

Pine Hill Public Schools Curriculum

Content Area:	Special Areas		
Course Title/ Grade Level:	Technology I		
Unit 1:	Safety and Classroom Procedures	Duration:	2 Weeks
Unit 2:	Tool Identification and Usage, Procedures	Duration:	2 Weeks
Unit 3:	Steps in Problem Solving, Brainstorming	Duration:	3 Weeks
Unit 4:	Technological Systems- Mr. Circuit	Duration:	4 Weeks
Unit 5:	Simple Machines- Basic Engineering	Duration:	2 Weeks
Unit 6:	Green Technologies	Duration:	5 Weeks
Unit 7:	Benchmark Problem Solving Challenge	Duration:	2 Weeks
Unit 8:	Construction Technology	Duration:	3 Weeks
Unit 9:	Transportation System	Duration:	2 Weeks
Unit 10:	Construction Technology- Part II	Duration:	4 Weeks
Unit 11:	Transportation Systems- Part II	Duration:	3 Weeks
Unit 12:	Construction Technology- Part II	Duration:	6-8 Weeks
BOE Approval Date:	August 28, 2012		

**Pine Hill Public Schools
Technology Curriculum**

Unit Title: Safety and Classroom Procedures		Unit #: 1	
Course or Grade Level: Technology I		Length of Time: 2 weeks	
Pacing	September		
Essential Questions	<ul style="list-style-type: none"> • What is safety in and out of the classroom? How does safety affect the classroom environment? • Classroom procedures for a productive learning environment. 		
Content	<ul style="list-style-type: none"> • Safety procedures, classroom management • Classroom procedures including beginning and ending of daily work sessions 		
Skills	<ul style="list-style-type: none"> • Design a safety poster or visual aid to stress the importance of safety in and out of classroom. • Explain proper class work procedures including gathering materials and tools, in class procedures, and clean up processes. • Prepare safe work environments in the classroom. • Clean up and store tools and materials at the end of each day. 		
Assessments	<ul style="list-style-type: none"> • Safety project- essay, PowerPoint, poster, web-based project • Safety quiz • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Pictures and graphics to portray safety rules for needed students • Teacher led instruction and guidance to individuals who are unfamiliar with a particular tool. 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Computer Science- Computer animations and graphics • Web-based simulation programs • Art- safety assignment 		
Lesson resources / Activities	<ul style="list-style-type: none"> • Internet resources, classroom worksheets, safety worksheets, poster paper, computer • Edmodo account 		

2009 NJCCCS

Standard: 9.4 Career/Tech Ed.

Strand(s): B. Architect/Construction

Content Statement(s): Career Cluster, Career Cluster, Communication Skills

CPI # / CPI(s): 9.4.12.B.(1).1, 9.4.12.B.(2).10, 9.4.12.O.15

Communication Skills, Safety Practice Procedure, Oral, Visual, Written Material

21st Century Themes

X	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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21st Century Skills

X	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills		

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title: Tool Identification and Usage Procedures		Unit #: 2	
Course or Grade Level: Technology I		Length of Time: 2 weeks	
Pacing	September		
Essential Questions	<ul style="list-style-type: none"> • Explain various hand and power tools and their safe usage. • Explain proper class work procedures including gathering materials and tools, in class procedures, and clean up procedures. 		
Content	<ul style="list-style-type: none"> • Tool usage, proper storage, hand versus machine tools • Proper care of tools and machinery including individual machine safety. 		
Skills	<ul style="list-style-type: none"> • Explain various hand tools and machines and the procedures for each. • Storing and cleaning tools properly and safely. • Storing of projects and materials. 		
Assessments	<ul style="list-style-type: none"> • Tool practice usage test • Observation of proper tool usage. • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Teacher led instruction and guidance to individuals who are unfamiliar with a particular tool. • Peer help from experienced students to assist novice students in tool usage 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Math- calculations such as addition, fractional equivalents, distances, etc. 		
Lesson resources / Activities	<ul style="list-style-type: none"> • Internet resources, classroom worksheets, safety worksheets, computer • Tool manuals • Edmodo account 		
2009 NJCCCS			
Standard:	9.4 Career/Tech Ed.		
Strand(s): B. Architect/Construction, M. Manufacturing			
Content Statement(s): Safety, Safety Health		CPI # / CPI(s): 9.4.12.B.(2).10, 9.4.12.M.(6).7	
		Safety Practice Procedure, Safe Use of Equipment	
<u>21st Century Themes</u>			
	Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy
<u>21st Century Skills</u>			
	Creativity and Innovation	X	Critical Thinking and Problem Solving
	Media Literacy		ICT Literacy
		X	Communication and Collaboration
			Information Literacy
			Life and Career Skills

