

COURSE: Technology
GRADE LEVEL: 6

MAIN/GENERAL TOPIC:	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW OR BE ABLE TO DO:	SKILLS:	WHEN STUDENT DOES IT:	ASSESSMENTS:
LAB SAFETY	Safety	•	• Work safely in the lab and follow demonstrated safety procedures, being aware of their actions as well as those of students working around them	•	On going	•
ORGANIZATION	Notebook	•	• Students are given pages to be kept in a 3 ring binder; they are to be in a specific order as to the table of contents, with name and page numbers at the top of the page. Notebooks are collected twice per course to be checked and graded	•	On going	•
DRAWING	Measuring	•	• Properly and accurately utilize a measuring device	•	On going	•
	Tool ID	•	• Name and proper use of drawing tools	•	1 st week of course	•
	Lines	•	• Identify lines used in mechanical drawing: obi., hidden, guide, etc.	•		•
	Views	•	• Identify 3-view and their proper relationship to each other	•		•
	Projection	•	• Demonstrate and ability to use projection to complete drawing	•		•
	Orthographic	•	• Identify surfaces of an orthographic view	•		•

	Dimensioning	•	• Properly read and or dimension drawings	•		•
	Measuring	•	• Proper use of a measuring device	•	On going	•
WOOD	Hand Tools	•	• Name & use of simple hand tools, tri-square, saw, file, etc.	•	2 nd – 3 rd weeks	•
	Abrasives	•	• Proper use & steps of abrasives	•		•
	Power Tools	•	• Proper use of Drill press, Disk sander, Palm Sander	•		•
	Finishes	•	• Purpose and application of Shellac	•	3 rd week	•
METAL	Pattern	•	• Follow procedures to develop a pattern	•	4 th week	•
	Stamps	•	• Properly stamp name into metal sheet	•		•
	Bluing Dye	•	• Use bluing dye to layout pattern onto metal	•		•
	Beverly Shears	•	• Demonstrate ability to cut metal with Beverly shears	•		•
	File	•	• Use knowledge of files to remove burs left by Beverly shears	•	5 th week	•
	Metal Hole Punch	•	• Demonstrate proper use of a hole punch	•		•
	Hand Cutting Tool	•	• Explain the difference between aviation snip and tin snips, use each tool for proper activity	•		•

	Benders	•	• Use edge bender along with box & pan break to bend project to layout lines	•	6 th & 7 th week	•
	Spot Welder	•	• Use spot welder to weld tabs	•		•
	Power Tools	•	• Proper use of Drill press, Hand held electric drill	•		•
	Pop Rivet Gun	•	• Properly install pop rivets	•		•
	Finishing	•	• Utilize steel wool to remove blue dye and polish project	•		•
HYDROPHONIC	Plant	•	• Students will place seeds into container, tracking growth in inches to be recorded weekly on the computer	•	7 th – 13 th weeks	•
MAG –LEV	Design	•	• Students will design a concept car to travel 8'; students will show the design process through thumbnail, rough and final 3 – view drawings. The final drawing will be actual size and will be dimensioned.	•	7 th – 12 weeks	•
	Problem Solving	•	• Students construct their car, and test, modify, re-test to obtain maximum distance for their vehicle	•		•
BONUS PROJECT	Letter Holder	•	• Students who finish their car, construct a letter holder , demonstrating wood working tools and techniques used earlier	•	12 th week	•
HOMEWORK	What is Tech?	•	• Problem solving, situation solutions	•	1 st week	•
	Tech. Where Did it Come From?	•	• Parent survey, awareness of past technologies	•	2 nd week	•
	Tool List	•	• List 25 tools used daily	•	3 rd week	•

	Tool Appreciation	•	• Give up 1 tool and record the daily problems that occur	•	3 rd – 5 th week	•
	Wants and Needs	•	• Cut and paste 3 wants, 3 needs	•	6 th week	•
	Time Line	•	• Research the history of a selected tool of their choosing, record on computer	•	7 th week	•
	Good Old Days	•	• Survey of a person 50 or older, as to when they were 12	•	9 th week	•

COURSE: Technology
GRADE LEVEL: 7

MAIN/GENERAL TOPIC:	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW OR BE ABLE TO DO:	SKILLS:	WHEN STUDENT DOES IT:	ASSESSMENTS:
ORGANIZATION	Notebook	<ul style="list-style-type: none"> How should the student's notebook be organized? 	<ul style="list-style-type: none"> Students are given pages to be kept in a 3 ring binder; they are to be in a specific order as to the table of contents, with name and page numbers at the top of the page. Notebooks are collected twice per course to be checked and graded 	<ul style="list-style-type: none"> Ability to follow directions Organizational skills Use common sense (put name on papers!) 	On going	<ul style="list-style-type: none"> Notebook will be collected twice and checked and graded
LAB SAFETY	Safety Policies	<ul style="list-style-type: none"> What safety rules and procedures are required to know before using lab? 	<ul style="list-style-type: none"> Work safely in the lab and follow demonstrated safety procedures, being aware of their actions as well as those of students working around them 	<ul style="list-style-type: none"> Respect for rules. Understanding that safety results from a conscious effort. 	On going	<ul style="list-style-type: none"> Safety quizzes. Demonstrations on equipment
UNIT 1 DRAWING	Measuring	<ul style="list-style-type: none"> How is a scale correctly used and read? 	<ul style="list-style-type: none"> Properly and accurately utilize a measuring device. Accuracy to ¼”. 	<ul style="list-style-type: none"> Use as scale correctly. Read the measurements correctly Express fractions in simplest terms. 	On going	<ul style="list-style-type: none"> Measurement quiz
	Tools	<ul style="list-style-type: none"> What are the names and uses for drawing tools? 	<ul style="list-style-type: none"> Name and proper use of drawing tools. Demonstrate proper tool use. 	<ul style="list-style-type: none"> Tool identification. Correct tool use. 	2 nd week	<ul style="list-style-type: none"> Tool ID & use quiz.
	Lines	<ul style="list-style-type: none"> What are the different types and uses of lines used in mechanical drawing? 	<ul style="list-style-type: none"> Identify lines used in mechanical drawing: obi., hidden, guide, etc. 	<ul style="list-style-type: none"> Correct line usage. Increased understanding of mechanical drawings. 	2 nd week	<ul style="list-style-type: none"> Formative assessment on sample drawings Quiz on lines

