EMERGING TRENDS IN IT		
CURRICULUM/CONTENT AREA	COURSE LENGTH	
Computer Science	One Semester (or One Year w/ LAUNCH)	
GRADE LEVEL	DATE LAST REVIEWED	
9 - 12	2022 (new)	
PREREQUISITE(s) if applicable	BOARD APPROVAL DATE	
None	11/15/2022	
PRIMARY RESOURCE if applicable		

### DESIRED RESULTS

## COURSE DESCRIPTION AND PURPOSE

This course provides students the opportunity to choose from multiple current trends in IT to build their own unique course of study. Computer programming concepts, problem solving techniques and communication skills will be the foundation of every student's experience. Online learning tools and mentors will support students learning throughout the course. Guided by their own interests, students will have multiple opportunities to earn industry recognized certifications for their achievements.

ENDURING UNDERSTANDINGS Students will understand that	ESSENTIAL QUESTIONS Students will keep considering	
Creativity, innovation, and critical thinking are essential for success in a technologically advanced world.	Why is creativity and innovation important? How is creativity and innovation used in Computer Science?	
	How do teams efficiently and effectively solve problems in an increasingly complex world?	
	What strategies and processes can I use to become a more effective creator, thinker and problem solver?	
The ability to communicate and collaborate with people with diverse backgrounds and perspectives is key to participation in a global economic society.	Why is communication and collaboration important? How do positive work behaviors and personal qualities impact communication and collaboration?	
	What is effective teamwork? What strategies can I use/teams use to work better together? How can perspectives and experiences of a diverse group develop innovative solutions to a given problem?	
Career and technical education provides pathways to high-demand, high-wage career opportunities, and personal fulfillment.	Why is career and life readiness important? What jobs and careers are available to meet individual and societal needs locally, regionally, and nationally?	
	How might technical knowledge and skills influence one's employability and advancement opportunities within various work settings?	
	What are employability skills? How do I prepare myself for a career that is in demand now and in 5, 10, or 20 years from now?	

# PRIORITY CAREER & TECHNICAL STANDARDS

## Students will be skilled at...

Creativity, Critical Thinking, Communication and Collaboration

4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills.

- a: I develop effective resolutions for a given problem, decision or opportunity using available information.
- b: I develop and implement a resolution for a new situation using personal knowledge and experience.

#### **Career Development**

- CD4: Students will identify and apply employability skills.
- a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.
- b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
- c: I identify and exhibit traits for retaining employment.
- d: I develop positive relationships with others.

#### Information, Media, Technology

IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives.

- a: I choose appropriate sources of data and information for a given purpose.
- b: I determine the relevance, validity and timeliness of data and information.
- c: I select relevant information necessary for making decisions and solving problems
- d: I apply data and information to communicate ideas and create new opportunities.

PRIORITY CONTENT STANDARDS Students will know	
Standard AP2: Students will create computational artifacts using a	lgorithms and programming
Potential INDUSTRY-RECOGNIZED CREDENTIALS (IRCs) Opportunties associated with the course	Potential WORK BASED LEARNING (WBL) opportunities associated with the course
<u>IC3</u>	
Certifport: IT Specialist- Java, Java Script, Python, and/or software development	
Potential DUAL CREDIT Opportunties associated with the course	

