> Write arguments focused on discipline specific content. <b>Standard CC.3.6.9-10.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12.A</b> Write arguments focused on discipline specific content. <b>Standard CC.3.6.11-12.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.C</b> Produce clear and coherent writing...appropriate to task, purpose, and audience. <b>Standard CC.3.6.9-10 D</b> Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. <b>Standard CC.3.6.9-10.E</b> Use technology, including the internet, to produce, publish, and update individual or shared writing products.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12 C</b> Produce clear and coherent</p>	

Secondary Competency Task Grid with Unit and Task Numbers	Common Career Technical Core Standards	Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5	Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6	Pennsylvania Core Standards for Mathematics Standard 2.1
		<p>an explanation, describing a procedure...</p> <p><b>INTEGRATE KNOWLEDGE/ IDEAS GRADES 9-10 Standard CC.3.5.9-10.G.</b> Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart). <b>Standard CC.3.5.9-10.H.</b> Assess the reasoning in a text to support the author's claim for solving a technical problem. <b>Standard CC.3.5.9-10.I.</b> Compare and contrast findings presented in a text to those from other sources, etc...</p> <p><b>INTEGRATE KNOWLEDGE/ IDEAS GRADES 11-12 Standard CC.3.5.11-12.G.</b> Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem. <b>Standard CC.3.5.11-12.H.</b> Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible. <b>Standard CC.3.5.11-12.I.</b> Synthesize information from a range of sources into a coherent understanding.</p> <p><b>RANGE OF READING GRADES 9-10-11-12 Standard CC.3.5.9-10.J AND Standard CC.3.5.11-12.J.</b> By the end of grades 9- 10, AND 11-12, read and comprehend technical texts independently and proficiently.</p>	<p>writing...appropriate to task, purpose, and audience. <b>Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D.</b>- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. <b>Standard CC.3.6.11-12.E.</b>Use technology, including the internet, to produce, publish, and update individual or shared writing products.</p> <p><b>RESEARCH GRADES 9-10 Standard CC.3.6.9-10.F.</b> Conduct short and more sustained research to answer a question or solve a problem. <b>Standard CC.3.6.9-10.G.</b>Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. <b>Standard CC.3.6.9-10.H.</b> Draw evidence from informational texts to support analysis, reflection, and research.</p> <p><b>RESEARCH GRADES 11-12 Standard CC.3.6.11-12.F.</b> Conduct short and more sustained research to answer a question or solve a problem. <b>Standard CC.3.6.11-12.G.</b>Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. <b>Standard CC.3.6.11-12.H.</b> Draw evidence from informational texts to support analysis, reflection, and research.</p> <p><b>RANGE OF WRITING</b></p>	

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			<p><b>GRADES 9-10-11-12</b>  <b>Standard CC.3.5.9-10.I Standard</b>  <b>CC.3.5.11-12.I.</b>            Write routinely over extended time            frames and shorter time frames for a            range of tasks, purposes and            audiences...etc.</p>	

## 500 Demonstrate Safety in the Biotechnology Laboratory

Secondary Competency Task Grid with Unit and Task Numbers	Common Career Technical Core Standards	Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5	Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6	Pennsylvania Core Standards for Mathematics Standard 2.1
<p><b>501</b> Demonstrate general requirements for laboratory safety.</p> <p><b>502</b> Identify and use personal protective equipment.</p> <p><b>503</b> Demonstrate ability to implement safety protocols.</p> <p><b>504</b> Follow MSDS guidelines for handling, storage, and disposal of hazardous material.</p> <p><b>505</b> Demonstrate knowledge of safety regulatory agencies, such as OSHA.</p>	<p><b>CLUSTER:</b> Health Science Careers</p> <p>Choose Cluster Standards From: 1-2-3-4-5-6</p> <p><b>PATHWAY:</b> Biotechnology Research &amp; Development</p> <p>Choose Pathway Standards From: 1-2-3-4-5-6</p>	<p><b>KEY IDEAS/DETAILS</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.A.</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.9-10B &amp;</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.9-10.C</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>KEY IDEAS/DETAILS</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12A</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.11-12.B.</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.11-12.C.</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.9-10.E</b> Analyze the structure of the relationships among concepts in a text. etc. <b>Standard CC.3.5.9-10.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.11-12.E.</b> Analyze the structure of the relationships among concepts in a text. <b>Standard CC.3.5.11-12.F</b></p>		