	Title Block	<ul style="list-style-type: none"> • What is a title block and how is it drawn? • What is the proper procedure for providing information on a title block? 	<ul style="list-style-type: none"> • Draw and label title block. 	<ul style="list-style-type: none"> • Correctly dimension and draw a title block. • Correctly enter required information in title block. 	3 rd week	<ul style="list-style-type: none"> •
	Labeling & dimensioning	<ul style="list-style-type: none"> • What are the proper techniques for labeling and dimensioning mechanical drawing? 	<ul style="list-style-type: none"> • Label and dimension drawings, with correct lettering and numbering, and location of information. 	<ul style="list-style-type: none"> • Lettering • Dimensioning • Location of info. 	3 rd wk	<ul style="list-style-type: none"> • Formative assessment • Demonstrate correct dimensioning & labeling techniques.
	Drawing Grading	<ul style="list-style-type: none"> • How does a “perfect” drawing look? • Why is it drawn that way? • What are the types of errors that the teacher will look for? • How many points will be taken away for these errors occurring in their drawing? 	<ul style="list-style-type: none"> • Understand how a correctly drawn drawing should appear. • How their grade will be effected by presence of errors. 	<ul style="list-style-type: none"> • Use of knowledge to achieve desired results. • Control over performance/grade. 	3 rd week	<ul style="list-style-type: none"> • Drawing graded.
	Views	<ul style="list-style-type: none"> • What are the three views of an object? • How do I “see” those views of the object to 	<ul style="list-style-type: none"> • Know three views and why they are necessary to visualize object. • Discuss the basis of the word orthographic. 	<ul style="list-style-type: none"> • Identify 3-views and their proper relationship to each other. 	4th week	<ul style="list-style-type: none"> • (4) 3-view drawings • Progressively difficult in difficulty, last one to be done

		clearly understand how to draw it correctly?				independently.
	Projection	<ul style="list-style-type: none"> • What is projection and how does it help draw 3-view drawings. 	<ul style="list-style-type: none"> • Demonstrate ability to use projection to complete 3-view drawing. 	<ul style="list-style-type: none"> • Use projection in 3-view drawing. 	4th Week	<ul style="list-style-type: none"> • Done in 3 view drawings above.
	Orthographic	<ul style="list-style-type: none"> • Can student draw orthographic drawing correctly, using all skills learned to this point? 	<ul style="list-style-type: none"> • Demonstrate ability to independently and correctly draw orthographic drawing. 	<ul style="list-style-type: none"> • Ability to draw and interpret 3-view correctly drawings 		<ul style="list-style-type: none"> • Orthographic Drawing
	Isometric	<ul style="list-style-type: none"> • What is the definition of an isometric drawing? • How is an isometric drawing drawn? 	<ul style="list-style-type: none"> • Correctly identify and draw isometric drawing. 	<ul style="list-style-type: none"> • Measure using scale • Properly use T-square, triangle, and drawing board. • Correct line and labeling usage. 		<ul style="list-style-type: none"> • Isometric Drawings
MECHANICAL DRAWING	Summary of Skill Development	<ul style="list-style-type: none"> • Can student draw object using all skills learned to this point? 	<ul style="list-style-type: none"> • Correctly draw orthographic and isometric drawings. 	<ul style="list-style-type: none"> • Title Block, Lines, Labeling Dimensioning, Projection, Orthographic Isometric 	Done Mid-Oct.	<ul style="list-style-type: none"> • Mechanical drawing test
UNIT 2 WHAT IS TECHNOLOGY	Definition of Tech	<ul style="list-style-type: none"> • What is technology and why do we study it. 	<ul style="list-style-type: none"> • Define in their own terms what Technology is and how it effects their world. 	<ul style="list-style-type: none"> • Understand the significance of tech. 	Start mid Oct.	<ul style="list-style-type: none"> •
	History of Technology	<ul style="list-style-type: none"> • How have technology and society evolved to 	<ul style="list-style-type: none"> • Describe a general evolution of the society in which we live and relate it to the technology available. 	<ul style="list-style-type: none"> • Relate tech advances to development of society. 		<ul style="list-style-type: none"> •

		<ul style="list-style-type: none"> present day? What is the correlation? 				
	Timeline of Technology	<ul style="list-style-type: none"> When did inventions and innovation occur along timeline of technology? Why did the rate of technology change from flat to exponential? 	<ul style="list-style-type: none"> Know eras on timeline and appreciate the significance of specific inventions. 	<ul style="list-style-type: none"> Understand exponential growth of technology. Analyze how employment in different eras was dictated by tech developments. 	End of Oct.	<ul style="list-style-type: none"> Choice: Report on an Era in Tech and Effects of Tech OR "Who Am I?" "Oral reports on Inventors. Peer evaluation
	Simple Machines	<ul style="list-style-type: none"> What are the six simple machines 	<ul style="list-style-type: none"> Review 			<ul style="list-style-type: none"> Worksheet
	Technology Appreciation Project Ergonomics Activity Hand Tool Project	<ul style="list-style-type: none"> Why is ergonomics important? 	<ul style="list-style-type: none"> Understand importance of technology and ergonomics. Ergonomics Hammer Activity: Test hammer handles. Design one they feel is better and build using hand tools only. 	<ul style="list-style-type: none"> Appreciate the importance of the conveniences that we enjoy everyday. Apply & relate ergonomics to their environment. Hand tool usage. 		<ul style="list-style-type: none"> Hammer handle
	Artifact Model Design/Modeling Methods	<ul style="list-style-type: none"> How do models help us to understand the world we live in? 	<ul style="list-style-type: none"> Identify the different ways to models ideas. Modeling/computer modeling/prototype Designing graphic solution (pictorial, oblique, Isometric, perspective, types of drawings, exploded view) 	<ul style="list-style-type: none"> Know sketching, renderings, blueprint, scale, appearance and prototype modeling. 		<ul style="list-style-type: none"> Safety rules quiz.
	Design of Historical Artifact	<ul style="list-style-type: none"> How can I model my idea for others to understand? 	<ul style="list-style-type: none"> Communicate ideas through drawings 	<ul style="list-style-type: none"> Draw ten thumbnail sketches of their artifact. Draw an isometric drawing of one. Draw a final drawing 		<ul style="list-style-type: none">