	Unit 1 - IT Fundamentals	
STAGE 1: Desired Unit Results What will students understand as a result of the unit?		STAGE 2: Assessment Evidence By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate
ESSENTIAL	QUESTION (s)	the desired unit results? Success Criteria with Standards
		The criteria for evaluating performance on standards is constant.
locally, regionally, and nationally?		CTE standards-based Rubric: Throughout the course, students and teachers use the rubric for communication of success criteria, reflection, goal setting, and feedback.
What are employability skills? How do I prepare myself for a now?		In their portfolio/evidence journal, students will reflect on the essential questions through a quick write, constructed response.
	L STANDARDS & Learning Targets	Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Creativity, Critical Thinking, Communication and Collaborati 4C2: Students will formulate and defend judgments and dec		
a: I develop effective resolutions for a given problem, decision or opportunity using available information.	4C2.a.11.h: I can determine the information needed to address an identified problem.	Develop a prioriitized task list solve a problem.
	4C2.a.12.h: I can contrast the benefits and drawbacks of various proposed resolutions to a given situation.	Collaborate with team members to determine the best fit solution to a probleem.
	4C2.a.15.h: I can determine the best resolution for a problem, decision or opportunity based on given criteria.	Use project requirements to guide the development of a solution.
b: I develop and implement a resolution for a new situation using personal knowledge and experience.	4C2.b.5.h: I can apply past experience to develop a course of action for a new situation.	Compare and contrast the ways technology has effected communication in the workplace.
	4C2.b.6.h: I can use existing knowledge to develop a resolution for a new situation, problem or opportunity.	Develop an education plan to achieve the requirements for a specific IT career.
Career Development CD4: Students will identify and apply employability skills.		
a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.	CD4.a.9.h: I can use positive workqualities typically desired in each of the career cluster's pathways.	Arrive on-time to all classes and meetings.
	CD4.a.10.h: I can manage work roles and responsibilities to balance them with other life roles and responsibilities.	Participate in a group discussion about the importance of time management.
c: I identify and exhibit traits for retaining employment.	CD4.c.4.h: I can model behaviors that demonstrate reliability and dependability.	Use electronic communication between teacher, team members, and mentors.
d: I develop positive relationships with others.	CD4.d.7h: I can examine the skills required to enable students to successfully transition to postsecondary opportunities.	Research and list the top skills and traits needed to be successfull at the post secondary level.
Information, Media, Technology IMT1: Students will access, interpret and evaluate information premises, arguments, decisions, ideas and initiatives.	on from a variety of sources in order to inform and support	
and information.	IMT1.b.7.h: I can use raw data and information appropriately to support an argument, idea or initiative.	Research and present the growth of IT careers over the last ten years.
<ul> <li>c: I select relevant information necessary for making decisions and solving problems</li> </ul>	IMT1.c.6.h: I can interpret and select appropriate information to develop a resolution for a given situation.	it more useful and reliable.
	IMT1.d.7.h: I can synthesize data and information from multiple sources to identify new trends.	Reflect on findings/discoveries during the project process and pivot next steps when necessary.
	IMT1.d.8.h: I can manage and share stored data and information for a specific purpose.	Use project management tools to share project progress with team members, mentors, and teachers.
PRIORITY CONTENT STAF	NDARDS & Learning Targets	Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
using algorithms and programming	I can use user-centered research and design techniques (e.g., surveys, interviews) to create software solutions. I can integrate grade-level appropriate mathematical techniques, concepts, and processes in the creation of computational artifacts. I can use mathematical operations to change a value stored in a variable I can decompose a computational problem by creating new data types, functions, or classes. I can develop programs for multiple computing platforms (e.g., computer desktop, web, mobile). I can implement an Artificial Intelligence (AI) algorithm to play a game against a human opponent or solve a problem. I can demonstrate code reuse by creating programming solutions using libraries and application program interfaces (APIs) (e.g., graphics libraries, maps, API). I can convert between binary, decimal, and hexadecimal	Write and implement a solution to a computational problem.
using data and analysis	representations of data (e.g., convert hexadecimal color codes to decimal percentages, ASCII/ Unicode representation). I can analyze the representation tradeoffs among various forms of digital information (e.g., lossy vs. lossless compression, encrypted vs. unencrypted, various image representations). I can discuss how data sequences (e.g., binary, hexadecimal, octal) can be interpreted in a variety of forms (e.g., instructions, numbers, text, sound, image). Stage 3: Learning Activities	representing complex systems. relevant, accessible, and engaging? How will the learning unforld in a

GUIDING UNIT QUESTIONS Using Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	STRATEGIES/ACTIVITIES What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	RESOURCES/MATERIALS This includes an applicable textbooks, software, industry recognized certification software/tools, subcriptions (such asPLTW), etc.
What are the steps of the programming process?	Problem solving activities.	Students will need access to project management software. Many versions are free. LAUNCH and the school district may wish to purchase a solution that could be globaly adobted.
Why is project management important?	Students will use project management software to track their teams performance throughout projects.	Access to LAUNCH resources for college and career preperation. (Project and time management, professional communication, team norms)
Why use an Agile strategy for solution development?	Discuss industry recognized certifications with mentors and hiring managers.	
What are the importance of industry recognized certifications?		

