Yorkville CUSD 115

June 2017

CTE Subject Area Committee

CAREER & TECHNICAL EDUCATION

Aligned Curriculum for Grades 7-12

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Acknowledgements

Acknowledgments Career & Technical Education Subject Area Committee created and aligned the Yorkville CUSD 115 Career and Technical Education curriculum. Thanks for the time and sacrifice to the many members for the multitude of work each contributed to the creation of this curriculum. This team of professionals demonstrated a passion for their work and a true commitment to the students we serve.

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Explanation of Coding and Numbering

The following example provides clarification on the coding and numbering used for each of the grade level and course curricula in District 115.

Key Terms:

Outcome: A positive statement about what the students themselves will do - verbs that describe specific, measurable action, and that has an end result.

Component: A statement that describes the knowing and understanding level thinking skills, both simple and complex. These skills are a result of students engaging in activities that may include questioning, research, experiments, collaboration, identification, analysis, summarization, and application

Explanation for "CTE.A.2"

CTE=Career & Technical Education (subject area)
A=Accounting (grade level or course)
2=Outcome Number

Explanation for "CTE.A.2.1"

CTE=Career & Technical Education (subject area)
A=Accounting (grade level or course)
2=Outcome Number
1=Component Number

Outcome 2: Complete cash documentation, and analyze and record all cash transactions.

CTE.A.2					
Pacing:		**Local Code:**	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
Instruct	**Assess**		**Students will:**		
		CTE.A.2.1	Summarize the significance of cash including the purpose of documents such as signature cards, checks, deposit slips, and debit cards.	AC.V.	
		CTE.A.2.2	Describe and demonstrate various methods of endorsing checks.	AC.I.c.	

Explanation of Additional Coding

Organizations whose standards have been referenced with our own are outlined below. Additional information on their standards can be sought out using the urls below.

C3 Standards (College, Career, and Civic Life Framework)

The C3 Framework for Social Studies State Standards is a powerful guide to help each state strengthen instruction in the social studies by establishing fewer, clearer, and higher standards for instruction in civics, economics, geography, and history, kindergarten through high school. The C3 Framework can also be used by teachers, school districts, and curriculum writers to strengthen their social studies programs to a) enhance the rigor of the individual disciplines, b) build critical thinking, problem solving, and participatory skills vital to engaged citizenship, and c) align academic programs to the Common Core State Standards for English Language Arts and Literacy in History/Social Studies. (www.ncss.org)

NBEA (National Business Education Standards)

In classrooms nationwide, business educators play a prominent role in preparing students to become responsible citizens, capable of making the astute economic decisions that will benefit their personal and professional lives. Using the concepts described in these standards, business teachers introduce students to the basics of personal finance, the decision-making techniques needed to be wise consumers, the economic principles of an increasingly international marketplace, and the processes by which businesses operate. In addition, these standards provide a solid educational foundation for students who want to successfully complete college programs in various business disciplines. (https://www.nbea.org/newsite/curriculum/standards/)

CSTA Standards (Computer Science Teachers Association)

Computer science and the technologies it enables rests at the heart of our economy and the way we live our lives. To be well-educated citizens in a computing-intensive world and to be prepared for careers in the 21st century, our students must have a clear understanding of the principles and practices of computer science. The Interim CSTA K–12 Computer Science Standards delineate a core set of learning objectives designed to provide the foundation for a complete computer science curriculum and its implementation at the K–12 level. (https://www.csteachers.org/page/CSTA_Standards)

ISTE Standards (International Standards of Technology Education)

The ISTE Standards, formerly known as the National Educational Technology Standards (NETS), are standards for the use of technology in teaching and learning (technology integration). They are published by the International Society for Technology in Education (ISTE), a nonprofit membership association for educators focused on educational technology. They include the ISTE Standards for Students, which list skills and attitudes expected of students. They also include the ISTE Standards for Teachers, ISTE Standards for Administrators, ISTE Standards for Coaches and ISTE Standards for Computer Science Educators. (https://www.iste.org/standards/standards)

Digital Game Development Standards

The Nevada CTE Curriculum Frameworks are a resource for Nevada's public and charter schools to design, implement, and assess their CTE programs and curriculum. The content standards identified in this document are listed as a model for the development of local district programs and curriculum. They represent rigorous and relevant expectations for student performance, knowledge, and skill attainment which have been validated by industry representatives.
(https://www.y115.org//cms/lib/IL02000949/Centricity/Domain/44/Curriculum CTE 6-17.pdf)

Web Development Standards

W3C standards define an Open Web Platform for application development that has the unprecedented potential to enable developers to build rich interactive experiences, powered by vast data stores, that are available on any device. Although the boundaries of the platform continue to evolve, industry leaders speak nearly in unison about how HTML5 will be the cornerstone for this platform. But the full strength of the platform relies on many more technologies that W3C and its partners are creating, including CSS, SVG, WOFF, the Semantic Web stack, XML, and a variety of APIs. W3C develops these technical specifications and guidelines through a process designed to maximize consensus about the content of a technical report, to ensure high technical and editorial quality, and to earn endorsement by W3C and the broader community. (https://www.w3.org/standards/)

A Note on Pacing:

Unless otherwise noted, all pacing course outcomes in this department are organized sequentially for each class. All middle school classes are only a quarter in length, and high school course are typically one semester long.

Business

Accounting

Subject:	Accounting	**Course/Grade Level:**	10, 11, 12
Focus Statement:	Students will analyze and prepare financial documents for sole proprietorships and corporations for merchandising and service businesses.		

Outcome 1:

CTE.A.1	**Analyze financial data for a service business that is a sole proprietorship and prepare financial records.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.A.1.1	Restate the accounting equation and classify accounts by category (assets, liabilities, owner's equity).	AC.V.	
	CTE.A.1.2	Process business activities and evaluate the effect on the accounting equation.	AC.V.	
	CTE.A.1.3	Use T Accounts to analyze how transactions affect accounts.	AC.V.	
	CTE.A.1.4	Explain the difference between debits and credits, and classify accounts as having normal debit or credit balances.	AC.V.	
	CTE.A.1.5	Identify source documents and use relevant data to process transactions.	AC.V.	
	CTE.A.1.6	Record transactions in a general journal using double-entry accounting methodology.	AC.V.	
	CTE.A.1.7	Create a Chart of Accounts.	AC.V.	
	CTE.A.1.8	Post journal entries to general ledger.	AC.V.	
	CTE.A.1.9	Analyze and process correcting journal entries that contain errors and make the necessary adjustments.	AC.V.	

Outcome 2:

CTE.A.2	**Complete cash documentation, and analyze and record all cash transactions.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.A.2.1	Summarize the significance of cash including the purpose of documents such as signature cards, checks, deposit slips, and debit cards.	AC.V.	
	CTE.A.2.2	Describe and demonstrate various methods of endorsing checks.	AC.I.c.	
	CTE.A.2.3	Prepare check stubs and checks.	AC.I.c.	
	CTE.A.2.4	Prepare a bank reconciliation; analyze and record relevant transactions.	AC.I.c.	
	CTE.A.2.5	Analyze and record dishonored checks and electronic banking transactions.	AC.V.	
	CTE.A.2.6	Compare and contrast "establishing" versus "replenishing" a petty cash fund and record necessary transactions.	AC.V.	

Outcome 3:

CTE.A.3	**Summarize financial data for a service business that is a sole proprietorship and complete end of period accounting cycle activities.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.A.3.1	Prepare, complete and explain the purpose of a Work sheet.	AC.V.	
		Identify and correct errors on a Work sheet.	AC.V.	
	CTE.A.3.2	Prepare a variety of financial statements (income statement, balance sheet, post-closing trial balance).	AC.V.	
	CTE.A.3.3	Analyze, record, and post adjusting entries.	AC.V.	
	CTE.A.3.4	Classify accounts as permanent or	AC.V.	

		temporary and explain the difference.		
	CTE.A.3.5	Record and post closing entries.	AC.V.	

Outcome 4:

CTE.A.4	**Analyze financial data for a corporate merchandising business and prepare financial records.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.A.4.1	Compare and contrast the chart of accounts for sole proprietorship versus corporation.	AC.V.	
	CTE.A.4.2	Analyze and record transactions using special journals (purchases, cash payments, sales, cash receipts).	AC.V.	
	CTE.A.4.3	Calculate and prove the equality of debits and credits in the special journals.	AC.V.	
	CTE.A.4.4	Analyze the difference between debit and credit memorandums and record the necessary transactions.	AC.V.	
	CTE.A.4.5	Differentiate between a general ledger and a subsidiary ledger.	AC.V.	
	CTE.A.4.6	Post journal entries to the subsidiary ledgers (accounts payable and accounts receivable).	AC.V.	
	CTE.A.4.7	Analyze, record, and post correcting entries to the subsidiary ledger accounts.	AC V.	
	CTE.A.4.8	Post totals from special journals to general ledger accounts.	AC V.	
	CTE.A.4.9	Compare cash balance in general ledger with balance in checkbook (prove cash).	AC V.	

Outcome 5:

CTE.A.5	**Complete payroll procedures for a business.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		

	CTE.A.5.1	Analyze time cards to calculate number of hours worked to determine gross pay.	AC.V.	
	CTE.A.5.2	Use tax tables to determine payroll tax withholding for federal income tax based on pay, marital status and allowances.	AC.V.	
	CTE.A.5.3	Calculate employee earnings (gross pay, deductions, net pay).	AC.V.	
	CTE.A.5.4	Prepare a payroll register and employee earnings record.	AC.V.	
	CTE.A.5.5	Compare and contrast employee and employer payroll taxes.	AC.V.	
	CTE.A.5.6	Calculate unemployment earnings and unemployment taxes (federal and state).	AC.V.	
	CTE.A.5.7	Record and post payroll transactions using a cash payments and general journal.	AC.V.	

Outcome 6:

CTE.A.6	**Summarize financial data for a corporate merchandising business and complete end of period activities.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.A.6.1	Identify the different Stockholders' Equity accounts and explain the purpose of each.	AC.III.	
	CTE.A.6.2	Calculate, analyze and record the declaration and payment of a dividend.	AC.V.	
	CTE.A.6.3	Record work sheet adjustments for merchandise inventory, uncollectible accounts, and depreciation.	AC.V.	
	CTE.A.6.4	Calculate and record the federal income tax adjustment on a Work sheet.	AC.V.	
	CTE.A.6.5	Prepare an income statement including calculating component percentages and financial ratios.	AC.III.	
	CTE.A.6.6	Analyze component percentages and determine appropriate action to improve unacceptable percentages.	AC.III.	

	CTE.A.6.7	Prepare a statement of stockholders' equity.	AC.V.	

Outcome 7:

CTE.A.7	**Complete a business simulation for a corporate merchandising business.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.A.7.1	Analyze authentic source documents and record transactions in appropriate journals.	AC.V.	
	CTE.A.7.2	Maintain a checking account including preparing checks and weekly deposits.	AC.V.	
	CTE.A.7.3	Record and post payroll transactions using employee earning records.	AC.V.	
	CTE.A.7.4	Post transactions to the general and subsidiary ledgers.	AC.V.	
	CTE.A.7.5	Use the compiled data to prepare a work sheet, supporting schedules and financial statements.	AC.V.	

Advanced Accounting

Subject:	Advanced Accounting	**Course/Grade Level:**	11, 12
Focus Statement:	Students will analyze and prepare financial documents for a departmentalized corporate merchandising business.		

Outcome 1:

CTE.AA.1	**Analyze financial data for a departmentalized merchandising business and prepare financial records.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.AA.1.1	Identify the normal balance side of accounts in the general ledger.	AC.V.	
	CTE.AA.1.2	Record and post departmental purchases, purchases returns and allowances and cash payments.	AC.V.	
	CTE.AA.1.3	Record and post departmental sales, sales returns and allowances and cash receipts.	AC.V.	
	CTE.AA.1.4	Prepare a commission record and calculate commissions on net sales.	AC.V.	
	CTE.AA.1.5	Prepare a departmental payroll register and employee earnings record.	AC.V.	
	CTE.AA.1.6	Journalize the payment of a departmental payroll.	AC.V.	
	CTE.AA.1.7	Calculate and record employer payroll taxes for a departmental business.	AC.V.	
	CTE.AA.1.8	Create excel spreadsheets to use to journalize transactions and to summarize payroll data.	AC.I.c.	

Outcome 2:

CTE.AA.2	**Summarize financial data for a departmentalized merchandising business, including preparing financial statements, and complete end of period activities.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.AA.2.1	Describe the features of a responsibility accounting system.	AC II	
	CTE.AA.2.2	Classify expenditures between direct and indirect expenses.	AC II	
	CTE.AA.2.3	Prepare an Interim Departmental Statement of Gross Profit.	AC V	
	CTE.AA.2.4	Prepare supporting schedules using the subsidiary ledgers and compare totals to the controlling accounts.	AC V	
	CTE.AA.2.5	Prepare a work sheet for a departmentalized business.	AC V	
	CTE.AA.2.6	Prepare a variety of financial statements (Departmental Margin Statements, Income Statement, Statement of Stockholders' Equity, Balance Sheet, Post-Closing Trial Balance)	AC V	
	CTE.AA.2.7	Record and post adjusting and closing entries for a departmentalized business.	AC V	
	CTE.AA.2.8	Summarize the steps in the accounting cycle for a departmentalized business.	AC V	
	CTE.AA.2.8	Create excel spreadsheets for each of the financial statements and use to summarize the financial data.	AC I.c.	

Outcome 3:

CTE.AA.3	**Complete a business simulation for a departmentalized merchandising business organized as a corporation.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		

	CTE.AA.3.1	Analyze realistic source documents and use them to record transactions in the various journals.	AC V	
	CTE.AA.3.2	Maintain a checking account and prepare check stubs for payments and deposits of money received.	AC I.c.	
	CTE.AA.3.3	Prepare payroll data, including commissions, and record appropriate journal entries.	AC V	
	CTE.AA.3.4	Post transactions to the general and subsidiary ledgers.	AC V	
	CTE.AA.3.5	Use the compiled data to prepare a work sheet, supporting schedules and financial statements.	AC V	

Outcome 4:

CTE.AA.4	**Perform accounting procedures for inventory and receivables, including calculating inventory balances, recording transactions, and calculating business ratios.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.AA.4.1	Distinguish between a periodic and a perpetual inventory.	AC III	
	CTE.AA.4.2	Complete a stock record by updating increases and decreases and compare with the inventory record from a physical count.	AC V	
	CTE.AA.4.3	Calculate inventory using FIFO, LIFO and weighted average cost methods, and compare results using the different methods.	AC IV	
	CTE.AA.4.4	Apply the LCM concept to inventory.	AC IV	
	CTE.AA.4.5	Estimate inventory using the Gross Profit and Retail methods.	AC III	
	CTE.AA.4.6	Calculate inventory turnover ratios and analyze effects on a business.	AC III	
	CTE.AA.4.7	Calculate adjustments for uncollectible accounts expense using the percentage of sales method and the percentage of	AC III	

		receivables method.		
	CTE.AA.4.8	Use an accounts receivable aging to create an adjustment for uncollectible accounts.	AC III	
	CTE.AA.4.9	Compare and contrast the allowance method with the direct write off method.	AC III	
	CTE.AA.4.10	Record transactions using the allowance method and the direct write off method.	AC V	
	CTE.AA.4.11	Calculate accounts receivable turnover ratios and analyze effects on a business.	AC III	

Outcome 5:

CTE.AA.5	**Perform accounting procedures for plant assets, including calculating depreciation and gains or losses on disposal of assets, and recording transactions affecting plant assets.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.AA.5.1	Journalize transactions to buy plant assets, and prepare plant asset record for purchased plant asset.	AC V	
	CTE.AA.5.2	Calculate and record the payment of property taxes.	AC V	
	CTE.AA.5.3	Calculate monthly and annual depreciation using the straight line method.	AC IV	
	CTE.AA.5.4	Calculate depreciation using other accepted methods of depreciation (declining balance, sum-of-the-years' digits, production-unit, MACRS).	AC IV	
	CTE.AA.5.5	Calculate book values and gains and losses on disposal of plant assets.	AC IV	
	CTE.AA.5.6	Record depreciation expense and disposal of plant assets in the appropriate journal.	AC IV	

Outcome 6:

CTE.AA.6	**Perform accounting procedures for notes and accruals, including calculating and recording transactions.**			
	Local Code:	**Components:**	**C3 Framework**	**Local**

			Standards Referenced	Standards Referenced
	Component:	**Students will:**		
	CTE.AA.6.1	Calculate interest, due dates and maturity values for notes.	AC IV	
	CTE.AA.6.2	Record issuance of notes, dishonoring of notes, and collection and/or payment of notes.	AC IV	
	CTE.AA.6.3	Calculate adjustments for accrued interest, payroll and payroll taxes, and prepaid expenses.	AC IV	
	CTE.AA.6.4	Record adjusting and reversing entries for prepaid accounts and accruals.	AC V	

Outcome 7:

CTE.AA.7	**Perform accounting procedures for organizing a corporation and acquiring additional capital, including recording transactions involving capital stock and bonds.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.AA.7.1	Record transactions for starting a corporation, stock subscriptions, and dividends (common and preferred).	AC IV	
	CTE.AA.7.2	Explain the difference between common and preferred stock.	AC II	
	CTE.AA.7.3	Calculate preferred and common dividends.	AC IV	
	CTE.AA.7.4	Prepare a balance sheet for a newly formed corporation.	AC V	
	CTE.AA.7.5	Record transactions for issuing additional capital stock at above or below par or stated value.	AC IV	
	CTE.AA.7.6	Record transactions for buying and selling treasury stock.	AC IV	
	CTE.AA.7.7	Record transactions for issuing bonds, paying interest on bonds, depositing cash into a bond sinking fund, and retiring a bond issue.	AC IV	
	CTE.AA.7.8	Compare and contrast the different	AC IV	

		options to acquiring additional capital (stocks vs. bonds)		

Outcome 8:

CTE.AA.8	**Summarize financial data, prepare financial statements, calculate business ratios and analyze financial results for a corporation.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		
	CTE.AA.8.1	Calculate federal income tax expense using the net income before tax and the appropriate federal tax rates.	AC V	
	CTE.AA.8.2	Prepared a detailed income statement.	AC V	
	CTE.AA.8.3	Analyze component percentages and determine appropriate action to improve unacceptable percentages.	AC III	
	CTE.AA.8.4	Calculate the share of net income assigned to preferred and common stock, earnings per share and price-earnings ratio.	AC III	
	CTE.AA.8.5	Prepare a detailed statement of stockholders' equity (multiple types of stock, treasury stock)	AC V	
	CTE.AA.8.6	Calculate equity per share for preferred and common stock using the statement of stockholders' equity.	AC III	
	CTE.AA.8.7	Calculate the accounts receivable turnover ratio and the rates earned on average stockholders' equity and on average total assets.	AC III	
	CTE.AA.8.8	Record adjusting, closing and reversing entries.	AC V	

Outcome 9:

CTE.AA.9	**Complete a business simulation for a merchandising business organized as a corporation.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	Component:	**Students will:**		

	CTE.AA.9.1	Analyze realistic source documents and use them to record transactions in the various journals.	AC V	
	CTE.AA.9.2	Maintain a checking account and prepare check stubs for payments and deposits of money received.	AC V	
	CTE.AA.9.3	Post transactions to the general and subsidiary ledgers.	AC V	
	CTE.AA.9.4	Use the compiled data to prepare a work sheet and financial statements.	AC V	

Business Basics

Subject:	Business Basics	**Course/Grade Level:**	8
Focus Statement:	Students will design, create, market and sell a unique product or service while managing inventory and production levels based on customer demand. Students will learn how to record and report their business' sales, expenses and calculate profit/losses.		

Outcome 1: Introduction to Entrepreneurship

CTE.BB.1	**Students will describe the roles of entrepreneurship and small businesses on the economy.**			
	Local Code:	**Components:**	**National Business Education Standards and NCSS Referenced**	**Local Standards Referenced**
		Students will…		
	CTE.BB.1.1	Define role of small business in the economy.	NBEA. Entrepreneurship.III	
	CTE.BB.1.2	Describe what entrepreneurs contribute to the economy.	SS.NCSS.5	
	CTE.BB.1.3	Identify small business start-up process.	SS.NCSS.5, SS.NCSS.7	
	CTE.BB.1.4	Compare the risks and rewards of going into business for yourself.	SS.NCSS.7	
	CTE.BB.1.5	Describe the background, characteristics and skills of entrepreneurs.	NBEA. Entrepreneurship. I. Entrepreneurs and Entrepreneurial Opportunities	
	CTE.BB.1.6	Identify sources of current trends and opportunities.	NBEA. Entrepreneurship. VII. Global Markets	

Outcome 2: Start-Up

CTE.BB.2	Students will propose a business concept and describe the components of the business plan.			
	Local Code:		**NBEA Standards**	**Local Standards**
		Students will….		
	CTE.BB.2.1	Propose a business concept.	NBEA. Operations Managament.XI. Operations Management	
	CTE.BB.2.3	Explain the importance of business planning.	NBEA. Entrepreneurship.IX	
	CTE.BB.2.4	Identify and describe the components of a business plan.	NBEA. Entrepreneurship.IX	
	CTE.BB.2.5	Differentiate between “business” and “industry” and describe how they relate to each other.	NBEA. Entrepreneurship.IX	
	CTE.BB.2.6	Define and identify target markets.	NBEA. Entrepreneurship.II and Marketing.II	
	CTE.BB.2.7	Describe the effect of competition on start-up.	NBEA. Management. IX. Industry Analysis	

Outcome 3: Marketing

CTE.BB.3	Students will create marketing strategies.			
	Local Code:	**Components**		
	Students will…		**NBEA Standards**	**Local Standards**
	CTE.BB.3.1	Define Marketing.		
	CTE.BB.3.2	Describe the purpose of the marketing plan.	NBEA.Marketing. VI. The Marketing Plan	
	CTE.BB.3.3	Identify promotional strategies.		
	CTE.BB.3.4	Define the components marketing mix.	NBEA.Marketing. IV. The	

			Marketing Mix	

Outcome 4: Financial Management

CTE.BB.4	**Students will manage the financial aspects of a business.**			
	Local code:	**Components:**	**NBEA Standards**	**Local Standards**
		Students will:		
	CTE.BB.4.1	Define and describe the importance of accounting and financial planning for small businesses.	NBEA. Entrepreneurship. IV. Finance	
	CTE.BB.4.2	Describe financial resources available to entrepreneurs for starting a business.	NBEA. Entrepreneurship. IV. Finance	
	CTE.BB.4.3	Compare and contrast sources of financing for startup ventures.	NBEA. Entrepreneurship. IV. Finance	
	CTE.BB.4.4	Utilize a spreadsheet with formulas.		
	CTE.BB.4.5	Define and identify start-up costs.	NBEA. Entrepreneurship. V. Accounting	
	CTE.BB.4.6	Manage daily financial transactions of the business.	NBEA. Entrepreneurship. V. Accounting	
	CTE.BB.4.7	Prepare an income statement.	NBEA. Entrepreneurship. V. Accounting	
	CTE.BB.4.8	Define and explain the purpose of breakeven analysis.	NBEA. Accounting.III. Financial Analysis	

Outcome 5: Personal Finance

CTE.BB.5	**Students will apply the basics of savings, investing, investment risks to personal investment.**			
	Local code:	**Components:**	**NBEA Standards**	**Local Standards**
		Students will:		
	CTE.BB.5.1	Define various savings and investment	NBEA. Personal	

		options and explain purposes.	Finance IV. Saving and Investing	
	CTE.BB.5.2	Define basic investment options (stocks and bonds) and risk level.	NBEA. Personal Finance IV. Saving and Investing	
	CTE.BB.5.3	Define return on investment.	NBEA. Personal Finance IV. Saving and Investing	
	CTE.BB.5.4	Read stock listings.	NBEA. Personal Finance IV. Saving and Investing	
	CTE.BB.5.5	Discuss features and types of corporate bonds.	NBEA. Personal Finance IV. Saving and Investing	
	CTE.BB.5.6	Calculate interest earnings on bonds.	NBEA. Personal Finance IV. Saving and Investing	
	CTE.BB.5.7	Describe government bonds.	NBEA. Personal Finance IV. Saving and Investing	

Business Law

Subject:	Business Law	**Course/Grade Level:**	11, 12
Focus Statement:	Students will be able to describe, diagnose and evaluate the foundations of our legal framework.		

Outcome 1:

CTE.BL.1	**Identify and distinguish between sources of law, analyze the relationship between ethics and laws, and relate business law to other types of law.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BL.1.1	Distinguish between the 4 main sources of our laws and provide examples of each.	BL I	
	CTE.BL.1.2	Explain how conflicts between the sources of laws are resolved.	BL I	
	CTE.BL.1.3	Analyze the relationship between ethics and the law, and explain how ethics are reflected in the laws.	BL I	
	CTE.BL.1.4	Compare and contrast procedural and substantive law.	BL I	
	CTE.BL.1.5	Explain how business law is connected to criminal and civil law.	BL I	
	CTE.BL.1.6	Explain the difference between civil disobedience and scofflaws.	BL I	

Outcome 2:

CTE.BL.2	**Analyze the court system and describe the different levels of courts, their powers, and how legal issues can be resolved outside the court system.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**

		Students will:		
	CTE.BL.2.1	Describe ways to settle disputes outside of the courts.	BL I	
	CTE.BL.2.2	Compare and contrast trial courts and appellate courts.	BL I	
	CTE.BL.2.3	Distinguish between the 4 possible appellate court decisions.	BL I	
	CTE.BL.2.4	Compare and contrast the federal and state court systems.	BL I	
	CTE.BL.2.5	Diagram the various levels of the federal and state court systems and illustrate the jurisdictions (original, appellate, general, and special) of each.	BL I	
	CTE.BL.2.6	Identify the state courts with limited jurisdiction and describe the types of cases heard by each.	BL I	

Outcome 3:

CTE.BL.3	**Distinguish between crimes and torts, describe legal terms related to court proceedings, and compare and contrast criminal and civil law and apply to cases.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BL.3.1	Describe the 3 main elements of a criminal act, and explain the doctrine of vicarious criminal liability.	BL I	
	CTE.BL.3.2	Distinguish between crime classifications (felony, misdemeanor, infraction) and classify crimes based on their severity.	BL I	
	CTE.BL.3.3	Identify and support rights of those who are arrested.	BL I	
	CTE.BL.3.4	Describe and distinguish between white collar crimes.	BL I	
	CTE.BL.3.5	Compare and contrast procedural and substantive defenses and determine the appropriate defense to criminal cases.	BL I	
	CTE.BL.3.6	Describe the 4 main elements of torts, and explain why one person may be responsible for another's tort.	BL I	

	CTE.BL.3.7	Differentiate between the 3 different types of torts (intentional, negligence, and strict liability) and classify examples by type.	BL I	
	CTE.BL.3.8	Describe and distinguish between the defenses to the tort of negligence.	BL I	
	CTE.BL.3.9	Explain the remedies available in a civil suit and apply them to cases.	BL I	
	CTE.BL.3.10	Summarize law terms and describe their importance to legal proceedings (subpoena, contempt, immunity, plea bargain, plaintiff, defendant, evidence, testimony, damages).	BL I	
	CTE.BL.3.11	Compare and contrast the aspects of criminal and civil law, including the elements of crimes and torts, the burdens of proof, defenses and the potential outcomes for each.	BL I	
	CTE.BL.3.12	Analyze video case, evaluate witness testimony and predict outcome.	BL I	

Outcome 4:

CTE.BL.4	**Describe and evaluate contractual requirements of; offer and acceptance, genuine agreement and consideration.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BL.4.1	Identify and describe the 3 basic requirements of an offer, and create a valid offer.	BL II	
	CTE.BL.4.2	Describe ways to end an offer and ways to keep an offer open.	BL II	
	CTE.BL.4.3	Distinguish between unilateral and bilateral acceptance.	BL II	
	CTE.BL.4.4	Prepare a presentation on one of the ways a contract is not genuine and present it to peers.	BL II	
	CTE.BL.4.5	Compare and contrast duress and undue influence.	BL II	
	CTE.BL.4.6	Distinguish between unilateral and mutual mistakes, facts and opinions, and misrepresentation and fraud.	BL II	
	CTE.BL.4.7	Describe consideration and legal value and	BL II	

		determine if consideration meets the requirement of a contract.		
	CTE.BL.4.8	Identify examples where consideration is not present in an agreement.	BL II	
	CTE.BL.4.9	Describe exceptions to the rule regarding consideration.	BL II	

Outcome 5:

CTE.BL.5	**Describe and evaluate contractual requirements of; capacity, legality and proper form.**			
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BL.5.1	Describe contractual capacity, including parties lacking it, and determine effect on contracts.	BL II	
	CTE.BL.5.2	Compare and contrast necessaries and non-necessaries and the protections provided under contract law.	BL II	
	CTE.BL.5.3	Describe emancipation, and distinguish between formal and informal emancipation.	BL II	
	CTE.BL.5.4	Provide examples of exceptions to the contractual capacity requirement for minors.	BL II	
	CTE.BL.5.5	Identify various forms of illegal agreements, and determine effect on a contract.	BL II	
	CTE.BL.5.6	Differentiate between a revenue and a competency license.	BL II	
	CTE.BL.5.7	Distinguish between contract terms that are procedurally and substantively unconscionable.	BL II	
	CTE.BL.5.8	Explain the Statute of Frauds as it relates to contracts.	BL II	

	CTE.BL.5.9	Explain the difference between executory, executed and quasi-contracts.	BL II	
	CTE.BL.5.10	Assess whether executory contracts need to be in writing to be enforceable.	BL II	
	CTE.BL.5.11	Distinguish between a collateral promise and a primary promise and the requirements of a signed writing for each.	BL II	

Outcome 6:

CTE.BL.6		**Determine contractual rights and duties, and distinguish between assignment roles and remedies for breach of contract.**		
	Local Code:	**Components:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BL.6.1	Identify contractual rights that can be assigned and duties that can be delegated.	BL II	
	CTE.BL.6.2	Distinguish between the assignor, assignee and obligor as it relates to contractual assignment.	BL II	
	CTE.BL.6.3	Describe the ways contractual obligations can be discharged.	BL II	
	CTE.BL.6.4	Explain breach of contract, and distinguish between a minor and major breach of contract.	BL II	
	CTE.BL.6.5	Describe the remedies available for a major breach of contract.	BL II	

Business Management

Subject:	Business Management	**Course/Grade Level:**	10, 11, 12
Focus Statement:	Students will explain the evolution, components and characteristics of managers and apply leadership styles and conflict management.		