				(orthographic) using drawing tools. • Transfer pattern to a foam block.		
	Pattern	•	• After viewing lesson, student will cut out Pattern.	•		• Students get assistance or give assistance as necessary.
	Mold-Sand	•	• After viewing lesson, student will be able to ram a mold in the foundry area.	•		•
	Mold Pouring:	•	• The student will observe the teacher pour the mold	•		•
	Casting: Finishing	•	• Remove casting from sand and prepare for mounting (remove riser and spout), drill and tap hole.	•		•
	Plaque Lesson	•	• After observing lesson, student will be able to use radial arm saw, band saw, disk sander and drill press.	•		•
	Plaque Finishing Lesson	•	• After observing lesson, SWBAT finish plaque using proper sanding staining and shellacking techniques.	•		•
	Artifact Presentation	• Discuss your artifact with class.	• Organize a presentation. • Speak clearly about a subject.	•	Done end of Nov.	• Model of Artifact with written report.
	Different Aspects of Technologies	•	• Understand the three aspects of technology: Physical, Information/Communication and Bio-Related Technologies.	•		• Make posters on three Aspects of technology • Think pair share on identifying the three aspects of tech • Peer assessment.
UNIT 3 HOW DO PEOPLE USE TECH TO SOLVE	Problem Solving System	• Flow charts	• How do I read a flowchart?	• Read a flowchart. • Be able to draw a flow chart.	Early Dec	• Think pair share problem solving exercise. • HW- Make flow

PROBLEMS						<ul style="list-style-type: none"> charts of PB & J sandwich How to fix something that is broken.
	Bridges	<ul style="list-style-type: none"> How do I build a strong bridge? 	<ul style="list-style-type: none"> Analyze the problem of building a bridge. 	<ul style="list-style-type: none"> Problem analysis. 		<ul style="list-style-type: none">
	Structures/Load/ Forces	<ul style="list-style-type: none"> What is a structure? What is a load? What forces are acting on structures? 	<ul style="list-style-type: none"> Identify natural and man-made structures and explain what forces (static and dynamic) are acting on the structure. 	<ul style="list-style-type: none"> Identify forces on structures. 		<ul style="list-style-type: none"> In Class structures handout/ Work in small groups.
	Bridge Disasters	<ul style="list-style-type: none"> What can happen if problems are not solved well (i.e, poor bridge designs)? 	<ul style="list-style-type: none"> Recognize import. of the prob. solving system. Movie 	<ul style="list-style-type: none"> 		<ul style="list-style-type: none"> Film: In class BINGO game on film.
BRIDGE	Design	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Use information from homework to develop possible bridge designs 	<ul style="list-style-type: none"> Brainstorming 	Mid to late Dec	<ul style="list-style-type: none"> Thumbnail drawings Rough Drawing
	Draw	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Make an actual size drawing of their bridge utilizing their knowledge of drawing tools, the drawing must be properly dimensioned 	<ul style="list-style-type: none"> Designing/Drawing 		<ul style="list-style-type: none"> Final Drawing
	Build	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Follow safe working procedures to construct their bridge according to their design 	<ul style="list-style-type: none"> Tool Use/ Common sense development 		<ul style="list-style-type: none">
	Test Bridge	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Test the structural integrally of bridge by placing them into a testing jig and adding weight, Bridge must hold min. of 10 lbs. to be considered successful 	<ul style="list-style-type: none"> 	Mid Jan	<ul style="list-style-type: none"> Project Completion & Strength of Bridge Graded on meeting min. weight & other

						requirements
UNIT 4 UNDERSTANDING BASIC SYSTEM DIAGRAM		<ul style="list-style-type: none"> How is the problem solving system similar to the Basic System Diagram? 	<ul style="list-style-type: none"> Diagram the flowchart of the BSD and the problem solving flow chart. 	<ul style="list-style-type: none"> Identify the components of the BSD: Input, Process, Output 	End Jan	<ul style="list-style-type: none">
		<ul style="list-style-type: none"> Open Loop vs. Closed Loop 	<ul style="list-style-type: none"> Know difference between? 	<ul style="list-style-type: none"> System analysis, evaluation and identification 		<ul style="list-style-type: none"> Think pair share work sheet in class.
		<ul style="list-style-type: none"> What are monitoring and feedback? 	<ul style="list-style-type: none"> Identify systems as Open or closed. Appreciate the benefits of closed loop system 	<ul style="list-style-type: none"> 		<ul style="list-style-type: none"> Think pair share on identifying monitoring devices and understanding comparisons and adjustments
		<ul style="list-style-type: none"> What are the seven technological resources? 	<ul style="list-style-type: none"> Acronym "People Mc Time" for the seven resources. 	<ul style="list-style-type: none"> Know seven resources and give two examples. 		<ul style="list-style-type: none"> Work sheet. Think pair share
		<ul style="list-style-type: none"> What is processing? 	<ul style="list-style-type: none"> Know what processing is. Understand "Processing resources adds value." The action part of the system. 	<ul style="list-style-type: none"> Students will begin to appreciate what gives something value. 		<ul style="list-style-type: none"> Think pair share work sheet.
		<ul style="list-style-type: none"> What is output? 	<ul style="list-style-type: none"> Outputs are all the things that occur as a result of the system. 	<ul style="list-style-type: none"> Analyze systems to identify all system outputs. 		<ul style="list-style-type: none"> In class examples. Individual worksheets done in class
	Basic Electrical System	<ul style="list-style-type: none"> How is an electrical circuit a technological system? 	<ul style="list-style-type: none"> Apply understanding of open loop and closed loop systems to electrical system. Learn basic electrical wiring knowledge. 	<ul style="list-style-type: none"> Understand basic electrical circuits, series and parallel, circuit breakers. Be able to wire simple circuit. 	Early Feb	<ul style="list-style-type: none"> Electrical worksheet and basic wiring exercise.

