

**WEST JEFFERSON HILLS SCHOOL DISTRICT  
TECHNOLOGY CURRICULUM**

**GRADE 9**

<p style="text-align: center;"><b>PA Academic Standards</b> Student must be able to do</p>	<p style="text-align: center;"><b>Objective</b> Content or process student will be able to know and do</p>	<p style="text-align: center;"><b>Instructional Methods</b></p>	<p style="text-align: center;"><b>Materials/ Resources</b> Textbooks, trade books, workbooks, software, hardware, etc.</p>	<p style="text-align: center;"><b>*Assessment Procedures</b> *Additional adaptations, modifications, accommodations, and enrichment/ acceleration will be provided per IEP</p>	<p style="text-align: center;"><b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP</p>	<p style="text-align: center;"><b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/acceleration will be provided per IEP</p>
<p>Technology Education 3.6.10. GRADE 9</p>						
<p>A. Apply biotechnologies that relates to propagating, growing, maintaining, adapting, treating and converting.</p> <ul style="list-style-type: none"> <li>• Apply knowledge of biomedical technology applications in designing a solution to a simple medical problem (e.g., wheel chair design, artificial arteries).</li> <li>• Apply knowledge of how biomedical technology affects waste projects in designing a solution that will result in reduced waste.</li> <li>• Apply ergonomic engineering factors when devising a solution to a specific problem.</li> </ul>						

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<p>Technology Education 3.6.10. GRADE 9</p>						
<ul style="list-style-type: none"> <li>•Describe various methods of biochemical conversion.</li> <li>•Describe specific examples that reflect the impact that agricultural science has had on biotechnology.</li> </ul>						

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Technology Education 3.6.10. GRADE 9						
B. Apply knowledge of information technologies of encoding, transmitting, receiving, storing, retrieving and decoding. <ul style="list-style-type: none"> <li>• Describe the proper use of graphic and electronic communication systems.</li> <li>• Apply a variety of advanced mechanical and electronic drafting methods to communicate a solution to a specific problem.</li> <li>• Apply and analyze advanced communication techniques to produce an image that effectively conveys a message (e.g., desktop publishing, audio and/or video production).</li> <li>• Illustrate an understanding of a computer network system by modeling, constructing or assembling its components.</li> </ul>						

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<p>C. Apply physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.</p> <ul style="list-style-type: none"> <li>• Describe and classify common construction by their characteristics and composition.</li> <li>• Compare and contrast specific construction systems that depend on each other in order to complete a project.</li> <li>• Evaluate material failure common to specific applications.</li> <li>• Demonstrate knowledge of various construction systems by building or interpreting</li> </ul>						

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<p>Technology Education 3.6.10. GRADE 9</p>						
<ul style="list-style-type: none"> <li>•Select and apply the necessary resources to successfully conduct a manufacturing enterprise.</li> <li>•Apply concepts of design engineering and production engineering in the organization and application of a manufacturing activity.</li> <li>•Apply the concepts of manufacturing by redesigning an enterprise to improve productivity or reduce or eliminate waste and/or pollution..</li> <li>•Evaluate the interrelationship of various transportation systems in the community.</li> <li>•Analyze the impacts that transportation have on a community.</li> </ul>						

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<p>Technology Devices 3.7.10 GRADE 9</p>						
<p>A. Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions.</p> <ul style="list-style-type: none"> <li>• Select and safely apply appropriate tools, materials and processes necessary to solve complex problems.</li> <li>• Apply advanced tool and equipment manipulation techniques to solve problems.</li> </ul>						

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<p>Technology Devices 3.7.10 GRADE 9</p>						
<p>B. Apply appropriate instruments and apparatus to examine a variety of objects and processes.</p> <ul style="list-style-type: none"> <li>• Describe and use appropriate instruments to gather and analyze data.</li> <li>• Compare and contrast different scientific measurement systems; select the best measurement system for a specific situation.</li> <li>• Explain the need to estimate measurements within error of various instruments.</li> <li>• Apply accurate measurement knowledge to solve everyday problems.</li> </ul>						

