Teacher: Raymond Cooper | Year: 2010-11

Course: Technology Education 7 | Month: All Months

September

Introduction to Technology

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
		Students will be given the course outline requirements/ expectations/ grading policy and major units will be discussed. Students will define what technology is on the back of the note card. Students will read definitions and key terms will be listed on the board. Brief History of Technological Evolution will be discussed including first major developments and how each development solved a	Technology Technological Evolution Development Design Needs Wants Tech. Ages Tech. Eras Exponential Change Resources Lowest Terms Least Common Denominator Measurement Compare/ Contrast				

			problem. Q and A where will Technology take us in 100 years? Students will define Technology. Students will distinguish human needs from human wants and give three examples of each. Students will examine the differences of the various ages of technology. (Stone, Bronze, Iron,) and the different era's of technology (Agricultural, Industrial, Information). Students will evaluate how technology has changed since they have been alive, and provide an example of exponential change a	Analysis Standard Unit of Measurement Metric Unit of Measurement Construct Test Evaluate						

			product has undergone since it was originally invented. Students will discuss what a resource is. Students will identify that all physical man made objects have each of the seven resources related to them. Students will complete the seven resources worksheet by listing the seven resources of technology and provide examples of how each one of the resources was used in creating a simple object located within the classroom or home. Students will recognize that a pizza/cake can be divided						

			up into fractions, and relate to a whole. Students will evaluate fractions and reduce them to lowest terms. Students will construct pizzas according to customers wants (in fractions) Students will compare and contrast early measurement tools. Students will analyze why a standard unit of measurement was created. Students will collect data from measuring various objects in the classroom using these old unstandardized units of measurements. Students will create a							

			folding ruler that denotes ruler markings up to 1/16th of an inch. Students will identify the standard and metric unit of measurement. Students will identify proper graduation marks on a ruler, while demonstrating how to measure to the nearest 1/16th of an inch.						
October	Technical Drawing								
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards	
			Students will explain what the quote "a picture is worth a thousand words" means, and provide an examples of how this relates to real world applications.	Sketching Line Type Size Scale Proportion Technical Drawing Oblique					

			Students will demonstrate proper sketching techniques by starting with light construction lines, and darken in object lines. Students will explain the difference between size and proportion. Students will create sketch of objects in the room using proper size and proportion techniques. Students will interpret the difference in scale drawings. Students will measure a ¼ grid on a chosen image/logo. Using proper sketching procedures, students will create a 2:1 sketch from	Drawing One Point Perspective Drawing Two Point Perspective Drawing Isometric Drawing Orthographic Drawing Multi-View Drawing Front, Top, Right Side Views Line Precedence Title Block						

			their selected image/logo. Students will color their sketch. Students will identify Oblique, 1 and 2 point Perspective, and Isometric Drawings. Students will create an Oblique, a 1 point and 2 point Perspective drawing, and an Isometric Drawing. Students will identify that Multi-view drawings are a way that engineers can communicate ideas. Students will explain why detailed drawings and views are needed to reproduce a part. Students will interpret different line							

			types used in orthographic multi-view drawings. Students will determine the front, top, and right side views of an object. Students will create simple multi-view drawings of a simple shape. Students will identify Front, Top, and Right Side views from Isometric Drawings. Students will evaluate Isometric Drawings and color all front views one color, all top views another color, and all right side views another color. Students will leave all sides that cannot be seen from the Front, Top, and Right Side							

			uncolored Students will create one technical drawing for each day. Students will identify that technical drawing is universal language. Students will complete a title block to meet specifications. Students will measure and construct a multi-view drawing from a given Isometric Drawing. Students will evaluate the provided Isometric Drawing and determine the correct views and view layout and placement. Students will utilize proper line type where							

			needed. Students will color the Front, Top, Right Side of the Isometric.						
November	Computer Skills								
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards	
			Students will discuss how a computer is both and input and output device. Students will explain the difference between hardware and software. Students will list common computer hardware components that they are used to. Students will list common software programs that they are familiar with.	Input Output Hardware Software Program Internet Web Browser Web Site World Wide Web Microsoft Office Tool Bar Word Excel					

			Students will discuss how the internet has affected the world. Students will identify that the internet started in 1969 as part of the military. Students will become familiar with various web browsers and navigate through the school's website. Students will be formally introduced to the Microsoft Word program, via going through the tool bars and functions. Students will be given one day to complete one article for the Wildcat Weekly newspaper project. (4 required articles- 4	Cell Spreadsheet Formula Graph Format Columns Presentation Invention Innovation							

			days total) see Project for requirements. Students will be given 1 class period to finalize their wildcat weekly newspaper project. Students will be formally introduced to the Microsoft Excel program, via going through the tool bars and functions. Students will utilize formulas that will adjust based on their inputs in various cells. Students will create a spreadsheet that will allow them to easily go on a "shopping spree" that will allow the students to shop within								