Outcome 1: Management Today

CTE.BM.1	**Students will describe the evolution of management.**			
	Local Code:	**Components:**	**National Business Education Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BM.1.1	Define management, the importance of management, and list three levels of management roles in an organization.	NBEA Management. I. Management Functions	
	CTE.BM.1.2	Identify skill managers need.	NBEA Management. I. Management Functions	
	CTE.BM.1.3	Define entrepreneurship.	NBEA Entrepreneurship I. Entrepreneurs and Opportunities	
	CTE.BM.1.4	Discuss the role of women		

		and minorities in business today.		
	CTE.BM.1.5	Describe how the functions of management are implemented and explain why they are important.	NBEA Management. I. Management Functions	
	CTE.BM.1.6	Research how the US economy changed during Industrial Revolution and created changes in management.		
	CTE.BM.1.7	Define monopolies and trusts, and describe how monopolies resulted in new laws.		
	CTE.BM.1.8	Compare and contrast basic management theories and explain why they are important.	NBEA Management. II. Management Theories	

Outcome 2: The Management Environment

CTE.BM.2	**Students will analyze the rights and responsibilities of managers and employees.**			
	Local Code:	**Components:**	**NBEA Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BM.2.1	Describe a code of ethics and explain why ethics are important in business.	NBEA Management V. Ethics And Social Responsibility	
	CTE.BM.2.2	Discuss ethical dilemmas and use a step-by step business process to solve ethical dilemmas.	NBEA Management V. Ethics And Social Responsibility	
	CTE.BM.2.3	Describe how unethical business situations resulted in new laws (Sherman Act, Sarbanes Oxley).	NBEA Management V. Ethics And Social Responsibility	
	CTE.BM.2.4	Describe the components of various Intellectual Property protections (copyrights, patents, trademarks) and determine when each protection should be used.	NBEA Business Law V. Property Law	
	CTE.BM.2.5	Identify categories of laws	NBEA Business Law	

		(Corporate law, tax, IP, Consumer, Commercial, , Licensing, Employment) and describe how each impacts business, consumers, employees (FMLA, OHSA, EEOC, FLSA, NLRA, Benefits)	I. Basics of the Law II. Contract Law, Law of Sales, and Consumer Law III. Agency and Employment Law III. Agency and Employment Law VII. Organized Labor	
	CTE.BM.2.6	Compare the advantages and disadvantages of setting up a sole prop, partnership and corporation.	NBEA Management III. Business Organization	

Outcome 3: Economics and International Business

CTE.BM.3	**Students will analyze and explain global and U.S. economic concepts.**			
	Local Code:	**Components:**	**NBEA Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.BM.3.1	Compare and contrast market and command economies.	NBEA Economics II. Economic Systems	
	CTE.BM.3.2	Explain how businesses in a market economy make decisions about what to produce.	NBEA Economics VI. Productivity	
	CTE.BM.3.3	Analyze how supply and demand determine the equilibrium price of goods and services.	NBEA Economics IX. Aggregate Supply and Aggregate Demand	
	CTE.BM.3.4	Calculate sales, variable expenses, breakeven and profit/loss.	NBEA Accounting III. Financial Analysis	
	CTE.BM.3.5	Define and describe the characteristics of phases of the business cycle.	NBEA Economics II. Economic Systems	

	CTE.BM.3.6	Discuss historical U.S. business cycles (Great Depression, 1950's prosperity, 2008 recession)	NBEA Economics II. Economic Systems	
	CTE.BM.3.7	Examine how economic indicators are used to forecast business cycles.	NBEA Economics II. Economic Systems	
	CTE.BM.3.8	Define trade and discuss why countries trade with each other.	NBEA Economics VIII. Global Economic Concepts	
	CTE.BM.3.9	Define and compare absolute v. comparative advantage.	NBEA Economics VIII. Global Economic Concepts	
	CTE.BM.3.10	Discuss why businesses export and import.	NBEA Economics VIII. Global Economic Concepts	
	CTE.BM.3.12	Define three methods of protectionism and discuss the effects of protectionism on imports and prices.	NBEA Economics VIII. Global Economic Concepts	
	CTE.BM.3.13	Explain how foreign exchange rates affect imports and exports.	NBEA Economics VIII. Global Economic Concepts	
	CTE.BM.3.14	Define trade deficits and surpluses and discuss current US trade deficit.	NBEA Economics VIII. Global Economic Concepts	
	CTE.BM.3.15	Define NAFTA and describe NAFTA's impact of trade in North America.	NBEA Management XII. Global Perspective	
	CTE.BM.3.16	Discuss how managers manage in a global economy, including working with different cultures.	NBEA Management XII. Global Perspective	

Outcome 4: Foundation Skills

CTE.BM.4	**Students will analyze the effects of decision-making and communication on a manager's success.**			
	Local Code:	**Components:**	**NBEA Referenced**	**Local Standards**

				Referenced
		Students will:		
	CTE.BM.4.1	Differentiate two ways to make decisions and apply the process of rationale decision making.	NBEA Management IV. Personal Management Skills	
	CTE.BM.4.2	Describe how corporate culture and individual values influences decision making.		
	CTE.BM.4.3	List the principles of team decision making, and compare the advantages and disadvantages of team decision making.	NBEA Economics III. Workplace Communication	
	CTE.BM.4.4	Compare the different types of management decision styles (autocratic, semi-autocratic, leading, collaborative, accommodating)	NBEA Management. II. Management Theories	
	CTE.BM.4.5	Differentiate between brainstorming, brain writing and wish lists to make creative decisions	NBEA Economics III. Workplace Communication	
	CTE.BM.4.6	Discuss barriers to effective decision making.	NBEA Economics III. Workplace Communication	
	CTE.BM.4.7	Describe why communication is important in the business world	NBEA Communications I. Foundations of Communication	
	CTE.BM.4.8	Develop skills to assess an audience, listen actively, and read nonverbal cues.	NBEA Management IV. Personal Management Skills	

Outcome 5: Leadership Skills

CTE.BM.5	**Students will describe leadership skills, their effect on a manager's success, and how to manage conflict within a workplace.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards**

				Referenced
		Students will:		
	CTE.BM.5.1	Define motivation, describe various theories of motivation and describe how expectations affect motivation.	NBEA Management. II. Management Theories	
	CTE.BM.5.2	Describe positive and negative reinforcement as a motivation tool.	NBEA Management VI. Human Resource Management	
	CTE.BM.5.3	Differentiate between power, authority and leadership.	NBEA Management VI. Human Resource Management	
	CTE.BM.5.4	Describe three different leadership styles (autocratic, laissez-faire, democratic), and summarize leadership skills.	NBEA Management VI. Human Resource Management	
	CTE.BM.5.5	Describe positive and negative effects of workplace conflict.	NBEA Management VI. Human Resource Management	
	CTE.BM.5.6	Discuss three types of workplace conflict (interpersonal, intergroup and organizational) and describe how business managers deal with conflict.	NBEA Management VI. Human Resource Management	
	CTE.BM.5.7	Identify sources of workplace stress and differentiate the positive and negative effects of stress.	NBEA Management VI. Human Resource Management	
	CTE.BM.5.8	Describe the employer's role in preventing and mitigating employee stress and burnout.	NBEA Management VI. Human Resource Management	

Consumer Management

Subject:	Consumer Management	**Course/Grade Level:**	10, 11, 12
Focus Statement:	Students will assess their personal interest inventory for viable career options and apply personal finance and money management skills.		

Outcome 1: Career Decisions

CTE.CM.1	**In this unit, students will analyze employment choices and develop tools to obtain employment.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.CM.1.1	Discuss employment trends, and research and analyze prospective jobs or careers.	NBEA. Career Development. II. Career Research	
	CTE.CM.1.2	Complete self-assessment activities relating to employment interests.	NBEA. Career Development. I. Self-Awareness	
	CTE.CM.1.3	Summarize the purpose and produce various documents to obtain employment (i.e. application, cover letter, resume, thank you letter).	NBEA. Career Development III. Workplace Expectations V. School-to-Career Transition	
	CTE.CM.1.4	Discuss how to prepare for and be successful in a job interview.	NBEA. Career Development III. Workplace Expectations V. School-to-Career Transition	
	CTE.CM.1.5	Explain the purpose of and prepare various work–related forms (i.e. W-4, W-2, work permit, Social Security card)	NBEA. Career Development V. School-to-Career Transition	

	CTE.CM.1.6	Explain the key components of employment laws including Social Security Act, unemployment, FLSA, FMLA, workers' compensation, and discrimination laws.	NBEA. Business Law. III. Agency and Employment	
	CTE.CM.1.7	Define and analyze employee and employer responsibilities.	NBEA. Career Development III. Workplace Expectations	

Outcome 2: Money Management

CTE.CM. 2	**Students will examine and prepare paychecks, personal income taxes, budgets, net worth statements, personal property inventories and checking accounts, and will apply them to formal and informal contracts.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.CM.2.1	Calculate gross pay, payroll deductions and net pay.	NBEA. Personal Finance. II. Earning and Reporting Income	
	CTE.CM.2.2	Identify and evaluate employee benefits.	NBEA. Personal Finance. II. Earning and Reporting Income	
	CTE.CM.2.3	Describe various work arrangements.	NBEA. Personal Finance V. School-to-Career Transition	
	CTE.CM.2.4	Compare and contrast the role of unions and professional organizations.	NBEA. Management. VII. Organized Labor	
	CTE.CM.2.5	Describe the components of the tax system, the purpose of taxes and differentiate among progressive,	NBEA. Personal Finance. II. Earning and Reporting	

		regressive, and proportional taxes.	Income	
	CTE.CM.2.6	Prepare 1040EZ.	NBEA. Personal Finance. II. Earning and Reporting Income	
	CTE.CM.2.7	Explain the purpose of and prepare personal budgets.	NBEA. Personal Finance. III. Managing Finances and Budgeting	
	CTE.CM.2.8	Explain the purpose of and prepare a net worth statement and a personal property inventory.	NBEA. Personal Finance. III. Managing Finances and Budgeting	
	CTE.CM.2.9	Explain the elements of a legal contract.	NBEA. Business Law. II. Contract Law, Law of Sales, and Consumer Law	
	CTE.CM.2.10	Describe negotiable instruments and warranties.	NBEA. Business Law. VI. Negotiable Instruments, Secured Transactions, Bankruptcy	
	CTE.CM.2.11	Describe the purpose of a checking account and prepare checks, deposit slips and bank reconciliations.	NBEA. Personal Finance. VI. Banking and Financial Institutions	
	CTE.CM.2.12	Distinguish between different types of checking accounts and describe various banking services and fees.	NBEA. Personal Finance. VI. Banking and Financial Institutions	

Outcome 3: Credit Management

CTE.CM. 3	**Students will evaluate credit options, calculate interest on loans and explain how to use credit responsibly.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.CM.3.1	Define credit vocabulary.	NBEA. Personal Finance. VII. Using Credit	
	CTE.CM.3.2	Compare the advantages and disadvantages of credit.	NBEA. Personal Finance. VII. Using Credit	
	CTE.CM.3.3	Evaluate various types and sources of credit.	NBEA. Personal Finance. VII. Using Credit	
	CTE.CM.3.4	Identify and analyze the elements of a credit report and credit card statement.	NBEA. Personal Finance. VII. Using Credit	
	CTE.CM.3.5	Describe the five C's of credit and evaluate the importance of each for obtaining credit.	NBEA. Personal Finance. VII. Using Credit	
	CTE.CM.3.6	Identify methods of establishing credit.	NBEA. Personal Finance. VII. Using Credit	
	CTE.CM.3.7	Describe the purpose of and distinguish between credit ratings.	NBEA. Personal Finance. VII. Using Credit	
	CTE.CM.3.8	Describe the role of credit laws with regard to consumer and creditor rights and responsibilities.	NBEA. Business Law. II. Contract Law, Law of Sales, and Consumer Law	
	CTE.CM.3.9	Differentiate between the responsibilities of creditors and debtors.	NBEA. Personal Finance. VIII. Protecting	

			Against Risk	
	CTE.CM.3.10	Calculate simple interest and annual percentage rate.	NBEA. Computation. VI. Problem-Solving Applications	

Outcome 4: Consumer Rights and Responsibilities

CTE.CM.4	**Students will evaluate the role of consumers in a free enterprise market and differentiate among deceptive marketing practices and remedies.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.CM.4.1	Summarize the components and characteristics of a free enterprise system.	NBEA. Economics II. Economic Systems	
	CTE.CM.4.2	Describe deceptive marketing practices and identify ways to protect yourself.	NBEA. Personal Finance. VIII. Protecting Against Risk	
	CTE.CM.4.3	Identify ways to seek redress.	NBEA. Personal Finance. VIII. Protecting Against Risk	

Interrelated Cooperative Education

Subject:	Interrelated Cooperative Education (ICE)	**Course/Grade Level:**	11, 12
Focus Statement:	Students will cultivate teamwork, communication, and interpersonal skills necessary for success along with focusing on career and job searching strategies.		

Outcome 1: Career/Job Exploration

CTE.ICE.1	**Students will analyze personal traits as they relate to future careers, utilize resources to research and to create a summary.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.1.1	Complete a self-assessment to determine possible traits and/or aptitudes as they relate to future careers (i.e. career interests surveys, personality tests).	CD.I	
	CTE.ICE.1.2	Utilize resources to perform research.	CD.II	
	CTE.ICE.1.3	Summarize research in the form of a presentation.	CD.VI	CCSS.ELA-LITERACY.SL.11-12.4

Outcome 2: Life After High School: Action Plan

CTE.ICE.2	**Students will be able to analyze options for life after high school and develop a personal plan.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.2.1	Analyze research and identify options for life after high school.	CD.II	
	CTE.ICE.2.2	Develop a plan for life after high school.	CD.IV	
	CTE.ICE.2.3	Summarize research in the form of a presentation.	CD.VI	CCSS.ELA-LITERACY.SL.11

				-12.4

Outcome 3: Applying for a Job/Career

CTE.ICE.3	**Students will be able to develop skills necessary for the job application process.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.3.1	Complete and explain the purpose of a pre-employment test.	CD.I	
	CTE.ICE.3.2	Identify qualities/traits necessary for success in the workplace.	CD.III	
	CTE.ICE.3.3	Create a cover letter, resume, job application, and thank you letter for a specific job/career.	CD.VI	
	CTE.ICE.3.4	Role-play a job interview.	CD.VI	
	CTE.ICE.3.5	Write a reflection evaluating mock interview performance.	CD.I	CCSS-LITERACY-W.11-12.2F

Outcome 4: Entrepreneurship

CTE.ICE.4	**Students will be able to describe the different types of business organization and utilize the four P's of marketing to create a business plan for a specific business.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.4.1	Define entrepreneurship and identify different types of business organization (franchise, sole proprietorship, partnership, and corporation).	MAN.III	
	CTE.ICE.4.2	List and explain the 4P's of marketing.	MAR.IV	
	CTE.ICE.4.3	Create a business and develop a business plan.	ENT.IX	
	CTE.ICE.4.4	Develop a 3-D model for a business.	ENT.IX	
	CTE.ICE.4.5	Propose a business plan in the form of a presentation.	COM.I	CCSS.ELA-LITERACY.SL.11-12.4

Outcome 5: Ethics

CTE.ICE.5	**Students will be able to explain the role of ethics in the workplace and propose solutions for various ethical dilemmas.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.5.1	Define ethics and create a list of personal ethics.	MAN.V	
	CTE.ICE.5.2	Explain the role of ethics in the workplace.	MAN.V	
	CTE.ICE.5.3	Propose solutions for various ethical dilemmas.	CD.III	

Outcome 6: Teamwork

CTE.ICE.6	**Students will be able to develop teamwork skills that can be used in various platforms in life.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.6.1	Identify the steps in forming a team.	CD.VI	
	CTE.ICE.6.2	Collaborate in order to achieve a given goal.		CCSS.ELA-LITERACY.SL.11-12.1
	CTE.ICE.6.3	Evaluate the role of teamwork in various situations.	CD.VI	
	CTE.ICE.7.3	Write a reflective summary on the importance of teamwork.	CD.I	CCSS.ELA-LITERACY.W.11-12.2F

Outcome 7: Problem Solving

CTE.ICE.7	**Students will be able to demonstrate the ability to solve situational problems using appropriate problem solving steps.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**

		Students will:		
	CTE.ICE.7.1	Identify the steps of problem solving and demonstrate the ability to solve situational problems.	CD.VI	
	CTE.ICE.7.2	Collaborate in order to achieve a given goal.		CCSS.ELA-LITERACY.SL.11-12.1

Outcome 8: Healthy Lifestyles

CTE.ICE.8	**Students will be able to analyze personal habits related to eating, sleeping, and physical activity in order to evaluate the affect personal choices have on one's life.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.8.1	Explain the role healthy habits have on every day functioning.	CD.VI	
	CTE.ICE.8.2	Evaluate ones habits regarding sleep, physical activity, and eating.	CD.VI	
	CTE.ICE.8.3	Create a personal fitness plan and evaluate ones performance.	CD.VI	
	CTE.ICE.8.3	Summarize fitness plan results in the form of a presentation.		CCSS.ELA-LITERACY.SL.11-12.4

Outcome 9: Communication

CTE.ICE.9	**Students will be able to describe the elements of parliamentary procedure and organize and present a speech.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.9.1	Identify the elements of parliamentary procedure.	COM.III	
	CTE.ICE.9.2	Demonstrate the ability to communicate in various methods (non-verbally, written).	COM.I	
	CTE.ICE.9.3	Organize, write, and present a speech.	COM.I	CCSS.ELA-LITERACY.SL.11-12.4

	CTE.ICE.9.3	Write a reflective summary.	CD.VI	CCSS-LITERACY-W.11-12.2F

Outcome 10: Diversity

CTE.ICE.10	**Students will be able to describe the impact diversity has in the workplace, compare and contrast business practices between two countries, and write a comparative essay.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.10.1	Define diversity and explains its impact in the workplace.	CD.III	
	CTE.ICE.10.2	Compare and contrast business practices between two different countries.	IB.IV	
	CTE.ICE.10.3	Write a comparative essay.	IB.IV	CCSS.ELA-LITERACY.W.11-12.9
	CTE.ICE.10.4	Summarize research in the form of a presentation.	IB.IV	CCSS.ELA-LITERACY.SL.11-12.4

Outcome 11: Safety on the Job

CTE.ICE.11	**Students will be able to describe the role of OSHA in the workplace and create hypothetical solutions to safety problems.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.11.1	Explain the role of OSHA in the workplace.	CD.III	
	CTE.ICE.11.2	Create a solution for a workplace safety issue.	CD.VI	
	CTE.ICE.11.3	Define and give examples of harassment.	CD.III	

Outcome 12: Business Trip

CTE.ICE.12	Students will be able to utilize a specific budget in order to plan a business trip.			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.12.1	Create a budget to plan a business trip.	PF.III	
	CTE.ICE.12.2	Collaborate to achieve goal.		CCSS.ELA-LITERACY.SL.11-12.1
	CTE.ICE.12.3	Develop a summarizing presentation.		CCSS.ELA-LITERACY.SL.11-12.4

Outcome 13: Life Simulation

CTE.ICE.13	Students will be able to simulate life in a hypothetical scenario, analyze different life options, and create a life plan.			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ICE.13.1	Identify spendable income and determine a budget.		
	CTE.ICE.13.2	Analyze different aspects of adult life (housing, transportation, food, savings) in order to evaluate personal needs.		
	CTE.ICE.13.3	Create a hypothetical life plan.		
	CTE.ICE.13.4	Develop a product that summarizes the chosen life plan and communicate that product to peers.		CCSS.ELA-LITERACY.SL.11-12.4

Introduction to Business I

Subject:	Introduction To Business I	**Course/Grade Level:**	9, 10, 11, 12
Focus Statement:	Students will apply business skills in economics, management, marketing, finance, accounting and human resources.		

Outcome 1:

CTE.ITBI.1	**Students will be able to summarize investment advantages and disadvantages as compared to savings.**			
	Local Code:	**Components:**	**NBEA Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ITBI.1.1	Define business terms (financial security, investing, saving, investment goals, risk tolerance, short term investing, long term investing, and securities).	PF III, PF IV, PF VII	
	CTE.ITBI.1.2	List two common financial goals everyone should achieve before they begin investing.	PF IV	
	CTE.ITBI.1.3	Analyze basic investment strategies and the risk/return relationship.	PF IV	

Outcome 2:

CTE.ITBI.2	**Students will evaluate a bond as an investment option, summarize the purpose of bonds and identify bond issuers.**			
	Local Code:	**Components:**	**NBEA Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ITBI.2.1	Define business terms (bond, maturity, face value, coupon rate, issue date, municipal, and issuer).	PF IV	
	CTE.ITBI.2.2	Calculate bond proceeds,	COMP III	

		discounts and interest earned.		
	CTE.ITBI.2.3	List four bond issuers and describe the purpose for various bonds.	PF IV	
	CTE.ITBI.2.4	Compare and contrast advantages and disadvantages of bonds as an investment.	PF IV	

Outcome 3:

CTE.ITBI.3	**Students will evaluate a stock as an investment option and identify the benefits a corporation would get from selling stock(s).**			
	Local Code:	**Components:**	**NBEA Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ITBI.3.1	Define the following terms (stock, capital gain, capital loss, SEC, mutual funds, par value, dividends, stock options, commission, common stock, preferred stock, stock market, and stock broker).	PF IV	
	CTE.ITBI.3.2	Describe two ways to profit from investing in stocks.	PF IV	
	CTE.ITBI.3.3	Calculate cost of stock, return on investment, capital gain, capital loss and dividends.	COMP I, COMP III, COMP VI	
	CTE.ITBI.3.4	Identify various stock markets and describe the unique characteristics of each.	PF IV	
	CTE.ITBI.3.5	Apply investment concepts of stocks, bonds and mutual funds to simulate the investment process.	VIII	

Outcome 4:

CTE.ITBI.4	**Students will be able to summarize the significance of human resources to business, describe the job search process and explain the relationship between education, employment and pay.**			
	Local Code:	**Components:**	**NBEA Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ITBI.4.1	Summarize the following terms (Human Resources, soft skills, hard skills, references, background check, resume, job application, wage, salary, turnover rate, employment status, orientation, job training, and benefits) and describe why each term is important to business.	CD I, CD II, CD III, CD IV, CD V, CD VI	
	CTE.ITBI.4.2	Complete and evaluate job applications.	CD V	
	CTE.ITBI.4.3	Explain the role of a human resource manager.	CD V	
	CTE.ITBI.4.4	Identify main components and create a job description.	CD V	
	CTE.ITBI.4.5	Observe interviews, recommend who to hire, and explain hiring reasoning.	CD V	
	CTE.ITBI.4.6	Research and list various sources of job openings.	CD V	
	CTE.ITBI.4.7	Describe positive work habits.	CD V	
	CTE.ITBI.4.8	Explain the relationship between jobs and wages v. careers and salaries.	CD I	
	CTE.ITBI.4.9	Describe how employment benefits are used to attract and retain employees, and how individual preferences may	CD V	

		change throughout their lifecycle.		
	CTE.ITBI.4.10	Demonstrate applicable interview skills and provide constructive feedback to a partner.	CD V	

Outcome 5:

CTE.ITBI.5	**Students will be able to summarize the significance of the marketing mix and functions of marketing, select appropriate media for situations/products and justify their decision.**			
	Local Code:	**Components:**	**NBEA Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ITBI.5.1	Summarize the following terms (marketing, advertising, demographic, marketing mix, target marketing, break-even point, market research) and describe why each term is important to business.	MAR I, MAR IV, MAR V	
	CTE.ITBI.5.2	Calculate break-even point.	COMP III, COMP IV	
	CTE.ITBI.5.3	Describe and categorize marketing activities.	MAR I	
	CTE.ITBI.5.4	Explain the components of the marketing mix.	MAR IV	
	CTE.ITBI.5.5	Describe how demographics and target marketing affect the marketing plan.	MAR II, MAR V	
	CTE.ITBI.5.6	Describe the product development cycle.	MAR III	
	CTE.ITBI.5.7	Identify characteristics of various media to select an appropriate medium for a given situation, and justify that choice.	MAR V	
	CTE.ITBI.5.8	Design media products that would be a part of an advertising campaign based upon a given situation.	IT VI	

	CTE.ITBI.5.9	Explain and apply media measurement and rates to media planning.	MAR III	

Outcome 6:

CTE.ITBI.6	**Students will be able to differentiate among forms of business ownership and categorize businesses by function, and will be able to summarize management and leadership.**			
	Local Code:	**Components:**	**NBEA Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ITBI.6.1	Compare and contrast advantages and disadvantages of forms of business ownership (i.e. sole proprietorship, partnership, corporation, franchise, non-profit, and cooperative).	BL IV	
	CTE.ITBI.6.2	Analyze a product as it moves from producer to retailer summarizing the function of each type of business.	MAN III	
	CTE.ITBI.6.3	Describe and categorize management activities.	MAN I	
	CTE.ITBI.6.4	Describe levels of management (top-level, middle, and operational) and create an organizational chart.	MAN III	
	CTE.ITBI.6.5	Recognize management structures (line authority, line and staff authority, centralized and decentralized organization) and explain the	MAN II	

		advantages and disadvantages of each.		
	CTE.ITBI.6.6	Summarize recommended skills of a manager and compare the advantages and disadvantages of being a manager.	MAN IV	
	CTE.ITBI.6.7	Differentiate between management and leadership.	MAN II	
	CTE.ITBI.6.8	Describe leadership styles (autocratic, democratic, free-rein, and self-managed team) and identify situations that are appropriate for each style.	MAN II	

Outcome 7:

CTE.ITBI.7	**The students will explain the relationship of economics to business including the effects of resources, types of economies, consumers and the economic climate.**			
	Local Code:	**Components:**	**NBEA Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.ITBI.7.1	Differentiate between wants (public and private), needs, goods, services and resources.	EC IV	
	CTE.ITBI.7.2	Utilize the decision making process.	EC I	
	CTE.ITBI.7.3	Define and calculate revenue (sales) and profit, and explain the significance of each.	EC III	
	CTE.ITBI.7.4	Explain the effect competition has on businesses.	EC V	
	CTE.ITBI.7.5	Describe the relationship of businesses and consumers in a market economy.	EC I	
	CTE.ITBI.7.6	Classify specific resources into the four factors of production (natural, labor, capital, and	EC VI	

		entrepreneurial resources)		
	CTE.ITBI.7.7	Summarize the characteristics of market, command and mixed economies.	EC II	
	CTE.ITBI.7.8	Describe the effect of scarcity.	EC I, EC II	
	CTE.ITBI.7.9	Describe the relationship between price, supply, demand and equilibrium price.	ENT III, MAR II	
	CTE.ITBI.7.10	Define and summarize the purpose of economic indicators (gross domestic product, standard of living, unemployment rate, inflation/deflation, national debt).	EC VII	
	CTE.ITBI.7.11	Describe the four stages of the business cycle and how they impact public and private forces.	EC IX	

Introduction to Business II

Subject:	Introduction to Business II	**Course/Grade Level:**	10, 11, 12
Focus:	Students will recognize a business opportunity, as well as start, operate and maintain a business integrating the functional areas of business—accounting, finance, marketing, and management.		

Outcome 1: Introduction to Entrepreneurship

CTE.ITBII.1	**Students will recognize a business opportunity and create a business plan.**			
	Students will…		**Standards**	**Local Standards**
	CTE.ITBII.1.1	Define entrepreneurship; describe what entrepreneurs contribute to the economy.	SS.NCSS.5	
		Identify steps to start up a venture.		
	CTE.ITBII.1.2	Describe the background, characteristics and skills of successful entrepreneurs.	NBEA.Entrepreneurship.1	
	CTE.ITBII.1.3	Assess personal skills, abilities, aptitudes, and personal strengths/ weaknesses as they relate to career exploration and development as an entrepreneur.	NBEA.Career Development.1	
	CTE.ITBII.1.4	Analyze the risks and rewards of going into business for yourself.	SS.NCSS.7	
	CTE.ITBII.1.5	Research current trends that provide opportunities for entrepreneurs and identify ways to recognize opportunity.	NBEA Entrepreneurship. VII. Global Markets NCTE.7	
	CTE.ITBII.1.6	Utilize technology to allow for	NBEA.	

		collaboration in creating business documentation.	Technology. XVII. Information Technology and Business Functions	
	CTE.ITBII.1.7	Create a business plan.	NBEA.Entrepreneurship.IX	

Outcome 2: **Going into Business for Yourself**

CTE.ITBII.2	**Students will develop the leadership and products/services of their new venture and create corresponding sections of Business Plan.**			
	Students will…		**Standards**	**Local Standards**
	CTE.ITBII.2.1	Create a management plan for an entrepreneurship venture.	NBEA, Management VI	
	CTE.ITBII.2.2	Identify and apply personal management skills in a business environment.	NBEA, Management IV	
	CTE.ITBII.2.3	Evaluate and select a business opportunity.	ELA.NCTE.7	
	CTE.ITBII.2.4	Create a product/service plan.	SS.NCSS.1	
	CTE.ITBII.2.5	Develop the company's unique selling proposition (USP).		

Outcome 3: **Researching and Planning a Venture**

CTE.ITBII.3	**Students will develop the vision and mission statement of their business, research the industry and prepare a market analysis.**			
	Students will…		**Standards**	**Local Standards**
	CTE.ITBII.3.1	Create a vision and mission statement for the start-up venture.	NBEA. Entrepreneurship. IX. Business Plans	

	CTE.ITBII.3.2	Research and describe the industry in which the business operates including expected barriers to entry, failure rate, and profitability.	NBEA. Entrepreneurs hip.IX IX. Industry Analysis	
	CTE.ITBII.3.3	Analyze and describe the market analysis including target market demographics, psychographics and consumer motivations.	NBEA. Entrepreneurs hip. II. and Marketing.II	

Outcome 4: Managing Market Strategies

CTE.ITBII.4	**Students will create, analyze, implement and reassess the marketing mix.**			
	Students will…		**Standards**	**Local Standards**
	CTE.ITBII.4.1	Explain the purpose of and create a marketing plan.	NBEA. The Marketing Plan.VI	
	CTE.ITBII.4.2	Analyze the effectiveness of the marketing mix components for a specific business.	NBEA. Marketing I	
	CTE.ITBII.4.3	Calculate a breakeven analysis.	NBEA. Mathematical III. Patterns, Functions, and Algebra	
	CTE.ITBII.4.4	Calculate markup and markup percentages.	NBEA. Mathematical II. Number Relationships and Operations	

Outcome 5: Managing Your Business Processes

CTE.ITBII.5	Students will apply business management skills by organizing, planning and controlling limited resources.			
	Students will…		**Standards**	**Local Standards**
	CTE.ITBII.5.1	Describe the importance of product planning.	NBEA. Management. XI. Operations Management	
	CTE.ITBII.5.2	Examine and apply inventory procedures and controls.	NBEA. Management. XI. Operations Management	
	CTE.ITBII.5.3	Determine and utilize the equipment and technology needed to perform operations.	NBEA. Management. XI. Operations Management	

Outcome 6: Managing the Finances of Your Business

CTE.ITBII.6	Students will describe financial controls and apply accounting procedures.			
	Students will…		**Standards**	**Local Standards**
	CTE.ITBII.6.1	Calculate start-up capital requirements and explain the importance of controlling capital expenditures.	NBEA. Accounting. III. Financial Analysis	
	CTE.ITBII.6.2	Describe the importance of and apply the practice of recording daily sales and expense in order to prepare cash flow reports.	NBEA. Accounting. III. Financial Analysis	
	CTE.ITBII.6.3	Analyze and prepare an income statement and balance sheet.	NBEA. Accounting. II. Financial Reports	
	CTE.ITBII.6.4	Manage and reconcile cash.	NBEA. Management X. Financial Decision Making	
	CTE.ITBII.6.5	Prepare a forecast based on historical	NBEA.	

		financial information.	Accounting. II. Financial Reports	
	CTE.ITBII.6.6	Integrate technology into accounting functions.	NBEA. Information Technology. V. Productivity Software	

Marketing

Subject:	Marketing	**Course/Grade Level:**	10, 11, 12
Focus Statement:	Students will examine the field of marketing and its essential role in all aspects of business.		