UNIT 5 SYSTEMS AND SUBSYSTEMS IN TECH	Sub system	<ul style="list-style-type: none"> • What is a sub system? 	<ul style="list-style-type: none"> • Recognize that larger systems are made up of many smaller systems (example space shuttle or airplane) 	<ul style="list-style-type: none"> • Analyze larger systems to identify sub systems. 	End of Feb.	<ul style="list-style-type: none"> • Identify subsystems in larger systems
	Confluence of systems	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Systems work together to achieve the goal of the system.(ex. Human body) 	<ul style="list-style-type: none"> • Analyzing how systems work together. 		<ul style="list-style-type: none"> • Name systems that have subsystems and identify subsystems.
	Organizational chart for a company	<ul style="list-style-type: none"> • Does a company have subsystems? 	<ul style="list-style-type: none"> • Complete chart showing how industries are typically set up 	<ul style="list-style-type: none"> • 	Early March	<ul style="list-style-type: none"> • In class-organizational chart activity.
	Rocket Project	<ul style="list-style-type: none"> • What are the subsystems in a rocket? 	<ul style="list-style-type: none"> • ID subsystems in rocket. • Understand what causes a rocket to launch. 	<ul style="list-style-type: none"> • Applying previously learned analyzing skills. 		<ul style="list-style-type: none"> • Read the Rocket handout and answer questions on subsystems.
	Forces on flying objects	<ul style="list-style-type: none"> • How does a plane fly? • How does my rocket fly? 	<ul style="list-style-type: none"> • How does lift, drag, thrust and gravity affect a flying object? (MOVIE?) 	<ul style="list-style-type: none"> • Diagram the forces acting on an airplane and explain why and airplane flies. • Be able to explain the same forces on their rocket why it is built the way it is. 		<ul style="list-style-type: none"> • HW on forces acting on flying object.
	Making Rockets	<ul style="list-style-type: none"> • How do I make my rocket? 	<ul style="list-style-type: none"> • Be able to make body tube, nose cone, parachute and tail fins and assemble correctly. • Movie on using lathe so they can make nosecones on lathe. 	<ul style="list-style-type: none"> • Use of lathe for making nose cone, making body tube, tailfins, and parachute. 	Mid March	<ul style="list-style-type: none"> • Each step is reviewed before proceeding.
	Launching Rockets	<ul style="list-style-type: none"> • How do you launch a rocket? 	<ul style="list-style-type: none"> • Students assist and observe how rockets are launched. 	<ul style="list-style-type: none"> • 	End March	<ul style="list-style-type: none"> • Completion of rocket project.
UNIT 6 HOW TECH AFFECTS PEOPLE & ENVIRONMENT	Effects of Technology	<ul style="list-style-type: none"> • What is the effect of technology? 	<ul style="list-style-type: none"> • Recognize that technology solves problems, but that it can also create problems: the impact of technology can be both positive and negative. 	<ul style="list-style-type: none"> • Analyze technology in our society & identify the impact of technology. 	Early April	<ul style="list-style-type: none"> • Think/pair/ share formative assessment on effect of tech.

						<ul style="list-style-type: none"> Effects of technology worksheet HW
	Automobiles	<ul style="list-style-type: none"> What is the effect of automobiles on the environment? 	<ul style="list-style-type: none"> Analyze the effects that automobiles have had on society. 	<ul style="list-style-type: none"> Examine our society and identify the direct and indirect effects of technology. 		<ul style="list-style-type: none"> Group discussion & contribution to chart & the effects/outputs of autos. HW: Identify outputs of Systems.
	Applying Problem Solving System automobile/ pollution.	<ul style="list-style-type: none"> Can we build a car that does not pollute? 	<ul style="list-style-type: none"> Use the PSS to optimize the solution of a given problem. Review alternate fuels/cars 	<ul style="list-style-type: none"> Apply problem solving method to reduce undesired and increase desired effects of technology 		<ul style="list-style-type: none"> Movie on Air Pollution Homework on PSS
	CO2 Project: Apply PPS	<ul style="list-style-type: none"> How can I build the fastest CO2 car? 	<ul style="list-style-type: none"> Review Basic aerodynamic principles. Know what designs improve car speed. 	<ul style="list-style-type: none"> Comprehend scientific reasons for aerodynamic designs, Analyze car designs to determine which is best for them. 	Mid April	<ul style="list-style-type: none"> Quiz on CO2 car project,, constraints, instructions, Vocab. Forces acting on car,
	Design	<ul style="list-style-type: none"> What design will achieve the fastest speed and still meet all requirements and be possible for me to build? 	<ul style="list-style-type: none"> Identify design criteria, constraints & goals. Work with in constraints. Set up a problem-solving diagram to reach goal 	<ul style="list-style-type: none"> Read the Project Plans & Identify for the goals & specifications. 		<ul style="list-style-type: none"> CO2 Project Review Homework {Take Project Plan Home and Identify the Goal & Constraints.}
	Pattern	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Develop patterns from their drawings 	<ul style="list-style-type: none"> Pattern Development 		<ul style="list-style-type: none"> Homework on Pattern Development