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title: Steps in Problem Solving, Brainstorming		Unit #: 3	
Course or Grade Level: Technology I		Length of Time: 3 weeks	
Pacing	October		
Essential Questions	<ul style="list-style-type: none"> • What are the steps in problem solving? • How can using problem solving skills and collaborative learning techniques help students move from individual students to a room full of thinkers and collaborative learners? • What are simple machines and how are they incorporated into everyday activities? 		
Content	<ul style="list-style-type: none"> • Identifying problems, gather relevant data, generate solutions, select best solution, implement choice and monitor development of choice. • Review and discuss the six basic simple machines. 		
Skills	<ul style="list-style-type: none"> • Brainstorming • Sketching ideas, explaining ideas to classmates • Collaborate with peers to identify solutions to problem statement. 		
Assessments	<ul style="list-style-type: none"> • Problem solving activities, TLA (Technology Learning Activity), Mousetrap TLA • Sketching ideas before constructing projects • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Self selected groups for initial TLA to help create an ease of working together on a project for the first time in class. • Smartboard examples to give visual aid for all students understanding, especially ESL students who may have difficulty with technology specific language. 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Mathematical calculations such as addition, fractional equivalents, distances, etc. • Art- sketching ideas • English- discussion and brainstorming, jotting down ideas and discuss best possible solutions 		
Lesson resources / Activities	<ul style="list-style-type: none"> • TLA's on brainstorming and problem solving • Mousetrap and candle TLA • Websites and Smartboard notes • Edmodo account 		
2009 NJCCCS			
Standard:	9.4 Career/Tech Ed.		
Strand(s): O. STEM, B. Architect/Construction			
Content Statement(s): Problem Solving/Critical Thinking, Leadership/Teamwork, Technical Skills		CPI # / CPI(s): 9.4.12.O.17, 9.4.12.O.48, 9.4.12.B.(3).3	
		Problem Solving/ Individual & Team, Teamwork Skills, Construction Skills	
<u>21st Century Themes</u>			
Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy
<u>21st Century Skills</u>			
Creativity and Innovation	X Critical Thinking and Problem Solving	X Communication and Collaboration	Information Literacy
Media Literacy	ICT Literacy	X	Life and Career Skills

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title: Technological Systems-Mr. Circuit		Unit #: 4	
Course or Grade Level: Technology I		Length of Time: 4 weeks	
Pacing	October/November		
Essential Questions	<ul style="list-style-type: none"> • Define and discuss types of technological systems. • Define communication technology, information and ideas. • What is the difference between AC and DC current and how do they work? 		
Content	<ul style="list-style-type: none"> • Inputs, Processes, Outputs, and Feedback in general terminology. • Basic Circuitry • Types of Communication Technologies 		
Skills	<ul style="list-style-type: none"> • Basic soldering techniques. • Build several Mr. Circuit lessons that incorporate basic wiring techniques. • Using and discussing various types of communication technologies to promote, inform, entertain, educate, and persuade people. 		
Assessments	<ul style="list-style-type: none"> • Mr. Circuit, Communication TLA (videos, poster, songs, writing directions) • Soldering electrical components • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Visual aids, graphic organizers identifying various resistor bands and reading resistors. • Advanced students can progress in electricity workbook as far as they can proceed while others complete the minimum required number of experiments. Extra credit will be rewarded for these students who excel. 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Sociology- how technology affects individuals and groups as communication technology rapidly advances? • Art- soldering self-made projects • Math- calculating resistance 		
Lesson resources / Activities	<ul style="list-style-type: none"> • TLA's on soldering • Mr. Circuit • Communication activities • Edmodo account 		
2009 NJCCCS			
Standard:	9.4- Career/Tech Ed.		
Strand(s): O. STEM, M. Manufacturing,			
Content Statement(s): Information Technology, Academic Foundation, Safety & Health		CPI # / CPI(s): 9.4.12.O.(1).8, 9.4.12.O.2, 9.4.12.M.(6).7	
		Use Communication Technology, Math Knowledge, Safe Use of Equipment	
<u>21st Century Themes</u>			
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy
			Civic Literacy
			Health Literacy
<u>21st Century Skills</u>			
X	Creativity and Innovation	X	Critical Thinking and Problem Solving
		X	Communication and Collaboration
	Media Literacy		ICT Literacy
		X	Life and Career Skills