Outcome 1:

CTE.MAR.1	**Students will be able to summarize the foundations of marketing, create a marketing plan, and differentiate between various marketing strategies.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.MAR.1.1	Define marketing and list the foundations of marketing.	MAR.I	
	CTE.MAR.1.2	Describe the seven marketing functions.	MAR.III	
	CTE.MAR.1.3	Define and give examples of goods and services.	MAR.II	
	CTE.MAR.1.4	Explain the different types of utilities and describe their importance in the business/consumer	MAR.II	

		relationship.		
	CTE.MAR.1.5	Define market, market share, and target market.	MAR.II	
	CTE.MAR.1.6	Apply the elements of marketing plans to create a specific plan for a chosen business.	MAR.IV	
	CTE.MAR.1.7	List and describe the components of the marketing mix.	MAR.IV	
	CTE.MAR.1.8	Differentiate between mass marketing and segmentation.	MAR.V	
	CTE.MAR.1.9	Identify and explain the attributes of a "strengths, weaknesses, opportunities, threats" (SWOT) analysis.	MAR.III	

Outcome 2: Economics and Global Marketing

CTE.MAR.2	**Students will be able to analyze the business cycle, describe different types of trade barriers, and define product customization and modification.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.MAR.2.1	Analyze the phases of the business cycle and explain the factors that affect that cycle.	MAR.III	
	CTE.MAR.2.2	Differentiate between exports and imports and give examples of each.	MAR.II	
	CTE.MAR.2.3	Explain and give examples of tariffs, quotas, and embargoes.	MAR.III	
	CTE.MAR.2.4	Describe the World Trade Organization (WTO), North American Free Trade Agreement (NAFTA), and the European Union (EU) and their impact on North	MAR.III	

		America.		
	CTE.MAR.2.5	Define customization and adaptation and develop a specific example of each.	MAR.II	
	CTE.MAR.2.6	Evaluate the effectiveness of globalization as a marketing strategy.	MAR.V	
	CTE.MAR.2.7	Define scarcity and identify a real world example.	MAR.III	

Outcome 3: Sales

CTE.MAR.3	**Students will be able to summarize different types of selling techniques, describe the steps of the selling process, and identify different ways to present a product.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.MAR.3.1	Define selling and explain the goal of selling.	MAR.II	
	CTE.MAR.3.2	Summarize personal selling and suggestion selling and give examples of each.	MAR.II	
	CTE.MAR.3.3	Describe the steps of the selling process.	MAR.II	
	CTE.MAR.3.4	Discuss methods of prospecting and identify examples of each method in context.	MAR.II	
	CTE.MAR.3.5	Distinguish between objections and excuses as they relate to the selling process.	MAR.II	
	CTE.MAR.3.6	Describe product presentation techniques.	MAR.II	

Outcome 4: Promotion and Distribution

CTE.MAR.4	**Students will be able to describe different types of promotion, create a business-relevant promotional strategy, describe the purpose of visual merchandising, and create a print ad for a specific product.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.MAR.4.1	Identify and explain types of	MAR.IV	

		promotion and explain their role in marketing		
	CTE.MAR.4.2	List and describe the elements of the promotional mix.	MAR.IV	
	CTE.MAR.4.3	Construct a business-relevant promotional mix strategy.	MAR.IV	
	CTE.MAR.4.4	Describe the purpose of visual merchandising.	MAR.VI	
	CTE.MAR.4.5	Analyze the role that advertising agencies have in marketing to determine their impact on the field.	MAR.IV	
	CTE.MAR.4.6	Summarize the components of a print ad and create a print ad for a specific product.	MAR.IV	
	CTE.MAR.4.7	Compare and contrast how different elements function in display design, and apply those elements to create a design product.	MAR.IV	

Outcome 5: Pricing

CTE.MAR.5	**Students will be able to analyze the effect pricing has on a marketing strategy, explain the stages of the product life cycle, and describe ethical and legal factors regarding pricing.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.MAR.5.1	Describe the goal of pricing and identify factors that affect pricing.	MAR.IV	
	CTE.MAR.5.2	Calculate retail price, markup percent, cost, and price.	MAR.IV	
	CTE.MAR.5.3	Identify and explain pricing policies used to establish a base price.	MAR.IV	
	CTE.MAR.5.4	Summarize the purpose of prestige pricing.	MAR.IV	

	CTE.MAR.5.5	Identify and explain the four stages of the production life cycle.	MAR.IV	
	CTE.MAR.5.6	Describe legal and ethical responsibilities businesses have regarding pricing.	MAR.IV	
	CTE.MAR.5.7	Determine the impact of Unfair Trade Practices Law on competition.	MAR.III	
	CTE.MAR.5.8	Hypothesize solutions to lower costs and expenses for a business.	MAR.III	

Outcome 6: Product/Service Management

CTE.MAR.6	**Students will be able to analyze different product positioning techniques, create a planogram, describe the role branding has in marketing, and explain the functions of packaging and labeling.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.MAR.6.1	Define and give an example of product modification.	MAR.II	
	CTE.MAR.6.2	Evaluate why a product might become obsolete.	MAR.IV	
	CTE.MAR.6.3	Give an example of a product line extension.	MAR.IV	
	CTE.MAR.6.4	Analyze product positioning techniques.	MAR.IV	
	CTE.MAR.6.5	Analyze the elements of a planogram in order to create a planogram for a specific product.	MAR.IV	
	CTE.MAR.6.6	Identify the elements of branding (brand name, trade name, and trademark).	MAR.I	
	CTE.MAR.6.7	List three different types of brands.	MAR.I	
	CTE.MAR.6.8	Explain the functions of product packaging and labeling and construct packaging and labels for a specific product.	MAR.II	
	CTE.MAR.6.9	Identify the benefit to	MAR.I	

		businesses of offering credit to consumers.		
	CTE.MAR.6.10	Create a real-world example of product extension and modification.	MAR.II	

Outcome 7: Entrepreneurial Concepts and Business Risk

CTE.MAR.7	**Students will be able to describe the process of being an entrepreneur, analyze types of business risk, and identify risk management strategies.**			
	Local Code:	**Components:**	**NBEA Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.MAR.7.1	Analyze entrepreneurship to determine its strength and weaknesses.	MAR.I	
	CTE.MAR.7.2	Explain the role of a stockholder in a business.	MAR.I	
	CTE.MAR.7.3	Analyze various types of business risk and identify risk management strategies.	MAR.III	

Computer Science

Applications and Computer Science Explorations

Subject:	Applications and Computer Science Explorations	**Course/Grade Level:**	7
Focus Statement:	Students will utilize various computer applications that are essential to the business world, as well as their future school career, and will refine their problem-solving skills through the computational thinking process of computer science.		

Outcome 1:

CTE.ACSE.1	Students will demonstrate troubleshooting techniques given a variety of technical situations and digital tools and they will utilize digital tools to create a multimedia product.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.ACSE.1.1	Identify and describe a given technological problem.	CTSA.CPP.L1:3-4	ILT.7.1.1
	CTE.ACSE.1.2	Apply troubleshooting techniques to technological problems.	CSTA.CPP.L1:3-4	ILT.7.1.2
	CTE.ACSE.1.3	Evaluate results and troubleshoot; if not successful, try another technique.	CSTA.CPP.L1:3-4	ILT.7.1.3
	CTE.ACSE.1.4	Identify the digital tools used to produce sound, images, and video.	CTSA.CPP.L1:3-2 CSTA.CPP.L1:6-2 CSTA.CPP.L1:6-3	ILT.7.1.4
	CTE.ACSE.1.5	Design a multimedia product that includes writing, sound, images, and video.	CTSA.CPP.L1:3-2 CSTA.CPP.L1:6-2 CSTA.CPP.L1:6-3	ILT.7.1.5

Outcome 2:

CTE.ACSE.2	Students will analyze the benefits of various applications, as well as communication and collaboration tools, and will utilize the most appropriate one(s) for the task.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		

	CTE.ACSE.2.1	Describe the benefits of word processing, presentation, spreadsheet, publishing, communication, and collaboration tools for a variety of tasks.	CTSA.CPP.L1:3-2 CSTA.CPP.L1:6-2 CSTA.CPP.L1:6-3	ILT.7.2.1 ILT.7.2.2
	CTE.ACSE.2.2	Evaluate applications and/or tools and choose the most appropriate for independent and collaborative assignments and tasks.	CSTA.COL.L1:3-2 CTSA.COL.L1:6-1 CTSA.CPP.L1:6-7	ILT.7.2.3
	CTE.ACSE.2.3	Use file-sharing services to collaborate on a project.	CSTA.COL.L1:3-1 CTSA.COL.L1:3-2 CTSA.CPP.L1:6-6	

Outcome 3:

CTE.ACSE.3	**Students will describe the meaning of computer science and show what potential careers they can go into that involve computers.**			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.ACSE.3.1	Compare and contrast computer science, programming, and computational thinking.	CSTA.CPP.L1:3-5 CSTA.CPP.L1:6-5 CSTA.CPP.L1:6-6 CSTA.CT.L1:6-5	
	CTE.ACSE.3.2	Summarize the aspects of different computing careers.	CSTA.CPP.L1:3-5 CSTA.CPP.L1:6-9	
	CTE.ACSE.3.3	Discuss how computer science is connected to other fields.	CSTA.CT.L1:6-6	

Outcome 4:

CTE.ACSE.4	**Students will demonstrate how to use computational thinking to solve problems.**

	Local Code:	Components:	CSTA Standards Referenced	Local ILT Standards Referenced
		Students will:		
	CTE.ACSE.4.1	Apply the four steps of computational thinking.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5 CSTA.CPP.L1:6-5 CSTA.CPP.L1:6-6	
	CTE.ACSE.4.2	Solve complex problems as a team.	CTSA.COL.L1:3-2 CTSA.COL.L1:6-2 CTSA.COL.L1:6-3	
	CTE.ACSE.4.3	Illustrate the definition of algorithm by showing or creating an example of one.	CSTA.CT.L1:6-5 CSTA.CPP.L1:6-5	
	CTE.ACSE.4.4	Translate an algorithm into a series of symbols.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5 CSTA.CPP.L1:6-4 CSTA.CPP.L1:6-5 CSTA.CPP.L1:6-6	
	CTE.ACSE.4.5	Evaluate a given algorithm for inefficiencies.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5	
	CTE.ACSE.4.6	Demonstrate ways to make algorithms more efficient.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5	
	CTE-ACSE.4.7	Create algorithms that describe real-world directions.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5 CSTA.CPP.L1:6-4 CSTA.CPP.L1:6-5 CSTA.CPP.L1:6-6	

Outcome 5:

CTE.ACSE.5	Students will identify patterns in processes and utilize functions to simplify algorithms.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**

		Students will:		
	CTE.ACSE.5.1	Analyze algorithms to find patterns.	CTSA.CT.L1:6-4 CSTA.CT.L1:6-5	
	CTE.ACSE.5.2	Declare functions to repeat the steps of algorithms.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5 CSTA.CPP.L1:6-6	
	CTE.ACSE.5.3	Demonstrate how to call functions.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5 CSTA.CPP.L1:6-6	
	CTE.ACSE.5.4	Demonstrate how to send variables to a function as parameters.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5 CSTA.CPP.L1:6-6	
	CTE.ACSE.5.5	Abstract an algorithm to find differences that can be turned in to similarities.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5	
	CTE.ACSE.5.6	Predict the true or false outcome of conditional statements.	CTSA.CPP.L1:6-6	
	CTE.ACSE.8.1	Demonstrate how to write an algorithm in proper sequence.	CSTA.CT.L1:6-4 CSTA.CT.L1:6-5 CSTA.CPP.L1:6-4 CSTA.CPP.L1:6-5 CSTA.CPP.L1:6-6	
	CTE.ACSE.8.2	Debug an algorithm or program to find errors.	CSTA.CPP.L1:6-6	

Computer Applications I

Subject:	Computer Science	**Course/Grade Level:**	Computer Applications I	9-12
Focus Statement:	Students will utilize various digital applications.			

Outcome 1:

CTE.CFI.1	**Students will be able to create, edit, and format spreadsheets utilizing formulas, functions and charts.**			
	Local Code:	**Components:**	**ISTE.NETS.S Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.CFI.1.1	Create a spreadsheet using given directions and/or data.	6b	ILT.9-10.2.3
	CTE.CFI.1.2	Manipulate size and formatting of cells, columns and rows including “Merge and Center” and “Wrap Text”.	6b	ILT.9-10.2.3
	CTE.CFI.1.3	Determine appropriate context for functions (autosum, average, minimum, maximum, choose and VLookup).	6b	ILT.9-10.2.3
		Apply functions (autosum, average, minimum, maximum, choose and VLookup).		
	CTE.CFI.1.4	Create formulas utilizing adjacent and disjointed cell references to add, subtract, multiply, divide, and include parenthesis where applicable.	6b	ILT.9-10.2.3
	CTE.CFI.1.5	Determine appropriate context to lock or not lock cells.	6b	ILT.9-10.2.3
	CTE.CFI.1.6	Summarize the purpose of assumption tables.	6b	ILT.9-10.2.3
	CTE.CFI.1.7	Create, edit and format visual charts (bar, column, pie and line).	6b	ILT.9-10.2.3
	CTE.CFI.1.8	Manipulate and use print settings.	6b	ILT.9-10.2.3

Outcome 2:

CTE.CFI.2	**Students will be able to create, edit and format a word processing document.**			
	Local	**Components:**	**ISTE.NETS.S**	**Local**

	Code:		Framework Standards Referenced	Standards Referenced
		Students will:		
	CTE.CFI.2.1	Manipulate font style and font size, text alignment, margins, orientation, number of columns per page, column and page breaks in word processing documents.	6b (9.W.6, 10.W.6)	ILT.9-10.2.2
	CTE.CFI.2.2	Create a header that includes text and images.	6b (9.W.6, 10.W.6)	ILT.9-10.2.2
	CTE.CFI.2.3	Create, edit and layer text boxes and shapes.	6b (9.W.6, 10.W.6)	ILT.9-10.2.2
	CTE.CFI.2.4	Insert and edit saved images in word processing documents.	6b (9.W.6, 10.W.6)	ILT.9-10.2.2
	CTE.CFI.2.5	Use bullets for lists.	6b (9.W.6, 10.W.6)	ILT.9-10.2.2
	CTE.CFI.2.6	Create a mail merge utilizing a business letter format.	6b (9.W.6, 10.W.6)	ILT.9-10.2.2

Outcome 3:

CTE.CFI.3	**Students will be able to create, edit and deliver a presentation.**			
	Local Code:	**Components:**	**ISTE.NETS.S Framework Standards Referenced**	**Local Standards Referenced**
		Students will:		
	CTE.CFI.3.1	Create and edit slides incorporating text, images, and color.	2b (9.SL.5)	ILT.9-10.2.4
	CTE.CFI.3.2	Utilize entrance, emphasis, exit and motion path effects.	2b (9.SL.5)	ILT.9-10.2.4
	CTE.CFI.3.3	Apply and edit backgrounds, transitions and automatic timings.	2b (9.SL.5)	ILT.9-10.2.4
	CTE.CFI.3.4	Apply sound to slides.	2b (9.SL.5)	ILT.9-10.2.4
	CTE.CFI.3.5	Demonstrate presentation skills.	2b (9.SL.5)	ILT.9-10.2.4

Outcome 4:

CTE.CFI.4	**Students will be able to save, edit and manipulate information from the internet.**

	Local Code:	Components:	ISTE.NETS.S Framework Standards Referenced	Local Standards Referenced
		Students will:		
	CTE.CFI.4.1	Save images from the internet.	1.1.6 (9.W.8)	ILT.9-10.4.2
	CTE.CFI.4.2	Apply editing techniques to alter images.	1a	
	CTE.CFI.4.3	Create and edit new images using mash up software.	1b	
	CTE.CFI.4.4	Locate, access, and extract various print and digital information for use in other applications.	1.1.6 (9.W.8)	ILT.9-10.4.2

Computer Applications II

Subject:	Computer Science	**Course/Grade Level:**	Computer Applications	10, 11, 12
Focus Statement:	Students will utilize advanced digital applications to create and manipulate graphical and data-based computer applications.			

Outcome 1:

CTE.CFII.1	**Students will be able to create, manipulate and display graphically a given quantity of data using spreadsheet software.**			
	Local Code:	**Components:**	**CTE Standards**	**Cross Referenced**
		Students will:		
	CFII.1.1	Organize data using a spreadsheet.	1a 4b	
	CFII.1.2	Identify errors in formulas and troubleshoot solutions.	6c	
	CFII.1.3	Apply advanced formulas to produce intended outcomes. ("IF Statements, Nested IF's")	6b	
	CFII.1.4	Select and create a graphic representation using given data.	6b	
	CFII.1.5	Apply conditional formatting to highlight different data points.	6a	
	CFII.1.6	Create pivot tables using given data.		

Outcome 2:

CTE.CFII.2	**Students will construct and describe all core components of a computer and will replace and upgrade modular components of a computer system.**			
	Local Code:	**Components:**	**CTE Standards**	**Cross Referenced**
		Students will:		
	CFII.2.1	Identify modular components in a standard desktop computer.	6a	
	CFII.2.2	Describe the role of each modular component within the computing environment.	6d	
	CFII.2.3	Explain and demonstrate (Electro-Static Discharge) ESD safe procedures when working on ESD susceptible	6d	

		products.		
	CFII.2.4	Assemble a working desktop computer from modular components.	4c	

Outcome 3:

CTE.CFII.3	**Students will apply a variety of production techniques to design, plan and produce a short video.**			
	Local Code:	**Components:**	**CTE Standards**	**Cross Referenced**
		Students will:		
	CFII.3.1	Identify a scenario and create a script for that scenario.	1a	
	CFII.3.2	Write a short narrative of what the audience will see and define which style the video will take.	1b	
	CFII.3.3	Design a shot plan for every scene.	3a	
	CFII.3.4	Record video.	1b	
	CFII.3.5	Edit video for final form using video editing software.	4c	
	CFII.3.6	Upload video in final form to online video forum.	6b, d	

Outcome 4:

CTE.CFII.4	**Students will design and create a database to query that database in order to extract specific information as requested.**			
	Local Code:	**Components:**	**CTE Standards**	**Cross Referenced**
		Students will:		
	CFII.4.1	Design a database utilizing different data-types.	1a	
	CFII.4.2	Create a database.	4b	
	CFII.4.3	Write a query to extract specific requested information from a given database.	4a	

Computer Programming I

Subject:	Computer Science	**Course/Grade Level:**	Computer Programming I	9-12
Focus Statement:	Students will use the computational thinking process of computer science to create computer games and applications.			

Outcome 1:

CTE.CPI.1	**Students will produce computer programs while working with a partner or team.**			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPI.1.1	Demonstrate how to use file-sharing services to collaborate on a project.	CSTA.COL.L2:2-1	
	CTE.CPI.1.2	Produce a computer program with a group or partner.	CSTA.COL.L2:2-2 CSTA.COL.L2:2-3	
	CTE.CPI.1.3	Analyze the code of a peer and provide useful feedback.	CSTA.COL.L2:2-4	

Outcome 2:

CTE.CPI.2	**Students will use computational thinking to solve problems.**			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPI.2.1	Utilize the steps of algorithmic problem solving to design solutions.	CSTA.CT.L2:2-1	
	CTE.CPI.2.2	Evaluate the process of parallelization as it relates to problem solving.	CSTA.CT.L2:2-2	

	CTE.CPI.2.3	Act out searching and sorting algorithms.	CSTA.CT.L2:2-3 CSTA.CT.L2:2-4 CSTA.CT.L2:2-5	
	CTE.CPI.2.4	Analyze a sequence of instructions to be followed for efficiency.	CSTA.CT.L2:2-6	
	CTE.CPI.2.5	Defend the best way to represent different data sets.	CSTA.CT.L2:2-7	
	CTE.CPI.2.6	Utilize visual representations of problem states, structures, and data.	CSTA.CT.L2:2-8	
	CTE.CPI.2.7	Defend what problems can be solved using modeling and simulation.	CSTA.CT.L2:2-9 CSTA.CT.L2:2-10	
	CTE.CPI.2.8	Evaluate how accurately a computer model represents the real world.	CSTA.CT.L2:2-11	
	CTE.CPI.2.9	Use abstraction to decompose a problem into subproblems.	CSTA.CT.L2:2-12 CSTA.CT.L2:2-13	
	CTE.CPI.2.10	Describe how computer science is connected to mathematics.	CSTA.CT.L2:2-14	
	CTE.CPI.2.11	Produce examples that show how computational thinking can be used in various disciplines.	CSTA.CT.L2:2-15 CSTA.CPP.L2:2-7	

Outcome 3:

CTE.CPI.3	Students will use programming and standard computer practices to solve problems using a computer.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPI.3.1	Select the appropriate technology tools to solve disparate problems.	CSTA.CPP.L2:2-1 CSTA.CPP.L2:2-2 CSTA.CPP.L2:2-3	
	CTE.CPI.3.2	Implement an algorithm in a programming language.	CSTA.CPP.L2:2-4	
	CTE.CPI.3.3	Demonstrate how to use “for” and “while” loops in a programming language.	CSTA.CPP.L2:2-5	
	CTE.CPI.3.4	Demonstrate how to use conditional statements in a programming language.	CSTA.CPP.L2:2-5	
	CTE.CPI.3.5	Demonstrate how to use variables in a programming language.	CSTA.CPP.L2:2-5	
	CTE.CPI.3.6	Demonstrate how to use methods in a programming language.	CSTA.CPP.L2:2-5	
	CTE.CPI.3.7	Demonstrate good practices based on established guidelines in personal information security.	CSTA.CPP.L2:2-6	
	CTE.CPI.3.8	Demonstrate ability to make changes to code and determine the impact of the changes.	CSTA.CPP.L2:2-8	
	CTE.CPI.3.9	Analyze output data from multiple runs of a computer program.	CSTA.CPP.L2:2-9	

Outcome 4:

CTE.CPI.4	Students will demonstrate how computers and communication devices work.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPI.4.1	Identify a variety of devices that can be considered a computer.	CSTA.CCD.L2:2-1 CSTA.CCD.L2:2-2	
	CTE.CPI.4.2	Show how hardware and software are related.	CSTA.CCD.L2:2-3	
	CTE.CPI.4.3	Use appropriate terminology when communicating about technology.	CSTA.CCD.L2:2-4	
	CTE.CPI.4.4	Identify and solve routine hardware problems with everyday computer use.	CSTA.CCD.L2:2-5	
	CTE.CPI.4.5	Demonstrate how the major components and functions of computer systems and networks work.	CSTA.CCD.L2:2-6	
	CTE.CPI.4.6	Show how computers use models of intelligent behavior.	CSTA.CCD.L2:2-7 CSTA.CCD.L2:2-8	

Outcome 5:

CTE.CPI.5	Students will analyze the impact computers have on the world and local community.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPI.5.1	Describe the consequences of misusing technology.	CSTA.CGEI.L2:2-1 CSTA.CGEI.L2:2-3 CSTA.CGEI.L2:2-5	

	CTE.CPI.5.2	Describe how technology has changed over time and influenced different elements of society.	CSTA.CGEI.L2:2-2	
	CTE.CPI.5.3	Evaluate the accuracy, relevance, appropriateness, and bias of electronic sources.	CSTA.CGEI.L2:2-4	
	CTE.CPI.5.4	Predict how the unequal access to technology will affect the global economy.	CSTA.CGEI.L2:2-5	

Computer Programming II: Game Design

Subject:	Computer Science	**Course/Grade Level:**	Computer Programming II: Game Design	10, 11, 12
Focus Statement:	Students will use the principles of game design theory to develop videogames cooperatively and individually.			

Outcome 1:

CTE.CPII.1	**Students will analyze the history and future of the videogame industry.**			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.1.1	Analyze the history of the videogame industry including the people, companies, and games that impacted the industry's development.	DGD.1.1.1 DGD.1.1.3 DGD.1.1.5	
	CTE.CPII.1.2	Compare and contrast non-digital games to videogames.	DGD.1.1.2	
	CTE.CPII.1.3	Categorize games based on their genres.	DGD.1.1.4	
	CTE.CPII.1.4	Compare and contrast the careers of game artist, sound designer, game developer, game tester, game producer, and independent game developer.	DGD.1.2.1 DGD.1.2.2 DGD.1.2.3 DGD.1.2.4 DGD.1.2.5 DGD.1.2.6 DGD.1.2.7 DGD.2.1.3	

Outcome 2:

CTE.CPII.2	Students will demonstrate knowledge of the videogame industry.			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.2.1	Correctly use industry terminology.	DGD.1.3.1 DGD.1.3.3	
	CTE.CPII.2.2	Distinguish between different tools that can be used for videogame development.	DGD.1.3.2	
	CTE.CPII.2.3	Compare and contrast the Entertainment Software Rating Board (ESRB) ratings for games.	DGD.1.3.4	
	CTE.CPII.2.4	Analyze a videogame and identify game design theories that it implements.	DGD.1.4.1 DGD.1.4.2 DGD.1.4.3	

Outcome 3:

CTE.CPII.3	Students will demonstrate how to create a videogame.			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.3.1	Determine the target audience for a game.	DGD.2.1.1	

	CTE.CPII.3.2	Create a game plan document with essential and optional ideas listed to minimize “feature creep”.	DGD.2.1.2 DGD.2.1.5 DGD.2.1.6 DGD.2.1.7 DGD.2.3.3 DGD.2.3.4 DGD.2.3.5	
	CTE.CPII.3.3	Create a videogame prototype.	DGD.2.1.4	
	CTE.CPII.3.4	Utilize collaboration tools to work as a team on a videogame.	DGD.2.1.8 DGD.2.1.9 DGD.2.1.10 DGD.2.1.11 DGD.2.1.12 DGD.2.1.13	
	CTE.CPII.3.5	Write a story for a videogame.	DGD.2.2.1 DGD.2.2.2 DGD.2.2.3	
	CTE.CPII.3.6	Create rules, objectives, and outcomes for a videogame.	DGD.2.2.4 DGD.2.2.5 DGD.2.2.6 DGD.2.4.2	
	CTE.CPII.3.7	Compare and contrast good and bad examples of usability.	DGD.2.2.7	
	CTE.CPII.3.8	Explain how in-game economies and reward systems are used in videogames.	DGD.2.2.8	
	CTE.CPII.3.9	Produce documentation for a videogame.	DGD.2.3.1 DGD.2.3.2 DGD.2.3.6	
	CTE.CPII.3.10	Compare and contrast different types of game mechanics.	DGD.2.4.1	
	CTE.CPII.3.11	Incorporate game mechanics into a videogame.	DGD.2.4.3 DGD.2.4.4	

Outcome 4:

CTE.CPII.4	Students will demonstrate how to create assets for a videogame.			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.4.1	Evaluate the roles of typography, layout, and composition in a videogame.	DGD.3.1.1 DGD.3.1.2	
	CTE.CPII.4.2	Explain how color theory is used in a videogame.	DGD.3.1.3	
	CTE.CPII.4.3	Show examples of one and two point perspective.	DGD.3.1.4 DGD.3.1.5 DGD.3.1.6	
	CTE.CPII.4.4	Show an example of a proportionally-correct figure.	DGD.3.1.7	
	CTE.CPII.4.5	Distinguish among 2D, 2.5D, and 3D art styles.	DGD.3.1.8 DGD.3.1.9	
	CTE.CPII.4.6	Compare and contrast an indoor versus an outdoor environment.	DGD.3.2.1 DGD.3.2.2 DGD.3.2.3	
	CTE.CPII.4.7	Create an environment for a videogame.	DGD.3.2.4 DGD.3.2.5 DGD.3.2.6 DGD.3.2.7	
	CTE.CPII.4.8	Describe how character development occurs in a videogame.	DGD.3.3.1 DGD.3.3.2 DGD.3.3.3 DGD.3.3.4 DGD.3.3.5	

	CTE.CPII.4.9	Construct a character for a videogame.	DGD.3.3.6 DGD.3.4.1	
	CTE.CPII.4.10	Construct and manipulate polygonal objects.	DGD.3.4.2 DGD.3.4.3 DGD.3.4.4 DGD.3.4.5 DGD.3.4.6 DGD.3.4.7	
	CTE.CPII.4.11	Demonstrate how lighting and shading affect form and surface.	DGD.3.4.8 DGD.3.4.9 DGD.3.4.10 DGD.3.5.9	
	CTE.CPII.4.12	Create a 2D or 3D animation.	DGD.3.5.1 DGD.3.5.2 DGD.3.5.3 DGD.3.5.4 DGD.3.5.5 DGD.3.5.6 DGD.3.5.7 DGD.3.5.8 DGD.3.5.10 DGD.3.5.11 DGD.3.5.12 DGD.3.5.13 DGD.3.5.14 DGD.3.5.15 DGD.3.5.16 DGD.3.5.17	
	CTE.CPII.4.13	Demonstrate how hexadecimal code is used to define colors.	DGD.4.1.4	

Outcome 5:

CTE.CPII.5	Students will apply logical thinking to the game development process.			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.5.1	Demonstrate how to correctly utilize conditional statements to control program flow.	DGD.4.1.1 DGD.4.1.2 DGD.4.2.7	
	CTE.CPII.5.2	Generate a truth table to model game events.	DGD.4.1.3 DGD.4.3.1	
	CTE.CPII.5.3	Apply mathematical formulas in code.	DGD.4.1.5 DGD.4.1.6 DGD.4.1.7	
	CTE.CPII.5.4	Create a diagram that shows code execution flow.	DGD.4.1.8 DGD.4.3.4	

Outcome 6:

CTE.CPII.6	Students will demonstrate how to utilize programming concepts in their videogames.			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.6.1	Demonstrate how to use primitive data types and arrays.	DGD.4.2.2 DGD.4.2.3	
	CTE.CPII.6.2	Compare and contrast syntax and semantics.	DGD.4.2.1	

	CTE.CPII.6.3	Utilize different sources for game input (keyboard, mouse, gamepad, etc.)	DGD.4.2.4	
	CTE.CPII.6.4	Demonstrate how to use callback methods and normal methods.	DGD.4.2.5 DGD.4.2.8	
	CTE.CPII.6.5	Compare and contrast constants and variables.	DGD.4.2.6	
	CTE.CPII.6.6	Compare and contrast iterative and sequential control.	DGD.4.2.9 DGD.4.2.10	
	CTE.CPII.6.7	Demonstrate how to debug and test a program using unit tests.	DGD.4.2.11 DGD.4.3.4	
	CTE.CPII.6.8	Design and utilize user-defined data types.	DGD.4.2.12 DGD.4.2.14 DGD.4.3.5	
	CTE.CPII.6.9	Output data to different destinations.	DGD.4.2.13	
	CTE.CPII.6.11	Compare and contrast top-down and bottom-up software development.	DGD.4.3.3	
	CTE.CPII.6.12	Illustrate how algorithms can be used to produce artificial intelligence by producing examples of AI.	DGD.4.3.6	

Outcome 7:

CTE.CPII.7	Students will demonstrate how to build a videogame.			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.7.1	Compare and contrast various game engines and choose an engine that best fits the game requirements.	DGD.5.1.1 DGD.5.1.2 DGD.5.1.3 DGD.5.1.4	
	CTE.CPII.7.2	Show how characters will advance in relation to storyline and gameplay.	DGD.5.2.1	
	CTE.CPII.7.3	Develop levels for a videogame.	DGD.5.2.2 DGD.5.2.4 DGD.5.2.5 DGD.5.2.6	
	CTE.CPII.7.4	Create non-player characters and scripted events.	DGD.5.2.3 DGD.5.2.5	
	CTE.CPII.7.5	Compare and contrast various options for a graphical user interface (GUI).	DGD.5.3.1	
	CTE.CPII.7.6	Implement a GUI in a videogame.	DGD.5.3.2 DGD.5.3.4	
	CTE.CPII.7.7	Create a flowchart that models the functionality of the GUI.	DGD.5.3.3	
	CTE.CPII.7.8	Create victory conditions for a videogame.	DGD.5.4.1	
	CTE.CPII.7.9	Establish a reward system for a videogame.	DGD.5.4.3	

	CTE.CPII.7.10	Create and balance game mechanics for a videogame.	DGD.5.4.2 DGD.5.4.4 DGD.5.4.5	
	CTE.CPII.7.11	Demonstrate how to incorporate music in a videogame.	DGD.5.5.1 DGD.5.5.2 DGD.5.5.3 DGD.5.5.4	
	CTE.CPII.7.12	Demonstrate how to incorporate sound effects in a videogame.	DGD.5.5.1 DGD.5.5.3 DGD.5.5.4 DGD.5.5.5	
	CTE.CPII.7.13	Compare and contrast different publishing platforms for publishing a student-created videogame.	DGD.7.1.1 DGD.7.1.2 DGD.7.1.3 DGD.7.1.4	

Outcome 8:

CTE.CPII.8	**Students will determine if their actions when creating videogames are ethical and legal.**			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.8.1	Demonstrate how intellectual property (IP) can be used in student-created videogames.	DGD.6.1.1 DGD.6.1.3 DGD.6.1.4 DGD.6.3.3	
	CTE.CPII.8.2	Compare and contrast Creative Commons and open source licenses.	DGD.6.1.2	
	CTE.CPII.8.3	Describe how videogames can be used to invade privacy.	DGD.6.2.1	
	CTE.CPII.8.4	Describe the benefits and drawbacks of digital rights management (DRM).	DGD.6.2.3	

	CTE.CPII.8.5	Discuss social responsibility and issues concerning videogames.	DGD.6.3.2	
	CTE.CPII.8.6	List key elements of a nondisclosure agreement (NDA) or contract by analyzing one.	DGD.6.3.4	

Outcome 9:

CTE.CPII.9	**Students will show how to market and sell a videogame.**			
	Local Code:	**Components:**	**Digital Game Development Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CPII.9.1	Pitch a videogame and defend why it will be entertaining.	DGD.7.2.1	
	CTE.CPII.9.2	Describe the role of social media and social gameplay.	DGD.7.2.2 DGD.8.1.1 DGD.8.1.2 DGD.8.2.1 DGD.8.2.2	
	CTE.CPII.9.3	Produce examples of successful crowd sourcing and crowd funding for videogames.	DGD.7.2.3	
	CTE.CPII.9.4	Analyze successful videogame marketing campaigns.	DGD.7.2.4	
	CTE.CPII.9.5	Create a videogame trailer.	DGD.7.2.5	
	CTE.CPII.9.6	Describe how localization issues impact game design.	DGD.7.2.6	

	CTE.CPII.9.7	Compare and contrast various pay models for a videogame.	DGD.7.2.7	
	CTE.CPII.9.8	Compare and contrast various output devices for videogames.	DGD.8.3.1 DGD.8.3.2 DGD.8.3.3	

Computer Science Basics

Subject:	Computer Science	**Course/Grade Level:** Computer Science Basics	8
Focus Statement:	Students will develop computer applications and web sites using the computational thinking process. Students will also understand how computers and the Internet work.		