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		<p>Analyze the author's purpose in providing an explanation, describing a procedure...  <b>INTEGRATE KNOWLEDGE/ IDEAS</b>  <b>GRADES 9-10</b>  <b>Standard CC.3.5.9-10.G.</b>            Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).  <b>Standard CC.3.5.9-10.H.</b>            Assess the reasoning in a text to support the author's claim for solving a technical problem.  <b>Standard CC.3.5.9-10.I.</b>            Compare and contrast findings presented in a text to those from other sources, etc...</p> <p><b>INTEGRATE KNOWLEDGE/ IDEAS</b>  <b>GRADES 11-12</b>  <b>Standard CC.3.5.11-12.G.</b>            Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.  <b>Standard CC.3.5.11-12.H.</b>            Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.  <b>Standard CC.3.5.11-12.I.</b>            Synthesize information from a range of sources into a coherent understanding.</p> <p><b>RANGE OF READING</b>  <b>GRADES 9-10-11-12</b>  <b>Standard CC.3.5.9-10.J AND Standard CC.3.5.11-12.J.</b>            By the end of grades 9- 10, AND 11-12, read and comprehend technical texts independently and proficiently.</p>		

## 600 Demonstrate the Ability to Work in a Highly Regulated Environment

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<p><b>601</b> Perform documentation according to regulatory agency standards.</p> <p><b>602</b> Demonstrate an ability to maintain records in accordance with intellectual property laws.</p> <p><b>603</b> Document lab activities and findings according to guidelines.</p>	<p><b>CLUSTER:</b> Health Science Careers</p> <p>Choose Cluster Standards From: 1-2-3-4-5-6</p> <p><b>PATHWAY:</b> Biotechnology Research &amp; Development</p> <p>Choose Pathway Standards From: 1-2-3-4-5-6</p>	<p><b>KEY IDEAS/DETAILS</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.A.</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.9-10B &amp;</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.9-10.C</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>KEY IDEAS/DETAILS</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12A</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.11-12.B.</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.11-12.C.</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.9-10.E</b> Analyze the structure of the relationships among concepts in a text. etc. <b>Standard CC.3.5.9-10.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.11-12.E.</b> Analyze the structure of the relationships among concepts in a text. <b>Standard CC.3.5.11-12.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p>	<p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.A</b> Write arguments focused on discipline specific content. <b>Standard CC.3.6.9-10.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>TEXT TYPES AND PURPOSE</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12.A</b> Write arguments focused on discipline specific content. <b>Standard CC.3.6.11-12.B</b> Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING</b> <b>GRADES 9-10</b> <b>Standard CC.3.6.9-10.C</b> Produce clear and coherent writing...appropriate to task, purpose, and audience. <b>Standard CC.3.6.9-10 D</b> Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. <b>Standard CC.3.6.9-10.E</b> Use technology, including the internet, to produce, publish, and update individual or shared writing products.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING</b> <b>GRADES 11-12</b> <b>Standard CC.3.6.11-12 C</b> Produce clear and coherent</p>	



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## 700 Demonstrate Use of Appropriate Equipment and Instrumentation

Secondary Competency Task Grid with Unit and Task Numbers	Common Career Technical Core Standards	Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5	Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6	Pennsylvania Core Standards for Mathematics Standard 2.1
<p>701 Use laboratory glassware.</p> <p>702 Use volumetric equipment.</p> <p>703 Use electrophoresis equipment.</p> <p>704 Use spectrophotometer.</p> <p>705 Use balances.</p> <p>706 Demonstrate knowledge of autoclaves.</p> <p>707 Use centrifuges.</p> <p>708 Demonstrate knowledge to correctly use pH meters.</p> <p>709 Demonstrate knowledge of thermocyclers.</p> <p>710 Use microscopes.</p> <p>711 Demonstrate knowledge of laminar flow hoods.</p> <p>712 Demonstrate knowledge of temperature regulating devices (water baths, incubators).</p> <p>713 Demonstrate knowledge of chromatographic equipment.</p> <p>714 Demonstrate knowledge to correctly calibrate pH meters.</p>	<p><b>CLUSTER:</b> Health Science Careers</p> <p>Choose Cluster Standards From: 1-2-3-4-5-6</p> <p><b>PATHWAY:</b> Biotechnology Research &amp; Development</p> <p>Choose Pathway Standards From: 1-2-3-4-5-6</p>	<p><b>KEY IDEAS/DETAILS</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.A.</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.9-10B &amp;</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.9-10.C</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>KEY IDEAS/DETAILS</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12A</b> Cite specific textual evidence, etc.... <b>Standard CC.3.5.11-12.B.</b> Determine the central ideas or conclusions of a text; etc... <b>Standard CC.3.5.11-12.C.</b> Follow precisely a complex multistep procedure, etc...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 9-10</b> <b>Standard CC.3.5.9-10.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.9-10.E</b> Analyze the structure of the relationships among concepts in a text. etc. <b>Standard CC.3.5.9-10.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p> <p><b>CRAFT &amp; STRUCTURE</b> <b>GRADES 11-12</b> <b>Standard CC.3.5.11-12.D.</b> Determine the meaning of symbols, key terms, and other domain specific words... <b>Standard CC.3.5.11-12.E.</b> Analyze the structure of the relationships among concepts in a text. <b>Standard CC.3.5.11-12.F</b> Analyze the author's purpose in providing an explanation, describing a procedure...</p>		

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