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title: Simple Machines- Basic Engineering		Unit #: 5	
Course or Grade Level: Technology I		Length of Time: 2 weeks	
Pacing	November		
Essential Questions	<ul style="list-style-type: none"> • How do simple machines do work and what makes a complex machine? • Where can you find examples of simple machines in all aspects of life? • What engineering principles are incorporated in the use and design of simple and complex machines? 		
Content	<ul style="list-style-type: none"> • Identify simple and complex machines • Understanding what is work and how it applies to engineering principles and problems • Understanding how to reverse engineer projects to come up with the solution 		
Skills	<ul style="list-style-type: none"> • Build simple and complex machines to complete a task • Manipulate simple and complex machines to complete a task • Work cooperatively towards a solution to a problem 		
Assessments	<ul style="list-style-type: none"> • Tennis Ball TLA • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply • Observation 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Graphic organizers- to help show steps in project • Cooperative Learning- working together for a common goal, complete an assigned task • Include any strategies or activities aimed at assisting students above or beyond the mainstream level of the lesson 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Math- tension calculations, work calculations • Art- design, form and function • Science- fulcrum placement, gear ratios 		
Lesson resources / Activities	<ul style="list-style-type: none"> • Simple Machine TLA- Tennis Ball TLA • Websites- simple machine simulations • Tools and materials • Communication activities • Edmodo account 		
2009 NJCCCS			
Standard:	9.4 -Career/Tech Ed., 9.1 – 21st Century Life Skills		
Strand(s):	B. Architect/Construction, O. STEM, , M. - Manufacturing , A. Critical Thinking and Problem Solving		
Content Statement(s): Career Cluster, Leadership/Teamwork, Problem Solving/Critical Thinking, Apply Critical Thinking	CPI # / CPI(s): 9.4.12.B.(1).1, 9.4.12.B.(2).14, 9.4.12.O.17, 9.1.4.A.5,		
	Communication Skills, Teamwork on Project, Problem Solving/Individual and Team, Apply Critical Thinking/Problem Solving		
<u>21st Century Themes</u>			
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy
			Civic Literacy
			Health Literacy
<u>21st Century Skills</u>			
	Creativity and Innovation	X	Critical Thinking and Problem Solving
		X	Communication and Collaboration
	Media Literacy		Information Literacy
		X	Life and Career Skills

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title:	Green Technologies	Unit #:	6
Course or Grade Level:	Technology I	Length of Time:	5 weeks
Pacing	November/December		
Essential Questions	<ul style="list-style-type: none"> • Define and discuss types of Green Technologies and their needs and impacts on society. • Discuss recycling, the importance of recycling, and the careers associated with recycling. • What are complex machines and where are they used in green technologies? 		
Content	<ul style="list-style-type: none"> • Green Technologies (i.e. Solar, Wind, Recycling) • Career choices associated with the growing sector • Educational opportunities and colleges, where to get the training and education to be successful in the Green Technologies. 		
Skills	<ul style="list-style-type: none"> • Researching green technologies. • Identify recycling examples using complex machinery. • Developing a product using marketing and graphics to promote product. 		
Assessments	<ul style="list-style-type: none"> • Can Crusher TLA, Material Separator TLA • Creating complex and simple machines to complete TLA • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Heterogeneous grouping for additional support and greater brainstorming of ideas. • Sketching of ideas is encouraged with a one on one discussion so the student knows what is exactly needed of the student to complete the TLA successfully. • Using graphic organizers when presenting new information to the students • Cooperative Learning 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Science- recycling and its importance to the future of our society. • Art- creating logo and company name for can crusher project. • Science- building machines using logic, measurement, and trial and error 		
Lesson resources / Activities	<ul style="list-style-type: none"> • TLA's recycling, Smartboard notes and videos on Green Technologies and careers • Logo design • Communication activities • Edmodo account 		

2009 NJCCCS

Standard: 9.4 Career/Tech Ed.