What will students unders ESSENTIAL of What thought-provoking questions will foster in Why is career and life readiness important? What jobs and cally, regionally, and nationally?	Unit 2 - Programming Certification red Unit Results trand as a result of the unit? QUESTION (s) nquiry, understanding, and transfer of learning? d careers are available to meet individual and societal needs	STAGE 2: Assessment Evidence By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results? Success Criteria with Standards The criteria for evaluating performance on standards is constant. CTE standards-based Rubric: Throughout the course, students and
What thought-provoking questions will foster in Why is career and life readiness important? What jobs and cally, regionally, and nationally?	nquiry, understanding, and transfer of learning?	The criteria for evaluating performance on standards is constant.
Why is career and life readiness important? What jobs and cally, regionally, and nationally?		
hat are employability skills? How do I prepare myself for a	locally, regionally, and nationally?	
w?	career that is in demand now and in 5, 10, or 20 years from	reflection, goal setting, and feedback. In their portfolio/evidence journal, students will reflect on the essential questions through a quick write, constructed response.
PRIORITY CAREER & TECHNICAL	L STANDARDS & Learning Targets	Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
reativity, Critical Thinking, Communication and Collaboratio C2: Students will formulate and defend judgments and deci		
I develop effective resolutions for a given problem,	4C2.a.11.h: I can determine the information needed to address an identified problem.	Determine an appropriate program design to solve a problem or accomplish a task.
cision or opportunity using available information.	4C2.a.12.h: I can contrast the benefits and drawbacks of various proposed resolutions to a given situation.	Determine if two or more code segments yield equivalent results.
	4C2.a.13.h: I can predict how an action could result in unintended consequences, both positive and negative.	Use test-cases to find errors or validate results.
	4C2.a.14.h: I can analyze the impact of a decision using a	Determine code that would be used to complete code segments.
	systems thinking model. 4C2.a.15.h: I can determine the best resolution for a problem, decision or opportunity based on given criteria.	Determine an appropriate program design to solve a problem or accomplish a task.
	, , ,	accompilish a task. Determine the result or output based on statement execution order in a code segment.
	4C2.b.6.h: I can use existing knowledge to develop a resolution for a new situation, problem or opportunity.	Describe the behavior and conditions that produce identified results i a proaram.
areer Development	resolution of a new stradinon, problem of opportunity.	
D4: Students will identify and apply employability skills. I identify and demonstrate positive work behaviors and	CD4.a.9.h: I can use positive workqualities typically desired in each of the career cluster's pathways.	Arrive on-time to all classes and meetings.
ersonal qualities needed to be employable. I identify and exhibit traits for retaining employment.	. ,	Use electronic communication between teacher, team members, and mentors .
: I develop positive relationships with others. CD4.d.7.h: I can examine the skills required to enable students to successfully transition to postsecondary		Research and list the top skills and traits needed to be successfull at the post secondary level.
It is tradents will access, interpret and evaluate information remises, arguments, decisions, ideas and initiatives. I determine the relevance, validity and timeliness of data		Determine an appropriate program design to solve a problem or
nd information.	to support an argument, idea or initiative.	accomplish a task. Collect data using computational tools and transform the data to make
ecisions and solving problems	to develop a resolution for a given situation. IMT1.d.6.h: I can defend a proposal for a new product or	to meet data being comparison notes and industriant to be and the source of the source
eate new opportunities.	service based on data and information analysis.	refinement of hypotheses.
PRIORITY CONTENT STAN	NDARDS & Learning Targets	Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
sing algorithms and programming	I can use user-centered research and design techniques (e.g., surveys, interviews) to create software solutions. I can integrate grade-level appropriate mathematical techniques, concepts, and processes in the creation of computational artifacts. I can use mathematical operations to change a value stored in a variable I can decompose a computational problem by creating new data types, functions, or classes. I can develop programs for multiple computing platforms (e.g., computer desktop, web, mobile). I can implement an Artificial Intelligence (AI) algorithm to play a game against a human opponent or solve a problem. I can demonstrate code reuse by creating programming solutions using libraries and application program interfaces (APIS) (e.g., graphics libraries, maps, API).	Write and implement a solution to a computational problem.
sing data and analysis	I can convert between binary, decimal, and hexadecimal representations of data (e.g., convert hexadecimal color codes to decimal percentages, ASCII/ Unicode representation).	Use data analysis tools and techniques to identify patterns in data representing complex systems.
	I can analyze the representation tradeoffs among various forms of digital information (e.g., lossy vs. lossless compression, encrypted vs. unencrypted, various image representations). I can discuss how data sequences (e.g., binary, hexadecimal, octal) can be interpreted in a variety of forms (e.g., instructions, numbers, text, sound, image). Stage 3: Learning Activities	