	Tools	<ul style="list-style-type: none"> How do I shape the body of my car, per my design? 	<ul style="list-style-type: none"> Demonstrate proper use of tools Movie on band saw. 	<ul style="list-style-type: none"> Knowledge of proper tool use. 		<ul style="list-style-type: none">
	Assembly	<ul style="list-style-type: none"> How do I assemble my car? 	<ul style="list-style-type: none"> Assemble the wheels and axles 	<ul style="list-style-type: none"> Completing project 		<ul style="list-style-type: none"> Project Drawing and completion and performance of car.
	Race	<ul style="list-style-type: none"> What makes some cars faster 	<ul style="list-style-type: none"> Utilize the computer to run cars with timing system to track cars speed. Calculate car speed in mph. 		Finish end of April	<ul style="list-style-type: none">
UNIT 7 HOW RESOURCES ARE PROCESSED BY TECHNOLOGICAL SYSTEMS	Materials Properties	<ul style="list-style-type: none"> How do you know which material to use? 	<ul style="list-style-type: none"> Review mechanical, thermal, optical and electrical. Magnetic properties of materials. 	<ul style="list-style-type: none"> Understand how to analyze materials for their different properties and therefore different uses. 	Early May	<ul style="list-style-type: none"> Prop of Materials HW.
	Material Processing	<ul style="list-style-type: none"> How are materials converted from one form to another? 	<ul style="list-style-type: none"> Understand appropriate resource selection. Understand material processing. Cost comparison 			<ul style="list-style-type: none"> Processing materials sheet.
	Major activity: Build a lamp	<ul style="list-style-type: none"> In building my lamp, what processes do I use? 	<ul style="list-style-type: none"> Build and wire lamp. 	<ul style="list-style-type: none"> Procedure Wiring 	Start mid May	<ul style="list-style-type: none"> Lamp completion/grading
	Information	<ul style="list-style-type: none"> How is information converted from one form to another? 	<ul style="list-style-type: none"> Understand data, information, the computer system components (input devices, processing and storage devices and output devices). Review basic computer data and information processing programs, the internet and networks. 	<ul style="list-style-type: none"> Analyze and apply system diagram to a computer system. Id components of computer and functions of internet and networks. 		<ul style="list-style-type: none"> HW Computer input, process, output storage device sheet.
	Energy	<ul style="list-style-type: none"> How is energy converted from one form 	<ul style="list-style-type: none"> Know energy sources, energy forms, potential energy, and kinetic energy. 	<ul style="list-style-type: none"> Recognize the importance and value of energy 		<ul style="list-style-type: none"> Energy vocabulary and sources

		to another?		<ul style="list-style-type: none"> and careful use of this valuable resource. Be able to identify energy conversions in different applications. 		worksheet.
	Water wheel project	<ul style="list-style-type: none"> How is energy converted by waterwheel? 	<ul style="list-style-type: none"> Analyze energy sources and see how the energy is converted in to a form that we can us 	<ul style="list-style-type: none"> Making waterwheel. 		<ul style="list-style-type: none"> Water wheel work sheet. Making water wheels.
	Waste project	<ul style="list-style-type: none"> Construct usable items from waste. 	<ul style="list-style-type: none"> Careful use of resources is important for 	<ul style="list-style-type: none"> Construct a useful item from materials typically discarded. 		<ul style="list-style-type: none">
	Catalogue Project	<ul style="list-style-type: none"> Investigate 	<ul style="list-style-type: none"> How do I find the products necessary for my project? 	<ul style="list-style-type: none"> Use a catalogue to find necessary product and form a price list. 	End of May	<ul style="list-style-type: none">
UNIT 8 CONTROLLING A TECHNOLOGICAL SYSTEM	Hydroponics	<ul style="list-style-type: none"> MR. D. 		<ul style="list-style-type: none"> 		<ul style="list-style-type: none">
UNIT 9 TECHNOLOGY AND SOCIETY	Architectural Drawing and CADD	<ul style="list-style-type: none"> What are the impacts of tech. on society from a local, national and global perspective? 	<ul style="list-style-type: none"> Assess current and future tech systems in terms of their social and environmental impacts. 	<ul style="list-style-type: none"> 		<ul style="list-style-type: none">
	Automation	<ul style="list-style-type: none"> How has automation affected society? 	<ul style="list-style-type: none"> CAD/CAM, CNC Milling, Robotics 	<ul style="list-style-type: none"> 		<ul style="list-style-type: none">
UNIT 10 USING SYSTEMS TO SOLVE PROBLEMS	How can the problem solving approach be used in Bio-related , comm./info and physical technologies	<ul style="list-style-type: none"> MR. D 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 		<ul style="list-style-type: none">

	Major Activity: Pet Door Project	•	•	•		•
	Design	•	• Use information from homework to develop possible bridge designs	•		•
REVIEW	Drawing	• What is an isometric drawing? • Tools, terms	• Isometric & orthographic drawing, dimensioning, labeling, tools,	• Student should know drawing tools and terms, form and	June Early	•
	Technology Timeline	• What is technology? • How did tech. Affect society?	• Eras in history, effects of technology, significant inventions, exponential rate of change, Jeopardy	•		•
	Resources	• What are the seven resources?	• Seven resources, renewable, non-renewable, natural, synthetic,	•		•
	Problem solving	• What are the six steps in problem solving?	• Review each step. How is it similar to the Basic System Diagram? • Modeling methods.	•		•
	Basic System	• What is the Basic System Diagram?	• Input, process, output, monitor, adjust, open loop, closed loop, subsystem, confluence of systems, and effects of technology, Basic electronics.	•		•
	Material Properties	•	• Mechanical, optical, electrical/ magnetic, thermal properties. Describe & give example.	•		•
	Processing resources	•	• Primary & secondary processing of malts., four secondary material processes, processing energy, energy conversion & processing information. Computer systems & components and different software.	•		•

	Forces on structures	<ul style="list-style-type: none">• What are compression, tension, shear & torque?	<ul style="list-style-type: none">• Aerodynamics, friction, gravity.• How does friction, gravity and aerodynamics effect an object.	<ul style="list-style-type: none">•		<ul style="list-style-type: none">•
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COURSE: Technology
GRADE LEVEL: 8

