

CURRICULUM

Technology Systems-Fall Thomas Jefferson High School

Curriculum Strand: Measurement

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

CURRICULUM

Technology Systems-Fall Thomas Jefferson High School

Curriculum Strand: Production Tools and Safety

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

CURRICULUM

Technology Systems-Fall Thomas Jefferson High School

Curriculum Strand: Manufacturing Technology

PA Academic Standards Student must be able to do	Objective Content or process student will be able to know and do	Instructional Methods	Materials/ Resources Textbooks, workbooks, software, hardware, etc	*Assessment Procedures *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	*Additional Learning Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	*Extended Learning 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"> • Recognize, interpret and employ various manufacturing systems and subsystems • Organize and prepare a flow process chart • Demonstrate the safe and efficient use of a variety of hand tools, machines, materials, and production techniques • Discuss the history of manufacturing technology 	<ul style="list-style-type: none"> • Direct Instruction • Group Work • Hands-on Work • Internet Research • Cooperative Learning • Class Discussions • Q/A • Demonstrations • Note Taking • Independent Design and Development 	<ul style="list-style-type: none"> • Activity Packet • Worksheets • Calculator • Hand Tools • Production Machines • Measuring Devices 	<ul style="list-style-type: none"> • Teacher Observation • Test • Problem Solving • In-Class Work • Write-up • Portfolio Check • Project • Critical Thinking • Essay • Rubric • Self Evaluation • Q/A 	<ul style="list-style-type: none"> • Extended Time • Tutoring • Technology • Adapted Lessons • Access to Learning Support • Review and Re-teach • Peer Interaction • Group Instruction 	<ul style="list-style-type: none"> • Additional Work • More In-depth Project • Technology Competition • Peer Instruction • Independent Research Project

Technology Systems-Fall

Thomas Jefferson High School

Curriculum Strand: Space and Rocketry Technology

PA Academic Standards Student must be able to do	Objective Content or process student will be able to know and do	Instructional Methods	Materials/ Resources Textbooks, workbooks, software, hardware, etc	*Assessment Procedures *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	*Additional Learning Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	*Extended Learning 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 3.1.10 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	<ul style="list-style-type: none"> • Examine the structural design of space vehicles • Examine and predict the physical forces acting on a model rocket • Analyze and apply the technological design process • Design and develop a model rocket that will produce specific results • Demonstrate the safe and efficient use of a variety of hand tools, machines, materials, and production techniques 	<ul style="list-style-type: none"> • Direct Instruction • Group Work • Hands-on Work • Internet Research • Cooperative Learning • Class Discussions • Q/A • Demonstrations • Note Taking • Independent Design and Development • Video 	<ul style="list-style-type: none"> • Activity Packet • Worksheets • Calculator • Hand Tools • Production Machines • Measuring Devices 	<ul style="list-style-type: none"> • Teacher Observation • Test • Problem Solving • In-Class Work • Write-up • Portfolio Check • Project • Critical Thinking • Essay • Rubric • Self Evaluation • Q/A 	<ul style="list-style-type: none"> • Extended Time • Tutoring • Technology • Adapted Lessons • Access to Learning Support • Review and Re-teach • Peer Interaction • Group Instruction 	<ul style="list-style-type: none"> • Additional Work • More In-depth Project • Technology Competition • Peer Instruction • Independent Research Project

Technology Systems-Fall

Thomas Jefferson High School

Curriculum Strand: Space and Rocketry Technology

PA Academic Standards Student must be able to do	Objective Content or process student will be able to know and do	Instructional Methods	Materials/ Resources Textbooks, workbooks, software, hardware, etc	*Assessment Procedures *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	*Additional Learning Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	*Extended Learning Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.2.10.D Identify and apply the technological design process to solve problems 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"> • Discuss the history of space technology 	<ul style="list-style-type: none"> • Direct Instruction • Group Work • Hands-on Work • Internet Research • Cooperative Learning • Class Discussions • Q/A • Demonstrations • Note Taking • Independent Design and Development • Video 	<ul style="list-style-type: none"> • Activity Packet • Worksheets • Calculator • Hand Tools • Production Machines • Measuring Devices 	<ul style="list-style-type: none"> • Teacher Observation • Test • Problem Solving • In-Class Work • Write-up • Portfolio Check • Project • Critical Thinking • Essay • Rubric • Self Evaluation • Q/A 	<ul style="list-style-type: none"> • Extended Time • Tutoring • Technology • Adapted Lessons • Access to Learning Support • Review and Re-teach • Peer Interaction • Group Instruction 	<ul style="list-style-type: none"> • Additional Work • More In-depth Project • Technology Competition • Peer Instruction • Independent Research Project

Technology Systems-Fall
Thomas Jefferson High School

Curriculum Strand: Land Transportation Technology

PA Academic Standards Student must be able to do	Objective Content or process student will be able to know and do	Instructional Methods	Materials/ Resources Textbooks, workbooks, software, hardware, etc	*Assessment Procedures *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	*Additional Learning Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	*Extended Learning 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 3.1.10 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 3.2.10.D Identify and apply the technological design process to solve problems	<ul style="list-style-type: none"> • Recognize and interpret various transportation systems and subsystems • Recall the various transportation environments • Examine and predict the physical forces acting on a prototype car • Design a prototype car following specific design constraints • Demonstrate the safe and efficient use of a variety of hand tools, machines, materials, and production techniques 	<ul style="list-style-type: none"> • Direct Instruction • Group Work • Hands-on Work • Internet Research • Cooperative Learning • Class Discussions • Q/A • Demonstrations • Note Taking • Independent Design and Development 	<ul style="list-style-type: none"> • Activity Packet • Worksheets • Calculator • Hand Tools • Production Machines • Measuring Devices 	<ul style="list-style-type: none"> • Teacher Observation • Test • Problem Solving • In-Class Work • Write-up • Portfolio Check • Project • Critical Thinking • Essay • Rubric • Self Evaluation • Q/A 	<ul style="list-style-type: none"> • Extended Time • Tutoring • Technology • Adapted Lessons • Access to Learning Support • Review and Re-teach • Peer Interaction • Group Instruction 	<ul style="list-style-type: none"> • Additional Work • More In-depth Project • Technology Competition • Peer Instruction • Independent Research Project