GUIDING UNIT QUESTIONS Using Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	STRATEGIES/ACTIVITIES What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	RESOURCES/MATERIALS This includes an applicable textbooks, software, industry recognized certification software/tools, subcriptions (such asPLTW), etc.
How do you store data in a computer?	Write programs that receive data from the user, store that data, and display the data to the user.	Students will need access to an IDE to write their programs. <u>VS Code</u> supports multiple programming languages.
How does a computer make a decision?	Write programs that use decision structures to change the program flow during program execution.	Students will need access to certification resources.
How can itteration help to solve problems?	Write programs that us itteration structures to solve a problem.	Access to LAUNCH resources for college and career preperation. (Project and time management, professional communication, team norms)

CVGC 1: Depared Up is basis What is a control of a control of a control of a control is control of a control of a control of a control of a control is control of a control of control of a control of a control of a control of a co		Unit 3 - Emerging Trends in IT - Student Choice	
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<ul> <li>workes proposed resolutions to agiven shadon, workes proposed resolutions to agiven shadon, workes proposed resolutions to agiven shadon.</li> <li>Bet tele-cases to find errors or wildote results.</li> <li>Bet tele-cases to find errors or wildot</li></ul>	a: I develop effective resolutions for a given problem, decision or opportunity using available information.	4C2.a.11.h: I can determine the information needed to	Research information about a topic to solve a problem or accomplish a task.
Application         Determine resources necessary to implement a proposed solution to systems finking model.         Determine resources necessary to implement a proposed solution to problem.           C2:2:5:5:1:Can determine the base resolution for a problem.         C2:2:5:5:1:Can determine the base resolution for a problem.         Determine resources necessary to implement a proposed solution to problem.           C2:2:5:5:1:Can determine the base resolution for a problem.         Use project requirements to guide the development of a solution.           C2:2:5:5:1:Can determine the base resolution for a new situation, problem or exportantly.         Usitize IT Fundamentals and programming skills to solve a problem.           C2:2:5:5:1:Can use existing involved detables to the correct outset's pathways.         The construction of a new situation, problem or exportantly.           C1:1:Can detable the hard on a climit to the correct outset's pathways.         C1:1:Can Struction detables the correct outset's pathways.           C1:1:Can detable the correct outset's pathways.         C1:1:Can Struction detables the correct outset's pathways.           C1:1:Can detable the correct outset's pathways.         Vertermine resources necessary to implement a proposed solution.           C1:1:Can detable the correct outset's pathways.         Vertermine resources necessary to implement a pathways.           C1:1:Can detable the correct outset's pathways.         Vertermine resources necessary to implement a proposed solution.           C1:1:Can detable the correct outset's pathways.         Vertermine resources necessary t	·····	4C2.a.12.h: I can contrast the benefits and drawbacks of	Debate the resources, services, and costs between multiple solution
exatement binking model.         problem.           422.a15.1: Can determine the best resolution for a province.         Use project requirements to guide the development of a solution.           C2.a16.b: I can use existing knowledge to develop or a decision for a province.         Present the process, emphasizing the impact of decisions made, user to a solution for a new situation for a new situation.           Existence of the comparison problem comparison.         C2.b6.b: I can use existing knowledge to develop or problem.           Existence of the comparison problem comparison.         CDA.a.bit: I can use positive workqualities typically desired in each of the correct duark's pothycy.         Arrive on-time to all classes and meetings.           Existence of the correct duark's pothycy.         CDA.a.bit: I can use positive workqualities typically desired in each of the correct duark's pothycy.         Arrive on-time to all classes and meetings.           Existence of the correct duark's pothycy.         CDA.a.bit: I can use positive workqualities typically desired in each of the correct duark's pothycy.         Arrive on-time to all classes and meetings.           Existence of the correct duark's pothycy.         Con use user-centered research and design techniques.         We electronic communication by the given opticion.           Existence of the correct duark's pothycy.         Con use user-centered research and design techniques.         We and implement a solution to a computational problem.           Existence of the correct duark is pothycy.         Con use mothycetter or ease by coreding rew.offficane and po			Use test-cases to find errors or validate results.
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Implemented.       into a existing showledge to develop a to develop problem.       It is a solve a problem.         Correr Development       Utilize TT Fundamented and programming skills to solve a problem.         Correr Development       CMA 0.11: Con use existing showledge to develop item or opportunity.         Correr Development       CMA 0.11: Con use positive voltaurities splication or opportunity.         Correr Development       CMA 0.11: Con use positive voltaurities splication or opportunity.         Correr Development       CMA 0.11: Con use positive voltaurities splication or opportunity.         Correr Development       CMA 0.11: Con use positive voltaurities splication or opportunity.         Correr Development       CMA 0.11: Con use positive voltaurities splication or opportunity.         Correr Development       CMA 0.11: Con use positive voltaurities and design behaviors that demonstrate reliability.         Use electronic communication behaves to a problem.       CMA 0.11: Con use arcsent and design behaviors that demonstrate positive voltaurities.         Icon integrate grade-level opportion mothemotical to performance.       To computational affords.         Icon integrate grade-level opportion to themotical techniques.       Consequence on the consequence on the computational problem.         Icon integrate grade-level opportion to themotical techniques conceptions to change a volue stored in a vortable.       Consequence on the consequence on the computational problem.         Icon integrate grade-lev			Use project requirements to guide the development of a solution.