MAIN/GENERAL TOPIC:	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW OR BE ABLE TO DO:	SKILLS:	WHEN STUDENT DOES IT:	ASSESSMENTS:
HOMEWORK	Aero Space	•	• Complete a work sheet to gather subject specific vocabulary and knowledge of the working system of a model rocket	•	1 st week	•
	Solar	•	• Complete a work sheet to gather subject specific vocabulary and knowledge of the working system of a solar home	•	2 nd week	•
	Home Energy	•	• Students survey the electrical appliances in their home to determine their families electrical demands	•		•
	Dotted Sheet	•	• Design the house of their dreams, with all the amenities, without concern for cost.	•		•
	Solar Material	•	• Students working in teams of three students must bring in: an empty shoe box, a thermal mass and some sort of insulation	•	3 rd week	•
DRAWING	Scale	•	• Students are introduced to the concept of using a scale to draw large items to size in a small area, ex. A house on a 12 x 18 sheet of paper	•	1 st week	•
DRAWING	Required House	•	• Students gain knowledge in the drawing of a set house design, they will use this to design their own	•		•
	Flat Pattern	•	• Draw and dimension a complex pattern of a seamless box	•		•
	Three View	•	• Students are presented with a complex isometric drawing and must complete a three-view drawing.	•		•

	Dream House	•	• Students are given minimum requirements for a house design, they are to create a floor plan of their choosing and draw out their house	•	In Cadd area	•
	Cadd	•	• Student duplicate their dream house design on the computer utilizing a cadd program	•		•
NOTE BOOK	Grades	•	• Students obtain instructors initials as they complete steps in their respective areas, notebooks are collected and graded twice per year	•	On going	•
AEROSPACE	Computer	•	• Draw out a nose cone and tail fin of their own design, incorporating knowledge from their homework	•	In rocket area	•
	Body Tube	•	• Observe lesson on constructing a body tube and construct one of their own	•		•
	Tail Fins	•	• Observe the lesson on constructing tail fins and use their printout to built three fins of their own	•		•
	Nose Cone	•	• Observe the lesson on the wood lathe as to the safe and proper manner the construct a nose cone, they then build one of their of to match there own design	•		•
	Parachute	•	• Students observe the lesson on parachute constructing. They then build one of their of to match there own	•		•
	Assembly	•	• Assemble there rocket	•		•
	Launch	•	• Students follow safety procedures to load and launch their rocket.	•		•
ENERGY	Solar Home	•	• Students working in groups of three work together to construct a model of a solar home. They will then test these to determine how well there design worked.	•	Solar area	•

CASTING	Design	•	• Design an emblem of something they would like to see made from a casting process, a students initials for example	•	In casting area	•
	Pattern	•	• Make a final drawing of their design, utilizing drawing Tools, they then transfer this drawing to a block of foam	•		•
	Mold	•	• Students observe the lesson on the use of the foam cutter then they cut out their pattern	•		•
	Mold	•	• Student observe the lesson on ramming a mold then ram their own	•		•
	Pour	•	• Instructor pours the mold	•		•
	Mold	•	• Student observe the lesson on removing product from mold and removing spru and riser	•		•
	Plaque	•	• Students are instructed on a variety of power tools which are used to create a plaque in which to mount their aluminum casting	•		•

MULTI-VIEW DRAWINGS		<ul style="list-style-type: none"> • Why use title blocks on your drawings? • What do multi-view drawings tell you? 	<ul style="list-style-type: none"> • Orthographic multi-view drawings • Orthographic projections 	<ul style="list-style-type: none"> • Problem solving • Decision making • Design process • Technical drawing principles 	November (Semester 1)	<ul style="list-style-type: none"> • Teacher observation • Student drawings • Questioning
CREATING AND IMPORTING TITLE BLOCKS		<ul style="list-style-type: none"> • What are construction lines used for? • What is projection? 	<ul style="list-style-type: none"> • Drawing construction lines 	<ul style="list-style-type: none"> • Computer operation • AutoCAD operation 	April (Semester 2)	
DIMENSIONING		<ul style="list-style-type: none"> • What do we use to provide important information about the size and location of objects on a drawing? 	<ul style="list-style-type: none"> • Dimension arrangement • Dimensioning practices • Location of dimensions • Linear dimensions • Dimensioning angles, circles, and arcs • Drawing leaders • Dimension styles 	<ul style="list-style-type: none"> • Problem solving • Decision making • Design process • Technical drawing principles 	December (Semester 1)	<ul style="list-style-type: none"> • Teacher observation • Student drawings • Questioning • Student portfolios
EDITING		<ul style="list-style-type: none"> • How can we easily change or modify an object or drawing? 	<ul style="list-style-type: none"> • Drawing chamfers, fillets, and rounds • Trimming • Extending lines • Removing an object • Copying an object • Rotating an object • Mirror image • Changing the size of an object • Object properties 	<ul style="list-style-type: none"> • Computer operation • AutoCAD operation 		
POLYLINES		<ul style="list-style-type: none"> • What are polylines used for? • How are polylines created and modified? 	<ul style="list-style-type: none"> • Drawing polylines • Specifying line thickness (pedit command) • Filling polylines 		May (Semester 2)	
PLACING TEXT ON A DRAWING		<ul style="list-style-type: none"> • How can we add important details or notes to our drawings? 	<ul style="list-style-type: none"> • Exploding objects • Text standards • Text composition 			

			<ul style="list-style-type: none"> • Symbols 			
ISOMETRIC DRAWING		<ul style="list-style-type: none"> • What are 3D drawings used for? 	<ul style="list-style-type: none"> • Creating 3D drawings • Isometric dimensioning • Establishing a grid on the screen • Isoplanes • Ellipses 	<ul style="list-style-type: none"> • Problem solving • Decision making • Design process 	January (Semester 1)	<ul style="list-style-type: none"> • Teacher observation and questioning • Student portfolios • Final project
CROSS-SECTION DRAWING		<ul style="list-style-type: none"> • What are cross-section drawings used for? 	<ul style="list-style-type: none"> • Types of sections • Section lines • Hatching • Automatic boundary hatching 	<ul style="list-style-type: none"> • Technical drawing principles • Computer operation • AutoCAD operation 	June (Semester 2)	