Strand(s): O. STEM, M. Manufacturing,, O. STEM, O. STEM

Content Statement(s): Information Technology **CPI # / CPI(s): 9.4.12.O.(1)8, 9.4.12.M.(6).7, 9.4.12.O.6, 9.4.12.O.30**

Safety Health, Communication Skills, Information Technology Use Communication Technology, Safe Use of Equipment, Organize Information, Use Computer Applications

21st Century Themes

X	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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21st Century Skills

X	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills		

**Pine Hill Public Schools
Technology I**

Unit Title:	Benchmark Problem Solving Challenge	Unit #:	7
Course or Grade Level:	Technology I	Length of Time:	2 weeks
Pacing	January		
Essential Questions	<ul style="list-style-type: none"> • How can a student use his or her knowledge learned to complete Tech Challenge? • Which simple and complex machines will satisfy the criteria and constraints of challenge? • What types of issues will the student have to overcome working with others on challenge? 		
Content	<ul style="list-style-type: none"> • Simple machines and complex machines • Collaborative learning principles • Basic construction techniques 		
Skills	<ul style="list-style-type: none"> • Use basic tools to complete problem solving challenge. • Incorporate critical thinking and problem solving skills to set up and complete challenge. • Collaborate with peers to identify solutions to problem statement. 		
Assessments	<ul style="list-style-type: none"> • Tech challenge TLA • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Have advanced technology students provide assistance in completing challenge. • Collaborate with peers to identify solutions to problem statement 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Engineering- use basic engineering principles to complete Tech Challenges. • Science- inclined planes and other simple machines 		
Lesson resources / Activities	<ul style="list-style-type: none"> • Tech Challenge • Cereal box • Research activities 		

2009 NJCCCS

Standard: 9.4 Career/Tech Ed.

Strand(s): B. Architect/Construction, M. Manufacturing,

Content Statement(s): Career Cluster, Technical Skills, Safety Health

CPI # / CPI(s): 9.4.12.0.(1)3, 9.4.12.B.(2).17, 9.4.12.M.(6)7

Structural Building, Use Skills on Project, Safe Use of Equipment

21st Century Themes

X	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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21st Century Skills

X	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills		

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title:	Construction Technology	Unit #: 8
Course or Grade Level: Technology I	Length of Time: 3 weeks	
Pacing	January/February	
Essential Questions	<ul style="list-style-type: none"> • How did the Ancient Greeks/Romans use contemporary war technology to siege a castle? • Discuss various types of siege engines, who designed them, and their effectiveness towards enemies. • What are the strengths and weaknesses of each siege technology? 	
Content	<ul style="list-style-type: none"> • Greek and Roman war technology- Trebuchet, Onager, and Catapults • Rate the effectiveness of each as they pertain to different warring situations. • Statistical calculations 	
Skills	<ul style="list-style-type: none"> • Use construction skills to cut and build catapult. • Research various types of siege engines • Calculating mean, median, and mode for accuracy tests 	
Assessments	<ul style="list-style-type: none"> • Catapult TLA • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Sketching of ideas is encouraged with a one on one discussion so the student knows what is exactly needed of the student to complete the TLA successfully • Review and study online videos to help in design and construction of catapult • Peer to peer instruction within and between groups and individuals • Cooperative Learning 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • History- researching various siege machines • Math- calculating statistics to determine best distance to shoot catapult 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Catapult TLA • Distance and Accuracy scores • Communication activities 	

2009 NJCCCS

Standard: 9.4- Career/Tech Ed.

Strand(s): B. Architect/Construction, O. STEM, M. Manufacturing

Content Statement(s): Career Cluster, Technical Skills, Academic Foundation, Safety Health

CPI # / CPI(s): 9.4.12.B.(1)3, 9.4.12.B.(2)16, 9.4.12.O.2, 9.4.12.M.(6)7

Structural Building, Building Systems, Math Knowledge, Safe Use of Equipment

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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21st Century Skills