Cover: Devolvement     Cover: Devolvemen			Present the process, emphasizing the impact of decisions made, used to solve a problem.
Dut: Students will identify and gaply employability kills.       Image: Students will identify and gaply employability kills.         I cliently and exhibit traits for retaining employability kills.       CD4 4.9 LF can use be stree cluster's pathways.       Are on-time to all classes and meetings.         I cliently and exhibit traits for retaining employability kills.       CD4 4.9 LF can mode behaviors that demonstrate reliability.       Use electronic communication between teacher, team members, and mentors.         Reformance Tasks Options/ Assessment Strategies by Standard Berls Standards and programming       CD4 4.9 LF can mode behaviors that demonstrate reliability.       We end implement a solution to a computational artifacts.         I can use user-centered research and design techniques.       Reformance Tasks Options/ Assessment Strategies by Standard Berls Standards and programming in variable ways. Interviewaits or create software solutions.       We end implement a solution to a computational problem.         I can decopage accomption of traits.       I can use user-centered research and design techniques.       We end implement a solution to a computational problem.         I can decopage a computational artificat.       I can decopage a computational problem by creating new dapication programming solutions using adjustion than opponent or avoid problem by creating new dapication.       We end implement a solution to a computational or tobe in avoriable.         I can decopage a computational problem by creating programming solutions using adjustion than opponent or avoid application programming solutions using adjuston thanone opponent or avoid interoce. <td< td=""><td></td><td></td><td>Utilize IT Fundamentals and programming skills to solve a problem.</td></td<>			Utilize IT Fundamentals and programming skills to solve a problem.
Li Lidentify and demonstrate positive work publication and processes and meetings.       Arive an-time to all classes and meetings.         Li Identify and demonstrate positive work publication.       CDA a.9. In 1 can use positive work qualities typically desired.       Arive an-time to all classes and meetings.         Li Identify and exhibit traits for retaining employment.       CDA a.9. In 1 can use positive work qualities.       Head the correer classic options? Assessment Strategies by Standard Students may be given options to show their learning in worket ways.         Rithondard AP2: Students will create computational artificies and programming in worket ways.       Ican use user-centered research and design techniques (e.g., surveys, interviewal) to create software solutions.       Wite and implement a solution to a computational problem.         Com use user-centered research and design techniques (e.g., surveys, interviewal) to create software solutions.       Wite and implement a solution to a computational problem.         Com use to programming       Ican inspense and processes in the creation of computational problem by creating new data types.       Com users to change a value stored in a voricible.         Locan descip programs for multiple computing platforms (e.g., computer destip, web, mobile.       Ican inspense and application program interfaces and explations programming program interfaces and explations program interfaces and explations are proported explanes.         Abriel summary of the key learning activities. How will structure to solution to the system and explanes and explication program interfaces and explication program interfaces and explication software hoods, software,			
and dependability.       mentors.         PRIORITY CONTENT STANDARDS & Learning Targets       Students may be given options to show their learning in varied ways.         Standard AP2: Students will create computational artifacts aining algorithms and programming       I can use user-centered research and design techniques (e.g. surveys, interviews) to create software solutions. I can integrate grade-level appropriate mathematical techniques, cancepts, and processes in the creation of computational artifacts. I can use momenmical operations to change a value stored in a variable. I can develop program for multiple computing platforms (e.g. computs, cancepts, and programming solutions using libraries and opponent or solve optiones.       Write and implement a solution to a computational problem.         A brief summary of the key learning activities- How will students build movelege & develop sale in the gibraries and application programming solutions using libraries and explication programming solutions to the type develop a deep andeerstanding of the desired results? The guiding understanding of the desired results? This includes extrategies and activities the heip learning strategies and activities and and heid students. This may include questions and and heid students. This may include questions and and facible to address the interests and learning styles of all students.       This includes an applicable textbooks, software, industry recognized certification software/tools, subcirpitio	a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.		Arrive on-time to all classes and meetings.