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<p>Technology Devices 3.7.10 GRADE 9</p>						
<ul style="list-style-type: none"> <li>•Describe and demonstrate operation and use of advanced instrumentation in evaluating material and chemical properties (e.g., scanning electron microscope, nuclear magnetic resonance machines).</li> </ul>						

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<p>Technology Devices 3.7.10 GRADE 9</p>						
<p>C. Apply basic computer operations and concepts.</p> <ul style="list-style-type: none"> <li>• Identify solutions to basic hardware and software problems.</li> <li>• Apply knowledge of advanced input devices.</li> <li>• Apply knowledge of hardware setup.</li> <li>• Describe the process for basic software installation and demonstrate it.</li> <li>• Analyze and solve basic operating systems problems.</li> <li>• Apply touch keyboarding skills and techniques at expectable speed and accuracy.</li> <li>• Demonstrate the ability to perform basic software installation.</li> </ul>						

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<p>Technology Devices 3.7.10 GRADE 9</p>						
<p>D. Utilize computer software to solve specific problems.</p> <ul style="list-style-type: none"> <li>• Identify legal restrictions in the use of software and the output of data.</li> <li>• Apply advanced graphic manipulation and desktop publishing techniques.</li> <li>• Apply basic advanced word processing, database and spreadsheet skills.</li> <li>• Describe and demonstrate how two or more software applications can be used to produce an output.</li> <li>• Select and apply software designed to meet specific needs.</li> </ul>						

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<p>Technology Devices 3.7.10 GRADE 9</p>						
<p>E. Apply basic computer communication systems.</p> <ul style="list-style-type: none"> <li>• Identify and explain various types of on-line services.</li> <li>• Identify and explain the functions of the parts of a basic network.</li> <li>• Describe and apply the components of a web page and their function.</li> <li>• Explain and demonstrate file transfer within and outside of a computer network.</li> <li>• Identify, describe and complete advanced on-line research.</li> </ul>						

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<p>Science, Technology and Human Endeavors 3.8.10 GRADE 9</p>						
<p>A. Analyze the relationship between societal demands and scientific and technological enterprises.</p> <ul style="list-style-type: none"> <li>• Identify past and current tradeoffs between increased production, environmental harm and social values (e.g., increased energy needs, power plants, automobiles).</li> <li>• Compare technologies that are applied and accepted differently in various cultures (e.g., factory, farming, nuclear power).</li> <li>• Describe and evaluate social change as a result of technological developments.</li> </ul>						

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<p>Science, Technology and Human Endeavors 3.8.10 GRADE 9</p>						
<ul style="list-style-type: none"> <li>● Assess the social impacts of a specific international environmental problem by designing a solution that applies the appropriate technologies and resources.</li> </ul>						

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<p>Science, Technology and Human Endeavors 3.8.10 GRADE 9</p>						
<p>B. Analyze how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.</p> <ul style="list-style-type: none"> <li>• Identify several problems and opportunities that exist in your community, apply various problem-solving methods to design and evaluate possible solutions.</li> <li>• Analyze a recently invented item describing the human need that prompted its invention and the current and potential social impacts of the specific invention.</li> <li>•</li> </ul>						

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<p>Science, Technology and Human Endeavors 3.8.10 GRADE 9</p>						
<ul style="list-style-type: none"> <li>• Apply knowledge of oceanography, meteorology, geology and human anatomy to explain important considerations that need to be made for construction of homes, buildings, and businesses in the United States.</li> <li>• Assess the impacts that agricultural science has had on meeting human needs and improving the quality of life.</li> </ul>						

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<p>Science, Technology and Human Endeavors 3.8.10 GRADE 9</p>						
	<p>C. Evaluate possibilities, consequences, and impacts of scientific and technological solutions.</p> <ul style="list-style-type: none"> <li>• Relate scientific and technological advancements in terms of cause and effect.</li> <li>• Describe and evaluate the impacts that financial considerations have had on specific scientific and technological applications.</li> <li>• Compare and contrast potential solutions to technological, social, economic and environmental problems.</li> <li>• Analyze the impacts on society of accepting or rejecting scientific and technological</li> </ul>					

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