

# CURRICULUM

## Technology Systems-Fall Thomas Jefferson High School

*Curriculum Strand: Measurement*

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.1.10.D Apply scale as a way of relating concepts and ideas to one another by some measure	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of the customary scale to the 1/16"</li> <li>• Demonstrate an understanding of the metric scale</li> <li>• Apply the use of various tools for both the customary and metric scale</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Group Work</li> <li>• Hands-on Work</li> <li>• Internet Research</li> <li>• Cooperative Learning</li> <li>• Class Discussions</li> <li>• Q/A</li> <li>• Demonstrations</li> <li>• Note Taking</li> </ul>	<ul style="list-style-type: none"> <li>• Activity Packet</li> <li>• Calculators</li> <li>• Measuring Devices</li> <li>• Worksheets</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher Observation</li> <li>• Tests</li> <li>• In-Class Work</li> <li>• Portfolio Check</li> <li>• Critical Thinking</li> <li>• Peer Evaluation</li> <li>• Q/A</li> </ul>	<ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Tutoring</li> <li>• Technology</li> <li>• Adapted Lessons</li> <li>• Access to Learning Support</li> <li>• Review and Re-teach</li> <li>• Peer Interaction</li> <li>• Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional Work</li> <li>• Measure to the 1/32" and 1/64"</li> <li>• Peer Instruction</li> </ul>

# CURRICULUM

## Technology Systems-Fall Thomas Jefferson High School

*Curriculum Strand: Production Tools and Safety*

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.7.10.A Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions 3.7.10.C Apply basic computer operations and concepts	<ul style="list-style-type: none"> <li>• Identify and recall safety issues on a variety of hand tools</li> <li>• Identify and recall safety issues on a variety of machines</li> <li>• Memorize proper production techniques</li> <li>• Recognize and classify various production materials</li> <li>• Apply basic computer operations</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Group Work</li> <li>• Hands-on Work</li> <li>• Internet Research</li> <li>• Cooperative Learning</li> <li>• Class Discussions</li> <li>• Q/A</li> <li>• Demonstrations</li> <li>• Note Taking</li> <li>• Independent Design and Development</li> </ul>	<ul style="list-style-type: none"> <li>• Activity Packet</li> <li>• Worksheets</li> <li>• Hand Tools</li> <li>• Production Machines</li> <li>• Computers</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher Observation</li> <li>• Quiz</li> <li>• Problem Solving</li> <li>• In-Class Work</li> <li>• Critical Thinking</li> <li>• Peer Evaluation</li> <li>• Q/A</li> </ul>	<ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Tutoring</li> <li>• Technology</li> <li>• Adapted Lessons</li> <li>• Access to Learning Support</li> <li>• Review and Re-teach</li> <li>• Peer Interaction</li> <li>• Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional Work</li> <li>• More In-depth Project</li> <li>• Technology Competition</li> <li>• Peer Instruction</li> <li>• Independent Research Project</li> </ul>

# CURRICULUM

## Technology Systems-Fall Thomas Jefferson High School

*Curriculum Strand: Water Transportation Technology*

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.1.10 D Apply scale as a way of relating concepts and ideas to one another by some measure 3.2.10.A Apply knowledge and understanding about the nature of scientific and technological knowledge 3.6.10.C Apply physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems 3.7.10.A Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions	<ul style="list-style-type: none"> <li>• Recognize, interpret and employ various transportation systems and subsystems</li> <li>• Recall the various transportation environments</li> <li>• Define and analysis bouyancy</li> <li>• Demonstrate the safe and efficient use of a variety of hand tools, machines, materials, and production techniques</li> <li>• Discuss the history of transportation technology</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Group Work</li> <li>• Hands-on Work</li> <li>• Internet Research</li> <li>• Cooperative Learning</li> <li>• Class Discussions</li> <li>• Q/A</li> <li>• Demonstrations</li> <li>• Note Taking</li> <li>• Independent Design and Development</li> </ul>	<ul style="list-style-type: none"> <li>• Activity Packet</li> <li>• Worksheets</li> <li>• Calculator</li> <li>• Hand Tools</li> <li>• Measuring Devices</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher Observation</li> <li>• Test</li> <li>• Problem Solving</li> <li>• In-Class Work</li> <li>• Write-up</li> <li>• Portfolio Check</li> <li>• Project</li> <li>• Critical Thinking</li> <li>• Essay</li> <li>• Rubric</li> <li>• Self Evaluation</li> <li>• Q/A</li> </ul>	<ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Tutoring</li> <li>• Technology</li> <li>• Adapted Lessons</li> <li>• Access to Learning Support</li> <li>• Review and Re-teach</li> <li>• Peer Interaction</li> <li>• Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional Work</li> <li>• More In-depth Project</li> <li>• Technology Competition</li> <li>• Peer Instruction</li> <li>• Independent Research Project</li> </ul>