Students may be given options to show their learning in varied ways.           Students may be given options to show their learning in varied ways.           Students may be given options to show their learning in varied ways.           Students may be given options to show their learning in varied ways.           Students may be given options to show their learning in varied ways.           I can use user-centered research and design techniques.           Lean integrate grade-level appropriate mathematical techniques.           techniques.concepts for multiple computing platforms lea, computer desktop, web, mobile).           I can use user-centered research and application programming solutions using diportities. How will students build knowledge 3 develop partities.           A brief summary of the key learning activities. How will students build knowledge 4 develop partities.           Students user begiven applications using bibraries.           Students user centered research and design techniques.           Students user centered research and design techniques.           I can use user-centered research and design techniques.           I can use user-centered research and basis the creation of computational problem.           I can use user-centered research and design techniques.           I can use user-centered research and design techniques.           I can use user-centered research and design techniques.           I can use user-centered research and design techning will be computed and programming solutions using di			
Standard AP2: Students will create computational artifacts using algorithms and programming       I can use user-centered research and design techniques (e.g., surveys, interviews) to create software solutions. I can use user-centered research and design techniques (e.g., surveys, interviews) to create software solutions. I can use mathematical generations of computational artifacts. I can use mathematical performs to change a value stored in a variable       Write and implement a solution to a computational problem.         A trait summary of the key learning activities. How will students and enstances will be assential questions and play a game against a humon apponent or solve or problem. I can demonstrate code reuse by creating programming solutions using libraries and application programming solutions using libraries and spectration phe- resolution of the design exclusions and networe flow?       RESOURCES/MATERIALS         SUDING UNIT QUESTIONS Jisrg Costs Level of Thinking, what questions and right of the estand questions and right of the estand questions and right of the estand questions of right of the estand questions that help learners acquire trageted knowledge and activities that help learners acquire trageted knowledge and aplication right of the estande			
A brief summary of the key learning activities- How will students build knowledge & develop skills? How will learning be relevant, accessible, and engaging? How will the learning unforted in a natural flow? STRATEGIES/ACTIVITIES Sing Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding usetions are more topic-specific to the particular unit. They guide the exploration of the essential questions and igor of the standards. This may include questions that juide project based / problem based learning What is the personal impact of the IT topic you decided to study? What IT careers utilize the IT topic you decided to study? What IT careers utilize the IT topic you decided to study?	Standard AP2: Students will create computational artifacts using algorithms and programming	<ul> <li>(e.g., surveys, interviews) to create software solutions.</li> <li>I can integrate grade-level appropriate mathematical techniques, concepts, and processes in the creation of computational artifacts.</li> <li>I can use mathematical operations to change a value stored in a variable</li> <li>I can decompose a computational problem by creating new data types, functions, or classes.</li> <li>I can develop programs for multiple computing platforms (e.g., computer desktop, web, mobile).</li> <li>I can demonstrate code reuse by creating programming solutions using libraries and application program interfaces (APIs) (e.g., graphics libraries, maps, API).</li> </ul>	
SUDING UNIT QUESTIONS       STRATEGIES/ACTIVITIES       RESOURCES/MATERIALS         Jsing Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and flexible to address the interests and learning will be tailored and flexible to address the interests and learning styles of all students.       RESOURCES/MATERIALS         What is the global impact of the IT topic you decided to study?       Present progress updates and project solare with other students to share concepts learned.       Access to LAUNCH mentor network.         What IT careers utilize the IT topic you decided to study?       Utilize project management strategies to plan, work through       Hardware, software and learning material needs will depend upon students to plan, work through	A brief summary of the key learning activities- How will st	udents build knowledge & develop skills? How will learning be	relevant, accessible, and engaging? How will the learning unforld in a
study?       What is the global impact of the IT topic you decided to       Collaborate with other students to share concepts learned.       Hardware, software and learning material needs will depend upon student choice for their IT topic.         What IT careers utilize the IT topic you decided to study?       Utilize project management strategies to plan, work through	GUIDING UNIT QUESTIONS Using Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	STRATEGIES/ACTIVITIES What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all	This includes an applicable textbooks, software, industry recognized
study? student choice for their IT topic.	What is the personal impact of the IT topic you decided to study?	Present progress updates and project completion.	Access to LAUNCH mentor network.
	What is the global impact of the IT topic you decided to study?	Collaborate with other students to share concepts learned.	
	What IT careers utilize the IT topic you decded to study?		