Outcome 1:

CTE.CSB.1	**Students will decompose a large problem into smaller problems and solve those problems using a series of algorithms.**			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.1.1	Deconstruct a large problem into smaller sub-problems.	CSTA.CT.L1:6-5 CTSA.CPP.L1:6-1 CSTA.CPP.L1:6-5	ILT.7.1.1 ILT.7.1.2
	CTE.CSB.1.2	Arrange sequential events into their logical order.	CSTA.CT.L1:3-2 CSTA.CT.L1:3-3 CSTA.CT.L1:6-1 CSTA.CT.L1:6-2 CSTA.CPP.L1:3-4	
	CTE.CSB.1.3	Write code and symbols that represent instructions.	CSTA.CT.L1:6-2	
	CTE-CSB.1.4	Explain how to use crowdsourcing to solve complicated problems.	CSTA.COL.L1:6-2 CSTA.CT.L1:3-1	
	CTE.CSB.1.5	Solve a minimal spanning tree.	CSTA.CT.L1:6-2	
	CTE.CSB.1.6	Gather and organize information using concept mapping tools.	CSTA.CT.L1:6-1 CSTA.CPP.L1:3-6	ILT.7.4.7

Outcome 2:

CTE.CSB.2	Students will use loops and conditional statements.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.2.1	Convert a series of similar actions into a single loop.	CSTA.CT.L1:6-1 CSTA.CPP.L1:3-4 CSTA.CPP.L1:6-5	
	CTE.CSB.2.2	Nest loops inside loops to repeat a series of similar actions multiple times.	CSTA.CT.L1:6-1 CSTA.CPP.L1:3-4 CSTA.CPP.L1:6-5	
	CTE.CSB.2.3	Determine the starting value, stopping value, and interval of a “for loop”.	CSTA.CPP.L1:6-6	
	CTE.CSB.2.4	Show the counter values hit each time while running a “for loop”.	CSTA.CPP.L1:6-6	
	CTE.CSB.2.5	Compare and contrast the binary search and sequential search algorithms.	CSTA.CT.L1:6-2 CSTA.CPP.L1:6-6	
	CTE.CSB.2.6	Compare and contrast at least three sorting algorithms.	CSTA.CT.L1:6-2 CSTA.CPP.L1:6-6	
	CTE.CSB.2.7	Define conditions where portions of a program should run and when it shouldn’t.	CSTA.CT.L1:3-3 CSTA.CT.L1:6-2	
	CTE.CSB.2.8	Trace a program and predict the outcome, given a set of input.	CSTA.CT.L1:6-1	

Outcome 3:

CTE.CSB.3	Students will demonstrate how binary is used to represent information for computers.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.3.1	Encode letters into binary.	CSTA.CT.L1:3-5 CSTA.CT.L1:6-3	
	CTE.CSB.3.2	Decode binary back to letters.	CSTA.CT.L1:3-5 CSTA.CT.L1:6-3	
	CTE.CSB.3.3	Show examples of information in binary to demonstrate how binary is used to carry and store information for computers.	CSTA.CT.L1:3-5 CSTA.CT.L1:6-3	

Outcome 4:

CTE.CSB.5	Students will use events and functions to respond to user actions.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.4.1	Explain the difference between pre-defined actions and event-driven actions.	CSTA.CT.L1:6-2 CSTA.CPP.L1:3-4	
	CTE.CSB.4.2	Create a function that responds to events.	CSTA.CT.L1:6-1 CSTA.CT.L1:6-2 CSTA.CT.L1:6-5 CSTA.CPP.L1:3-4	
	CTE.CSB.4.3	Describe how functions can make programs easier to write.	CSTA.CPP.L1:6-6	

Outcome 5:

CTE.CSB.5	Students will show how the Internet works.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.5.1	Explain how a domain name service translates URLs into IP addresses.	CSTA.CPP.L1:6-7 CSTA.CCD.L1:6-4	
	CTE.CSB.5.2	Explain how information is sent to and from devices on the Internet.	CSTA.CPP.L1:6-7 CSTA.CCD.L1:6-4	
	CTE.CSB.5.3	Demonstrate how to refine an internet search.	CSTA.CPP.L1:3-1 CSTA.CPP.L1:6-8	ILT.7.4.3 ILT.7.4.4
	CTE.CSB.5.4	Differentiate between ranking based search engines and social bookmarking search engines.	CSTA.CPP.L1:6-8	
	CTE.CSB.5.5	Verify that a website is a reputable source.	CSTA.CPP.L1:3-1 CSTA.CPP.L1:6-8 CSTA.CGEI.L1:6-3	ILT.7.4.2
	CTE.CSB.5.6	Differentiate appropriate and inappropriate use of social websites.	CSTA.CGEI.L1:3-2 CSTA.CGEI.L1:6-1 CSTA.CGEI.L1:6-2 CSTA.CGEI.L1:6-4	ILT.7.7.3

Outcome 6:

CTE.CSB.6	Students will use a variable to change the outcome of a computer program.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.6.1	Identify variables and determine their values.	CSTA.CPP.L1:6-5 CSTA.CT.L1:6-1 CSTA.CT.L1:6-2	

	CTE.CSB.6.2	Define and call variables.	CSTA.CPP.L1:6-5 CSTA.CT.L1:6-1 CSTA.CT.L1:6-2	
	CTE.CSB.6.3	Create situations that require the use of variables.	CSTA.CPP.L1:6-5 CSTA.CT.L1:6-1 CSTA.CT.L1:6-2	

Outcome 7:

CTE.CSB.7	**Students will explain how computers and artificial intelligence work.**			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.7.1	Debate what constitutes a computer.	CSTA.CCD.L1:6-1 CSTA.CCD.L1:6-5	
	CTE.CSB.7.2	Identify computer components.	CSTA.CT.L1:3-4 CSTA.CCD.L1:6-1	
	CTE.CSB.7.3	Argue whether a computer can display intelligence, or whether it can only behave intelligently.	CSTA.CCD.L1:6-6	

Outcome 8:

CTE.CSB.8	**Students will demonstrate how data can be used by computers.**			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.8.1	Explain how data is secure or insecure on the Internet.	CSTA.CGEI.L1:6-4	ILT.7.6.3 ILT.7.6.4 ILT.8.5.3 ILT.8.5.4
	CTE.CSB.8.2	Show how data can be interpreted in different ways.	CSTA.CGEI.L1:6-4	

	CTE.CSB.8.3	Show how computers can be used as tools for visualizing data.	CSTA.CPP.L1:6-4 CSTA.CPP.L1:6-10	

Outcome 9:

CTE.CSB.9	**Students will create a website using HTML.**			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.9.1	Create an HTML page with a title and body.	CSTA.CPP.L1:3-3 CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.9.2	Create an HTML page with paragraphs, headings, and line breaks.	CSTA.CPP.L1:3-3 CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.9.3	Resize and crop images for the web.	CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.9.4	Compare and contrast the various image formats (jpg, gif, png).	CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	
	CTE.CSB.9.5	Add images to an HTML page.	CSTA.CPP.L1:3-3 CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.9.6	Create hyperlinks to external web sites on an HTML page.	CSTA.CPP.L1:3-3 CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.9.7	Create hyperlinks to internal HTML pages.	CSTA.CPP.L1:3-3 CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.9.8	Add a table to an HTML page.	CSTA.CPP.L1:3-3 CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.9.9	Add a menu to an HTML page.	CSTA.CPP.L1:3-3 CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1

Outcome 10:

CTE.CSB.10	Students will use styles to change the design of a web page.			
	Local Code:	**Components:**	**CSTA Standards Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.CSB.10.1	Change the look of HTML elements using inline and embedded styles.	CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.10.2	Change the look of HTML elements using a cascading style sheet (CSS).	CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1
	CTE.CSB.10.3	Differentiate when to use CSS and when to use embedded/inline styles.	CSTA.CPP.L1:6-3 CSTA.CPP.L1:6-4	ILT.7.5.1

Computer Science Advanced Studies: Operating System Design

Subject:	Computer Science	**Course/Grade Level:** Operating System Design	11, 12
Focus Statement:	Students will demonstrate how build a computer from hardware logic to the operating system, and will demonstrate how to create the computer architecture, assembler, programming language, compiler, and operating system.		

Outcome 1:

CTE.OSD.1	**Students will show how to create more complex logic gates using only NAND gates.**	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.1.1	Show how to represent Boolean functions using truth tables.
	CTE.OSD.1.2	Show how to design a composite logic gate using primitive logic gates.
	CTE.OSD.1.3	Show how to build and test a composite logic gate using a hardware description language (HDL).
	CTE.OSD.1.4	Show how to test a hardware design from an HDL in a hardware simulator.
	CTE.OSD.1.5	Design an NAND gate in an HDL.
	CTE.OSD.1.6	Design basic logic gates including And, Or, Xor, Multiplexor (Mux) and Demultiplexer (DMux) in an HDL.
	CTE.OSD.1.7	Design multi-bit logic gates in an HDL.
	CTE.OSD.1.8	Design multi-way logic gates in an HDL.

Outcome 2:

CTE.OSD.2	**Students will show how to use Boolean arithmetic to create arithmetic chips including half-adders, full-adders, adders, incrementers, and ALUs.**	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.2.1	Show how to add binary numbers, including dealing with overflow.
	CTE.OSD.2.2	Show how to represent signed numbers using binary.
	CTE.OSD.2.3	Design half-adders, full-adders, and adders in an HDL.
	CTE.OSD.2.4	Design an incrementer in an HDL.
	CTE.OSD.2.5	Design an arithmetic logic unit (ALU) in an HDL.

Outcome 3:

CTE.OSD.3	**Students will show how to build chips that can maintain state such as registers, memory, and counters using Data Flip-Flop (DFF) gates.**	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.3.1	Explain how a computer keeps track of time.
	CTE.OSD.3.2	Explain how a DFF works.
	CTE.OSD.3.3	Design a 1-bit register using DFF gates in an HDL.
	CTE.OSD.3.4	Design a Random Access Memory (RAM) unit using DFF gates in an HDL.
	CTE.OSD.3.5	Design a counter using DFF gates in an HDL.

Outcome 4:

CTE.OSD.4	Students will show how to program using machine language.	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.4.1	Explain how memory, the central processing unit (CPU), and registers work together to run a program.
	CTE.OSD.4.2	Show how to use arithmetic and logic operations in a machine language.
	CTE.OSD.4.3	Show how to access memory using direct addressing, immediate addressing, and indirect addressing.
	CTE.OSD.4.4	Show how to use conditional jump and unconditional jump commands to control program flow.

Outcome 5:

CTE.OSD.5	Students will show how to build a computer from logic gate designs.	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.5.1	Describe the components of a von Neumann machine.
	CTE.OSD.5.2	Compare and contrast data memory and instruction memory.
	CTE.OSD.5.3	Describe how a CPU consisting of an arithmetic logic unit (ALU), registers, and a control unit processes instructions.
	CTE.OSD.5.4	Explain the differences between data registers, addressing registers, and a program counter register.

	CTE.OSD.5.5	Show how memory-mapped I/O can be used to connect input and output devices to a computer.

Outcome 6:

CTE.OSD.6	**Students will develop an assembler that translates assembly language into binary code.**	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.6.1	Describe the tasks necessary for an assembler to translate assembly language into binary instructions.
	CTE.OSD.6.2	Write an assembler for programs with no symbols.
	CTE.OSD.6.3	Write an assembler for programs with symbols.

Outcome 7:

CTE.OSD.7	**Students will develop a virtual machine that will run intermediate code.**	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.7.1	Describe the benefits of a two-tiered translation model for compiling a high-level computer language.
	CTE.OSD.7.2	Describe the stack machine model.
	CTE.OSD.7.3	Implement stack arithmetic commands.
	CTE.OSD.7.4	Create push and pop commands for a stack implementation.
	CTE.OSD.7.5	Implement program flow commands for a virtual machine.

	CTE.OSD.7.6	Implement function calling commands for a virtual machine.

Outcome 8:

CTE.OSD.8	**Students will build a compiler to translate computer programs from one language to another.**	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.8.1	Describe what a compiler is and its role in the design of a computer programming language.
	CTE.OSD.8.2	Create a tokenizer to categorize code into tokens.
	CTE.OSD.8.3	Create a parser to handle lexical elements, program structure, and statements.
	CTE.OSD.8.4	Create a parser to handle expressions.
	CTE.OSD.8.5	Create a symbol table module as a part of a syntax analyzer.
	CTE.OSD.8.6	Create a full compiler with code generation features.

Outcome 9:

CTE.OSD.9	**Students will build an operating system.**	
	Local Code:	**Components:**
		Students will:
	CTE.OSD.9.1	Implement a dynamic memory allocation algorithm for an operating system.
	CTE.OSD.9.2	Develop a system for storing arrays and other variable-length entities in an operating system.
	CTE.OSD.9.3	Implement simple math operations such as addition, subtraction, multiplication, and division in an operating system.

	CTE.OSD.9.4	Implement mathematical functions such as absolute value, min, max, and square root in an operating system.
	CTE.OSD.9.5	Develop a system for using strings in an operating system.
	CTE.OSD.9.7	Develop a system for drawing graphics to the screen in an operating system including color, lines, rectangles, and circles.
	CTE.OSD.9.8	Develop a system for accepting input from a keyboard in an operating system.

Computer Science Advanced Studies: User Interface Design

Subject:	Computer Science	**Course/Grade Level:** User Interface Design	11, 12
Focus Statement:	Students will create user interfaces and critique the user interfaces of existing programs. Students will also evaluate user interfaces using a variety of techniques.		

Outcome 1:

CTE.UID.1	**Students will explain how user interfaces are effective.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.1.1	List various affordances in everyday life and software applications.
	CTE.UID.1.2	Show how inconsistency with user affordances can lead to bad user interface design.
	CTE.UID.1.3	Show how shortcuts can help frequent users of a user interface.
	CTE.UID.1.4	Show how to avoid mode errors that are difficult to recover from.
	CTE.UID.1.5	Know the five dimensions of usability: learnability, efficiency, visibility, errors, and satisfaction.

Outcome 2:

CTE.UID.2	**Students will show how a user interface design is easy to learn.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.2.1	Show good examples of skeuomorphism as a user interface.
	CTE.UID.2.2	Show examples of how skeuomorphism can be misused in a user interface.
	CTE.UID.2.3	Understand how people store chunks of data in their working memory.

	CTE.UID.2.4	Compare and contrast the command language, menu/form, and direct manipulation styles of user interaction.
	CTE.UID.2.5	Explain how system models, interface models, and user models are connected.
	CTE.UID.2.6	Explain the difference between perceived affordance and actual affordance.
	CTE.UID.2.7	Show how natural mapping can be used to increase the learnability of a user interface.
	CTE.UID.2.8	Explain how internal, external, and metaphorical consistency can be used to increase the learnability of a user interface.
	CTE.UID.2.9	Know the user interface guidelines of the development platform.

Outcome 3:

CTE.UID.3	**Students will show how visibility enhances a user interface.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.3.1	Define actions, state, and feedback in the context of visibility.
	CTE.UID.3.2	Show examples of affordances for user actions in a user interface.
	CTE.UID.3.3	Explain the principle of self-disclosure.
	CTE.UID.3.4	Show how to give an information scent to navigation in a user interface.
	CTE.UID.3.5	Show how to make different modes visible to the user.
	CTE.UID.3.6	Show how feedback (visual, auditory, and haptic) affects the visibility of a user interface.
	CTE.UID.3.7	Some how to use the concept of perceptual fusion to give feedback to the user.

Outcome 4:

CTE.UID.4	**Students will show how to use cognitive processes to enhance the efficiency of a user interface.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.4.1	Utilize skill-based, rule-based, and knowledge-based decision making in a user interface.
	CTE.UID.4.2	Explain the implications of Fitts' Law for user interface design.
	CTE.UID.4.3	Utilize aggregates to group related commands or questions.

Outcome 5:

CTE.UID.5	**Students will show how to mitigate errors in user interfaces and write good error messages when errors do occur.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.5.1	Explain the differences between lapses and slips.
	CTE.UID.5.2	Explain the differences between capture slips and description slips.
	CTE.UID.5.3	Show how to avoid lapses.
	CTE.UID.5.4	Show how to avoid capture and description slips.
	CTE.UID.5.5	Show how to avoid mode errors.
	CTE.UID.5.6	Explain how users interact with error messages.
	CTE.UID.5.7	Write error messages that are precise, restate the user's input, speak the user's language, and suggest alternative options.
	CTE.UID.5.8	Show how to give users control over dialog boxes.
	CTE.UID.5.9	Show how to provide at least a single-step undo option.

Outcome 6:

CTE.UID.6	**Students will create a user interface following the user-centered design process.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.6.1	Compare and contrast the iterative design process with the waterfall model.
	CTE.UID.6.2	Explain why the waterfall model is poorly suited for user interface design.
	CTE.UID.6.3	Explain the spiral model of software development.
	CTE.UID.6.4	Explain the steps of the user-centered design process.

Outcome 7:

CTE.UID.7	**Students will use task analysis to plan a user interface.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.7.1	Identify characteristics of targeted users for a user interface.
	CTE.UID.7.2	Complete a user analysis using questionnaires, interviews, or observation.
	CTE.UID.7.3	Complete a task analysis to identify the major goal of a user interface and break it into subtasks.
	CTE.UID.7.4	Complete a domain analysis by drawing a domain diagram.

Outcome 8:

CTE.UID.8	**Students will create a design for a user interface.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.8.1	Sketch multiple design ideas on paper for a single user interface.
	CTE.UID.8.2	Create a storyboard for a realistic scenario involving the user interface.
	CTE.UID.8.3	Determine if codified design patterns should be used for the chosen user interface.

Outcome 9:

CTE.UID.9	**Students will use design patterns to develop a user interface.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.9.1	Describe a model-view-controller pattern.
	CTE.UID.9.2	Describe a model-view-controller pattern where the controller acts as a mediator.
	CTE.UID.9.3	Describe a model-view pattern.
	CTE.UID.9.4	Draw a view tree for a user interface.

Outcome 10:

CTE.UID.10		**Students will implement user testing of a user interface.**	
Pacing:		**Local Code:**	**Components:**
Instruct	**Assess**		**Students will:**
		CTE.UID.10.1	Compare and contrast formative evaluations, field studies, and controlled experiments in user interface design.
		CTE.UID.10.2	Explain how to conduct an A/B test.

		CTE.UID.10.3	Explain the five ways to treat a user with respect during a formative evaluation.
		CTE.UID.10.4	Prepare a user for a formative evaluation ahead of time following the five ways to treat a user with respect.
		CTE.UID.10.5	Follow the five ways to treat a user with respect after a formative evaluation.
		CTE.UID.10.6	Find representative users for a formative evaluation.
		CTE.UID.10.7	Assign users some representative tasks in a formative evaluation.
		CTE.UID.10.8	Note critical incidents during a formative evaluation.
		CTE.UID.10.9	Complete a formative evaluation using constructive interaction.

Outcome 11:

CTE.UID.11	**Students will create prototypes for a user interface.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.11.1	Know the difference between low fidelity and high fidelity prototypes.
	CTE.UID.11.2	Determine when to build horizontal and vertical prototypes.
	CTE.UID.11.3	Create a paper prototype for a user interface.
	CTE.UID.11.4	Conduct a user test using a paper prototype.
	CTE.UID.11.5	Use a prototyping tool to create a computer prototype.

Outcome 12:

CTE.UID.12	**Students will use principles of graphic design when creating a user interface.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.12.1	Explain the principle of reduction.

	CTE.UID.12.2	Explain the principle of regularity.
	CTE.UID.12.3	Explain the principle of combining user interface elements.
	CTE.UID.12.4	Explain how to use visual variables to convey difference.
	CTE.UID.12.5	Explain the principle of associativity.
	CTE.UID.12.6	Use margins to introduce white space into a user interface.
	CTE.UID.12.7	Explain Gestalt's principle of proximity.
	CTE.UID.12.8	Show how to best display information to the user of a user interface.
	CTE.UID.12.9	Explain why color differences alone should not be used to convey different features of a user interface.
	CTE.UID.12.10	Define the dimensions of a font including x-height, m-width, ascender, descender, serif, baseline, ascent, descent, bowl, stem, and aperture.
	CTE.UID.12.11	Explain the typography principles of kerning and leading.
	CTE.UID.12.12	Explain the role of animation in user interface design.

Outcome 13:

CTE.UID.13	**Students will make user interfaces that are accessible.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.13.1	Explain the principle of equitable use.
	CTE.UID.13.2	Follow the guidelines of Section 508 and the W3C Accessibility Initiative, if applicable, when creating a user interface.
	CTE.UID.13.3	Support keyboard access for all functions of a user interface.

Outcome 14:

CTE.UID.14	**Students will analyze user interfaces using heuristics.**	
	Local Code:	**Components:**
		Students will:
	CTE.UID.14.1	Know the components of Neilsen Heuristics, Norman Principles, Tog's First Principles, and Schneiderman's 8 Golden Rules.
	CTE.UID.14.2	Evaluate a user interface using a set of heuristics.
	CTE.UID.14.3	Rate issues found during a heuristic analysis on a severity scale.

Computer Science Advanced Studies: App Development

Subject:	Computer Science Advanced Studies	**Course/Grade Level:**	App Development	11, 12
Focus Statement:	Students will develop applications for mobile devices.			

Outcome 1:

CTE.APP.1	Students will choose an integrated development environment (IDE) to use when designing mobile applications.	
	Local Code:	**Components:**
		Students will:
	CTE.APP.1.1	Find at least three IDEs that can be used for the student's chosen platform, including at least one block-based language.
	CTE.APP.1.2	List the major differences and similarities among the found IDEs.
	CTE.APP.1.3	Describe any limitations of the found IDEs.
	CTE.APP.1.4	Choose an IDE to use for an assigned project.
	CTE.APP.1.5	Explain the reasons for selecting the chosen IDE.

Outcome 2:

CTE.APP.2	**Students will utilize an account to upload apps to Apple's App Store or the Google Play Store.**	
	Local Code:	**Components:**
		Students will:
	CTE.APP.2.1	If necessary, create an account for the chosen platform's app store.
	CTE.APP.2.2	Connect to the account for the chosen platform's app store.

	CTE.APP.2.3	Transfer an app to a physical device for testing purposes.
	CTE.APP.2.4	Submit an app to the chosen platform's app store for approval.
	CTE.APP.2.5	Respond to feedback from the app store approval process to improve the app.

Outcome 3:

CTE.APP.3	**Students will follow the user interface design guidelines for their chosen platform.**	
	Local Code:	**Components:**
		Students will:
	CTE.APP.3.1	Find the user interface design guidelines for their chosen platform.
	CTE.APP.3.2	List the ten most important elements of the user interface guidelines as they apply to the assigned project.
	CTE.APP.3.3	Explain why the ten most important elements of the user interface guidelines are important for the assigned project.
	CTE.APP.3.4	Design an app following the user interface guidelines of the chosen platform.
	CTE.APP.3.5	Explain how the app follows the ten elements listed earlier.

Computer Science Advanced Studies: Computer Security

Subject:	Computer Science Advanced Studies	**Course/Grade Level:**	Computer Security	11, 12
Focus Statement:	Students will demonstrate how cryptography works and show how to secure web applications.			

Outcome 1:

CTE.CS.1	**Students will show how cryptography is used to encrypt information.**	
	Local Code:	**Components:**
		Students will:
	CTE.CS.1.1	Describe the main components of symmetric cryptography.
	CTE.CS.1.2	Explain the difference between cryptanalysis and brute-force attacks.
	CTE.CS.1.3	Understand the operation of a monoalphabetic substitution cipher.
	CTE.CS.1.4	Understand the operation of a polyalphabetic substitution cipher.
	CTE.CS.1.5	Describe how a rotor machine can be used to encrypt a message.

Outcome 2:

CTE.CS.2	**Students will show how modern block ciphers function.**	
	Local Code:	**Components:**
		Students will:
	CTE.CS.2.1	Explain the difference between stream ciphers and block ciphers.

	CTE.CS.2.2	Explain the structure of the Festal cipher.
	CTE.CS.2.3	Explain how encryption is the inverse of decryption.
	CTE.CS.2.4	Explain how the Data Encryption Standard (DES) works.
	CTE.CS.2.5	Explain the avalanche effect.
	CTE.CS.2.6	Explain how the Advanced Encryption Standard (AES) differs from the DES.
	CTE.CS.2.7	Understand the four transformations used in the Advanced Encryption Standard (AES).
	CTE.CS.2.8	Explain the AES key expansion algorithm.
	CTE.CS.2.9	Analyze the security of multiple encryption schemes.
	CTE.CS.2.10	Explain how a meet-in-the-middle attack works.
	CTE.CS.2.11	Compare and contrast ECB, CBC, CFB, OFB, and counter modes of operation.
	CTE.CS.2.12	Explain the XTS-AES mode of operation.

Outcome 3:

CTE.CS.3	**Students will show how random and pseudorandom number generation works.**	
	Local Code:	**Components:**
		Students will:
	CTE.CS.3.1	Understand the differences among true random number generators, pseudorandom number generators, and pseudorandom functions.
	CTE.CS.3.2	Describe the requirements for a pseudorandom number generator.
	CTE.CS.3.3	Explain how a block cipher can be used to construct a pseudorandom number generator.

	CTE.CS.3.4	Explain how the RC4 stream cipher works.
	CTE.CS.3.5	List some possible sources of true random numbers.
	CTE.CS.3.6	Explain the purpose of deskewing a true random number generator.

Outcome 4:

CTE.CS.4	**Students will show how public-key cryptosystems work.**	
	Local Code:	**Components:**
		Students will:
	CTE.CS.4.1	Explain how a public-key cryptosystem works.
	CTE.CS.4.2	Describe multiple uses of a public-key cryptosystem.
	CTE.CS.4.3	Explain the requirements of a public-key cryptosystem.
	CTE.CS.4.4	Explain how the RSA algorithm works.
	CTE.CS.4.5	Explain how a timing attack works.

Outcome 5:

CTE.CS.5	**Students will utilize cryptographic hash functions.**	
	Local Code:	**Components:**
		Students will:
	CTE.CS.5.1	List some applications of cryptographic hash functions.
	CTE.CS.5.2	Explain why a hash function used for message authentication must be secured.
	CTE.CS.5.3	Explain the differences among preimage resistant, second preimage resistant, and collision resistant properties.
	CTE.CS.5.4	Explain how a cryptographic hash function works.
	CTE.CS.5.5	Explain how the Secure Hash Algorithm (SHA) works.
	CTE.CS.5.6	Explain the birthday paradox.

Outcome 6:

CTE.CS.6	**Students will implement a message authentication code.**	
	Local Code:	**Components:**
		Students will:
	CTE.CS.6.1	List some possible attacks related to message authentication.
	CTE.CS.6.2	Explain a message authentication code.
	CTE.CS.6.3	Describe the keyed-hash message authentication code (HMAC) algorithm.
	CTE.CS.6.4	Describe the cypher-based message authentication code (CMAC) algorithm.
	CTE.CS.6.6	Explain the CCM and GCM modes of operation.
	CTE.CS.6.7	Use a hash function or message authentication code for pseudorandom number generation.

Outcome 7:

CTE.CS.7	**Students will secure a web application.**	
	Local Code:	**Components:**
		Students will:
	CTE.CS.7.1	Secure a website against SQL injections.
	CTE.CS.7.2	Explain how an upload attack vector can compromise the security of a web application.
	CTE.CS.7.3	Implement a cross site scripting (XSS) attack on a practice website.
	CTE.CS.7.4	Secure a website against XSS attacks.
	CTE.CS.7.5	Securely encode sensitive data on a web application.

Computer Science Advance Studies: Database Programming

Subject:	Computer Science Advanced Studies	**Course/Grade Level:**	Database Programming	11, 12
Focus Statement:	Students will design and develop databases for use in real-world applications.			

Outcome 1:

CTE.DATA.1	**Students will utilize HTML and CSS to create a basic website.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.1.1	Apply HTML tags to change the appearance of a web page.
	CTE.DATA.1.2	Use IDs and classes to modify elements of a web page.
	CTE.DATA.1.3	Manipulate tables using CSS or HTML to alter table design/presentation.
	CTE.DATA.1.4	Attach a link to an image.
	CTE.DATA.1.5	Attach a link to text.

Outcome 2:

CTE.DATA.2	**Students will understand the purpose and terminology of databases.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.2.1	Define the term “database.”
	CTE.DATA.2.2	Define the term “DBMS.”
	CTE.DATA.2.3	Define the term "database instance.”
	CTE.DATA.2.4	Define the term “schema.”

	CTE.DATA.2.5	Define the term "data independence."
	CTE.DATA.2.6	Define DCL, DDL, and DML.
	CTE.DATA.2.7	Describe the advantages and disadvantages of a relational database.

Outcome 3:

CTE.DATA.3	**Students will create entity-relationship diagrams to describe the structure of data.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.3.1	Demonstrate how to represent an entity in an ER diagram.
	CTE.DATA.3.2	Demonstrate how to represent a relationship in an ER diagram.
	CTE.DATA.3.3	Demonstrate how to represent attributes in an ER diagram.
	CTE.DATA.3.4	State the degree of a given relationship in an ER diagram.
	CTE.DATA.3.5	Demonstrate how to represent the cardinality of a relationship.
	CTE.DATA.3.6	Explain when attributes are necessary on a relationship.
	CTE.DATA.3.7	Demonstrate how to represent weak entities in an ER diagram.
	CTE.DATA.3.8	Explain a situation where a recursive relationship would be necessary in an ER diagram.
	CTE.DATA.3.9	Demonstrate how to represent inheritance in an ER diagram.
	CTE.DATA.3.10	Demonstrate how to represent aggregation in an ER diagram.
	CTE.DATA.3.11	Create a full ER diagram for a given situation
	CTE.DATA.3.12	Create an attribute table for a given situation.
	CTE.DATA.3.13	Convert an ER diagram into SQL tables.

Outcome 4:

CTE.DATA.4	**Students will understand the basic structure and terminology of the relational database model.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.4.1	Demonstrate how to display a relation/table in written form.
	CTE.DATA.4.2	Know the properties of the attributes/columns of a relation.
	CTE.DATA.4.3	Know the properties of the tuples/rows of a relation.
	CTE.DATA.4.4	Describe super keys, candidate keys, primary keys, and foreign keys.
	CTE.DATA.4.5	Describe the characteristics of a relation.
	CTE.DATA.4.6	Describe the domain, entity integrity, and referential integrity constraints of a relation.

Outcome 5:

CTE.DATA.5	**Students will demonstrate how to normalize relations.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.5.1	Describe the benefits and drawbacks to normalizing a relation.
	CTE.DATA.5.2	Explain the principle of functional dependency.
	CTE.DATA.5.3	Normalize a relation into first normal form (1NF).
	CTE.DATA.5.4	Normalize a relation into second normal form (2NF).
	CTE.DATA.5.5	Normalize a relation into third normal form (3NF).