Technology Systems-Fall
Thomas Jefferson High School

Curriculum Strand: Land Transportation Technology

PA Academic Standards Student must be able to do	Objective Content or process student will be able to know and do	Instructional Methods	Materials/ Resources Textbooks, workbooks, software, hardware, etc	*Assessment Procedures *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	*Additional Learning Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	*Extended Learning 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 B Apply appropriate instruments and apparatus to examine a variety of objects and processes	<ul style="list-style-type: none"> • Evaluate and compare prototype efficiency • Discuss the history of transportation technology • Define and analyze Bernoulli's Principle 	<ul style="list-style-type: none"> • Direct Instruction • Group Work • Hands-on Work • Internet Research • Cooperative Learning • Class Discussions • Q/A • Demonstrations • Note Taking • Independent Design and Development 	<ul style="list-style-type: none"> • Activity Packet • Worksheets • Calculator • Hand Tools • Production Machines • Measuring Devices 	<ul style="list-style-type: none"> • Teacher Observation • Test • Problem Solving • In-Class Work • Write-up • Portfolio Check • Project • Critical Thinking • Essay • Rubric • Self Evaluation • Q/A 	<ul style="list-style-type: none"> • Extended Time • Tutoring • Technology • Adapted Lessons • Access to Learning Support • Review and Re-teach • Peer Interaction • Group Instruction 	<ul style="list-style-type: none"> • Additional Work • More In-depth Project • Technology Competition • Peer Instruction • Independent Research Project

Technology Systems-Fall
Thomas Jefferson High School

Curriculum Strand: Biotechnology

PA Academic Standards Student must be able to do	Objective Content or process student will be able to know and do	Instructional Methods	Materials/ Resources Textbooks, workbooks, software, hardware, etc	*Assessment Procedures *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	*Additional Learning Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	*Extended Learning Opportunities for students who can go beyond the basic standards. *Additional enrichment/ acceleration will be provided per IEP
3.1.10.C Apply patterns as repeated processes or recurring elements in science and technology 3.1.10.E Describe patterns of change in nature, physical systems and man made systems 3.6.10.A Apply biotechnologies that relate to propagating, growing, maintaining, adapting, treating and converting 3.8.10.C Evaluate possibilities, consequences and impacts of scientific and technological solutions	<ul style="list-style-type: none"> • Define and recognize various examples of biotechnology and biotechnological systems • Identify biotechnological patterns • Assess the impacts of biotechnology on society 	<ul style="list-style-type: none"> • Direct Instruction • Group Work • Hands-on Work • Cooperative Learning • Brainstorming • Class Discussions • Q/A • Demonstrations • Note Taking • Video 	<ul style="list-style-type: none"> • Activity Packet • Worksheets • Computers 	<ul style="list-style-type: none"> • Teacher Observation • Test • Problem Solving • In-Class Work • Write-up • Portfolio Check • Project • Critical Thinking • Essay • Rubric • Self Evaluation • Q/A 	<ul style="list-style-type: none"> • Extended Time • Tutoring • Technology • Adapted Lessons • Access to Learning Support • Review and Re-teach • Peer Interaction • Group Instruction 	<ul style="list-style-type: none"> • Additional Work • More In-depth Project • Peer Instruction • Independent Research Project

CURRICULUM

Technology Systems-Fall Thomas Jefferson High School

Curriculum Strand: Technology Research Project

PA Academic Standards Student must be able to do	Objective Content or process student will be able to know and do	Instructional Methods	Materials/ Resources Textbooks, workbooks, software, hardware, etc	*Assessment Procedures *Additional adaptations, modification, accommodations, and enrichment/ acceleration will be provided per IEP	*Additional Learning Opportunities for students who do not meet basic standards *Additional adaptations, modifications, and accommodations will be provided per IEP	*Extended Learning 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 and impacts of scientific and technological solutions	<ul style="list-style-type: none"> • Describe, interpret and discuss the needs and interactions of technology • Describe, interpret and discuss the impacts of technology on society • Apply basic computer operations • Recognize patterns of change 	<ul style="list-style-type: none"> • Direct Instruction • Group Work • Hands-on Work • Internet Research • Cooperative Learning • Class Discussions • Q/A • Demonstrations • Note Taking • Independent Design and Development 	<ul style="list-style-type: none"> • Activity Packet • Computers 	<ul style="list-style-type: none"> • Teacher Observation • In-Class Work • Critical Thinking • Presentation • Rubric • Q/A 	<ul style="list-style-type: none"> • Extended Time • Tutoring • Technology • Adapted Lessons • Access to Learning Support • Review and Re-teach • Peer Interaction • Group Instruction 	<ul style="list-style-type: none"> • Additional Work • More In-depth Project • Peer Instruction