COURSE: Drawing and Design
GRADE LEVEL: 9 - 12

MAIN/GENERAL TOPIC:	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW OR BE ABLE TO DO:	SKILLS:	WHEN STUDENT DOES IT:	ASSESSMENTS:
INTRO TO ENGINEERING	Design and Construction	<ul style="list-style-type: none"> • What makes buildings stand? • How do bridges work? • What is Engineering? 	<ul style="list-style-type: none"> • Understand and appreciate the field of engineering 	<ul style="list-style-type: none"> • 	Week 1	<ul style="list-style-type: none"> •
	Problem-Solving Critical Thinking	<ul style="list-style-type: none"> • How do you find the best solution to a problem? 	<ul style="list-style-type: none"> • The Problem Solving Process • The Design Process 	<ul style="list-style-type: none"> • Problem Solving • Critical Thinking 	Ongoing	<ul style="list-style-type: none"> •
COMMONG FORCES/ STRESSES OF NATURE	Compression	<ul style="list-style-type: none"> • What is Compression? 	<ul style="list-style-type: none"> • Understand the stresses applied and how to design and construct accordingly 	<ul style="list-style-type: none"> • Design concepts 	Ongoing	<ul style="list-style-type: none"> • Student projects
	Tension	<ul style="list-style-type: none"> • What is Tension? 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 		<ul style="list-style-type: none"> •
	Torsion	<ul style="list-style-type: none"> • What is Torsion? 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 		<ul style="list-style-type: none"> •
	Shear	<ul style="list-style-type: none"> • What is shear force? 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 		<ul style="list-style-type: none"> •

PROPERTIES OF MATERIALS	Physical Properties	<ul style="list-style-type: none"> How do you choose the right material for the application? 	<ul style="list-style-type: none"> Select a material based on it's properties Utilize and compensate for them through design and construction 	<ul style="list-style-type: none"> Design concepts 	Ongoing	<ul style="list-style-type: none">
SCALED DRAWING		<ul style="list-style-type: none"> How can you draw a large object on paper? 	<ul style="list-style-type: none"> How to draw to scale 	<ul style="list-style-type: none"> Math and Measuring 	Ongoing	<ul style="list-style-type: none"> Student drawings
SCALE MODELS		<ul style="list-style-type: none"> Why is it important to design and construct scale models? 	<ul style="list-style-type: none"> Design and construct scale models 	<ul style="list-style-type: none"> Construction techniques Weight distribution 		<ul style="list-style-type: none"> Test students models

COURSE: College Seminar
GRADE LEVEL: 11 - 12

MAIN/GENERAL TOPIC:	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW OR BE ABLE TO DO:	SKILLS:	WHEN STUDENT DOES IT:	ASSESSMENTS:
AMBERGER – COMPUTER APPLICATIONS IN A COLLEGE SETTING	Web Page Setup	<ul style="list-style-type: none"> • Why should you know how to set up a basic web site? • What advantage would you have by understanding how to design web pages? • How can you find information online? 	<ul style="list-style-type: none"> • Design web site for college course requirements • Use remote servers to retrieve assignments as needed • Design personal web pages • Upload and Download assignments • Retrieve hidden files on a remote server • Display hyperlinks for professors to various assignments 	<ul style="list-style-type: none"> • Upload web pages • Make hyperlinks to assignments • Download assignments • General web site design and techniques • Finding sources of information 	Week(s) 1-3/10	<ul style="list-style-type: none"> • Web sites • Projects • Assignments
AMBERGER – COMPUTER APPLICATIONS IN A COLLEGE SETTING	Computer / Online Based Finances	<ul style="list-style-type: none"> • What is the importance of understanding how to use online sources to compare and contrast online loan information? • What is the advantage of using spreadsheets to analyze information? • How can you use spreadsheets for other projects? 	<ul style="list-style-type: none"> • Use online sources to find values of new and used car prices • Use online and local sources to calculate loan payments • Compare and contrast loan options • Understand the difference between leasing and purchasing vehicles • Set up spreadsheets to analyze and compare information 	<ul style="list-style-type: none"> • Compare and contrast car/home prices and loan options • Set up spreadsheets with customized information • Analyze spreadsheet information 	3 – 7/10	<ul style="list-style-type: none"> • Projects • Assignments
AMBERGER – COMPUTER APPLICATIONS IN A COLLEGE SETTING	Internet Research and report writing	<ul style="list-style-type: none"> • Why is it important to avoid plagiarism? • Why should you know how to properly format research papers? 	<ul style="list-style-type: none"> • Write and properly format a collegiate level research report • Compile a listing of various sources for reference • Format reports in various ways to accommodate the needs of professors • Define and recognize plagiarism 	<ul style="list-style-type: none"> • Define plagiarism • Search engine customization • Utilize online sources • Proper research paper formatting 	8-10/10	<ul style="list-style-type: none"> • Research paper

			<ul style="list-style-type: none"> • Properly present their reports according to instructions 			
JARVIS – MOVING TOWARD INDEPENDENT LIVING	Coping with change and stress	<ul style="list-style-type: none"> • How is college different than High School? • What is important to me and what do I want to accomplish in life? 	<ul style="list-style-type: none"> • Define self-concept and identify ways to boost self-esteem • Discuss how heredity and environment influence personality • Identify strategies for reaching your potential and using your resources • Identify strategies to communicate with parents • Recognize normal feelings when separating from home and family and how to deal with them • Describe qualities that strengthen relationships • Explain why stereotypes and prejudice are harmful • Identify strategies for resolving conflicts • Describe ways to control anger and funnel energies in a positive direction • Describe methods teenagers can use to meet life's challenges • List resources available on campus to college students who need help • Recognize elements of dorm safety and safety in general 	<ul style="list-style-type: none"> • Self evaluation • Goal setting • Forming strategies • Problem solving skills 	1/10	<ul style="list-style-type: none"> • Class participation • Written assignments • Unit test
JARVIS – MOVING TOWARD INDEPENDENT LIVING	Avoiding the Freshman 15	<ul style="list-style-type: none"> • What foods are healthy choices? • What foods contain a large amount of fat, salt and sugar? 	<ul style="list-style-type: none"> • Assess the effect of nutrients on health, appearance, and peak performance in academics and college athletics • Assess the impact of food and diet fads, food addictions, and 	<ul style="list-style-type: none"> • Dietary knowledge • Food preparation techniques • Sanitation awareness 	2-8/10	<ul style="list-style-type: none"> • Class participation • Written assignments • Unit test