Outcome 6:

CTE.DATA.6	**Students will utilize SQL to retrieve data from a relational database.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.6.1	Write a SQL query to select all of the rows from a table.
	CTE.DATA.6.2	Write a SQL query to select specified columns from a table.
	CTE.DATA.6.3	Write a SQL query using the WHERE clause to limit the data retrieved.
	CTE.DATA.6.4	Write a SQL query using comparison operators.
	CTE.DATA.6.5	Write a SQL query using the AND or OR operators.
	CTE.DATA.6.6	Sort the results of a SQL query using the ORDER BY clause.
	CTE.DATA.6.7	Write a SQL query using the DISTINCT statement.
	CTE.DATA.6.8	Write a SQL query utilizing multiple tables in the FROM clause.
	CTE.DATA.6.9	Write a SQL query utilizing multiples tables in the WHERE clause.
	CTE.DATA.6.10	Write a multiple-row SQL query.
	CTE.DATA.6.11	Write a SQL query using multiple-row functions.
	CTE.DATA.6.12	Write a SQL query using the GROUP BY clause.
	CTE.DATA.6.13	Write a SQL query using the LIKE clause to match strings.
	CTE.DATA.6.14	Write a SQL query using aliases.

Outcome 7:

CTE.DATA.7	**Students will utilize SQL to update and remove data from a relational database.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.7.1	Write a SQL query to create a table.
	CTE.DATA.7.2	Write a SQL query to alter a table.
	CTE.DATA.7.3	Write a SQL query to remove a table.
	CTE.DATA.7.4	Write a SQL query to insert data into a table.
	CTE.DATA.7.5	Write a SQL query to delete data from a table.
	CTE.DATA.7.6	Write a SQL query to update data in a table.

Outcome 8:

CTE.DATA.8	**Students will utilize PHP to connect to SQL databases and output results of SQL queries.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.8.1	Understand how HTML, Javascript, MySQL, and PHP work together.
	CTE.DATA.8.2	Output data using the PHP echo or print functions.
	CTE.DATA.8.3	Output HTML code in PHP.
	CTE.DATA.8.4	Define variables in PHP.
	CTE.DATA.8.5	Utilize variables in PHP.
	CTE.DATA.8.6	Utilize arrays in PHP.
	CTE.DATA.8.7	Utilize if statements in PHP.
	CTE.DATA.8.8	Utilize loops in PHP.
	CTE.DATA.8.9	Establish a connection to a MySQL server through PHP.
	CTE.DATA.8.10	Execute a SQL query through PHP.
	CTE.DATA.8.11	Output the results of a SQL query through PHP.

Outcome 9:

CTE.DATA.9	**Students will optimize SQL queries to enhance performance.**	
	Local Code:	**Components:**
		Students will:
	CTE.DATA.9.1	Utilize the LIMIT command to stop queries when they find the desired number of results.
	CTE.DATA.9.2	Explain the benefits and drawbacks of using indexes.
	CTE.DATA.9.3	Utilize indexes to improve the performance of SELECT queries.
	CTE.DATA.9.4	List the situations where an index would be called for.
	CTE.DATA.9.5	Utilize the EXPLAIN command to determine the performance of a query.
	CTE.DATA.9.6	Rank the query types from fastest to slowest.

Computer Science Advanced Studies: Network Programming

Subject:	Computer Science Advanced Studies	**Course/Grade Level:**	Network Programming	11, 12
Focus Statement:	Students will demonstrate how to create network-connected programs.			

Outcome 1:

CTE.NET.1	**Students will describe the basic concepts of networks.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.1.1	Describe the protocols available in different layers of a network.
	CTE.NET.1.2	Describe the TCP/IP four-layer model.
	CTE.NET.1.3	Identify the quantities in a datagram.
	CTE.NET.1.4	Identify the layer to which specific elements belong.
	CTE.NET.1.5	Explain the Internet protocol.
	CTE.NET.1.6	Explain how IP addresses and domain names work.
	CTE.NET.1.7	Describe the purpose of unassigned IP addressed.
	CTE.NET.1.8	Identify well-known default port assignments.
	CTE.NET.1.9	Explain internet address blocks and network address translation.
	CTE.NET.1.10	Explain the purpose of firewalls and proxy servers.
	CTE.NET.1.11	Describe the client/server model.
	CTE.NET.1.12	Compare and contrast the IETF and W3C.

Outcome 2:

CTE.NET.2	**Students will utilize various input and output streams in Java.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.2.1	Utilize Java's OutputStream class.
	CTE.NET.2.2	Use the dispose pattern to clean up objects before garbage collection.
	CTE.NET.2.3	Utilize Java's InputStream class.
	CTE.NET.2.4	Ensure all bytes have been read when using the read method.
	CTE.NET.2.5	Understand the purpose of a buffered stream.
	CTE.NET.2.6	Chain filters together.
	CTE.NET.2.7	Utilize Java's DataInputStream and DataOutputStream classes.
	CTE.NET.2.8	Utilize Java's character readers and writers.

Outcome 3:

CTE.NET.3	**Students will demonstrate how to run and schedule threads.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.3.1	Explain the purpose of threading in a network application.
	CTE.NET.3.2	Run a thread in Java.
	CTE.NET.3.3	Understand how to create a subclass of the Thread class or implement the Runnable interface in Java.
	CTE.NET.3.4	Return information from a thread in Java using a callback.
	CTE.NET.3.5	Return information from a thread using the ExecutorService in Java.
	CTE.NET.3.6	Utilize synchronized blocks and methods in Java.

	CTE.NET.3.7	Describe alternatives to synchronization.
	CTE.NET.3.8	Explain the problem of deadlock.
	CTE.NET.3.9	Schedule threads in Java.
	CTE.NET.3.10	Describe the eight ways a thread can pause in Java.
	CTE.NET.3.11	Pool threads in Java.

Outcome 4:

CTE.NET.4	**Students will describe how internet addresses work.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.4.1	Understand how IPv4 and IPv6 are written.
	CTE.NET.4.2	Describe how the Domain Name System (DNS) works.
	CTE.NET.4.3	Utilize InetAddress objects in Java.
	CTE.NET.4.4	Describe potential security issues with InetAddress objects.
	CTE.NET.4.5	Describe the 10 different IP address types.
	CTE.NET.4.6	Utilize NetworkInterface objects in Java.

Outcome 5:

CTE.NET.5	**Students will describe URLs and URIs.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.5.1	Describe the syntax of URIs and URLs.
	CTE.NET.5.2	Explain the benefits of relative URLs.
	CTE.NET.5.3	Describe the five pieces that compose a URL.
	CTE.NET.5.4	Construct a URL using Java's URL class.
	CTE.NET.5.5	Retrieve data from a URL using Java's URL class.

Outcome 6:

CTE.NET.6	**Students will describe the components of the HTTP protocol.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.6.1	Describe the four steps in an HTTP request from client to server.
	CTE.NET.6.2	Describe common HTTP response codes.
	CTE.NET.6.3	Explain the purpose of a “keep-alive” HTTP connection.
	CTE.NET.6.4	Explain the purpose of the four main HTTP methods: GET, POST, PUT and DELETE.
	CTE.NET.6.5	Describe the four required items in a POST or PUT request body.
	CTE.NET.6.6	Explain how cookies function.
	CTE.NET.6.7	Implement cookies in Java using the CookieManager and CookieStore classes.

Outcome 7:

CTE.NET.7	**Students will demonstrate how to connect to URLs and send and receive information.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.7.1	Communicate with a server-side program using the GET and POST methods.
	CTE.NET.7.2	Authenticate on password-protected sites through Java’s Authenticator class.
	CTE.NET.7.3	Open URL connections using Java’s URLConnection class.
	CTE.NET.7.4	Read data from a server using the URLConnection class in Java.
	CTE.NET.7.5	Implement caches in Java.
	CTE.NET.7.6	Upload a file to a server using PUT in Java.

Outcome 8:

CTE.NET.8	**Students will demonstrate how to use sockets to communicate between two hosts.**	
	Local Code:	**Components:**
		Students will:
	CTE.NET.8.1	State the seven basic operation of a socket connection between two hosts.
	CTE.NET.8.2	Write to a server using sockets.
	CTE.NET.8.3	Describe the basic life cycle of a server program in Java.
	CTE.NET.8.4	Utilize the ServerSockets class in Java.
	CTE.NET.8.5	Create a server log using Java's java.util.logging package.
	CTE.NET.8.6	Create secure socket connections using SSL.

Computer Science Advanced Studies: Programming Challenges

Subject:	Computer Science Advanced Studies	**Course/Grade Level:**	Programming Challenges	11, 12
Focus Statement:	Students will compete in programming competitions and utilize common algorithms to solve the competition challenges.			

Outcome 1:

CTE.PROG.1	**Students will select a programming language to use in their programming challenges.**	
	Local Code:	**Components:**
		Students will:
	CTE.PROG.1.1	Choose from C, C++, and Java to utilize during programming challenges.
	CTE.PROG.1.2	Explain their rationale for their programming language of choice.
	CTE.PROG.1.3	Utilize the standard input/output of their programming language of choice.
	CTE.PROG.1.4	Write comments in their programming language of choice.
	CTE.PROG.1.5	Create constant variables in their programming language of choice.
	CTE.PROG.1.6	Create functions/methods/subroutines in their programming language of choice.
	CTE.PROG.1.7	Utilize arrays in their chosen programming language.
	CTE.PROG.1.8	Utilize two-dimensional arrays in their chosen programming language.
	CTE.PROG.1.9	Utilize sentinels to guard against arrays out-of-bounds errors.
	CTE.PROG.1.10	Create records/structures in their chosen programming language.

Outcome 2:

CTE.PROG.2	**Students will utilize elementary data structures in their chosen programming language.**	
	Local Code:	**Components:**
		Students will:
	CTE.PROG.2.1	Utilize stacks in their chosen programming language.
	CTE.PROG.2.2	Utilize queues in their chosen programming language.
	CTE.PROG.2.3	Implement dictionaries in their chosen programming language.
	CTE.PROG.2.4	Implement a priority queue in their chosen programming language.
	CTE.PROG.2.5	Implement sets in their chosen programming language.
	CTE.PROG.2.6	Understand how their chosen programming language implements strings.
	CTE.PROG.2.7	Know some helpful string methods in their chosen programming language.
	CTE.PROG.2.8	Know the nine situations where sorting can be used to solve programming challenges.
	CTE.PROG.2.9	Utilize built-in sorting algorithms in their chosen programming language.

Outcome 3:

CTE.PROG.3	**Students will utilize arithmetic algorithms to solve programming challenges.**	
	Local Code:	**Components:**
		Students will:
	CTE.PROG.3.1	Utilize the built-in mathematical methods in their chosen programming language.
	CTE.PROG.3.2	Implement large integers using arrays of digits.
	CTE.PROG.3.3	Implement addition for large integers.

	CTE.PROG.3.4	Implement subtraction for large integers.
	CTE.PROG.3.5	Implement multiplication for large integers.
	CTE.PROG.3.6	Implement division for large integers.
	CTE.PROG.3.7	Implement comparison operations for large integers.
	CTE.PROG.3.8	Demonstrate how to compare real numbers.
	CTE.PROG.3.9	Manipulate polynomials in their chosen programming language.
	CTE.PROG.3.10	Determine if the product rule applies to a given programming challenge problem.
	CTE.PROG.3.11	Determine if the sum rule applies to a given programming challenge problem.
	CTE.PROG.3.12	Determine if the inclusion-exclusion formula applies to a given programming challenge problem.
	CTE.PROG.3.13	Determine if a recurrence relation applies to a given programming challenge problem.
	CTE.PROG.3.14	Determine if a binomial coefficient applies to a given programming challenge problem.
	CTE.PROG.3.15	Solve a programming challenge problem using recursion and induction.
	CTE.PROG.3.16	Write an algorithm to determine if a given number is prime.
	CTE.PROG.3.17	Write an algorithm to determine if a given number is divisible by another given number.
	CTE.PROG.3.18	Write an algorithm to find the greatest common divisor of a given number.
	CTE.PROG.3.19	Write an algorithm to find the least common multiple of a given number.
	CTE.PROG.3.20	Use modulus to solve programming challenge problems.

Outcome 4:

CTE.PROG.4	**Students will utilize backtracking algorithms to solve problems with a large search space.**	
	Local Code:	**Components:**
		Students will:
	CTE.PROG.4.1	Write a recursive backtracking algorithm.
	CTE.PROG.4.2	Use a pruning search to remove candidates from a possible solution set.
	CTE.PROG.4.3	Solve a programming challenge problem using a backtracking algorithm.

Outcome 5:

CTE.PROG.5	**Students will utilize graphs to solve programming challenge problems.**	
	Local Code:	**Components:**
		Students will:
	CTE.PROG.5.1	Demonstrate the difference between undirected and directed graphs.
	CTE.PROG.5.2	Demonstrate the difference between weighted and unweighted graphs.
	CTE.PROG.5.3	Demonstrate the difference between cyclic and acyclic graphs.
	CTE.PROG.5.4	Demonstrate the difference between simple and non-simple graphs.
	CTE.PROG.5.5	Demonstrate the difference between embedded and topological graphs.
	CTE.PROG.5.6	Demonstrate the difference between implicit and explicit graphs.
	CTE.PROG.5.7	Demonstrate the difference between labeled and unlabeled graphs.
	CTE.PROG.5.8	Determine a data structure to represent a graph when solving a programming challenge problem.

	CTE.PROG.5.9	Traverse a graph using a breadth-first or depth-first search.
	CTE.PROG.5.10	Utilize topological sorting to solve problems involving directed acyclic graphs.
	CTE.PROG.5.11	Understand the basic principles of graph theory.
	CTE.PROG.5.12	Generate a minimum spanning tree using Prim's algorithm.
	CTE.PROG.5.13	Utilize Dijkstra's algorithm to find the shortest path in a weighted graph.
	CTE.PROG.5.14	Utilize Floyd's all-pairs shortest-path algorithm to length of the shortest path between all pairs of vertices in a given graph.
	CTE.PROG.5.15	Write an algorithm to solve network flow problems.

Web Design I

Subject:	Computer Science	**Course/Grade Level:**	Web Design I	10, 11, 12
Focus Statement:	Students will program and design basic web applications and will collaborate to create basic web applications for use by the school and community.			

Outcome 1:

CTE.WDI.1	**Students will create a website integrating text and graphics.**			
	Local Code:	**Components:**	**CTE Standards**	**Cross Referenced**
		Students will:		
	WDI.1.1	Identify tools and utilize them to properly setup a web site.	3b, 4b,d	
	WDI.1.2	Create a web page utilizing web development software to add and manipulate text and images.	6b, d	
	WDI.1.3	Analyze, discuss, and apply the use of web safe fonts and font families when creating a web page.	3b, 6d	
	WDI.1.4	Insert data into a student created table.	4a,b 6b	
	WDI.1.5	Add and delete columns and rows to a table.	6b	

Outcome 2:

CTE.WDI.2	**Students will manipulate the design of a web site.**			
	Local Code:	**Components:**	**CTE Standards Referenced**	**Cross Referenced**
		Students will:		
	WDI.2.1	Compare and contrast inline and block display.	6b,d	
	WDI.2.2	Apply HTML tags to change the appearance of a web page (e.g. <a anchors, H1, headings, <div divisions etc.).	4a, b, c, d, 6b, c	
	WDI.2.3	Analyze and apply (Cascade Styling Sheets) CSS to change the appearance of a web page	4a, b, c, d 6b, c	

		(e.g. ID's and classes).		
	WDI.2.4	Analyze, discuss, and apply color (color scheme, color psychology) to enhance the appearance of a website.	3b, 6d	
	WDI.2.5	Manipulate tables using CSS or HTML to alter table design/presentation.	4 a, b, c, d, 6b, c	

Outcome: 3

CTE.WDI.3	**Students will attach links to images and text.**			
	Local Code:	**Components:**	**CTE Standards Referenced**	**Cross Referenced**
		Students will:		
	WDI.3.1	Attach a link to an image by adding an HTML tag around that object.	6a, d	
	WDI.3.2	Attach a link to specific text by adding an HTML tag around that text.	6a, d	
	WDI3.3	Edit links to assign different CSS properties for different states.	6d	
	WDI.3.4	Create site navigation.	1b, 6 a, d	

Outcome 4:

CTE.WDI.4	**Students will manipulate images for integration on a website.**			
	Local Code:	**Components:**	**CTE Standards Referenced**	**Cross Referenced**
		Students will:		
	WDI.4.1	Utilize image editing tools.	6a, b	
	WDI.4.2	Create animations.	1b, 6b	
	WDI4.3	Compare and contrast image file types.	6a , b	
	WDI.4.4	Create text effects.	6b, d	

Outcome 5:

CTE.WDI.5	**Students will compare and contrast using a Content Management System (CMS).**			
	Local Code:	**Components:**	**CTE Standards Referenced**	**Cross Referenced**
		Students will:		

	WDI.5.1	Compare and contrast features and benefits within different content management systems (e.g. WordPress, Weebly, WIX, etc.).	4b, 6a	
	WDI.5.2	Design and create a website utilizing a CMS.	4b, 6a	

Web Design II For Designers

Subject:	Computer Science	**Course/Grade Level:**	Web Design II for Designers	10, 11, 12
Focus Statement:	This course will focus creating more sophisticated websites. Students will choose to focus on the programming end of web applications or the design end of those applications and will collaborate to create web applications for use by the school and community.			

Outcome 1:

CTE.WEBII.1	**Students will analyze the history of web standards and compare and contrast early standards to the standards of today.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.DES.1.1	Explain how the browser wars and how they shaped early web standards.	WEB.1.1	
	CTE.WEBII.DES.1.2	Explain how the Internet's origins led to the development of early web standards.	WEB.1.1	
	CTE.WEBII.DES.1.3	Defend why content and design are separated into HTML and CSS.	WEB.1.3	

Outcome 2:

CTE.WEBII.2	**Students will be able to create a web page using HTML tags.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.DES.2.1	Demonstrate the syntax of HTML elements.	WEB.2.1	
	CTE.WEBII.DES.2.2	Compare and contrast inline and block-level elements.	WEB.2.1	
	CTE.WEBII.DES.2.3	Show how to use special character references.	WEB.2.1	
	CTE.WEBII.DES.2.4	Compare and contrast HTML and XHTML.	WEB.2.2	
	CTE.WEBII.DES.2.5	Debate the importance of various elements within the <head> tag.	WEB.2.3	
	CTE.WEBII.DES.2.6	Show how to create forms to gather input from a website visitor.	WEB.3.6	
	CTE.WEBII.DES.2.7	Show how to implement HTML5 form elements.	WEB.3.7	
	CTE.WEBII.DES.2.8	Show how to implement HTML5 structural tags.	WEB.3.8	
	CTE.WEBII.DES.2.9	Show how to validate an HTML page.	WEB.3.10	

	CTE.WEBII.DES.2.10	Defend why the validation errors of an HTML page that does not validate do not need to be corrected.	WEB.3.10	
	CTE.WEBII.DES.2.11	Show how accessibility is important for a website.	WEB.4.1	
	CTE.WEBII.DES.2.12	Show how to test for accessibility problems on a website.	WEB.4.2	

Outcome 3:

CTE.WEBII.3	**Students will style a web page using CSS.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.DES.3.1	Demonstrate how to use element, ID, and class selectors.	WEB.5.1	
	CTE.WEBII.DES.3.2	Demonstrate how to group selectors and combine selectors.	WEB.5.1	
	CTE.WEBII.DES.3.3	Demonstrate how to use advanced CSS selectors.	WEB.5.2	
	CTE.WEBII.DES.3.4	Show how inheritance affects the style of elements on a website.	WEB.5.3	
	CTE.WEBII.DES.3.5	Demonstrate how to use CSS for page layout.	WEB.5.5	
	CTE.WEBII.DES.3.6	Demonstrate how to use CSS sprites to minimize HTTP requests.	WEB.5.6	
	CTE.WEBII.DES.3.7	Demonstrate how to style forms.	WEB.5.9	

Outcome 4:

CTE.WEBII.4	**Students will be able to create and edit graphics for use on a website.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.DES.4.1	Show how to create a properly-formed favicon for use on a website.	WEB.2.4	
	CTE.WEBII.DES.4.2	Create a logo in different sizes for use on a website.		
	CTE.WEBII.DES.4.3	Crop and/or remove the background of an image for use on a website.		

Outcome 5:

CTE.WEBII.5	**Students will be able to evaluate and choose fonts for use on a website.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.DES.5.1	Compare and contrast different font families		
	CTE.WEBII.DES.5.2	Analyze websites and defend whether or not the site made good font choices.		
	CTE.WEBII.DES.5.3	Defend the font choices made for a student-created website.		

Outcome 6:

CTE.WEBII.6	Students will be able to design a website using responsive design.			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.DES.6.1	Illustrate why responsive design is necessary by showing examples of websites that do not use responsive design.		
	CTE.WEBII.DES.6.2	Design a website using responsive design that has at least three levels.		
	CTE.WEBII.DES.6.3	Show that a website is responsively designed by testing it on a variety of devices and browser window sizes.		

Web Design II For Developers

Subject:	Computer Science	**Course/Grade Level:**	Web Design II for Developers	10, 11, 12
Focus Statement:	This course will focus creating more sophisticated websites. Students will choose to focus on the programming end of web applications or the design end of those applications and will collaborate to create web applications for use by the school and community.			

Outcome 1:

CTE.WEBII.1	**Students will analyze the history of web standards and compare and contrast early standards to the standards of today.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.1.1	Explain the browser wars and how they shaped early web standards.	WEB.1.1	
	CTE.WEBII.1.2	Explain how the Internet's origins led to the development of early web standards.	WEB.1.1	
	CTE.WEBII.1.3	Dissect a request/response cycle to retrieve data on the Internet.	WEB.1.2	
	CTE.WEBII.1.4	Compare and contrast client-side and server-side languages.	WEB.1.2	
	CTE.WEBII.1.5	Defend why content and design are separated into HTML and CSS.	WEB.1.3	
	CTE.WEBII.1.6	Demonstrate how Javascript is used to add behavior to a web page.	WEB.1.3	

Outcome 2:

CTE.WEBII.2	**Students will be able to create a web page using HTML tags.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.2.1	Demonstrate the syntax of HTML elements.	WEB.2.1	
	CTE.WEBII.2.2	Compare and contrast inline and block-level elements.	WEB.2.1	
	CTE.WEBII.2.3	Show how to use special character references.	WEB.2.1	
	CTE.WEBII.2.4	Compare and contrast HTML and XHTML.	WEB.2.2	
	CTE.WEBII.2.5	Debate the importance of various elements within the <head> tag.	WEB.2.3	
	CTE.WEBII.2.6	Show how to create a properly-formed favicon for use on a website.	WEB.2.4	
	CTE.WEBII.2.7	Show how to create forms to gather input from a website visitor.	WEB.3.6	
	CTE.WEBII.2.8	Show how to implement HTML5 form elements.	WEB.3.7	
	CTE.WEBII.2.9	Show how to implement HTML5 structural tags.	WEB.3.8	
	CTE.WEBII.2.10	Show how to validate an HTML page.	WEB.3.10	
	CTE.WEBII.2.11	Defend why the validation errors of an HTML page that does not validate do not need to be corrected.	WEB.3.10	

	CTE.WEBII.2.12	Show how accessibility is important for a web site.	WEB.4.1	
	CTE.WEBII.2.13	Show how to test for accessibility problems on a web site.	WEB.4.2	

Outcome 3:

CTE.WEBII.3	**Students will be style a web page using CSS.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.3.1	Demonstrate how to use element, ID, and class selectors.	WEB.5.1	
	CTE.WEBII.3.2	Demonstrate how to group selectors and combine selectors.	WEB.5.1	
	CTE.WEBII.3.3	Demonstrate how to use advanced CSS selectors.	WEB.5.2	
	CTE.WEBII.3.4	Show how inheritance affects the style of elements on a web site.	WEB.5.3	
	CTE.WEBII.3.5	Demonstrate how to use CSS for page layout.	WEB.5.5	
	CTE.WEBII.3.6	Demonstrate how to use CSS sprites to minimize HTTP requests.	WEB.5.6	
	CTE.WEBII.3.7	Demonstrate how to style forms.	WEB.5.9	

Outcome 4:

CTE.WEBII.4	Students will be able to create a web application using client-side and server-side programming languages.			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.4.1	Compare and contrast Javascript with various Javascript libraries.	WEB.6.1	
	CTE.WEBII.4.2	Debate the pros and cons of Javascript.	WEB.6.3	
	CTE.WEBII.4.3	Illustrate various uses of Javascript by showing example websites that use Javascript in different ways.	WEB.6.3	
	CTE.WEBII.4.4	Show how to embed Javascript code on a web page.	WEB.6.4	
	CTE.WEBII.4.5	Show how to link to an external Javascript file.	WEB.6.4	
	CTE.WEBII.4.6	Analyze given embedded and external Javascript code for speed, security, and legibility.	WEB.6.4	
	CTE.WEBII.4.7	Distinguish between good and bad variable names.	WEB.6.5	
	CTE.WEBII.4.8	Show how to declare variables securely in Javascript.	WEB.6.5	
	CTE.WEBII.4.9	Show how to comment Javascript code.	WEB.6.5	
	CTE.WEBII.4.10	Optimize Javascript code by optimizing loop conditions and keeping DOM access to a minimum.	WEB.6.5	

Outcome 5:

CTE.WEBII.5	**Students will be able to produce Javascript code that traverses and manipulates the Document Object Model (DOM).**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.5.1	Distinguish between parent and child elements in the DOM.	WEB.6.9	
	CTE.WEBII.5.2	Interpret a DOM relationship and draw the resulting web page.	WEB.6.9	
	CTE.WEBII.5.3	Show how to find specific elements or groups of elements using Javascript.	WEB.6.9	
	CTE.WEBII.5.4	Show how to hide and show elements using Javascript.	WEB.6.10	
	CTE.WEBII.5.5	Create new HTML elements using Javascript.	WEB.6.10	
	CTE.WEBII.5.6	Change CSS using Javascript.	WEB.6.11	
	CTE.WEBII.5.7	Compare and contrast the various levels of Javascript events.	WEB.6.12	
	CTE.WEBII.5.8	Show how to check for event-specific properties.	WEB.6.12	
	CTE.WEBII.5.9	Show how to stop event bubbling.	WEB.6.12	
	CTE.WEBII.5.10	Show how to use animation to focus the user's attention on elements.	WEB.6.13	

Outcome 6:

CTE.WEBII.6	**Students will be able to develop a website using responsive design.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.6.1	Illustrate why responsive design is necessary by showing examples of websites that do not use responsive design.		
	CTE.WEBII.6.2	Create a website using responsive design that has at least three levels.		
	CTE.WEBII.6.3	Show that a website is responsively designed by testing it on a variety of devices and browser window sizes.		

CTE.WEBII.7	**Students will show how to send data from the user and a client-side language to a server-side language. Students should also connect the server-side language to a database and send results back to the client-side language.**			
	Local Code:	**Components:**	**Web Standards Curriculum Referenced**	**Local ILT Standards Referenced**
		Students will:		
	CTE.WEBII.7.1	Show how to send data from Javascript to a server-side language.		
	CTE.WEBII.7.2	Show how to validate data sent from the user.		
	CTE.WEBII.7.3	Show how to take user input and perform a database query.		
	CTE.WEBII.7.4	Show how to send results from a server-side language back to Javascript.		

Family and Consumer Science

7th Grade FACS

Subject:	Family and Consumer Science	**Course/Grade Level:** 7th Grade FACS	7
Focus Statement:	Students will identify concepts relating to sewing, child development, relationships and food and nutrition.		

Outcome 1: Child Development

CTE.F7.1	**Outcome: Students will analyze physical, intellectual, emotional, and social characteristics of children of various groups ranging from birth to early childhood.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.F7.1.1	Summarize the physical, intellectual, emotional and social development of an infant, newborn through 12 months.	12.1.1
	CTE.F7.1.2	Apply developmental information for a newborn through 12 month old, to a babysitting scenario.	12.3.2
	CTE.F7.1.3	Summarize the physical, intellectual, emotional and social development of a toddler, ages 1 through 3.	12.1.1
	CTE.F7.1.4	Apply developmental information for a toddler, ages 1 through 3, to a babysitting scenario.	12.3.2
	CTE.F7.1.5	Summarize the physical, intellectual, emotional and social development of a preschool aged child, 3 through 5 years old.	12.1.1
	CTE.F7.1.6	Apply developmental information for a preschool aged child, 3 through 5 years old, to a babysitting scenario.	12.3.2

Outcome 2: Sewing

CTE.F7.2	**Outcome: Students will identify concepts of hand sewing and will apply these concepts to create an introductory sewing product.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.F7.2.1	Identify equipment needed for hand sewing.	16.4.1
	CTE.F7.2.2	Demonstrate threading a needle and tying a knot.	16.4.3
	CTE.F7.2.3	Demonstrate hand sewing a button.	16.4.5

	CTE.F7.2.4	Demonstrate various types of hand stitches, as utilized for different projects.	16.4.5
	CTE.F7.2.5	Synthesize sewing skills to create a product.	16.4.5

Outcome 3: Interpersonal and Intrapersonal Relationships

CTE.F7.3	**Outcome: Students will identify positive and negative attributes of interpersonal and intrapersonal relationships and will apply these concepts to given scenarios.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.F7.3.1	Identify components that comprise a healthy relationship, including dating and friendships.	13.1.1
	CTE.F7.3.2	Identify components that comprise an unhealthy relationship, including peer pressure situations.	13.1.3, 13.1.5
	CTE.F7.3.3	Compare and contrast face-to-face relationships to social media influenced relationships.	13.3.1
	CTE.F7.3.4	Analyze communication styles and their effects on healthy and unhealthy relationships.	13.3.1

Outcome 4: Foods

CTE.F7.4	**Outcome: Students will identify and demonstrate various cooking methods and will apply them to nutritious eating experiences.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.F7.4.1	Summarize basic components of healthy eating, including common allergens.	8.7.5
	CTE.F7.4.2	Identify proper preparatory procedures prior to a cooking experience.	8.2.7, 14.4.1
	CTE.F7.4.3	Demonstrate different cooking methods for different types of foods.	8.5.4
	CTE.F7.4.4	Differentiate cooking from baking in the kitchen lab setting.	8.5.4
	CTE.F7.4.5	Utilize measurement tools to demonstrate proper measuring techniques.	8.5.3
	CTE.F7.4.6	Select the proper kitchen equipment to use while following a recipe.	8.3.6

8th Grade FACS

Subject:	Family and Consumer Science	**Course/Grade Level:** 8th Grade FACS	8
Focus Statement:	Students will evaluate concepts relating to sewing, fashion and interior design, child development, relationships and food and nutrition.		