	Unit 4 - Certifications and Beyond	
	red Unit Results stand as a result of the unit?	STAGE 2: Assessment Evidence By what criteria will performances of understanding be assessed? Through what authentic performance tasks will students demonstrate the desired unit results?
	QUESTION (s)	Success Criteria with Standards
	inquiry, understanding, and transfer of learning? d careers are available to meet individual and societal needs	The criteria for evaluating performance on standards is constant. CTE standards-based Rubric: Throughout the course, students and teachers use the rubric for communication of success criteria, reflection, goal setting, and feedback.
What are employability skills? How do I prepare myself for a now?	career that is in demand now and in 5, 10, or 20 years from	In their portfolio/evidence journal, students will reflect on the essential questions through a quick write, constructed response.
PRIORITY CAREER & TECHNICA	L STANDARDS & Learning Targets	Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Career Development CD4: Students will identify and apply employability skills.		
a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable.	CD4.a.6.h: I can evaluate how selfdiscipline, self-worth, positive attitude and integrity displayed in a work situation affect employment status.	Document a list of desired skills and traits local employers desire in their employees.
	CD4.a.7.h: I can assess how flexibility and willingness to learn new knowledge and skills affect employment status.	Interview a computer science profesional to learn about previous, current, and future learning required for their position.
	CD4.a.8.h: I can apply communication strategies when adapting to a culturally diverse environment.	Participate in a cross cultural discussion of computer science careers with students in another school district.
	CD4.a.9.h: I can use positive workqualities typically desired in each of the career cluster's pathways.	Arrive on-time to all classes and meetings.
	CD4.a.10.h: I can manage work roles and responsibilities to balance them with other life roles and responsibilities.	Participate in a group discussion about the importance of time management.
b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job.	CD4.b.5.h: I can use multiple resources to locate job opportunities.	Use multiple on-line resources to construct a list potential employement opportunities.
	CD4.b.6.h: I can prepare a resume, cover letter, employment application.	Produce a resume and review it with a hiring manager.
		Participate in mock interviews with educators and community members.
c: I identify and exhibit traits for retaining employment.	CD4.c.4.h: I can model behaviors that demonstrate reliability and dependability.	Use electronic communication between teacher, team members, and mentors .
	CD4.c.5.h: I can maintain appropriate dress and behavior for the job to contribute to a safe and effective workplace/jobsite.	Document appropriate dress for computer science positions at local companies.
	CD4.c.6.h: I can complete required employment forms and documentation.	Complete an application for a local job opportunity.
	CD4.c.7.h: I can summarize key activities necessary to retain a job in an industry.	Create a prioritzed list of leadership qualities desired by local employers.
d: I develop positive relationships with others.	CD4.d.5.h: I can participate in cocurricular and community activities to enhance the school experience.	Participate in a job shadow.
	CD4.d.7.h: I can examine the skills required to enable students to successfully transition to postsecondary opportunities.	Research and list the top skills and traits needed to be successfull at the post secondary level.
	career planning for students to achieve their learning, socio-cultural and work goals.	Create an academic and career plan with the help of parents, teachers, counselors, and mentors.
PRIORITY CONTENT STA	NDARDS & Learning Targets	Performance Tasks Options/ Assessment Strategies by Standard Students may be given options to show their learning in varied ways.
Standard IC1: Students will understand the impact and effect computing technology has on our everyday lives	I can debate the social and economic implications associated with ethical and unethical computing practices (e.g., intellectual property rights, hacktivism, software piracy, new computers shipped with malware).	Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.
Standard IC3: Students will understand the importance of proper use of data and information in a computing society	I can debate laws and regulations that impact the development and use of software and be able to explain the main arguments from multiple perspectives.	Debate laws and regulations that impact the development and use of software.
A brief summary of the key learning activities- How will st	Stage 3: Learning Activities udents build knowledge & develop skills? How will learning be natural flow?	relevant, accessible, and engaging? How will the learning unforld in a
GUIDING UNIT QUESTIONS Using Costas Level of Thinking, what questions will hook and hold students so that they develop a deep understanding of the desired results? The guiding questions are more topic-specific to the particular unit. They guide the exploration of the essential questions and rigor of the standards. This may include questions that guide project based/ problem based learning	STRATEGIES/ACTIVITIES What learning strategies and experiences will authentically engage students so that they gain understanding the desired results? This includes strategies and activities that help learners acquire targeted knowledge and skills, make meaning of important ideas, and transfer their learning to new situations. Consider how the learning will be tailored and flexible to address the interests and learning styles of all students.	RESOURCES/MATERIALS This includes an applicable textbooks, software, industry recognized certification software/tools, subcriptions (such asPLTW), etc.
What is the benefit to earning an industry level certification?	Discuss the value placed on industry level certifications in the hiring process with local professionals.	Certiport IT Specialist Certifications
What are the top technology and soft skills requested by local emoloyers?	Research and document the top technology and soft skills requested by local employers.	Access to distric community partners.
What are five local companies hiring for computer science positions?	Research, document, and present details about current computer science job opportunities.	Transportation options for site visits.