# CURRICULUM

## Technology Systems-Fall Thomas Jefferson High School

*Curriculum Strand: Construction Technology*

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.1.10.B Describe concepts of models as a method to predict and understand science and technology 3.1.10 D Apply scale as a way of relating concepts and ideas to one another by some measure 3.1.12.E Evaluate change in nature, physical systems and man made systems 3.2.10.A Apply knowledge and understanding about the nature of scientific and technological knowledge	<ul style="list-style-type: none"> <li>• Examine the structural design of bridges</li> <li>• Examine basic engineering principles-torsion, shear, tension, compression</li> <li>• Examine and predict the physical forces acting on a model bridge</li> <li>• Analyze and apply the technological design process</li> <li>• Recall and apply basic AutoCAD software techniques</li> <li>• Design and test a simulated bridge using West Point Bridge Builder software</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Group Work</li> <li>• Hands-on Work</li> <li>• Internet Research</li> <li>• Cooperative Learning</li> <li>• Class Discussions</li> <li>• Q/A</li> <li>• Demonstrations</li> <li>• Note Taking</li> <li>• Independent Design and Development</li> <li>• Video</li> </ul>	<ul style="list-style-type: none"> <li>• Activity Packet</li> <li>• Worksheets</li> <li>• Calculator</li> <li>• Hand Tools</li> <li>• Measuring Devices</li> <li>• Computers</li> <li>• AutoCAD</li> <li>• West Point Bridge Builder</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher Observation</li> <li>• Test</li> <li>• Problem Solving</li> <li>• In-Class Work</li> <li>• Write-up</li> <li>• Portfolio Check</li> <li>• Project</li> <li>• Critical Thinking</li> <li>• Essay</li> <li>• Rubric</li> <li>• Self Evaluation</li> <li>• Q/A</li> </ul>	<ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Tutoring</li> <li>• Technology</li> <li>• Adapted Lessons</li> <li>• Access to Learning Support</li> <li>• Review and Re-teach</li> <li>• Peer Interaction</li> <li>• Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional Work</li> <li>• More In-depth Project</li> <li>• Technology Competition</li> <li>• Peer Instruction</li> <li>• Independent Research Project</li> </ul>

# CURRICULUM

## Technology Systems-Fall

Thomas Jefferson High School

### Curriculum Strand: Construction Technology

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.6.10.C Apply physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems 3.7.10 B Apply appropriate instruments and apparatus to examine a variety of objects and processes 3.7.10.C Apply basic computer operations and concepts 3.7.10.D Utilize computer software to solve specific problems	<ul style="list-style-type: none"> <li>• Demonstrate the safe and efficient use of a variety of hand tools and materials</li> <li>• Apply basic computer operations</li> <li>• Discuss the history of construction technology</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Group Work</li> <li>• Hands-on Work</li> <li>• Internet Research</li> <li>• Cooperative Learning</li> <li>• Class Discussions</li> <li>• Q/A</li> <li>• Demonstrations</li> <li>• Note Taking</li> <li>• Independent Design and Development</li> </ul>	<ul style="list-style-type: none"> <li>• Activity Packet</li> <li>• Worksheets</li> <li>• Calculator</li> <li>• Hand Tools</li> <li>• Measuring Devices</li> <li>• Computers</li> <li>• AutoCAD</li> <li>• West Point Bridge Builder</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher Observation</li> <li>• Test</li> <li>• Problem Solving</li> <li>• In-Class Work</li> <li>• Write-up</li> <li>• Portfolio Check</li> <li>• Project</li> <li>• Critical Thinking</li> <li>• Essay</li> <li>• Rubric</li> <li>• Self Evaluation</li> <li>• Q/A</li> </ul>	<ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Tutoring</li> <li>• Technology</li> <li>• Adapted Lessons</li> <li>• Access to Learning Support</li> <li>• Review and Re-teach</li> <li>• Peer Interaction</li> <li>• Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional Work</li> <li>• More In-depth Project</li> <li>• Technology Competition</li> <li>• Peer Instruction</li> <li>• Independent Research Project</li> </ul>

# CURRICULUM

## Technology Systems-Spring

Thomas Jefferson High School

### Curriculum Strand: Plastics Technology

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.1.10.E Describe patterns of change in nature, physical systems and man made systems 3.2.10.A Apply knowledge and understanding about the nature of scientific and technological knowledge 3.7.10.A Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions 3.8.10.B Analyze how human ingenuity and technological resources satisfy human needs and improve the quality	<ul style="list-style-type: none"> <li>• Differentiate between the plastic processes</li> <li>• Demonstrate the plastic processes</li> <li>• Recognize the different types of recycling materials and methods</li> <li>• Compare and contrast thermoset and thermo form</li> <li>• Demonstrate the safe and efficient use of a variety of hand tools, machines, materials, and production techniques</li> <li>• Examine careers in plastic related industries</li> <li>• History of plastics</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Group Work</li> <li>• Hands-on Work</li> <li>• Internet Research</li> <li>• Cooperative Learning</li> <li>• Class Discussions</li> <li>• Q/A</li> <li>• Demonstrations</li> <li>• Note Taking</li> <li>• Independent Design and Development</li> </ul>	<ul style="list-style-type: none"> <li>• Activity Packet</li> <li>• Worksheets</li> <li>• Calculator</li> <li>• Hand Tools</li> <li>• Production Machines</li> <li>• Measuring Devices</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher Observation</li> <li>• Test</li> <li>• Problem Solving</li> <li>• In-Class Work</li> <li>• Write-up</li> <li>• Portfolio Check</li> <li>• Project</li> <li>• Critical Thinking</li> <li>• Essay</li> <li>• Rubric</li> <li>• Self Evaluation</li> <li>• Q/A</li> </ul>	<ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Tutoring</li> <li>• Technology</li> <li>• Adapted Lessons</li> <li>• Access to Learning Support</li> <li>• Review and Re-teach</li> <li>• Peer Interaction</li> <li>• Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional Work</li> <li>• More In-depth Project</li> <li>• Technology Competition</li> <li>• Peer Instruction</li> <li>• Independent Research Project</li> </ul>