Outcome 1: Fashion and Sewing

CTE.F8.1	**Outcome: Students will identify components of machine sewing and fashion trends, and apply this knowledge through the creation of a sewing product.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.F8.1.1	Demonstrate the process of threading and inserting the bobbin into the sewing machine.	16.4.1
	CTE.F8.1.2	Demonstrate the process of threading and setting up a sewing machine for use.	16.4.1
	CTE.F8.1.3	Demonstrate basic stitching and backstitching on the sewing machine.	16.4.1
	CTE.F8.1.4	Construct a sewing product by following a pattern.	16.4.5
	CTE.F8.1.5	Demonstrate basic skills for altering textile products and apparel to create a new item.	16.4.5
	CTE.F8.1.6	Construct a sewing product following a multistep procedure.	16.4.5
	CTE.F8.1.7	Compare and contrast fashion fads and trends over the decades.	16.5.6
	CTE.F8.1.8	Demonstrate design concepts by creating sample apparel.	16.3.4
	CTE.F8.1.9	Examine and compile information regarding career options related to the clothing and fashion fields.	16.1.1

Outcome 2: Interior Design

CTE.F8.2	**Outcome: Students will analyze millennial trends of interior design and apply this knowledge through the creation of Do-It-Yourself product.**

	Local Code:	Components:	NASA FACS Standards Referenced:
		Students will:	
	CTE.F8.2.2	Identify and describe millennial trends regarding Do-It-Yourself interior design concepts and projects.	16.4.4
	CTE.F8.2.3	Create a design plan utilizing Do-It-Yourself concepts in relation to personal context.	16.3.5, 16.3.3
	CTE.F8.2.4	Examine and compile information regarding career options related to the field of interior design.	11.1.2

Outcome 3: Child Development

CTE.F8.3	Outcome: Students will assess the physical, intellectual, emotional, and social characteristics of children of various groups ranging from birth to early childhood, and develop an education scenario to apply these concepts.		
	Local Code:	Components:	NASA FACS Standards Referenced:
		Students will:	
	CTE.F8.3.1	Compare and contrast the varying physical, intellectual, emotional and social development of infants, newborn through 12 months.	12.2.2
	CTE.F8.3.2	Create educational practices for infants.	12.2.4, 12.3.1
	CTE.F8.3.3	Compare and contrast the varying physical, intellectual, emotional and social development of toddlers, ages 1 through 3.	12.2.2
	CTE.F8.3.4	Create educational practices for toddlers.	12.2.4, 12.3.1
	CTE.F8.3.5	Compare and contrast the varying physical, intellectual, emotional and social development of preschool aged children, 3 through 5 years old.	12.2.2
	CTE.F8.3.6	Create educational practices for preschool aged children in a mock educational context.	12.2.4, 12.3.1

Outcome 4: Foods

CTE.F8.4	Outcome: Students will examine various cooking methods and will apply them to group dining experiences.		
	Local Code:	Components:	NASA FACS Standards Referenced:
		Students will:	
	CTE.F8.4.1	Summarize basic components of meal planning.	8.4.2

	CTE.F8.4.2	Analyze various preparatory procedures prior to cooking.	8.3.3, 8.3.6, 14.4.1
	CTE.F8.4.3	Compare and contrast two different cooking methods.	8.5.2
	CTE.F8.4.4	Apply meal plan alterations for consideration of a given allergy.	8.4.2, 8.4.3
	CTE.F8.4.5	Apply nutrition guidelines to create a group meal.	8.5.1, 14.1.3
	CTE.F8.4.6	Demonstrate proper safety and sanitation procedures while preparing food.	8.2
	CTE.F8.4.7	Follow proper measuring techniques using correct equipment for each ingredient.	8.5.3
	CTE.F8.4.8	Prepare baked goods and desserts using safe handling and professional preparation techniques.	8.5.10
	CTE.F8.4.9	Prepare a product using unique flavor combinations.	8.5.5
	CTE.F8.4.10	Examine and compile information regarding career options related to commercial food settings.	8.1.1, 8.1.2

Adult Living

Subject:	Family and Consumer Science	**Course/Grade Level:** Adult Living	11, 12
Focus Statement:	Students will understand concepts related to the individual's physical, sociological, psychological, and economic development.		

Outcome 1: Human Development

CTE.AL.1	**Outcome: Students will apply knowledge regarding personality and life-span development in order to increase awareness and preparedness for a variety of contexts.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.AL.1.1	Identify three socio-cultural components of self: emotional, social and intellectual.	13.1.2
	CTE.AL.1.2	Apply aspects of emotional and social development of adolescence through early adulthood to given scenarios regarding depression, bullying, aggression, and anger.	13.1.2 13.1.3
	CTE.AL.1.3	Identify aspects of intellectual development throughout adolescence and early adulthood.	13.1.2
	CTE.AL.1.4	Apply aspects of intellectual development using the Myers-Briggs Intellectual Inventory.	13.1.2
	CTE.AL.1.5	Compare and contrast various personality inventories as they relate to accurate reflections of the emotional, social and intellectual self.	13.2.4
	CTE.AL.1.6	Identify differences between self-esteem and self-concept and compare and contrast high vs. low self-esteem.	13.2.4
	CTE.AL.1.7	Identify and describe aspects of maturity and the aging process throughout a lifetime.	13.2.4
	CTE.AL.1.8	Create a life-span project in order to apply concepts of Erikson's stages of psycho-social development to real world situations.	13.2.4

Outcome 2: Human Culture and Diversity

CTE.AL.2	**Outcome: Students will examine various aspects of human culture. Students will compare and contrast group diversity and similarity as they apply to concepts of: norms, taboos, roles, race, ethnicity, and generational trends.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.AL.2.1	Identify and list aspects of culture and diversity.	13.1.3
	CTE.AL.2.2	Compare and contrast group differences and similarities. Apply differences and similarities to given scenarios.	13.1.3
	CTE.AL.2.3	Identify and analyze cultural conformity and taboos of groups.	13.5.1
	CTE.AL.2.4	List and describe different generational groups of the United States and their cultural trends.	13.5.1
	CTE.AL.2.5	Create a cultural presentation using knowledge and research regarding chosen, varying cultural groups.	13.3.4

Outcome 3: Groups and Hostile Relationships

CTE.AL.3	**Outcome: Students will examine various aspects of prejudice, ethnocentrism, racism and discrimination.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.AL.3.1	Identify and describe stages of hostile relationships; predilection, ethnocentrism, prejudice, discrimination, racism and scapegoating.	13.1.1
	CTE.AL.3.2	Compare and contrast various racial and ethnic groups' history of hostile relationships.	13.5.1
	CTE.AL.3.3	Apply concepts of hostile relationships to given scenarios.	13.5.1
	CTE.AL.3.4	Generate examples of benefits and prosocial results of having variety of different people within one's social group.	13.1.1

Outcome 4: Sex and Gender

CTE.AL.4	**Outcome: Students will examine the effects of sex and gender on human behavior. Students will compare and contrast group diversity and similarity as they apply concepts of: gender roles, media, and cultural trends.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.AL.4.1	Identify the difference between the terms "sex" and "gender"	13.2.1
	CTE.AL.4.2	Compare and contrast differences in male vs. female gender roles and identity.	13.3.6
	CTE.AL.4.3	List and describe aspects of gender equality and stereotypes.	13.2.5
	CTE.AL.4.4	Apply concepts of gender role identification through a given sex role inventory.	13.1.3, 13.2.5
	CTE.AL.4.5	Analyze social sex role stereotypes using given media and advertisement examples.	13.3.6

Outcome 5: Intimacy, Relationships and Life-Planning

CTE.AL.5	**Outcome: Students will identify, explain, and appraise differences within adult relationships. Students will examine aspects of dating relationships, social-emotional commitment, communication and life planning.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.AL.5.1	Identify and analyze components that comprise healthy relationships.	13.1.5
	CTE.AL.5.2	Identify components that comprise an unhealthy relationship, including dating warning signs, relationship destroyers, and violent or abusive situations.	13.1.3
	CTE.AL.5.3	Compare and contrast gender perceptions on relationships including concepts related to communication, conflict resolution, and relationship expectations.	13.6.3
	CTE.AL.5.4	Compare and contrast various levels and indicators of interpersonal attraction.	13.3.2
	CTE.AL.5.5	Analyze the factors of dating relationships, mate	13.2.1

		selection, and commitment.	13.6.1
	CTE.AL.5.6	Identify and analyze components and variations of Sternberg's Triarchic Theory of Love.	13.2.1, 13.6.1
	CTE.AL.5.7	Apply concepts of abusive vs. healthy relationship development through a given case-study scenario.	13.1.3, 13.1.5
	CTE.AL.5.8	List and describe aspects of problem-solving within a committed relationship.	13.3.4
	CTE.AL.5.9	Identify and analyze components of life-planning and goal-setting within a committed relationship.	13.2.5
	CTE.AL.5.10	Plan, construct and present a wedding, reception, and honeymoon using a given budget and planning paradigm.	13.2.5

Child Development

Subject:	Family and Consumer Science	**Course/Grade Level:** Child Development	10, 11, 12
Focus Statement:	Students will analyze the physical, emotional, social and intellectual development of a child from conception to age 5.		

Outcome 1: Prenatal

CTE.CD.1	**Outcome: Students will outline pre-natal development and details of each period in sequential order.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.CD.1.1	Identify parts of the female reproductive system.	13.3.1
	CTE.CD.1.2	Define conception.	13.3.1
	CTE.CD.1.3	Describe the development of the fetus from conception to birth.	13.3.1
	CTE.CD.1.4	Explain the transfer of nutrients from mother to fetus.	4.5.1
	CTE.CD.1.5	Apply knowledge to diagram the development of the fetus.	13.3.1

Outcome 2: Newborn

CTE.CD.2	**Outcome: Students will analyze the birth process and characteristics of the immediate postnatal period.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.CD.2.1	Summarize the birth process and stages of labor for the mother and fetus.	12.1.2
	CTE.CD.2.2	Define and apply common vocabulary in relation to newborns.	12.1.2
	CTE.CD.2.3	Identify reflexes present in newborn babies.	12.1.2
	CTE.CD.2.4	Design a persuasive project that informs the community about shaken baby syndrome and negative implications.	4.5.1

Outcome 3: Birth through Age 1

CTE.CD.3	**Outcome: Students will analyze the physical, intellectual, emotional, and social characteristics of infants and will demonstrate this knowledge through project based application.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.CD.3.1	Summarize parental impact on emotional development of a child in the first year.	12.1.1
	CTE.CD.3.2	Analyze various temperaments present in children in order to identify personal temperaments.	4.3.3
	CTE.CD.3.3	Describe the basic functions of brain development through the physical creation of a neuron model.	12.2.1
	CTE.CD.3.4	Apply knowledge of neurons to the intellectual development of an infant.	12.2.1
	CTE.CD.3.5	Construct an informative community visual aide to summarize the physical development of an infant.	12.2.4

Outcome 4: Ages 1 through 3

CTE.CD.4	**Outcome: Students will analyze the physical, intellectual, emotional, and social characteristics of toddlers and will demonstrate this knowledge through project based application.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.CD.4.1	Define methods of learning and intellectual activities.	12.1.2
	CTE.CD.4.2	Evaluate age appropriate toys for children ages 1 through 3.	12.2.4
	CTE.CD.4.3	Synthesize methods of learning and intellectual activities with toy evaluation to determine the most intellectually valuable toy.	4.3.3
	CTE.CD.4.4	Generalize the importance of language development at a young age.	4.3.3
	CTE.CD.4.5	Generalize the importance of toddler nutrition in relation to all areas of development.	4.4.3

	CTE.CD.4.6	Define the appropriate timeline and expectations for potty training toddlers.	4.2.5
	CTE.CD.4.7	Define the most common toddler emotions and relate to personal experiences.	12.1.1
	CTE.CD.4.8	Identify chronological milestones for toddlers in relation to physical development and motor skills.	12.1.2

Outcome 5: Ages 3 through 5

CTE.CD.5	**Outcome: Students will analyze the physical, intellectual, emotional, and social characteristics of school aged children and will demonstrate this knowledge through project based application.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.CD.5.1	Summarize important details of physical, intellectual, emotional, and social development of three to five year old children.	12.2.2
	CTE.CD.5.2	Define multiple intelligences, and apply knowledge to different scenarios to determine learning types.	12.2.2
	CTE.CD.5.3	Design a preschool layout to support multiple intelligences learning and types of development.	4.3.5
	CTE.CD.5.4	Summarize how to conduct an appropriate observation of a child to evaluate developmental progress.	4.2.1
	CTE.CD.5.5	Formulate an observation plan for a child to complete in a real life scenario.	4.2.1

Fashion Marketing

Subject:	Family and Consumer Science	**Course/Grade Level:** Fashion Marketing	10, 11, 12
Focus Statement:	Students will analyze components of the fashion and marketing industry in order to elucidate various aspects of the industry.		

Outcome 1: What is Fashion?

CTE.FM.1	**Outcome: Students will analyze the components of fashion and why fashion has been important throughout history.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.1.1	Explain the different definitions of fashion and identify the merchandise categories of fashion.	16.3.3, 16.5.4
	CTE.FM.1.2	Identify the needs satisfied by clothing and discuss the early history of clothing.	16.3.1
	CTE.FM.1.3	Name influential people in fashion history.	16.1.2, 16.1.6
	CTE.FM.1.4	Identify specific styles of fashion in the 20th century.	16.3.4
	CTE.FM.1.5	Examine a period of fashion history to present the information to the class.	16.3.1, 16.1.3

Outcome 2: Fashion and Marketing

CTE.FM.2	**Outcome: Students will differentiate the basics of marketing fashion products.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.2.1	Define the term marketing and how it applies to fashion merchandising.	15.5.1
	CTE.FM.2.2	List types of customer characteristics used to define a target market.	16.1.1
	CTE.FM.2.3	Describe the four components of the marketing mix.	16.5.2
	CTE.FM.2.4	Identify the four types of promotion and the seven functions of marketing.	16.1.5, 16.5.2
	CTE.FM.2.5	Identify the market segmentation by categorizing specific customer characteristics.	16.5.1

Outcome 3: The Fashion Business

CTE.FM.3	Outcome: Students will examine the variety of fashion businesses to explain the effect they have in domestic and global economies.		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.3.1	List the three main marketing segments of the fashion industry.	16.5.1
	CTE.FM.3.2	Describe the primary forms of business ownership and identify the key risks faced by fashion businesses.	16.1.2
	CTE.FM.3.3	Discuss how globalization has affected the fashion industry.	16.5.2
	CTE.FM.3.4	Generalize the impact of the fashion industry on the U.S. and world economies.	16.6.2
	CTE.FM.3.5	Identify the relationship between supply and demand.	16.5.1

Outcome 4: Fashion Centers

CTE.FM.4	Outcome: Students will analyze the role of fashion design and international buying centers to develop an understanding of how fashion travels around the world.		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.4.1	Compare and contrast a fashion design center and a buying center.	16.4.4
	CTE.FM.4.2	Describe how design and buying centers impact local economies.	16.6.2
	CTE.FM.4.3	Identify major design and buying centers.	16.4.4
	CTE.FM.4.4	Explain the importance of global sourcing in the fashion industry.	16.1.4
	CTE.FM.4.5	Describe how cultural influences affect mainstream fashion.	16.1.4

Outcome 5: Types of Fashion and Trends

CTE.FM.5	Outcome: Students will examine the different types of fashion products to describe how fashion trends move through the fashion cycle.		
	Local Code:	**Components:**	**NASA FACS**

			Standards Referenced:
		Students will:	
	CTE.FM.5.1	Identify the types of fashion products and explain the main categories and classifications of fashion apparel.	16.4.1
	CTE.FM.5.2	Explain the fashion cycle and identify the different theories of fashion movement.	16.3.6
	CTE.FM.5.3	Discuss the role of fashion leaders and identify past and current leaders.	16.1.2
	CTE.FM.5.4	Discuss the difference between fashion trends and fashion fads.	16.4.4
	CTE.FM.5.5	Examine a fashion fad to report on its various characteristics.	16.4.4

Outcome 6: Textiles and Productions

CTE.FM.6	**Outcome: Students will examine fibers and fabrics and discuss how natural and man-made fibers become fabrics.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.6.1	Discuss the fiber properties that determine appropriate use and quality of fabrics.	16.2.2
	CTE.FM.6.2	Identify the main natural and manufactured fibers.	16.2.2
	CTE.FM.6.3	Explain the importance of fabric in fashion.	16.2.1
	CTE.FM.6.4	Discuss how synthetic fibers are produced.	16.2.2
	CTE.FM.6.5	Identify the two primary methods for making fibers into fabrics.	16.2.2

Outcome 7: Designing Fashion

CTE.FM.7	**Outcome: Students will analyze the important role of fashion designers and to identify their impact on the design construction process.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.7.1	Explain the types of fashion designers.	16.1.6
	CTE.FM.7.2	Identify the elements and principles of design used to create fashion.	16.3.3
	CTE.FM.7.3	List the steps of the fashion design process.	16.3.3

	CTE.FM.7.4	Identify the steps in the garment production process.	16.3.3
	CTE.FM.7.5	Explain how women's and men's apparel are sized.	16.3.4

Outcome 8: Creators of Fashion

CTE.FM.8	**Outcome: Students will examine the creators of fashion, from haute-couture to ready-to-wear designers, as well as current fashion designers making their names in the world of contemporary fashion.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.8.1	Discuss haute-couture design houses and the background of haute couture.	16.5.2
	CTE.FM.8.2	Explain the process of buying haute-couture fashions.	16.5.6
	CTE.FM.8.3	Compare and contrast prêt-a-porter and ready-to-wear garments.	16.4.1
	CTE.FM.8.4	Identify current influential haute-couture and ready to wear designers.	16.1.2
	CTE.FM.8.5	Examine an haute-couture designer to present findings to the class.	16.1.5

Outcome 9: Fashion Products and Research

CTE.FM.9	**Outcome: Students will examine how fashion products are selected for the retailer and how research is integrated in this process.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.9.1	Identify trade associations and the role they play in fashion products.	16.1.6
	CTE.FM.9.2	Explain the differences between trade publications and fashion magazines.	16.1.6
	CTE.FM.9.3	Describe the methods used to do market research.	16.5.1
	CTE.FM.9.4	Explain market segmentation and target market research.	16.5.5

	CTE.FM.9.5	Create a collage of fashion products aimed at a specific target market.	16.5.1

Outcome 10: Fashion Distribution

CTE.FM.10	**Outcome: Students will examine the fashion buyer and types of fashion retailers to outline the steps of the merchandising process for fashion products.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.10.1	Explain the role of the fashion buyer.	16.1.4
	CTE.FM.10.2	Discuss the steps in the buying process and merchandising cycle.	16.3.6
	CTE.FM.10.3	Identify the types of fashion retailers.	16.1.6
	CTE.FM.10.4	Discuss buying motives and discuss the steps in the personal-selling process.	16.6.4
	CTE.FM.10.5	Analyze a parent company to generalize the various retailers operating under a corporation.	16.1.2

Outcome 11: Fashion Pricing and Technology

CTE.FM.11	**Outcome: Students will evaluate pricing in the fashion industry.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.11.1	List and explain the five price levels of fashion apparel.	16.3.3
	CTE.FM.11.2	Identify the considerations used by fashion makers to determine prices.	16.5.2
	CTE.FM.11.3	Compare and contrast the difference in how manufacturers and retailers use and offer credit.	16.7.3, 16.3.4
	CTE.FM.11.4	Explain computer-integrated manufacturing and describe inventory control and systems used in retail stores.	16.5.1
	CTE.FM.11.5	Create a chart demonstrating the various price levels of a fashion product.	16.5.2

Outcome 12: Promoting Fashion

CTE.FM.12	**Outcome: Students will examine promotion of fashion merchandise through visual merchandising and displays in retail stores.**		
	Local Code:	**Components:**	**NASA FACS**

			Standards Referenced:
		Students will:	
	CTE.FM.12.1	Explain the purpose of visual merchandising in the fashion industry.	16.5.3
	CTE.FM.12.2	Describe the display areas of a store and identify the design elements used.	16.5.3
	CTE.FM.12.3	List and define the four components of the promotional mix.	16.5.2
	CTE.FM.12.4	Discuss how designers and manufacturers use branding and licensing.	16.3.5
	CTE.FM.12.5	Analyze the store layout of a retailer.	16.5.1

Outcome 13: Preparing for Fashion Careers

CTE.FM.13	**Outcome: Students will identify the personal traits and skills necessary to work in the fashion industry and the different careers that are available.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.13.1	Identify the traits and skills valued by employers.	16.1.5
	CTE.FM.13.2	Describe four areas of employment in the fashion industry.	16.1.3
	CTE.FM.13.3	Analyze the education options for fashion careers.	16.1.3
	CTE.FM.13.4	Describe ways to gain experience in the fashion industry prior to employment.	16.1.5
	CTE.FM.13.5	Design a poster demonstrating different career plans.	16.1.3

Outcome 14: Working in Fashion

CTE.FM.14	**Outcome: Students will outline starting a new job or a new business, and the skills that can help them achieve success on the job.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FM.14.1	Describe sources for researching fashion careers and explain career networking.	16.1.5
	CTE.FM.14.2	Discuss the components of the job application	16.1.5

		process.	
	CTE.FM.14.3	Summarize the steps of the job search process.	16.1.2
	CTE.FM.14.4	Identify important strategies for success on the job and the traits of successful entrepreneurs.	16.1.2
	CTE.FM.14.5	Create a professional resume to be used for future jobs.	16.1.3, 16.1.5

Foods I

Subject:	Family and Consumer Science	**Course/Grade Level:** Foods I	10, 11, 12
Focus Statement:	Students will be able to apply basic safety, sanitation, measuring and cooking skills and techniques in order to produce various food products.		

Outcome 1: Safety and Sanitation

CTE.FI.1	**Outcome: Students will demonstrate food safety and sanitation skills, and analyze safe practices in the kitchen lab setting.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.1.1	Demonstrate proper hand washing techniques.	8.2.8
	CTE.FI.1.2	Demonstrate proper dish washing techniques.	8.2.8
	CTE.FI.1.3	Analyze different scenarios to determine safety and sanitation hazards, and will identify corrective actions.	8.2.11
	CTE.FI.1.4	Define common food borne illnesses and explain optimal prevention methods.	14.4.5

Outcome 2: Measuring and Equipment (Tools)

CTE.FI.2	**Outcome: Students will identify and categorize kitchen tools and equipment for appropriate food handling.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.2.1	Identify and locate all kitchen equipment contained in lab kitchens.	8.5.3
	CTE.FI.2.2	Describe functionality and purpose for all kitchen equipment and utensils.	14.4.1
	CTE.FI.2.3	Analyze how to properly set up a kitchen to maximize use of equipment, while using safety standards at all times.	8.5.3, 14.4.1

Outcome 3: Measuring and Equipment (Equivalencies)

CTE.FI.3	**Outcome: Students will memorize measuring equivalencies to compute for recipe applications.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.3.1	Memorize common measurement conversions for standard measuring cups and spoons.	9.4.3, 8.5.3
	CTE.FI.3.2	Produce a visual representation of measurement conversions. (For example: Gallon Man)	8.5.3
	CTE.FI.3.3	Compute recipe math conversion problems.	8.5.3
	CTE.FI.3.4	Demonstrate unit knowledge through creation of a recipe focused on measuring skills.	9.6.2

Outcome 4: Fruits, Veggie, USDA, and Microwave (Distinguishing Characteristics)

CTE.FI.4	**Outcome: Students will distinguish characteristics among fruit and vegetable categories.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.4.1	Classify vegetables by category.	8.5.7
	CTE.FI.4.2	Classify fruits by category.	8.5.7
	CTE.FI.4.3	List nutrients associated with various vegetables.	9.3.1
	CTE.FI.4.4	List nutrients associated with various fruits.	9.3.1
	CTE.FI.4.5	Generalize proper cooking methods to retain nutrients in fruits and vegetables.	8.5.1
	CTE.FI.4.6	Demonstrate unit knowledge through preparation of a recipe focused on fruit preparation methods.	9.6.2
	CTE.FI.4.7	Demonstrate unit knowledge through preparation of a recipe focused on vegetable preparation methods.	9.6.2

Outcome 5: Fruits, Veggie, USDA, and Microwave (Standards and Guidelines)

CTE.FI.5	**Outcome: Students will integrate government standards and guidelines in meal planning.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	

	CTE.FI.5.1	Research the current government tool for meal planning.	9.3.1, 9.3.2
	CTE.FI.5.2	Construct three relevant examples of properly planned and balanced meals.	9.3.1, 9.3.2
	CTE.FI.5.3	Demonstrate unit knowledge through creation of a recipe focused on balanced meal guidelines.	9.3.1, 9.3.2

Outcome 6: Fruits, Veggie, USDA, and Microwave (Microwave cooking)

CTE.FI.6	**Outcome: Students will compare and contrast microwave cooking to conventional cooking methods.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.6.1	Generalize how a microwave cooks.	8.5.1
	CTE.FI.6.2	Summarize safety tips when cooking using a microwave.	8.5.1
	CTE.FI.6.3	Apply safety tips when using the microwave throughout the course.	8.5.1
	CTE.FI.6.4	Explain the functionality behind the use of a microwave.	8.5.1
	CTE.FI.6.5	Cite differences in nutrient loss in various cooking methods.	8.5.1
	CTE.FI.6.7	Demonstrate unit knowledge through creation of a recipe focused on microwave food preparation methods.	8.5.1 9.6.2

Outcome 7: Egg and Dairy

CTE.FI.7	**Outcome: Students will analyze scientific, nutritional, and culinary aspects of eggs and dairy.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.7.1	Label parts of an egg.	8.5.11
	CTE.FI.7.2	Define multiple types of dairy.	8.5.7, 14.4.2
	CTE.FI.7.3	Compare and contrast nutritional differences of the parts of an egg.	8.5.11
	CTE.FI.7.4	Compare and contrast nutritional differences of various types of dairy products.	8.5.7
	CTE.FI.7.5	Demonstrate unit knowledge through preparation of a recipe focused on egg methods.	9.6.2
	CTE.FI.7.6	Demonstrate unit knowledge through	9.6.2

		preparation of a recipe focused on dairy methods.	

Outcome 8: Baking

CTE.FI.8	**Outcome: Students will analyze scientific, nutritional, and culinary aspects of baked goods.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.8.1	List and define baking ingredients.	8.5.10
	CTE.FI.8.2	List and define components of baking processes.	8.5.10
	CTE.FI.8.3	Summarize and apply basic knowledge of chemical reactions in baking.	8.5.10
	CTE.FI.8.4	Demonstrate unit knowledge through preparation of a recipe focused on baking methods.	9.6.2

Outcome 9: Grains

CTE.FI.9	**Outcome: Students will analyze scientific, nutritional, and culinary aspects of grains.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.9.1	Identify and define parts of a grain kernel.	9.3.3
	CTE.FI.9.2	Compare and contrast whole grain and refined grain products.	8.2.6
	CTE.FI.9.3	Memorize and define various types of grain and related products.	8.5.7
	CTE.FI.9.4	Demonstrate unit knowledge through preparation of a recipe focused on various grains.	9.6.2

Outcome 10: Meat and Poultry

CTE.FI.10	**Outcome: Students will analyze scientific, nutritional, and culinary aspects of meat and poultry.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**

		Students will:	
	CTE.FI.10.1	Identify major parts of meat.	8.2.7
	CTE.FI.10.2	Analyze nutritional differences between red meat, poultry, and pork.	8.2.7
	CTE.FI.10.3	Illustrate and give examples of various cooking methods.	8.5.1, 8.5.2
	CTE.FI.10.4	Demonstrate unit knowledge through preparation of a recipe focused on proteins.	9.6.2

Outcome 11: Final Meal

CTE.FI.11	**Outcome: Students will plan, integrate, and demonstrate all aspects of organizing a meal from shopping to consumption.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FI.11.1	Design a final meal plan considering budget principles.	9.6.2
	CTE.FI.11.2	Design a final meal plan considering time management skills.	9.6.2
	CTE.FI.11.3	Design a final meal plan considering team work principles for effective and timely completion.	9.6.2
	CTE.FI.11.4	Demonstrate previous course knowledge through creation & planning of a full meal, focused on all previous prep. methods.	9.6.2

Foods II

Subject:	Family and Consumer Science	**Course/Grade Level:** Foods II	10, 11, 12
Focus Statement:	Students will integrate knife skills while producing intermediate food products from scratch in order to build and expand upon prior knowledge.		

Outcome 1: Knife Skills

CTE.FII.1	**Outcome: Students will demonstrate knife skills in order to incorporate skills in food production.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.1.1	Identify proper knife skills through viewing a demonstration of proper knife skills.	8.5.1
	CTE.FII.1.2	Define key terminology associated with knife skills and cutting skills.	14.4.1
	CTE.FII.1.3	Complete a lab demonstrating the understanding of knife skills.	9.6.2

Outcome 2: Sandwiches

CTE.FII.2	**Outcome: Students will define and identify sandwich terminology in order to understand the scope of the food category.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.2.1	Identify the origin of various sandwiches of domestic and international origin.	9.3.5
	CTE.FII.2.2	Compare and contrast similarities and differences in various sandwich sub categories.	9.3.5

	CTE.FII.2.3	Demonstrate and execute a lab that depicts the construction of one type of sandwich.	9.6.2

Outcome 3: Herbs and Spices

CTE.FII.3	**Outcome: Students will differentiate between fresh and dried herbs and spices and demonstrate their uses in cooking.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.3.1	Identify the fundamental differences between herbs and spices and their plant origin.	8.5.8
	CTE.FII.3.2	List and describe fundamental taste profiles of some herbs and spices.	8.5.8
	CTE.FII.3.3	Compare and contrast various herbs and spices.	8.5.8
	CTE.FII.3.4	Demonstrate and execute a lab that focuses on the use of a specific herb or spice.	9.6.2

Outcome 4: Soups, Stews, and Casseroles

CTE.FII.4	**Outcome: Students will identify and analyze concepts related to soups, stews, and casseroles and prepare a lab.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.4.1	Identify and explain the origins and history of casseroles and what influencing factors lead to their popularity.	8.5.6
	CTE.FII.4.2	Define terminology for soups, stews and sauces.	8.5.6
	CTE.FII.4.3	Prepare and execute a lab that demonstrates the ability to create a soup, stew or casserole.	8.5.6, 9.6.2

Outcome 5: Leavening

CTE.FII.5	**Outcome: Students will apply knowledge of leavening agents in order to produce yeast leavened products.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.5.1	Identify and describe the function of yeast in baking.	8.5.10
	CTE.FII.5.2	Explain the various methods of yeast activation	8.5.10

		and integration in baked goods.	
	CTE.FII.5.3	Identify and describe various functions of ingredients associated with yeast baking.	8.5.10
	CTE.FII.5.4	Prepare and execute a lab demonstrating the various activation methods of yeast.	9.6.2

Outcome 6: Pasta

CTE.FII.6	**Outcome: Students will analyze the development of gluten through the creation of pasta dishes.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.6.1	Identify and explain the function of ingredients and the development of gluten in pasta dough.	8.5.9
	CTE.FII.6.2	Summarize the history and origin of pasta.	8.5.9
	CTE.FII.6.3	Prepare pasta dough and process it into usable form.	9.6.2

Outcome 7: Pastry

CTE.FII.7	**Outcome: Students will analyze pastry production methods.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.7.1	Identify and explain the functions of ingredients in pastry.	8.5.10
	CTE.FII.7.2	Analyze how to inhibit gluten production in pastry.	8.5.10
	CTE.FII.7.3	Define and explain terminology associated with pastry.	8.5.10
	CTE.FII.7.4	Prepare and execute a lab demonstrating the production of a pastry crust.	9.6.2

Outcome 8: Cake

CTE.FII.8	**Outcome: Students will examine the fundamentals of cake preparation and produce a cake product.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.8.1	Define and explain terminology associated with cake production.	8.5.10
	CTE.FII.8.2	List and identify types of cakes and their	8.5.10

		attributes.	
	CTE.FII.8.3	Construct and modify techniques for working with frosting.	8.5.10
	CTE.FII.8.4	Prepare and execute a lab producing and decorating a cake product.	9.6.2

Outcome 9: International Cuisine

CTE.FII.9	**Outcome: Students will examine cultural, geographic and historical influences on cuisine around the world.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FII.9.1	Analyze a global region and identify sub regional cuisines.	9.6.1
	CTE.FII.9.2	List and define vocabulary associated with the region being explored.	9.6.1
	CTE.FII.9.3	Design and develop a presentation of regional cuisine.	9.6.2

Foods III

Subject:	Family and Consumer Science	**Course/Grade Level:** Foods III	10, 11, 12
Focus Statement:	Students will produce advanced food products in a commercial capacity, with an emphasis on culinary arts, in order to build and expand upon prior knowledge.		