		<ul style="list-style-type: none"> • What healthy food choices are offered in college dining hall? • How do I buy and prepare healthy food with limited money and cooking equipment? • How do I create a simple, healthy dish following a recipe? • What are some recipe sources I can find on the computer? • How do you set up a kitchen for the first time? 	<ul style="list-style-type: none"> • eating disorder on wellness • Compare and assess different portions and apply portion control • Evaluate sources of food and nutrition information, including food labels, related to health and wellness • Apply various dietary guidelines in planning to meet nutrition and wellness needs • Demonstrate the ability to select, store, prepare and serve nutritious and aesthetically pleasing snacks and simple meals • Apply the Dietary Guidelines when choosing foods in a college dining hall • Manage the preparation of simple, healthy snacks and meals using limited resources • Make a list of kitchen necessities 	<ul style="list-style-type: none"> • Awareness of availability of a variety of kitchen equipment 		<ul style="list-style-type: none"> • Unit Test • Lab projects
JARVIS – MOVING TOWARD INDEPENDENT LIVING	A Stitch in Time	<ul style="list-style-type: none"> • How do I treat laundry stains and launder clothes properly in a college laundry room? • How do I iron a shirt? • How do I sew on a button and snap? • How do I hem a pair of gym shorts? 	<ul style="list-style-type: none"> • Demonstrate routine clothing care • Show how to launder and press clothes • Illustrate how to make simple clothing repairs • Illustrate how to treat simple stains • Plan clothing storage in a dorm room • Perform sewing skills using a variety of basic techniques 	<ul style="list-style-type: none"> • Hand eye coordination • Ability to follow directions in a sequential order 	9-10/10	<ul style="list-style-type: none"> • Class participation • Written assignments • Unit test • Laundry projects • Sewing projects • Ironing projects
SESSELMAN – DO IT YOURSELF	Car Care	<ul style="list-style-type: none"> • Why is it important to take care of your car? • Why is it important to have the ability to “do it 	<ul style="list-style-type: none"> • Fix-a-Flat • Tune Up • Jump Start • Cool it 	<ul style="list-style-type: none"> • Automotive Maintenance • Problem Solving 	Ongoing	<ul style="list-style-type: none"> • Automotive checklist

		yourself”?				
SESSELMAN – DO IT YOURSELF	Dorm Room/ Apartment Maintenance	<ul style="list-style-type: none"> Why is it important to understand basic construction techniques? 	<ul style="list-style-type: none"> Cover your “tracks” (room repair – spackle, sand and paint) Basic construction (framing, sheetrock, finishing) 	<ul style="list-style-type: none"> Basic construction methods 	Ongoing	<ul style="list-style-type: none"> Projects
SESSELMAN – DO IT YOURSELF	Basic construction	<ul style="list-style-type: none"> Why should you know how to operate power tools properly? 	<ul style="list-style-type: none"> Some assembly required (basic tools and construction) Finishing (sand, stain, shellac) 	<ul style="list-style-type: none"> Tool use Assembly processes 	Ongoing	<ul style="list-style-type: none"> Projects
SESSELMAN – DO IT YOURSELF	Basic electricity	<ul style="list-style-type: none"> Why should you have an understanding of electrical circuits? How do you troubleshoot electrical circuits? 	<ul style="list-style-type: none"> Short Circuit – (trouble shooting) You’re Grounded – (basics) 	<ul style="list-style-type: none"> Safety Problem solving 	Ongoing	<ul style="list-style-type: none"> Troubleshooting checklist
TROMBLEY – PERSONAL FINANCE	Understanding personal finances	<ul style="list-style-type: none"> What is a budget? Why is it important to keep accurate financial records? How do you choose a banking institution? What are services that a banking institution offers? What credit card is the best one? 	<ul style="list-style-type: none"> Develop a budget based on income vs. expenses Keep an accurate checkbook Know how different types of credit work Choose the type of credit that is appropriate Choose the loan situation that is best for the parent and the student 	<ul style="list-style-type: none"> Balancing a checkbook Applying for a loan Applying for credit cards 	1-5/10	<ul style="list-style-type: none"> Keep a checkbook Prepare a budget Research and compare different credit cards
TROMBLEY – PERSONAL FINANCE	Time Management	<ul style="list-style-type: none"> What is the proper procedure for job applications? What is a resume? What are some questions to anticipate in an interview? 	<ul style="list-style-type: none"> Understand how to use time to its greatest effect Compare the pros and cons of campus jobs and off-campus employment Compare the pros and cons of living on-campus or off-campus Understand the importance of 	<ul style="list-style-type: none"> Personal resume Practice interview techniques How to read apartment ads 	6-7/10	<ul style="list-style-type: none"> Prepare a resume Prepare a letter of application Mock interviews

			organizing important paperwork			
TROMBLEY – PERSONAL FINANCE	Understanding taxes	<ul style="list-style-type: none"> • What is the IRS? • Why are there TAXES? • What is Social Security? 	<ul style="list-style-type: none"> • Understand how to prepare a 1040 EZ • Understand social security 	<ul style="list-style-type: none"> • How to do their own simple tax return 	8-9/10	<ul style="list-style-type: none"> • Prepare a 1040 EZ
TROMBLEY – PERSONAL FINANCE	Legal Issues Facing Graduating Seniors	<ul style="list-style-type: none"> • What rights do college students have? • What are the rights of a consumer using credit? 	<ul style="list-style-type: none"> • Identify their credit rights • Identify what debts can be dismissed through bankruptcy and which debts cannot be dismissed • Understand how identity theft occurs and the problems associated with identity theft 	<ul style="list-style-type: none"> • Identify laws that protect students • Identify laws that protect consumers 	10/10	<ul style="list-style-type: none"> • Research laws that protect students and consumers