X	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills		

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title: Transportation System		Unit #: 9	
Course or Grade Level: Technology I		Length of Time: 2 weeks	
Pacing	February		
Essential Questions	<ul style="list-style-type: none"> • What are some of the new safety structures used in today's cars and trucks? • What are some of the many different systems in the design of an automobile? • What types of designs help protect occupants in a car accident? 		
Content	<ul style="list-style-type: none"> • Basic systems of an automobile including propulsion, safety, vehicle guidance, and mechanical • Various occupant safety systems- new, old, and evolving • Crash test data- how auto companies test for safety in various types of collisions 		
Skills	<ul style="list-style-type: none"> • Brainstorm ideas to keep the occupant of head on collision safe • Do extensive testing on Egg Vehicle to insure safety of occupant • Collaborate with peers to identify solutions if testing is not up to minimal standards • Make changes in design to complete the task and keep the occupant during a head on collision safe 		
Assessments	<ul style="list-style-type: none"> • Egg Vehicle Collision TLA • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply • Summary questions on information discussed during the TLA 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Use graphic organizers on Smartboard to help identify steps in brainstorming • Use web videos to illustrate actual crashes so the students can get a sense of what they need to do as designers • Collaborate with peers to identify solutions to problem statement • Cooperative Learning 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Engineering- use force calculations to determine the outcome of the collision • Art- design safety system that is not only safe but aesthetically pleasing • Science- incorporate various materials according to how those materials act upon a force 		
Lesson resources / Activities	<ul style="list-style-type: none"> • Eggs, Styrofoam, other energy absorbing materials • Web videos and websites • Research activities • Trial and error testing 		
2009 NJCCCS			
Standard:	9.4 Career/Tech Ed., 9.1 21st Century Life/Career Skills		
Strand(s): B. Architect/Construction, O. STEM, A. Critical Thinking and Problem Solving			
Content Statement(s): Safety, Technical Skills, Academic Foundation, Problem Solving/Critical Thinking, Brainstorming Individual/Group		CPI # / CPI(s): 9.4.12.B.(2)10, 9.4.12.B.(2).17, 9.4.12.O.(1).1, 9.4.12.O.(1).7, 9.1.12.A.1	
		Safety Practice Procedure, Use Skills on Project, Math Standards, Problem Solving Projects, Apply Critical Thinking/Problem Solving	
<u>21st Century Themes</u>			
	Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy
			Health Literacy

21st Century Skills

	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills		

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title: Construction Technology- Part II		Unit #: 10	
Course or Grade Level: Technology I		Length of Time: 4 weeks	
Pacing	March		
Essential Questions	<ul style="list-style-type: none"> • Where did bridges originate and what is the history of bridge building? • How did the evolution of materials and technology allow engineers to build higher and longer spanning bridges? • What types of bridges are best suited for particular spans and crossings? 		
Content	<ul style="list-style-type: none"> • History of bridges • Material and technological advances in how bridges are built, new materials such as steel • Revisit historical collapses to discuss what changes needed to be done to improve function and safety of bridge construction 		
Skills	<ul style="list-style-type: none"> • Use construction skills to build a balsa wood bridge to hold a live and dead load • Understand different bridge terminology and apply them to the construction of the balsa wood bridge • Understand famous bridge failures and how revisiting history can make new designs and technologies better by learning from mistakes • Calculating strength to weigh ratio of bridges to determine the best designed and constructed bridge 		
Assessments	<ul style="list-style-type: none"> • Balsa Wood Bridge TLA • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply • Summary worksheet and strength to weight calculations 		
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Using a computer based bridge simulation program to see how the compression and tension affect both a live and dead load • Review and study online videos to help in design and construction of bridge • Cooperative Learning 		
Inter-disciplinary Connections	<ul style="list-style-type: none"> • History- researching various types of bridges including famous bridge collapses • Math- calculating ratios to determine overall best design of bridge • Art- take into consideration shapes and construction techniques to make a strong but nice-looking bridge 		
Lesson resources / Activities	<ul style="list-style-type: none"> • Balsa Wood Bridge TLA • West Point Bridge Design 2010-2014 web based computer simulator • On-line videos illustrating famous failures and types of bridges 		
2009 NJCCCS			
Standard:		9.4 Career/Tech Ed.	
Strand(s): B. Architect/Construction, B. Architect/Construction, O. STEM			
Content Statement(s): Career Cluster, Career Cluster, Career Cluster, Information Technology, Technical Skills		CPI # / CPI(s): 9.4.12.B.(1)3, 9.4.12.B.(1)4, 9.4.12.B.(1).9, 9.4.11.O.24, 9.4.12.O.(1).11	
		Structural Building, Project Plan, CAD/Drafting Plans, Use Internet for Tasks, Design Process	
<u>21st Century Themes</u>			
	Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy
			Health Literacy