# CURRICULUM

## Technology Systems-Spring Thomas Jefferson High School

### Curriculum Strand: Aerodynamics Technology

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.1.10.A Discriminate among the concepts of system, subsystem, feedback and control in solving technological problems 3.1.10.B Describe concepts of models as a method to predict and understand science and technology 3.2.10.A Apply knowledge and understanding about the nature of scientific and technological knowledge 3.6.10.C Apply physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems 3.8.10.C Evaluate possible consequences and impacts	<ul style="list-style-type: none"> <li>• Recognize and interpret various aerodynamic systems and subsystems</li> <li>• Recall the various transportation environments</li> <li>• Identify aerodynamic patterns</li> <li>• Assess the impacts of airplanes on society</li> <li>• Discuss the history of aeronautics</li> <li>• Define and analyze Bernoulli's Principle</li> </ul>	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Group Work</li> <li>• Hands-on Work</li> <li>• Cooperative Learning</li> <li>• Brainstorming</li> <li>• Class Discussions</li> <li>• Demonstrations</li> <li>• Note Taking</li> <li>• Independent Design and Development</li> <li>• Video</li> </ul>	<ul style="list-style-type: none"> <li>• Activity Packet</li> <li>• Worksheets</li> <li>• Calculator</li> <li>• Hand Tools</li> <li>• Measuring Devices</li> <li>• Computers</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher Observation</li> <li>• Test</li> <li>• Problem Solving</li> <li>• In-Class Work</li> <li>• Write-up</li> <li>• Portfolio Check</li> <li>• Project</li> <li>• Critical Thinking</li> <li>• Essay</li> <li>• Rubric</li> <li>• Self Evaluation</li> <li>• Q/A</li> </ul>	<ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Tutoring</li> <li>• Technology</li> <li>• Adapted Lessons</li> <li>• Access to Learning Support</li> <li>• Review and Re-teach</li> <li>• Peer Interaction</li> <li>• Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional Work</li> <li>• More In-depth Project</li> <li>• Technology Competition</li> <li>• Peer Instruction</li> <li>• Independent Research Project</li> </ul>

# CURRICULUM

## Technology Systems-Spring Thomas Jefferson High School

### Curriculum Strand: Technology Research Project

<b>PA Academic Standards</b> Student must be able to do	<b>Objective</b> Content or process student will be able to know and do	<b>Instructional Methods</b>	<b>Materials/ Resources</b> Textbooks, workbooks, software, hardware, etc	<b>*Assessment Procedures</b> *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	<b>*Additional Learning</b> Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	<b>*Extended Learning</b> Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.6.10.B Apply knowledge of information technologies of process encoding, transmitting, receiving, storing and decoding 3.7.10.C Apply basic computer operations and concepts 3.8.10.A Analyze the relationship between societal demands and scientific and technological enterprises 3.8.10.B Analyze how human ingenuity and technological resources satisfy human needs and improve the quality of life 3.8.10.C Evaluate possible consequences	<ul style="list-style-type: none"> <li>Describe, interpret and discuss the needs and interactions of technology</li> <li>Describe, interpret and discuss the impacts of technology on society</li> <li>Apply basic computer operations</li> <li>Recognize patterns of change</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Group Work</li> <li>Hands-on Work</li> <li>Internet Research</li> <li>Cooperative Learning</li> <li>Class Discussions</li> <li>Q/A</li> <li>Demonstrations</li> <li>Note Taking</li> <li>Independent Design and Development</li> </ul>	<ul style="list-style-type: none"> <li>Activity Packet</li> <li>Computers</li> </ul>	<ul style="list-style-type: none"> <li>Teacher Observation</li> <li>In-Class Work</li> <li>Critical Thinking</li> <li>Presentation</li> <li>Rubric</li> <li>Q/A</li> </ul>	<ul style="list-style-type: none"> <li>Extended Time</li> <li>Tutoring</li> <li>Technology</li> <li>Adapted Lessons</li> <li>Access to Learning Support</li> <li>Review and Re-teach</li> <li>Peer Interaction</li> <li>Group Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Additional Work</li> <li>More In-depth Project</li> <li>Peer Instruction</li> </ul>