What are the top technology and soft skills requested by	Access to LAUNCH resources for college and career preperation.
local emoloyers?	(writing resumes, meeting with mentors, professional communication,
	dress codes)

Computational Thinking Practices: Skills	
Practice 1 - Program Design and Algorithm De	velopr Determine required code segments to produce a given output.
	Determine an appropriate program design to solve a problem or accomplish a task.
	Determine code that would be used to complete code segments.
	Determine code that would be used to interact with completed program code.
Practice 2 - Code Logic	Determine the output, value, or result of given program code given initial values.
	Apply the meaning of specific operators.
	Determine the result or output based on statement execution order in a code segment.
	Determine the result or output based on statement execution order in a code segment without method calls.
	Determine the result or output based on the statement execution order in a code segment containing method calls.
	Determine the number of times a code segment will execute.
Practice 3 - Code Implementation	Write and implement programming code.
	Write program code to create objects of a class and call methods.
	Write program code to define a new type by creating a class
	Write program code to satisfy method specifications using expressions, conditional statements, and iterative statement
	Write program code to create, traverse, and manipulate elements in 1D array or ArrayList objects.
	Write program code to create, traverse, and manipulate elements in 2D array objects.
Practice 4 - Code Testing	Analyze program code for correctness, equivalence, and errors
	Use test-cases to find errors or validate results.
	Identify errors in program code.
	Determine if two or more code segments yield equivalent results.
Practice 5 - Documentation	Describe the behavior and conditions that produce identified results in a program.
	Describe the behavior of a given segment of program code.
	Explain why a code segment will not compile or work as intended.
	Explain how the result of program code changes, given a change to the initial code.
	Describe the initial conditions that must be met for a program segment to work as intended or described.

Priority Standards	Unit 1	Unit 2	Unit 3	Unit 4
Creativity, Critical Thinking, Communication and Collaboration 4C2: Students will formulate and defend judgments and decisions by employing critical thinking skills. a: I develop effective resolutions for a given problem, decision or opportunity using available information. b: I develop and implement a resolution for a new situation using personal knowledge and experience.	x	X	x	x
Career Development CD4: Students will identify and apply employability skills. a: I identify and demonstrate positive work behaviors and personal qualities needed to be employable. b: I demonstrate skills related to seeking and applying for employment to find and obtain a desired job. c: I identify and exhibit traits for retaining employment. d: I develop positive relationships with others.	x	x	x	x
Information, Media, Technology IMT1: Students will access, interpret and evaluate information from a variety of sources in order to inform and support premises, arguments, decisions, ideas and initiatives. a: I choose appropriate sources of data and information for a given purpose. b: I determine the relevance, validity and timeliness of data and information. c: I select relevant information necessary for making decisions and solving problems d: I apply data and information to communicate ideas and create new opportunities.	x	X	x	X
Standard AP2: Students will create computational artifacts using algorithms and programming	X	Х	X	
Standard DA1: Students will create computational artifacts using data and analysis	Х	Х		
Standard IC1: Students will understand the impact and effect computing technology has on our everyday lives				x
Standard IC3: Students will understand the importance of proper use of data and information in a computing society				X