21st Century Skills

	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills		

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title:	Transportation Systems- Part II	Unit #: 11
Course or Grade Level: Technology I	Length of Time: 3 weeks	
Pacing	March/April	
Essential Questions	<ul style="list-style-type: none"> • What is buoyancy and how does it affect objects in a fluid? • Why do some things float and others do not? • How does buoyancy affect the design of transportation vehicles like boats and ships? 	
Content	<ul style="list-style-type: none"> • Definition and examples of buoyancy not only in water but also in air • Identify various types of boat hulls and how they act and move through the water • Center of gravity issues when designing a boat that carries a load 	
Skills	<ul style="list-style-type: none"> • Use tools to shape hull to match the template designed by the student • Layout of area where load will be placed on hull to negate center of gravity issues • Research boat hull designs and incorporate them into the design of the hull • Construction skills in shaping hull for maximum speed 	
Assessments	<ul style="list-style-type: none"> • Boat Hull TLA • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on individual basis as they apply • Summary questions on boat hull 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Have advanced technology students provide assistance in completing activity • Use Smartboard for hull example as a visual aid • One on One assistance to students due to project being done by individual, not group 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Engineering- use basic engineering principles to complete Boat Hull TLA • Art- design hull to be symmetrical and aesthetically pleasing • Math- location of load to alleviate center of gravity issues, trial and error, speed testing 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Websites showing hull design, boat racing, and buoyancy • Styrofoam, hand and power tools • Research activities 	

2009 NJCCCS

Standard: 9.4 Career/Tech Ed.

Strand(s): B. Architect/Construction, M. Manufacturing, O. STEM

Content Statement(s): Safety, Technical Skills, Safety Health, Academic Foundation	CPI # / CPI(s): 9.4.12.B.(2).10, 9.4.12.B.(2).17, 9.4.12.M.(6).7, 9.4.12.O.(1).5
	Safety Practice Procedure, Use Skills on Project, Safe Use of Equipment, Physical Properties of Materials

21st Century Themes

Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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21st Century Skills

Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
Media Literacy		ICT Literacy	X	Life and Career Skills		

**Pine Hill Public Schools
Technology I Curriculum**

Unit Title: Construction Technology- Part II		Unit #: 12
Course or Grade Level: Technology I		Length of Time: 6-8 weeks
Pacing	April/May/June	
Essential Questions	<ul style="list-style-type: none"> • How are houses built and what careers are involved in the construction of a single family home? • What are the best careers in house construction for the foreseeable future? • How a house is built starting from the footing all the way to the roof? • What determines a house's style including climate, geography, and history? 	
Content	<ul style="list-style-type: none"> • Types of houses- ranchers, Victorian, beach houses, mountain homes • House construction- types of careers involved in building a house • House construction- materials used in typical house construction • Design- layout and design considerations, rooms and floor plans 	
Skills	<ul style="list-style-type: none"> • Use construction skills to design and build a scale model house from wood • Research various types of house styles and choose their dream home • Calculating scale to draw floor plan to fit on prescribed paper • Drawing floor plan to ½"=1' scale and build house 	
Assessments	<ul style="list-style-type: none"> • House Construction TLA • Observation • Edmodo as a weekly writing tool/assignment • Rubric- assess students on both individual and group basis as they apply • Floor plan- scale floor plan • Summary questions on house construction 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Have students choose groups that help them identify who they believe will be their best partners to complete the longest TLA of the year • Use models as a guide for students to see before building their own houses • Ask them to look for real construction projects around town during the build and comment on what they see and if it is comparable to what they are doing in class, real world connections 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • History- researching various styles of houses • Math- calculating scale to make the walls and draw the floor plan • Art- choose a house style that is their dream home, regardless of price, although there will be a limit on the size and scope of the project 	
Lesson resources / Activities	<ul style="list-style-type: none"> • House Construction TLA • Web based research on house style, Coolhouseplans.com • Wood, small saws, floor plan, scales, try squares 	
2009 NJCCCS		
Standard:	9.4 Career/Tech Ed.	
Strand(s): B. Architect/Construction, B. Architect/Construction, O. STEM, M. Manufacturing		
Content Statement(s): Career Cluster, Career Cluster, Career Cluster, Technical Skills, Communication Skills, Technical Skills		CPI # / CPI(s): 9.4.12.B.(1)3, 9.4.12.B.(1).9, 9.12.4.B.(1).11, 9.4.12.B.(2).16, 9.4.12.O.15, 9.4.12.O.68
		Structural Building, CAD/Drafting Plans, Construction Principle, Building Systems, Oral, Visual, Written Material, Planning Skills

<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills		

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