			$5 of $1000 Students will create bar, line, and pie graphs using excel. Students will measure a partner and I will record the height of the students on the board, students will then input the data into excel. As a class, students will create a bar graph of each person's height. Students will then record the average high and low temperatures of Buffalo, NY, and crate a line graph plotting that data. Students will then be given a handout of the Buffalo Bills rushing yards stats, and create a								

			pie graph accordingly. Students will be formally introduced to the Microsoft PowerPoint, via going through the tool bars and functions. Students will create a PowerPoint presentation on an Invention of their choice. (see project sheet for requirements) Students will present a three minute presentation from their research of their chosen invention.						
December	Robotics								
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards	
			Students will create a human assembly line, representing a human run	Robot Pro's					

			factory. Students will be replaced one by one by "robots" and be asked to sit down. Students will discuss the Pros and Cons of Robotics via class discussion and social implications worksheet. Students will be introduced to the history of robotics, discussing the evolution of the three laws of robotics and how/why they must be followed. Students will explore the relative short history of robotics, by	Con's Social Implications Three Laws of Robotics Accuracy Payload End Effector Diagram Programming Open Loop System Closed Loop System Feedback Gear Ratio Sensor						

			completing a web quest Students will complete the history of robotics worksheet. Students will explain how robot technologies are working their way into their homes. Students be introduced and shown examples of the Lego Robot. Students will be assigned a Robot kit (groups of two) and an instruction diagram. Students will build the robot up to step 17 of their instruction diagram. Students will program								

			their robot to perform specified tasks. Students will demonstrate examples of open loop systems. Students will calculate gear ratios. Students will program their robot to run though an L track using Gear Ratios. Students will demonstrate examples of closed loop systems. Students will explain the major difference between open and closed loop systems. Students will build their robot up to step								

			19. Students will program their robot to run through the L track using feedback but adding a sensor. Students will then build their robot up to step 27 (skipping 24) Students will program the ultrasonic and touch program for their robot. Students will program their robot to follow a line using a light sensor. Students will then run their robot down the L track, following the line.								

January

Communication System ~ Communication System

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
		Students will explain the five reasons we communicate. Students will identify the three main aspects of Proper Message Information. Students will explain the history of communications and discuss the two major inventions responsible for the greatest advancements in communication. (Printing Press and Internet) Students will provide examples of Audio, visual/graphic and multimedia communication. Students will be introduced to the first video	Communicate Audio Visual Multimedia Camera Camcorder Microphone Mixer Teleprompter Script Storyboard Interface Transition Talent Director Producer Pre-Production Production Post-				

		project. Students will write a 30 second script telling the class about them. Students will be introduced to the Adobe Visual Communicator. Students will follow along with the tutorial that I have made to become familiar with the Visual Communicator Interface. Students will import their script, and change their graphics to meet the criteria from their introductory project. Students will begin to rehearse for their time in the studio. Students will be introduced to the recording feature in Adobe Visual	Production Logo Slogan Jingle Commercial Infomercial Product Placement Graphic Prop					

			Communicator. Students will produce and record their productions in groups of two. Students will view their recordings and discuss positives and items that could use improvements of each production. Students will be introduced to the major jobs in a production process. Students will explain the difference between a producer and a director. Students will identify the three major parts of a production process. Students will demonstrate the proper use of a storyboard by drawing a sketch of a screenshot and							

			explaining what is happening in the shot. Students will search for a positive quote and relate that to PAWS and begin the preproduction stage of their PAWS project. Students will be introduced to logos, and what they represent. Students will create a logo of something that interests them on their note sheet. Students will identify hidden and significant meanings with logos. Students will explain and provide examples of slogans and jingles. Students will create a 30 sec. Super Bowl commercial along with storyboards.						

		Students will produce and record their productions in groups. Students will view their recordings and discuss positives and items that could use improvements of each production. Students will take the communication systems quiz.						

February

Material Processing/Engineering Design

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
		Students will demonstrate safe operating procedures for the Band Saw/Scroll Saw and Drill Press. Students will practice general Lab Safety rules. Students will take the Band Saw Safety	Band Saw Drill Press Scroll Saw Curve Work Table Blade Belt/Disk Sander				

		Quiz, Drill Press Safety Quiz, and general Lab Safety Quiz. Students will be required to score a 100% on all quizzes before being allowed to use the machines in the lab. Students will design the sky hook design onto a coordinate grid, and transfer that onto a piece of wood. Students will cut relief cuts onto the wood block, and then cut to the desired shape. Students will file and sand sky hook to remove saw marks. Students will stamp their name onto the sky hook and apply a finish. Students will explain steps that they have	Relief Cuts Sandpaper Danger Zone Safety Aesthetics Finishing Design Process Research Identify Thumbnail Sketches Detailed Sketches Constraint Solutions Problem Statement Serendipity Solutions Manufacture and Test Evaluate Limitations Implementation					

		used in the past to solve any problem, These steps will be written on the board, and we will discuss how their thought process works. Students will identify the 6 steps of the design process, and complete the graphic organizer of the sequential order or the design process flow. Students will define vocabulary as it relates to the design process, such as constraints, limitations, thumbnail sketches, implementation, and evaluation. If time permits, students will construct the tallest tower possible using 20 Index cards. We will then discuss how students utilized the design process in						

		constructing their tower. Students will design a compressed air car to be timed along a 16' track. Students will complete the engineering design packet, researching ideas, creating possible solutions, detailed sketches and finally completing the dragster design blank. Students will design, construct, finish, test, and evaluate, and modify an atheistically pleasing compressed air design to be raced along the track.						