Outcome 1: Careers

CTE.FIII.1	**Outcome: Students will analyze careers in the hospitality industry to explain viable career options.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.1.1	Identify and describe hospitality based careers.	8.5.1
	CTE.FIII.1.2	Examine a selected hospitality based career.	8.5.1
	CTE.FIII.1.3	Create a presentation reviewing components, expectations, and outlook of selected career.	8.5.1

Outcome 2: Sauces

CTE.FIII.2	**Outcome: Students will examine and prepare mother sauces in order to understand and formulate derivative sauces.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.2.1	Identify and define concepts related to sauce making.	8.5.6
	CTE.FIII.2.2	Compare and contrast mother and derivative sauces.	8.5.6
	CTE.FIII.2.3	Prepare and execute a lab demonstrating an example of a mother and derivative sauce.	9.6.2

Outcome 3: Soups, Stocks, and Bases

CTE.FIII.3	**Outcome: Students will identify the principles of stock and broth production to evaluate their applications in other culinary combinations.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.3.1	Identify and define the principles of stock and broth preparation as they apply to bases and bouillons.	8.5.6

	CTE.FIII.3.2	Examine example recipes for both cream and broth based soups.	8.5.6
	CTE.FIII.3.3	Prepare and execute labs of example soups.	9.6.2

Outcome 4: Plate Composition

CTE.FIII.4	**Outcome: Students will analyze and depict basic plating techniques in order to create well composed final products.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.4.1	Identify and define vocabulary associated with plating techniques.	8.4.4
	CTE.FIII.4.2	Prepare and execute a lab that allows for the use of various plating principles.	8.4.4
	CTE.FIII.4.3	Analyze the lab prepared and successfully identify the principles that were used.	9.6.2

Outcome 5: Pastry

CTE.FIII.5	**Outcome: Students will analyze the function of pastry ingredients in products.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.5.1	Identify and define the functions of various ingredients of pastry.	8.5.10
	CTE.FIII.5.2	Examine the effects of inaccurate measurement on pastry.	8.5.10
	CTE.FIII.5.3	Define the differences in types of pastry.	8.5.10
	CTE.FIII.5.4	Prepare and execute labs demonstrating various pastries.	9.6.2

Outcome 6: Candy

CTE.FIII.6	**Outcome: Students will examine the principles of cooking sugar in order to produce candy products.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.6.1	Identify and define concepts associated with cooking sugar.	8.5.10
	CTE.FIII.6.2	Identify and define critical temperature points for cooking candy.	8.5.10
	CTE.FIII.6.3	Identify and define the functions of ingredients	8.5.10

		in candy preparation.	
	CTE.FIII.6.4	Prepare types of candy that correlate with critical temperature points.	9.6.2

Outcome 7: Menu Engineering

CTE.FIII.7	**Outcome: Students will identify and define the principles of menu engineering to formulate a cost analysis of created products.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.7.1	Identify and define categories for menu engineering.	8.4.4
	CTE.FIII.7.2	Compose a sample spreadsheet classifying menu items.	8.4.4
	CTE.FIII.7.3	Design and create a sandwich, cost analysis, and menu price based on given information.	8.4.4 9.6.2
	CTE.FIII.7.4	Create a menu description highlighting the sandwich created.	9.6.2

Outcome 8: Meat

CTE.FIII.8	**Outcome: Students will identify and analyze primal cuts of meat.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.FIII.8.1	Identify and define to the various primal cuts of pork, beef, and chicken.	8.5.2
	CTE.FIII.8.2	Explain and apply preparation methods associated with each cut of meat.	8.5.2
	CTE.FIII.8.3	Prepare and execute a meat buffet demonstrating various cooking methods.	9.6.2

Outcome 9: Capstone Lab

CTE.FIII.9	**Outcome: Students will synthesize skills of food preparation while adapting to ingredient availability.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	

	CTE.FIII.9.1	Analyze available ingredients from a given list.	8.4.4
	CTE.FIII.9.2	Plan a menu based on required and available ingredients.	8.4.4
	CTE.FIII.9.3	Prepare and execute their menu while synthesizing food preparation skills.	8.4.4, 9.6.2

Housing and Interior Design

Subject:	Housing and Interior Design	**Course/Grade Level:** Housing and Interior Design	10, 11, 12
Focus Statement:	**Students will analyze how historical trends influence current design principles and will examine how modern design is utilized.**		

Outcome 1: Career Exploration in Housing and Interior Design

CTE.ID.1	**Outcome: Students will analyze various occupational options within the field of Housing and Interior Design.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.ID.1.1	Examine and compile information regarding various design industry careers using various media sources.	11.1.1
	CTE.ID.1.2	Evaluate career options based on personal interest.	11.1.2
	CTE.ID.1.3	Create a presentation regarding a specific design industry career.	11.1.2

Outcome 2: Basics of Housing and Interior Design Principles

CTE.ID.2	**Outcome: Students will examine historical and contemporary housing and architectural principles.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.ID.2.1	Compare and contrast 18th, 19th and 20th century architecture.	11.5.1, 11.5.3
	CTE.ID.2.2	Analyze historical architectural information of a chosen property.	11.5.1, 11.5.3

	CTE.ID.2.3	Create a presentation showing components of architecture.	11.5.1, 11.5.3

Outcome 3: Blueprints and Symbols

CTE.ID.3	**Outcome: Students will identify and examine various elements of housing construction planning.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.ID.3.1	Identify blueprint symbols and draw a given room to scale.	11.4.3
	CTE.ID.3.2	Compare and contrast furniture designs from the 18th, 19th and 20th centuries.	11.3.1
	CTE.ID.3.3	Depict various symbols for doors, windows and lighting fixtures.	11.4.3, 11.3.1
	CTE.ID.3.4	Design and draw a room to scale using architectural and furniture symbols.	11.4.6
	CTE.ID.3.5	Create a design board of a scaled room.	11.4.6

Outcome 4: Housing and Interior Design Technology

CTE.ID.4	**Outcome: Students will construct housing and design projects utilizing various technological drafting and design programs.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.ID.4.1	Generalize usage of design programs.	11.4.6
	CTE.ID.4.2	Identify and utilize drafting and design programs.	11.4.6
	CTE.ID.4.3	Create a room design using drafting and design technology.	11.4.6
	CTE.ID.4.4	Create a computerized floor plan using drafting and design technology which includes architectural symbols and furniture templates.	11.4.3, 11.3.1
	CTE.ID.4.5	Create a room layout using drafting and design technology to simulate their original sample board.	11.4.6

Outcome 5: Kitchen Interior Design

CTE.ID.5	**Outcome: Students will analyze various color schemes, flooring and hardware options that apply to kitchen design.**		
	Local Code:	**Components:**	**NASA FACS Standards**

			Referenced:
		Students will:	
	CTE.ID.5.1	Explain the role of color in design and create a project illustrating six color schemes.	11.2.3
	CTE.ID.5.2	Analyze floor materials and lighting appropriate for a kitchen.	11.3.1
	CTE.ID.5.3	Explain and analyze various kitchen layout designs.	11.4.2
	CTE.ID.5.4	Design a kitchen using drafting and design technology demonstrating knowledge of a functional kitchen space.	11.4.6
	CTE.ID.5.5	Create a sample board showing the functional kitchen space.	11.4.6

Outcome 6: Advanced Elements of Housing and Interior Design

CTE.ID.6	**Outcome: Students will utilize design elements, overall theme applications, and steps of designing, as applied to client needs.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.ID.6.1	Create an elevation example of a room.	11.4.1
	CTE.ID.6.2	Create a pictorial example of a room.	11.4.3
	CTE.ID.6.3	Design a room based on a given theme.	11.3.6
	CTE.ID.6.4	List and explain the steps an interior designer takes when preparing a design plan for a client.	11.6.4
	CTE.ID.6.5	Create a client living room utilizing steps for a design plan.	11.4.6
	CTE.ID.6.6	Using drafting and design technology, present the sample board to the client.	11.4.6, 11.4.4

Outcome 7: Room Renovation

CTE.ID.7	**Outcome: Students will renovate a complete living space within a specific budget.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.ID.7.1	List the safety requirements used when renovating a bathroom.	11.8.4
	CTE.ID.7.2	Create a client bathroom design plan within a budget.	11.6.2

	CTE.ID.7.3	Identify bathroom materials and analyze total costs of renovation.	11.6.2
	CTE.ID.7.4	Create a living room design project for a client.	11.6.4
	CTE.ID.7.5	Construct a blueprint of a complete living space that utilizes correct architectural symbols and construction guidelines.	11.4.3 11.3.3
	CTE.ID.7.8	Design the interior of a room integrating theme, color selection, furniture style, accessories, and wall treatments.	11.2.1, 11.3.6

Parenting

Subject:	Family and Consumer Science	**Course/Grade Level:** Parenting	11, 12
Focus Statement:	Students will analyze concepts related to the physical, sociological, psychological, and economical aspects of the modern day families.		

Outcome 1: Parenting Practice and Theory

CTE.P.1	**Outcome: Students will analyze structures and styles of parenting and family systems theory and will apply them to contextual examples.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.P.1.1	Identify parenting responsibilities by listing and discussing pros and cons of being or becoming a parent.	15.1.2
	CTE.P.1.2	Evaluate and create scenarios showing financial responsibilities of parents and families.	15.1.2
	CTE.P.1.3	Identify the four types of parenting structures.	15.1.3
	CTE.P.1.4	Summarize Baumrind's Theory of three parenting styles and appraise each style's usefulness in context.	15.1.3
	CTE.P.1.5	Summarize the six elements of Bowen's Family Systems Theory and describe their relation to personal context.	15.1.3
	CTE.P.1.6	Identify the four types of family structures.	15.1.3
	CTE.P.1.7	Apply the three parenting styles and six Family Systems Theory elements to a given scenario	15.1.3

Outcome 2: Child Development and Parenting Implications

CTE.P.2	**Outcome: Students will analyze the stages of child development from birth to adolescence and discuss how each stage effects parenting styles and responsibilities.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.P.2.1	List and summarize pros and cons of being or becoming a parent	15.1.1, 15.1.2

	CTE.P.2.2	Identify the four types of familial structures	15.1.3
	CTE.P.2.3	Identify and summarize the four stages of the family life cycle	15.1.3
	CTE.P.2.4	Summarize the physical, intellectual, emotional and social development of infant-, toddler-, preschool-, school-, and adolescent-aged children.	15.2.3, 15.4.1
	CTE.P.2.5	Identify various parenting responsibilities by assessing given problem-solving scenarios regarding adolescent development. Students will generate possible solutions.	15.1.2, 15.2.3

Outcome 3: Readiness and Physiology

CTE.P.3	**Outcome: Students will demonstrate knowledge of parenting readiness including the examination of personal social-emotional, physiological, and genetic preparedness.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.P.3.1	Identify and summarize various components of physical and psychological readiness factors that contribute to being an effective and prepared parent.	15.1.2
	CTE.P.3.2	Apply readiness factors to given situations.	15.1.1, 15.2.2
	CTE.P.3.3	Analyze personal and social awareness in regard to sexuality, physiology, and contraception as it applies to reproduction.	15.4.1
	CTE.P.3.4	Identify and label physiological structures and body systems in males and females that apply to reproduction.	15.4.1
	CTE.P.3.5	Examine real-life examples of physiological processes as they relate to reproductive systems and reproduction.	15.4.1
	CTE.P.3.6	Examine fundamentals of human genetics and heredity.	15.2.3, 15.4.1
	CTE.P.3.7	List and describe various genetic anomalies that can occur during the reproductive process utilizing case-study examples.	15.4.1, 15.4.2
	CTE.P.3.8	Create a genetic offspring simulation using knowledge regarding genetics and heredity.	15.4.3

Outcome 4: Prenatal

CTE.P.4	**Outcome: Students will examine the physiological development of a fetus and the physical, social and emotional changes of the expectant parents during the prenatal period.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.P.4.1	Identify and describe the three stages of pregnancy.	15.4.1
	CTE.P.4.2	Compare and contrast fetal development within each of the seven months during the stage of the fetus.	15.4.1
	CTE.P.4.3	Identify and describe maternal symptoms within each trimester of pregnancy.	15.4.1
	CTE.P.4.4	Identify and evaluate both maternal and paternal health, medical and lifestyle options during the prenatal period.	15.4.1, 15.4.2
	CTE.P.4.5	Compare and contrast normal and abnormal maternal symptoms during pregnancy.	15.4.1, 15.4.2
	CTE.P.4.6	List and describe social-emotional and financial preparations of expectant parents during the prenatal period.	15.4.1, 15.4.2

Outcome 5: Childbirth

CTE.P.5	**Outcome: Students will examine and evaluate various methods, options, variations, and possible complications involved with childbirth.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.P.5.1	List and describe various birthing methods and labor and delivery options available to expectant parents.	15.4.1, 15.4.2
	CTE.P.5.2	Students will analyze the role of fathers and birth coaches during childbirth.	15.4.1, 15.4.2
	CTE.P.5.3	Examine possible complications during childbirth.	15.4.1, 15.4.2
	CTE.P.5.4	Compare and contrast real-life scenarios of various birthing options,	15.4.1, 15.4.2

		situations and complications.	
	CTE.P.5.5	Evaluate birthing methods, options and scenarios in order to create a labor and delivery birth plan.	15.4.1, 15.4.2

Outcome 6: Postpartum

CTE.P.6	**Outcome: Students will examine and assess options regarding neonate care, parental coping, and family health during and after the post-partum period.**		
	Local Code:	**Components:**	**NASA FACS Standards Referenced:**
		Students will:	
	CTE.P.6.1	List and describe neonate health assessments during the postpartum period.	15.4.1, 15.4.2
	CTE.P.6.2	Examine possible neonate and maternal complications during the postpartum period.	15.2.2
	CTE.P.6.3	Compare and contrast normal and abnormal neonate health and physical conditions.	15.2.2
	CTE.P.6.4	List and describe various neonate care techniques and resources available to expectant parents.	15.2.2
	CTE.P.6.5	Identify and examine scenarios that put babies and children at risk for health and developmental complications.	15.2.2
	CTE.P.6.6	Evaluate parenting choices that lead to negative repercussions for children's overall health and well-being.	15.2.2

Technology and Engineering

3D Animation

Subject:	Technology and Engineering	**Course/Grade Level:** 3D Animation	10, 11, 12
Focus Statement:	Students will create projects, import pre-made objects into projects, creating simple objects, manipulate modifiers for modeling and animation, applying maps and materials, scaling and add textures, create basic lighting concepts; man-made and natural, and rendering scenes.		

Outcome 1: Introduction to Autodesk 3D Max Design

CTE.3D.1	**Students will the processes necessary to create scenes and objects.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.1.1	Compare and utilize the various data sources that can be imported into Autodesk 3ds Max Design software.	STL 9-12.2.O	
	CTE.3D.1.2	Describe the common workflow process and components of the 3ds Max interface to help plan student visualization projects.	STL 9-12.2.R	NGSS.HS.ETS1-4
	CTE.3D.1.3	Examine the various components in the Autodesk 3ds Max Design interface.	STL 9-12.2.S	
	CTE.3D.1.4	Define the different tabs in the Preference Settings dialog box and the options available within them.	STL 9-12.2.S	

	CTE.3D.1.5	Model and animate an object moving through obstacles.	STL 9-12.11.Q	

Outcome 2: User navigation and object manipulation

CTE.3D.2	**Student will practice maneuvering and manipulating objects around a scene with the various navigation tools.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.2.1	Utilize the different navigation tools to move around in a scene using the tabs in the Viewport Configuration dialog box.	STL 9-12.12.N	
	CTE.3D.2.2	Manipulate the configuration of the viewport and move around a scene using different navigation tools.	STL 9-12.12.N	
	CTE.3D.2.3	Select and manipulate objects using the object selection tools.	STL 9-12.12.O	
	CTE.3D.2.4	Categorize by subject objects using the tools in the Layers toolbar.	STL 9-12.12.L	NGSS.HS.ETS1-4
	CTE.3D.2.5	Move several objects to a new layer and adjust the properties of the layer and of an individual object.	STL 9-12.12.O	

Outcome 3: File linking

CTE.3D.3	**Student will learn how to file link and import files into scenes.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.3.1	Compare and contrast File Linking and File Importing in the Autodesk 3ds Max Design software.	STL 9-12.3.G	NGSS.HS.ETS1-4
	CTE.3D.3.2	Utilize a Civil3D data file in a scene using Civil View by Combine entities from .DWG, .DXF, .FBX, and .RVT files into the current Autodesk 3ds Max Design scene.	STL 9-12.3.G	

	CTE.3D.3.4	Create a preset to link an AutoCAD .DWG file linked to an .RVT file and reposition the file using the Helper object.	STL 9-12.3.G	
	CTE.3D.3.5	Revise the link settings and reload the linked file.	STL 9-12.12.M	
	CTE.3D.3.6	Create a new scene file that will contain linked AutoCAD objects and XRef objects from the Civil Base scene.	STL 9-12.3.G	

Outcome 4: Primitive Creation

CTE.3D.4	**Student will create models through the use of primitive objects, cloning and grouping.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.4.1	Utilize the different kinds of primitive objects provided with the software by entering their parameters in the Command Panel.	STL 9-12.12.O	
	CTE.3D.4.2	Practice creating 2D shapes, extruded objects and primitive solids dynamically in the viewport.	STL 9-12.12.O	
	CTE.3D.4.3	Define how the different options of the Clone and Group options can be used to create copies of the same object.	STL 9-12.12.N	
	CTE.3D.4.4	Create a model as defined by the instructor.	STL 9-12.12.O	
	CTE.3D.4.5	Refine and detail the model using modifiers.	STL 9-12.12.O	
	CTE.3D.4.6	Complete and publish the model using Cloning and Groups.	STL 9-12.12.O	

Outcome 5: Boolean Operations

CTE.3D.5	Student will create solid geometry using Boolean operations that transpose 2D shapes to 3D models.			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.5.1	Investigate how to create 3D models from 2D shapes, such as lines and closed shape objects (rectangle, ellipse etc.).	STL 9-12.12.L	
	CTE.3D.5.2	Utilize the Line command then move the location of the vertex and change the shape of the curve using the Bezier handles. .	STL 9-12.12.O	
	CTE.3D.5.3	Modify an existing profile by revolving around an axis using the Lathe modifier.	STL 9-12.12.N	
	CTE.3D.5.4	Add and subtract shapes at a sub-object level using the 2D Boolean operations.	STL 9-12.12.N	
	CTE.3D.5.5	Create solid geometry for a shape by using the Lathe modifier.	STL 9-12.12.O	
	CTE.3D.5.6	Utilize 2D Booleans to change the shape of the profile for the solid geometry.	STL 9-12.12.N	
	CTE.3D.5.7	Combine two or more 3D objects to generate a third 3D object by performing Boolean operations on their geometry to add depth.	STL 9-12.12.N	
	CTE.3D.5.8	Develop instructor provided 3D walls using the Extrude modifier.	STL 9-12.12.O	
	CTE.3D.5.9	Create door openings in the walls by subtracting objects using the ProBoolean compound object.	STL 9-12.12.O	
	CTE.3D.5.10	Examine how snap options can be used to create and manipulate objects with precision.	STL 9-12.12.M	
	CTE.3D.5.11	Create a 3D geometry by extruding a cross-section along a selected spline using the Sweep modifier.	STL 9-12.12.O	
	CTE.3D.5.12	Develop and extrude a wall section from a spline to include openings for corridors and doors.	STL 9-12.12.O	
	CTE.3D.5.13	Create a vinyl baseboard object around the walls using the Sweep Modifier.	STL 9-12.12.O	

Outcome 6: Scene visualization

CTE.3D.6	**Student will create scenes though the use of visualization techniques manipulating various materials and backgrounds.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.6.1	Define the role of materials and maps in visualization as well as the physical components of materials and the different types of maps.	STL 9-12.11.N	
	CTE.3D.6.2	Create, manage, and edit materials using the Slate Material Editor by using previously created materials to different objects on the scene.	STL 9-12.12.O	
	CTE.3D.6.3	Determine how to control the color, highlights, self-illumination and other attributes of a material using its shaders.	STL 9-12.12.M	
	CTE.3D.6.4	Add materials to the existing scene and render the Light Pole model utilizing standard materials in product design visualization.	STL 9-12.12.O	
	CTE.3D.6.5	Define how transparency is controlled using Opacity Mapping, embossed or pitted appearance is obtained using Bump mapping and how glass or mirror effect is obtained using the Reflection mapping.	STL 9-12.12.N	
	CTE.3D.6.6	Explain the mental ray materials present in the software and the attributes of different types of mental ray materials.	STL 9-12.12.L	
	CTE.3D.6.7	Design a chain link fence using opacity and bump mapping, as well as the mental ray materials, shaders, and templates.	STL 9-12.11.Q	

Outcome 7: Material Mapping

CTE.3D.7	**Student will utilize material mapping to add texture and scaling to scenes and images.**

	Local Code:	Students will:	Standards for Technological Literacy	Common Core/Next Generation Science Standards.
	CTE.3D.7.1	Describe the mapping coordinates required for objects with texture maps.	STL 9-12.12.L	
	CTE.3D.7.2	Determine the size of the image map using the explicit map scaling and the continuous map scaling options.	STL 9-12.11.Q	
	CTE.3D.7.2	Assign a material to the project, which contains an image map.	STL 9-12.12.O	
	CTE.3D.7.3	Adjust the size of the image maps using the MapScaler (WSM) modifier by using the scaling options.	STL 9-12.11.O	
	CTE.3D.7.4	Apply a scanned image to a terrain model and map it accurately.	STL 9-12.12.O	

Outcome 8: Interior Lighting

CTE.3D.8	Student will develop interior lighting options for scenes.			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.8.1	Compare the default lighting that is provided with the software, the concept of local illumination and how light interacts with multiple surfaces using global illumination.	STL 9-12.11.M	
	CTE.3D.8.2	Explain in writing how the standard lights are created and the strategy behind using the standard lighting type as well as the General Parameters that are common.	STL 9-12.12.L	
	CTE.3D.8.3	Work with different types of standard light	STL 9-12.12.N	

		objects and define their specific parameter settings.		
	CTE.3D.8.4	Create and edit different types of shadow casting methods and the common parameters that can be used to control the settings of types of shadow casting methods.	STL 9-12.12.O	
	CTE.3D.8.5	Create the model interior lighting conditions without daylight.	STL 9-12.12.O	
	CTE.3D.8.6	Design spotlights to represent each interior light for ambient lighting and adjust parameters to refine the shadows.	STL 9-12.11.Q	

Outcome 9: Exterior Lighting

CTE.3D.9	**Student will develop exterior lighting options for created scenes.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.9.1	Create photometric lights and modify them by changing their parameters as well as the concept of Exposure Control and how it should be used to produce a real-world rendering.	STL 9-12.12.O	
	CTE.3D.9.2	Create and adjust photometric lights for use with mental ray.	STL 9-12.12.O	
	CTE.3D.9.3	Apply a realistic lighting to the lobby model and turn on self-illumination materials that illuminate the scene.	STL 9-12.12.O	
	CTE.3D.9.4	Use the parameters of Logarithmic Exposure Control and mr Photographic Exposure Control to create different methods of exposure control.	STL 9-12.12.O	
	CTE.3D.9.5	Prepare an interior scene for global illumination with mental ray and begin saving the Quick Renders for future reference.	STL 9-12.12.O	
	CTE.3D.9.6	Create Sunlight and Skylight and use their parameters to enhance the lighting in the scene.	STL 9-12.12.O	
	CTE.3D.9.7	Create a Daylight system with NVIDIA mental ray renderer and modify the	STL 9-12.12.O	

		parameters to get a realistic rendering of the scene.		
	CTE.3D.9.8	Light an exterior scene using an HDR image in the Image Based Lighting (IBL) technique for mental ray.	STL 9-12.12.O	

Outcome 10: Backgrounds and Timings

CTE.3D10	**Students will develop backgrounds and timings for scenes to include man-made and natural lighting and render scenes.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards.**
	CTE.3D.10.1	Define and explain the concept and working of the NVIDIA mental ray renderer.	STL 9-12.12.L	
	CTE.3D.10.2	Add global illumination to an interior scene with daylight by using the mental ray renderer.	STL 9-12.12.O	
	CTE.3D.10.3	Enhance the quality of the rendered image using additional Final Gather options.	STL 9-12.12.O	
	CTE.3D.10.4	Create, load, and save the render presets using the Render Setup dialog box, the Render Shortcuts toolbar, or the Rendered Frame Window.	STL 9-12.12.O	
	CTE.3D.10.5	Explain how to resolve face normal issues while importing/linking .DWG and .DXF files and face normal issues using double-sided materials and rendering modes.	STL 9-12.12.L	
	CTE.3D.10.6	Create scene states and render pass states using the State Sets feature as well different types of cameras and understand the associated parameters.	STL 9-12.12.O	
	CTE.3D.10.7	Apply Background Images to a single or multiple viewports and aspect ratio and safe frames to correctly display the background image in the viewport.	STL 9-12.12.O	
	CTE.3D.10.8	Develop a bitmap image as an environment map to display it in a rendered scene and as a background image to display it in the viewport.	STL 9-12.12.O	
	CTE.3D.10.9	Create a target camera and modify the	STL 9-12.12.O	

		camera and target parameters so that the scene objects are reasonably located over the background image		
	CTE.3D.10.10	Work with the animation and time controls provided with the software and set the options in the time configuration dialog box to create animation output and which approach to select.	STL 9-12.12.O	

Advanced Technical CAD

Subject:	Technology and Engineering	**Course/Grade Level:** Advanced Technical CAD	10, 11, 12
Focus Statement:	Students will apply design components of CAD to create models, processes, and assemblies.		

Outcome 1: Advanced 3D Construction Tools

CTE.TDII.1	**Student will utilize advanced 3D tools to produce a component using the sweep, loft and shell features.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDII.1.1	Understand the concepts behind the different 3D construction tools.		
	CTE.TDII.1.2	Set-up and utilize multiple work planes.		
	CTE.TDII.1.3	Define and create swept features.		
	CTE.TDII.1.4	Define and create lofted features.		
	CTE.TDII.1.5	Define and create shell features.		

Outcome 2: Sweep Feature

CTE.TDII.2	**Student will design components using addition features of the sweep command.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDII.2.1	Set-up and utilize multiple work planes.		
	CTE.TDII.2.2	Define trajectory and cross-section as it pertains to the sweep option.		
	CTE.TDII.2.3	Create swept features on dryer project.		
	CTE.TDI.2.4	Utilize the sweep option to create the base for thin walled dryer project.		

Outcome 3: Loft Feature

CTE.TDII.3	**Student will design components using addition features of the loft command.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDII.3.1	Blend multiple profiles with varying shapes.		
	CTE.TDII.3.2	Create shape profiles on parallel planes.		
	CTE.TDII.3.3	Create extruded features,		
	CTE.TDII.3.4	Utilize the loft option to create the nozzle for thin walled dryer project.		

Outcome 4: Thin Walled Dryer

CTE.TDII.4	**Student will create a thin walled dryer project and produce a scale model of it for class presentation.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDII.4.1	Compare and contrast sweep and extrude.		
	CTE.TDII.4.2	Create 3D rounds to transition between two or more swept surfaces.		
	CTE.TDII.4.3	Describe the steps in creating a pattern feature.		
	CTE.TDII.4.4	Finalize the thin walled dryer project.		

Outcome 5: Sheet Metal Processes

CTE.TDII.5	**Student will utilize various sheet metal processes to develop a project for class display.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDII.5.1	Define the 7 sheet metal processes commonly used today.		

	CTE.TDII.5.2	Define the features in a bend development.		
	CTE.TDII.5.3	Define K-Factor as it pertains to sheet metal bending.		
	CTE.TDII.5.4	Develop a pattern for a unique project of their choosing.		

Outcome 6: Sheet Metal Modeling.

CTE.TDII.6	**Student will**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDII.6.1	Compare and contrast the Flange and Face Commands.		
	CTE.TDII.6.2	List and describe 2 settings available in the sheet metal defaults.		
	CTE.TDII.6.3	Design 3 separate patterns that fit together for a given project.		
	CTE.TDII.6.4	Produce models of sheet metal patterns used in previous project.		

Outcome 7: Assembly Modeling

CTE.TDI.7	**Student will**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.7.1	Define assembly modeling methodology.		
	CTE.TDII.7.2	Describe the process of bottom-up approach to modeling.		
	CTE.TDII.7.3	Describe the process of top-down approach to modeling.		
	CTE.TDII.7.4	Describe the process of middle-out approach to modeling.		

Outcome 8: Assembly Project

CTE.TDII.8	**Student will**

	Local Code:	Students will:	C3 Framework Standards Referenced	Local Standards Referenced
	CTE.TDII.8.1	Research and create a unique assembly produced in class.		
	CTE.TDII.8.2	Design each component of assembly separately.		
	CTE.TDII.8.3	Produce assembly using 3D printer and other tools available.		
	CTE.TDII.8.4	Create bill of materials for assembly project.		

Outcome 9: Basic Motion Analysis

CTE.TDI.9	Student will			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDIII.9.1	Use the drive constraint tool to create a basic motion analysis.		
	CTE.TDII.9.2	Create a motion project to analyze data produced.		
	CTE.TDII.9.3	Understand and utilize the 3D grips editing approach.		
	CTE.TDII.9.4	Produce out for the associated simulation video.		

Architectural Drafting I

Subject:	Technology and Engineering	**Course/Grade Level:** Architectural Drafting	10, 11, 12
Focus Statement:	Students will plan and design a residence, will analyze the complexities of the building-construction industry, and will design and produce a comprehensive set of architectural plans of a residential design.		

Outcome 1: The World of Architecture

CTE.ADI.1	**Student will identify and describe the different types of home designs along with key features of each design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.1.1	Identify the historical influences that helped shape today's home designs.		
	CTE.ADI.1.2	Recognize and describe the elements of contemporary dwellings.		
	CTE.ADI.1.3	Research and discuss current trends and influences in architecture,		
	CTE.ADI.1.4	Identify types of multifamily housing.		
	CTE.ADI.1.5	Obtain a floor plan of a house from a magazine and compile a list of given features of the design.		

Outcome 2: Room Planning-Sleeping Area and Bath Facilities

CTE.ADI.2	**Student will create designs for a sleeping area and bath facilities using solid design principals.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.2.1	List and discuss the factor important in the design of bedrooms.		
	CTE.ADI.2.2	Plan the size and location of closets for a typical residence.		

	CTE.ADI.2.3	List requirements to make a bedroom accessible to the disabled.		
	CTE.ADI.2.4	Research and create important design considerations for bathrooms.		
	CTE.ADI.2.5	Plan and design a bathroom that follows solid design principles.		

Outcome 3: Room Planning-Living Area

CTE.ADI.3	**Student will create designs for a living area including entry way, porches and decks using solid design principals.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.3.1	Identify and describe the rooms and areas that comprise the living area.		
	CTE.ADI.3.2	Apply design principals to plan a living room.		
	CTE.ADI.3.3	Analyze dining room using good design principals.		
	CTE.ADI.3.4	Design a functional entry and foyer.		
	CTE.ADI.3.5	Incorporate patios, porches, courts and deck into a total floor plan of a dwelling.		

Outcome 4: Room Planning-Service Area

CTE.ADI.4	**Student will create a service area including kitchen, clothes care area and garage using solid design principals.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.4.1	Plan service area of home by applying established design principles.		
	CTE.ADI.4.2	Design a functional kitchen to meet a given family's needs.		
	CTE.ADI.4.3	Plan an efficient clothes care center.		
	CTE.ADI.4.4	Describe and create appropriate garages for various automobile designs.		

	CTE.ADI.4.5	Create two service area designs, include a clothes care center mudroom and garage.		

Outcome 5: Footings, Foundations and Concrete

CTE.ADI.5	**Student will create a functional foundation design by analyzing components of foundation planning and design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.5.1	Describe the procedure for the proper lay-out of a house location on a given site.		
	CTE.ADI.5.2	List the major considerations when designing a footing for a residential foundation.		
	CTE.ADI.5.3	Analyze a typical floor plan to determine the appropriate foundation.		
	CTE.ADI.5.4	Discuss the design considerations for wood, concrete, and masonry foundation walls.		
	CTE.ADI.5.5	Calculate the load to be supported by a beam and the purpose of a lintel.		

Outcome 6: Sill and Floor Construction

CTE.ADI.6	**Student will plan and design floor systems using appropriate data.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.6.1	Compare and contrast platform and balloon framing.		
	CTE.ADI.6.2	Plan the appropriate floor support using joist and trusses based on calculated loads and span data charts.		
	CTE.ADI.6.3	Describe the components of a floor system.		
	CTE.ADI.6.4	Explain the principles of post and beam		

		construction.		
	CTE.ADI.6.5	Research and select appropriate engineered wood products for specific applications in residential construction.		

Outcome 7: Doors and Windows

CTE.ADI.7	**Student will identify and produce plans for windows and doors used in a typical floor plan.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.7.1	List and describe the functions that doors and windows perform.		
	CTE.ADI.7.2	Compare and contrast door and window types used in residential construction.		
	CTE.ADI.7.3	Study and explain the information shown in a door and window detail plan.		
	CTE.ADI.7.4	Draw proper door and window symbols on a typical floor plan.		
	CTE.ADI.7.5	Prepare a door and window schedule for the typical floor plan.		

Outcome 8: Stairs

CTE.ADI.8	**Student will research and design a main stair case for a typical residential plan.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.8.1	Research and define common stair terminology.		
	CTE.ADI.8.2	Explain the appropriate use of the various stair designs using common stair standards.		
	CTE.ADI.8.3	Perform and present stair calculations for a given residential stairway.		

	CTE.ADI.8.4	Identify model code requirements for handrails and guardrails.		
	CTE.ADI.8.5	Design a stairwell for a residence and create structural details for the main stairs.		

Outcome 9: Capstone Project – non-traditional structure according to given specifications.

CTE.ADI.9	**Student will research, plan, create and present a working plan and scale model of a non-traditional structure according to given specifications.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADI.9.1	Analyze nontraditional structures to determine common components for a given project.		
	CTE.ADI.9.2	Analyze the uses green technology and how these uses relate to non-traditional structures.		
	CTE.ADI.9.3	Plan, design and produce a design of a non-traditional structure according to given specifications.		
	CTE.ADI.9.4	Produce and present a scale model of their non-traditional structure to the class.		

ARCHITECTURAL DRAFTING I KEY TERMS			
GEODESIC DOME	ACCORDIAN DOOR	BALOON FRAMING	PARGE COAT
OFF GRID	BIFOLD DOOR	PLATFORM FRAMING	POST FOUNDATION
NONTRADITIONAL	BAY WINDOW	BEAM	SCREED
STRUCTURE	CASEMENT WINDOW	BOX SILL	SLAB FOUNDATION
CONDUCTIVE	CLERESTORY	CANTILEVER JOIST	STEPPED
CONVECTION	WINDOW	FLOOR TRUSSES	FOUNDATION
SOLAR SPACE ENERGY	DOUBLE-HUNG	GLULAM BEAMS	T-FOUNDATION
GEOTHERMAL ENERGY	WINDOW	ENGINEERED WOOD	ISLAND KITCHEN
INSULATION	DOOR SCHEDULE	PRODUCT	CORRIDOR KITCHEN

BALUSTERS	WINDOW SCHEDULE	ORIENTED STRAND BOARD	CLOTHES CARE
GAURDRAILS	DUTCH DOOR	POST AND BEAM	CENTER
HEADROOM	FRENCH DOOR	CONSTRUCTION	WORK TRIANGLE
STRINGER	HOPPER WINDOW	SILL	FOYER
RISER	AWNING WINDOW	SUBFLOOR	GAZEBO
RISE	MULLIONS	WOOD I-BEAMS	PATIO
TREAD	POCKET DOOR	9-12-15 UNIT METHOD	PORCH
RUN	RAILS	BEARING WALL	OPEN PLAN
NOSING	SASH	CONTRACTION JOINT	½ BATH
TOTAL RISE	SILL	LIVE LOAD	¾ BATH
TOTAL RUN	SKYLIGHT	DEAD LOAD	FULL BATH
Ada	SLIDING DOOR	LINTEL	GCFI
CAPE COD	CAPE ANN	GARRISON	COOPERATIVE
	RANCH	GAMBREL	SIALT BOX

Architectural Drafting II

Subject:	Technology and Engineering	**Course/Grade Level:** Architectural Drafting II	10, 11, 12
Focus Statement:	Student will utilize knowledge of site development, foundation plans, floor plans, roof plans, elevation plans, framing details, electrical and plumbing plans, schedules and specifications, and checking procedure (models). Students will design, produce and present a complete residential plan of their choice using specifications and constraints given.		

Outcome 1: The Plot Plan

CTE.ADII.1	**Student will identify, locate, and produce a plot plan for a personal home design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADII.1.1	Identify various features shown on a typical plot plan.		
	CTE.ADII.1.2	Recognize and define typical topographical symbols on a given plot plan.		
	CTE.ADII.1.3	Properly locate a home design on a given site.		
	CTE.ADII.1.4	Draw a plot plan in CADD for their personal design using correct symbols and conventions.		

Outcome 2: The Foundation Plan

CTE.ADII.2	**Student will identify, locate and produce a foundation plan for their personal home design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADII.2.1	Identify and define the primary features included in a foundation plan.		
	CTE.ADII.2.2	Compare and contrast the difference between a foundation plan and a basement plan.		
	CTE.ADII.2.3	Design and produce a foundation plan for their PERSONAL home design using the CADD system.		

Outcome 3: The Floor Plan

CTE.ADII.3	**Student will identify, locate and produce a floor plan for their personal home design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADII.3.1	List and define the information required on a typical floor plan.		
	CTE.ADII.3.2	Create and list typical materials symbols that will be used on their home design.		
	CTE.ADII.3.3	Compare and contrast well drawn floor plans and poorly drawn floor plans.		
	CTE.ADII.3.4	Annotate a given home design plan.		
	CTE.ADII.3.5	Produce and annotate their personal home design using the CADD system.		

Outcome 4: The Roof Plan

CTE.ADII.4	**Student will identify, locate and produce a roof plan for their personal home design.**

	Local Code:	Students will:	Standards for Technological Literacy	Common Core/Next Generation Science Standards
	CTE.ADII.4.1	Name and sketch ten different types of basic roof designs.		
	CTE.ADII.4.2	List and describe the components of a typical frame roof.		
	CTE.ADII.4.3	Interpret the information found on a rafter span chart.		
	CTE.ADII.4.4	Explain the importance for attic ventilation and roof truss design.		
	CTE.ADII.4.5	Produce the chosen roof design for their individual home design using the CADD system.		

Outcome 5: The Elevation Plan

CTE.ADII.5	Student will identify, locate and produce an elevation plan for their personal home design.			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADII.5.1	List and describe the features that should be included in the elevation plan.		
	CTE.ADII.5.2	Identify the common dimensions shown on the elevation plan.		
	CTE.ADII.5.3	List and explain the symbols that are often found on elevations.		
	CTE.ADII.5.4	Produce the specified elevations for their individual home design using the CADD system.		

Outcome 6: The Electrical Plan

CTE.ADII.6	Student will identify, locate and produce an electrical plan and circuit calculations for their personal home design.

	Local Code:	Students will:	Standards for Technological Literacy	Common Core/Next Generation Science Standards
	CTE.ADII.6.1	Describe an electrical plan and identify its features.		
	CTE.ADII.6.2	Identify typical electrical symbols found on a residential electrical plan.		
	CTE.ADII.6.3	Sketch a given floor plan and calculate its circuit requirements.		
	CTE.ADII.6.4	Compare and contrast the uses of low-voltage circuits to standard-voltage circuits for residential lighting.		
	CTE.ADII.6.5	Produce the electrical plan and calculate the circuit requirements for their personal home design using the CADD system.		

Outcome 7: The Plumbing Plan

CTE.ADII.7	Student will identify, locate and produce a plumbing plan, schedule and septic layout for their personal home design.			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADII.7.1	Discuss the purpose of a residential plumbing plan.		
	CTE.ADII.7.2	Identify elements contained in a residential water supply system.		
	CTE.ADII.7.3	Identify elements contained in a residential water and waste removal system.		
	CTE.ADII.7.4	Identify and create the symbols for components of in residential plumbing.		
	CTE.ADII.7.5	Produce the plumbing plan, fixture schedule and layout for a private sewage disposal system for their		

		personal home design using the CADD system.		

Outcome 8: Schedules, Details and Presentation Plans

CTE.ADII.8	**Student will identify, locate and produce the schedules, details and presentation plans for their personal home design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADII.8.1	Explain the purpose of a presentation plan.		
	CTE.ADII.8.2	Define entourage and describe how it is used in the presentation plan.		
	CTE.ADII.8.3	Convert a CADD drawing to Revit and produce a presentation plan with lighting and walk-through of a given design.		
	CTE.ADII.8.4	Compile all schedules and detail plans for their personal home design using the CADD system.		
	CTE.ADII.8.5	Produce the presentation plan for their personal home design using Autodesk Revit.		

Outcome 9: Capstone Project – Personal House Design

CTE.ADII.9	**Student will finalize, produce and present a complete set of plans for their personal home design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.ADII.9.1	Complete the individual home plan complete with all plans and schedules.		
	CTE.ADII.9.2	Produce through plotting a working set of drawings for the individual home plan.		
	CTE.ADII.9.3	Give a presentation on their design along with an approximate cost to build their home.		

	CTE.ADII.9.4	Create a bill of materials for their individual home design.		

ARCHITECTURAL DRAFTING II KEY TERMS			
ENTOURAGE	LIGHT FIXTURE	THREE-WAY SWITCH	TRUSS
RENDERING	SCHEDULE	RECEPTICLE	GAMBREL ROOF
WALKTHROUGH	AMPERE	GRADE LINE	DORMER
ANIMATION	BRANCH CICUIT	ELEVATION	SHED ROOF
PLUMBING FIXTURE	CIRCUIT BREAKER	WALL SECTION	A-FRAME ROOF
SCHEDULE	FUSE	BOX CORNICE	SYMBOLS
WATER MAIN	OUTLET	CLEAR SPAN	DIMENSIONS
MAIN STACK	SWITCH	CORNICE	BRICK LEDGE
SEPTIC SYSTEM	GCFI	FLASHING	FOOTER
TRAP	OHM	GABLE ROOF	KEYWAY
STACK	VOLTAGE	HIP ROOF	BUILDING CODES
CLEANOUT	WATT	RAFTER	DEED
BENCHMARK	RISE	RAKE	TOPOGRAPHY
CONTOUR INTERVAL	RUN	SETBACK	ZONING
CONTOUR LINE	SHEATHING	LANDSCAPE	FOOTPRINT
PROPERTY LINE	OFFSET		

Basic CAD Drafting

Subject:	Technology and Engineering	**Course/Grade Level:** Basic CAD Drafting	10, 11, 12
Focus Statement:			

Outcome: PORTFOLIO 1

CTE.BCD.1	**Student will create several drawings using proper procedures and use the basics of line, circle and text creation to create CAD drawings..**

	Local Code:	Students will:	Standards for Technological Literacy	Common Core/Next Generation Science Standards
	CTE.BCD.1.1	Use CAD drawing commands efficiently to create basic geometry.		
	CTE.BCD.1.2	Use CAD editing commands to modify existing drawings as specified in change document.		
	CTE.BCD.1.3	Set-up drawings to be printed at given scales.		
	CTE.BCD.1.4	Practice drawing creation through step by step instruction.		

Outcome: PORTFOLIO 2

CTE.BCD.2	Student will create several drawings using proper procedures and use LAYER, OSNAP, MIRROR, COPY and OFFSET commands to create CAD drawings.			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.BCD.2.1	Modify a personalized border and title block by adding appropriate layers needed for Portfolio 2.		
	CTE.BCD.2.2	Demonstrate the proper creation of new CAD drawing using previous and new learned drafting techniques.		
	CTE.BCD.2.3	Create several CAD drawings using previous and new learned drafting techniques.		
	CTE.BCD.2.4	Prepare several created CAD drawing into layouts for turn-in.		

Outcome: PORTFOLIO 3

CTE.BCD.3	Student will develop multi-view drawing from ideas to finished product.			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**

	CTE.BCD.3.1	Explain the relationship of orthographic projection to multi-view drawings.		
	CTE.BCD.3.2	Compare and contrast the differences between first- and third-angle projection		
	CTE.BCD.3.3	Locate and create multiple views of an object needed to fully describe the size and shape.		
	CTE.BCD.3.4	Develop several multi-view drawings from the initial idea to a finished drawing using CAD techniques.		

Outcome: PORTFOLIO 4

CTE.BCD.4	**Student will be able to accurately dimension and place tolerances on technical drawings.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.BCD.4.1	Apply measurements, notes and symbols to existing technical drawings.		
	CTE.BCD.4.2	Differentiate between size, shape and location dimensions.		
	CTE.BCD.4.3	Determine precision fits and geometric tolerances for mating parts of created technical drawings.		
	CTE.BCD.4.4	Use the CAD system to create technical drawings with appropriate dimensions, notes and geometric tolerances.		

Outcome: PORTFOLIO 5

CTE.BCD.5	**Student will describe and create section views in order to show hidden areas of a part.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**

	CTE.BCD.5.1	Define and describe the purposes of drawing a section view.		
	CTE.BCD.5.2	Select appropriate type of section view to show hidden features in a part.		
	CTE.BCD.5.3	Show knowledge of creating section views describing ribs, webs, fasteners and similar features of a drawing.		
	CTE.BCD.5.4	Prepare several drawings with section vies using the CAD drafting techniques.		

Outcome 6: FINAL PROJECT

CTE.BCD.6	**Student will describe and create a working set of drawings from a reverse engineered part.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.BCD.6.1	Define and describe the purposes of drawing for a part to be reverse engineered.		
	CTE.BCD.6.2	Select appropriate type of section view to show hidden features in a reverse engineered part.		
	CTE.BCD.6.3	Show knowledge of measuring, dimensioning and creating section views describing the reverse engineered part.		
	CTE.BCD.6.4	Prepare and layout several drawings with section views using the CAD drafting techniques.		

BASIC CAD DRAFTING KEY TERMS		
CAREER PLAN CREATIVITY	COMPUTER-AIDED DRAFTING DESIGN	ENTREPRENUER MODEL SPACE

POLAR COORDINATES	VIEWPORT	CIRCUMSCRIBE
INSCRIBE	PARALLEL	PERPENDICULAR
POLYGON	FIRST-ANGLE PROJECTION	MULTIVIEW DRAWING
THIRD-ANGLE PROJECTION	VISUALIZATION	ALIGNED SYSTEM
BASIC SHAFT SYSTEM	BILATERAL TOLORANCES	DATUMS
DUAL DIMENSIONING SYSTEM	GEOMETRIC DIMENSIONING	TOLARANCING
UNILATERAL TOLARANCES	BROKEN OUT SECTION	CROSSHATCHING
FULL SECTION	HALF SECTION	OFFSET SECTION
REVOLVED SECTION	AUXILLARY SECTION	AUXILLARY VIEW
PRIMARY AUXILLARY VIEW	SECONDARY AUXILLARY VIEW	REFERENCE PLANE
AXONOMETRIC PROJECTION	CABINET OBIQUE	CAVALIER OBLIQUE
ISOMETRIC DRAWING	ISOPLANE	NORMAL OBLIQUE
VANISHING POINT		

Engineering Basics

Subject:	Technology and Engineering	**Course/Grade Level:** Engineering Basics	8

Focus Statement:	This course is designed for students to have an opportunity to expand their knowledge from Engineer Exploration. Students will learn the Engineering Design Process, Computer Aided Drafting and Design, Architecture, Manufacturing, and Basic Electrical through hands-on learning.

Outcome 1:

CTE.EB.1	**Demonstrate an ability to identify, formulate, and solve engineering problems.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.EB.1.1	Define criteria and constraints and describe their role in the Engineering Design Process.		S-MS-ETS1-1
	CTE.EB.1.2	Compare and contrast the difference between invention and innovation.	STL.6-8.9.G STL.6-8.9.H	
	CTE.EB.1.3	Understand the role and impact of engineering and engineering solutions within a global, economic, environmental, and societal context.	STL.6-8.10.F STL.6-8.10.H	S-MS-ETS1-2 S-MS-ETS1-3 S-MS-ETS1-4
	CTE.EB.1.4	Apply the engineering design process to design a system, component, or process to meet desired needs within realistic constraints.	STL.6-8.6.E	

Outcome 2:

CTE.EB.2	**Students will use Computer Aided Drafting and Design (CAD) software to design and problem-solve with design intent in mind.**

	Local Code:	Components:	Standards for Technological Literacy	Local Standards Referenced
		Students will:		
	CTE.EB.2.1	Describe and demonstrate the limitations, benefits, and applications of CAD software.		
	CTE.EB.2.2	Define and describe design intent.		
	CTE.EB.2.3	Use 3D solid modeling program.		M-HSF-IF.A.1
	CTE.EB.2.4	Identify attributes of design and how they apply to the 3d printing.	STL.6-8.8.E STL.6-8.8.G	M-8.G.C.9
	CTE.EB.2.5	Apply 3d modeling to an authentic problem to demonstrate design intent.		M-8.G.C.9

Outcome 3:

CTE.EB.4	**Students will evaluate and explain architectural plans and attributes of design and their effect on society.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.EB.4.1	Identify and describe attributes of rooms within residential design.		
	CTE.EB.4.2	Evaluate architectural plans.		
	CTE.EB.4.3	Demonstrate proper use of imperial scale.		
	CTE.EB.4.4	Design a house plan in 2d and 3d and describe its major components.		M-8.G.A.1
	CTE.EB.4.5	Build a scale (1” = 1’) model home using an Engineering Scale.		

Outcome 4:

CTE.EB.5	**Students will develop an understanding for electricity and various components.**

	Local Code:	Components:	Standards for Technological Literacy	Local Standards Referenced
		Students will:		
	CTE.EB.5.1	Explain how electricity works.	STL.6-8.5.E	S-MS-PS4-1
	CTE.EB.5.2	Define the electrical quantities.		
	CTE.EB.5.3	List and describe electrical components.		
	CTE.EB.5.4	Describe and calculate Ohm's Law.		
	CTE.EB.5.5	Design an electrical circuit and explain its function.		

Engineering Explorations

Subject:	Technology and Engineering	**Course/Grade Level:** Engineering Exploration	7
Focus Statement:	This course is designed for students to have an opportunity to explore the integration of technology and engineering while supporting high levels of science and math thinking and learning. Students will learn the Engineering Design Process, Measurement, C.A.D. basics, Technical Drawings, and Principles of Engineering.		

Outcome 1:

CTE.EE.1	**Students will define and apply basic concepts of the Engineering Design Process, including its role in STEM within society.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.EE.1.1	Define technology and engineering, and identify their role in society.	STL.6-8.1.F STL.6-8.7.C	
	CTE.EE.1.2	List and describe the Engineering Design Process.	STL.6-8.9.G STL.6-8.9.H	S-MS-ETS1-1
	CTE.EE.1.3	Apply the steps of the Engineering Design Process to a project.	STL.6-8.10.F STL.6-8.10.H	S-MS-ETS1-2
	CTE.EE.1.4	Demonstrate how to troubleshoot problems that occur when applying the Engineering Design Process.	STL.6-8.10.F	S-MS-ETS1-4

Outcome 2:

CTE.EE.2	**Students will create, manipulate, and apply Computer Aided Drafting and Design concepts.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.EE.2.1	Produce 2 dimensional (2d) and 3 dimensional (3d) sketches to a given project.		M-7.RP.A.1 M.7.G.A.2
	CTE.EE.2.2	Create technical drawings using the X, Y coordinate system.		M.7.G.B.4
	CTE.EE.2.3	Create 3d Models using software by incorporating the Z coordinate.		M.7.G.B.6

Outcome 3:

CTE.EE.3	**Students will solve problems involving measurement and conversion of measurements using engineering tools.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.EE.3.1	Identify, describe, and apply the use of standard measurement.	STL.6-8.3.D	
	CTE.EE.3.2	Demonstrate an ability to identify, formulate, and solve tape measurement fractions		S-MS-PS3-2
	CTE.EE.3.3	Compare the use of various architectural scales to design simple shapes.	STL.6-8.3.D	S-MS-PS3-5

Outcome 4:

CTE.EE.4	Students will design and analyze isometric and 3-view drawings.			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.EE.4.1	Use visualization, spatial reasoning, and geometric shapes to sketch two and three dimensional shapes.	STL.6-8.20.F	M-7.G.A.1
	CTE.EE.4.2	Create thumbnail, perspective, isometric, and orthographic sketches.	STL.6-8.20.F	
	CTE.EE.4.3	Communicate ideas for a design using various sketching methods and drafting views.		M-7.RP.A.1

Introduction to Manufacturing

Subject:	Technology and Engineering	**Course/Grade Level:** Introduction to Manufacturing	10, 11, 12
Focus Statement:	Students will analyze the fundamentals of manufacturing and historical impacts of manufacturing, and will apply these principles to design and build personal projects.		

Outcome 1:

CTE.MAN.1	**Students will identify and describe manufacturing and its role in society.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.MAN.1.1	Research and present historical, significant milestones, and economic impacts of manufacturing.	STL.9-12.1.J	
	CTE.MAN.1.2	Summarize the primary systems of manufacturing industries.		
	CTE.MAN.1.3	Identify and research careers, career fields, and educational requirements for numerous occupational areas within the field of manufacturing;		
	CTE.MAN.1.4	Describe the role of manufacturing in meeting consumer wants, needs, and expectations.	STL.9-12.19.R	

Outcome 2:

CTE.MAN.2	**Students will be identify and explain attributes of various manufacturing processes.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE. MAN.2.1	Describe how raw materials are transformed using the primary	STL.9-12.19.N	

		processes.		
	CTE. MAN.2.2	Identify the three most commonly used standard stocks (metals, polymers, and ceramics).		
	CTE. MAN.2.3	Identify and explain the six types of secondary processes (castings/molding, forming, separating, conditioning, assembling, and finishing).	STL.9-12.19.O	
	CTE. MAN.2.4	Explain and give examples of how the standard stocks are used with the secondary processes.	STL.9-12.19.Q	

Outcome 3:

CTE.MAN.3	**Students will work through the process of manufacturing a given product from start to finish.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.MAN.3.1	Analyze given prints on to produce products from them.	STL.9-12.17.Q	
	CTE.MAN.3.2	Identify materials and calculate cost of producing given projects.		
	CTE.MAN.3.3	Explain and demonstrate how to use tools safely.		
	CTE.MAN.3.4	Explain how to produce given products using the provided tools appropriately and safely.		
	CTE.MAN.3.5	Produce a given project.		

Outcome 4:

CTE.MAN.4	**Students will apply the design process to work through process of manufacturing an authentic product from start to finish.**			
	Local Code:	**Components:**	**Standards for Technological Literacy**	**Local Standards Referenced**
		Students will:		
	CTE.MAN.4.1	Create prints for an authentic	STL.9-12.17.Q	

		production project.		
	CTE.MAN.4.2	Create a materials list and calculate cost of production.		
	CTE.MAN.4.3	Identify the tools needed and explain how they will be used safely.		
	CTE.MAN.4.4	Produce their authentic project.		

Pre-Engineering I

Subject:	Technology and Engineering	**Course/Grade Level:** Pre-Engineering I	10, 11, 12
Focus Statement:	Students will apply the Engineering Design Process, 3D Modeling, and problem-solving techniques to create basic 3D designs.		

Outcome 1: Nature of Technology Engineering

CTE.PE1.1	**Students will analyze and compare STEM and their effects on unsuccessful and successful historical engineering milestones.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.PE1.1.1	Identify the characteristics and scope of technology.	STL.9-12.1.J	
	CTE.PE1.1.2	Analyze and describe the core concepts of technology.	STL.9-12.2.N STL.9-12.2.P	
	CTE.PE1.1.3	Compare and contrast unsuccessful and successful engineering achievements.	STL.9-12.7.I	NGSS.HS.ETS 1-1
	CTE.PE1.1.4	Analyze the relationship of technologies and the connection between STEM areas.	STL.9-12.13.J	

Outcome 2: Mathematics/Science and Engineering

CTE.PE1.2	**Student will integrate and evaluate math and science connections using diverse formats and media that are quantitative verbally and visually**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.PE1.2.1	List and describe the three levels of mathematics engineers' use. (ratios, reciprocals, and algorithms)		CC.M.HSN-Q.A.1

	CTE.PE1.2.2	Discuss how probability and statistics affect design.	STL.9-12.13.J STL.9-12.13.M	CC.M.HSS-ID.A.2
	CTE.PE1.2.3	List and describe how applications of geometry and trigonometry affect engineering.		
	CTE.PE1.2.4	Describe how the four fields of science are integrated in engineering. (physics, earth science, chemistry, and physics)	STL.9-12.3.J	
	CTE.PE1.2.5	Identify and present a physics topic that influenced engineering.	STL.9-12.3.J	

Outcome 3 Engineering Design Process

CTE.PE1.3	**Student will identify, explain and discuss the engineering design process.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.PE1.3.1	Identify and describe the attributes of design.	STL.9-12.9.I STL.9-12.9.L	NGSS.HS.ETS1-2
	CTE.PE1.3.2	Memorize design process steps and identify the components of the design process within a given project.	STL.9-12.2.O STL.9-12.2.P	
	CTE.PE1.3.3	Demonstrate the reasons why thorough documentation is important.	STL.9-12.8.I STL.9-12.8.J	NGSS.HS-ETS1-2
	CTE.PE1.3.4	Assess design constraints.		
	CTE.PE1.3.5	Memorize design process steps and identify the components of the design process within a given project.	STL.9-12.1.L	CC.M.HS-MG.A.3
	CTE.PE1.3.6	Identify various research involved in developing an engineering project.		
	CTE.PE1.3.7	Demonstrate the importance of prototyping.		

Outcome 4: Computer Design

CTE.PE1.4	**Student will demonstrate skills in sketching, computer-aided drafting and 3D design.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**Common Core/Next Generation Science Standards**
	CTE.PE1.4.1	Identify and demonstrate the sketching skills and techniques used by engineers.	STL.9-12.17.P	CC.M.HSG-CO.A.1 CC.M.HSG-CO.A.4
	CTE.PE1.4.2	List and demonstrate the different types of lines used in engineering drawings.		
	CTE.PE1.4.3	Illustrate the different types of drawings used to create visual representation.		
	CTE.PE1.4.4	Demonstrate the methods of generating three-dimensional models.		CC.M.HSG-CO.A.1 CC.M.HSG-CO.A.12
	CTE.PE1.4.5	Analyze the features and purpose of a prototype.		

Outcome 5: Problem-Solving Systems

CTE.PE1.5	**Student will identify and explain the systems that engineer use to solve given problems.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**CCSS/Next Generation Science Standards**
	CTE.PE1.5.1	Identify and contrast natural, handmade, and machine-made systems.	STL.9-12.2.Q STL.9-12.2.R	

	CTE.PE1.5.2	Explain the difference between open-loop and closed-loop systems.	STL.9-12.2.N	
	CTE.PE1.5.3	List and explain the common elements of the Universal System Model.	STL.9-12.2.N	
	CTE.PE1.5.4	Apply the Universal Systems Model to create an engineered system.		
	CTE.PE1.5.5	Discuss the challenges of developing new systems to work with existing systems.	STL.9-12.19.P	

Outcome 6: Capstone project

CTE.PE1.6	**Student will utilize a variety of materials and types of fabrication to create a capstone project.**			
	Local Code:	**Students will:**	**Standards for Technological Literacy**	**CCSS/Next Generation Science Standards**
	CTE.PE1.6.1	Identify characteristics used to classify and categorize both natural and synthetic materials.		
	CTE.PE1.6.2	Evaluate and apply the process of choosing materials for a project.		
	CTE.PE1.6.3	Explain how the strength of a material can be established.	STL.9-12.19.N	
	CTE.PE1.6.4	Compare and contrast manufacturing and construction.		
	CTE.PE1.6.5	Analyze how fabrication techniques affect the design process.	STL.9-12.11.Q	

CONTENT VOCABULARY		ACADEMIC VOCABULARY	
ELECTRONIC SCIENCE TECHNOLOGY MATHEMATICS ENGINEERING ELECTRIFICATION BIOMEDICAL PROSTHETIC MANUFACTURER QUALITY CONTROL CONSULTANTS INTELLECTUAL PROPERTY PATENT DISCLOSURES STAKEHOLDERS ERGONOMICS ANTHROPOMETRIC DATA REVERSE ENGINEERING ORTHOGRAPHIC ISOMETRIC VIABLE DECISION MATRIX PROTOTYPE	PROBABILITY QUADRATIC ITERATION SPACE WAVEFORMS DERIVATIVES POTENTIAL ENERGY KINETIC ENERGY FORCE FLUID MECHANICS HYDROLOGY HYDROCARBONS COMPUTER-AIDED DESIGN SCALE WORKING DRAWING TOLERANCES ALLOYS RENDERING OPTIMIZE COMPUTER SIMULATIONS MOCKUP	DESIGN PROCESS CONCEPTS RESOURCES ENERGY CONSTRAINTS RESEARCH GOAL CRITERIA RELIABLE RELEVENT FLEXIBLE STATISTICAL ANALYSIS	RATIO INDICATOR RATIONAL DEVIATIONS COMPOUNDS DEVICE DRAFTING DIMENSIONS PERSPECTIVE PARAMETERS VARIABLES

Technical CAD Drafting

Subject:	Technology and Engineering	**Course/Grade Level:** Technical CAD Drafting	10, 11, 12
Focus Statement:	Students will produce working drawings, models, and plans and utilize these products to create original designs.		

Outcome 1: Fasteners

CTE.TDI.1	**Student will be able to identify, describe, draw and produce threaded fasteners using CAD and 3D printers.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.1.1	Identify and describe 9 common types of fasteners.		
	CTE.TDI.1.2	Define common screw-thread terms		
	CTE.TDI.1.3	Draw detailed, schematic and simplified thread representations.		
	CTE.TDI.1.4	Develop and produce representations of various types of threaded fasteners using the 3D printer.		

Outcome 2: Working Drawings

CTE.TDI.2	**Student will be able to read, understand and produce a set of working drawing including bills of materials.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.2.1	Identify and describe the 6 common types of working drawings.		
	CTE.TDI.2.2	Explain the procedure for checking a set of working drawings.		

	CTE.TDI.2.3	Set up and produce a set of working drawings.		
	CTE.TDI.2.4	Develop a standard bill of materials.		

Outcome 3: Pattern Development

CTE.TDI.3	**Student will be able to prepare and produce patterns for models from the laser cutter.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.3.1	Research and explain how pattern development is used in the packaging industry.		
	CTE.TDI.3.2	Describe the general principles of the 3 main types of pattern development.		
	CTE.TDI.3.3	Explain the purpose of transition pieces and intersections.		
	CTE.TDI.3.4	Prepare and produce patterns using parallel-line, radial-line, triangulation and prism/cylinder development from the laser cutter.		

Outcome 4: Welding Drafting

CTE.TDI.4	**Student will be able to read, draw welding plans that will be used to construct a part in the shop.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.4.1	Identify the type and quality of the type of joints and welds.		
	CTE.TDI.4.2	Compare and contrast fusion welding and resistance welding.		
	CTE.TDI.4.3	Produce a set of welding drawings to include symbols.		
	CTE.TDI.4.4	Construct a project using both Mig and Tig processes.		

Outcome 5: Cams and Gears

CTE.TDI.5	**Student will identify and create gear and cam drawings, they will also design and create a set of gears and cams for a machine project.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.5.1	Define and explain the purposes and applications of gears and cams.		
	CTE.TDI.5.2	Describe the 3 main types of cam motion.		
	CTE.TDI.5.3	Describe the features of a typical gear drawing.		
	CTE.TDI.5.4	Develop a gear tooth drawing that will as part of a machine.		

Outcome 6: Parametric Modeling Fundamentals

CTE.TDI.6	**Student will use feature-based parametric modeling techniques to incorporate the original design intent into the construction of the model.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.6.1	Create Simple Extruded Solid Models		
	CTE.TDI.6.2	Understand the basic parametric modeling procedure and create 2-D sketches.		
	CTE.TDI.6.3	Understand the “Shape before Size” design approach.		
	CTE.TDI.6.4	Use the Dynamic Viewing Commands to create and edit parametric dimensions		

Outcome 7: Constructive Solid Geometry

CTE.TDI.7	**Student will utilize the CSG method known as the Machinist's Approach, as the method is parallel to machine shop practices.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.7.1	Understand constructive solid geometry concepts.		
	CTE.TDI.7.2	Understand the basic Boolean operations.		

	CTE.TDI.7.3	Understand the importance of order of features.		
	CTE.TDI.7.4	Create placed features and use the different extrusion options.		

Outcome 8: Datum Features and Auxiliary Views

CTE.TDI.8	**Student will utilize their understanding of work features and various creation techniques to produce work features including 2D drawings and 2D shaded images.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.8.1	Understand the concepts and the use of work features.		
	CTE.TDI.8.2	Using the different options to create work features.		
	CTE.TDI.8.3	Creating auxiliary views in 2D drawing mode.		
	CTE.TDI.8.4	Create shaded images in the 2D drawing mode.		

Outcome 9: Symmetrical Features in Design

CTE.TDI.9	**Student will use *Feature-based parametric modeling* to build complex designs by working on smaller and simpler units.**			
	Local Code:	**Students will:**	**C3 Framework Standards Referenced**	**Local Standards Referenced**
	CTE.TDI.9.1	Create revolved features and circular patterns.		
	CTE.TDI.9.2	Use the mirror feature command.		
	CTE.TDI.9.3	Create and modify linear dimensions.		
	CTE.TDI.9.4	Use Autodesk Inventor's associative functionality to identify symmetrical features in designs.		