PACING GUIDE

COURSE: Computer Science: Programming in Python **GRADE(S):** 10-12

MONTH/ DAYS	UNIT #	STANDARDS/SKILLS	ASSESSMENTS What evidence (formative/summative) is utilized to establish that the content, standards, & skills have been mastered?	CONTENT Topics being covered? What do students need to know? (nouns)	SKILLS Identify the skills used to transfer the content (range of rigor using Bloom's verbs)	ACTIVITIES w/Integration of Technology & Career Ready Practices
September (3 week)	1	TECH.8.1.12.A Students demonstrate a sound understanding of technology concepts, systems and operations. TECH.8.1.12.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology. TECH.8.1.12.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. TECH.8.1.12.D Students understand human, cultural, and societal	- What is computer ethics? - HW: Computer Ethics Paper Students will enter room, log onto computers and load appropriate programs for class. Students will save and log off of the computers Quiz: Intro to Computer Systems Test: Input, Output, Variables Quiz: Algorithms	Computer Ethics and Social Implications - Computer Systems: Hardware and Software - Parts of a Program - Computer Organization - Computer Languages - History of Computers and Python. - Algorithms, Psuedocode, Flowchart - Variables and Data Types - Python IDE - ASCII Art	• Apply Concepts learned • Connect Previous Lessons • Create Programs • Critically Think • Debug Programs • Design Programs • Organize	- Lesson: Computer Ethics Paper • Lesson: Programming Languages • Lesson: Computer Systems • Homework: Simple Algorithms - Lesson: Python IDE - Input and Output - History of Programming - Variables & Data Types - Order of Operations - ASCII Art - Class Schedule - Hello World

		issues related to technology and practice legal and ethical behavior. TECH.8.1.12.E Students apply digital tools to gather, evaluate, and use information. TECH.8.1.12.F Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. TECH.8.2.12.A Technology systems impact every aspect of the world in which we live. TECH.8.2.12.B Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society. TECH.8.2.12.C The design process is a systematic approach to solving problems. TECH.8.2.12.D The designed world is the product of a design process that provides the means to convert				

		resources into products and systems. TECH.8.2.12.E Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.				
Sep- Oct (5 weeks)	2	TECH.8.1.12.A Students demonstrate a sound understanding of technology concepts, systems and operations. TECH.8.1.12.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology. TECH.8.1.12.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. TECH.8.1.12.D Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. TECH.8.1.12.E Students apply digital tools to	Students will enter room, log onto computers and load appropriate programs for class. Students will save and log off of the computers Quiz: Logical Operators Quiz: Relational Operators Test: Decision Structures Test: Repetition Structures	- Logical Operators - Relational Operators - While Loop - For Loop - If Elif Else - Random	• Apply Concepts from Lectures • Create Programs • Debug Programs • Design Algorithms • Recall Previously Learned Tools • Critically Think • Organize	•Lesson: Logical Operators - Lesson: While Loop - Lesson: For Loop - Lesson: If..Elif..Else - Lesson: Random - Lesson: Relational Operators - Program: Flip a Coin - Program: For Samples - Program: While Samples - Program: Fizz Buzz - Program: Guess a Number - Program: High Low - Program: Math Game - Program: Password - Program: Pick 6 Lottery - Program: Text Based Game - Program: Wawa Change

		gather, evaluate, and use information. TECH.8.1.12.F Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. TECH.8.2.12.A Technology systems impact every aspect of the world in which we live. TECH.8.2.12.B Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society. TECH.8.2.12.C The design process is a systematic approach to solving problems. TECH.8.2.12.D The designed world is the product of a design process that provides the means to convert resources into products and systems. TECH.8.2.12.E Computational thinking builds and enhances				

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Oct-Nov (8 weeks)	3	TECH.8.1.12.A Students demonstrate a sound understanding of technology concepts, systems and operations. TECH.8.1.12.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology. TECH.8.1.12.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. TECH.8.1.12.D Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. TECH.8.1.12.E Students apply digital tools to gather, evaluate, and use information. TECH.8.1.12.F Students use critical thinking skills to plan and conduct	Students will enter room, log onto computers and load appropriate programs for class. Students will save and log off of the computers Quiz: List Methods Quiz: String Methods Test: Strings and Tuples Test: Lists and Dictionaries	- Strings and Methods - Tuples and Methods - List and Methods - Dictionaries and Methods	• Apply Concepts Previously Learned • Create Programs • Critically Think through problems • Debug Programs • Design Pseudocode • Organize through topics • Recall Previous lessons	• Lesson: Strings and Methods - Lesson: Tuples and Methods - Lesson: List and Methods - Lesson: Dictionary and Methods - Program: Fun with Strings - Program: Fun with Tuples - Program: Fun with Lists - Program: Fun with Dictionaries - Program: Hangman - Program: State Capitals - Program: Word Jumble

		research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. TECH.8.2.12.A Technology systems impact every aspect of the world in which we live. TECH.8.2.12.B Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society. TECH.8.2.12.C The design process is a systematic approach to solving problems. TECH.8.2.12.D The designed world is the product of a design process that provides the means to convert resources into products and systems. TECH.8.2.12.E Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.				

Dec (3 weeks)	4	TECH.8.1.12.A Students demonstrate a sound understanding of technology concepts, systems and operations. TECH.8.1.12.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology. TECH.8.1.12.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. TECH.8.1.12.D Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. TECH.8.1.12.E Students apply digital tools to gather, evaluate, and use information. TECH.8.1.12.F Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using	Students will enter room, log onto computers and load appropriate programs for class. Students will save and log off of the computers Quiz: Follow the Code Quiz: Label the Functions Test: Functions	- Functions labels - Local and Global Scope - Parameters and Arguments -	• Apply Concepts Previously Learned • Create Programs • Critically Think through problems • Debug Programs • Design Pseudocode • Organize through topics • Recall Previous lessons	• Lesson: Introduction to Functions - Lesson: Local and Global Scope - Lesson: Parameters and Arguments - Program: Follow the Function Calls - Program: Parameters and Argument samples - Program: Functions Sample Programs - Program: Math Functions

		appropriate digital tools and resources. TECH.8.2.12.A Technology systems impact every aspect of the world in which we live. TECH.8.2.12.B Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society. TECH.8.2.12.C The design process is a systematic approach to solving problems. TECH.8.2.12.D The designed world is the product of a design process that provides the means to convert resources into products and systems. TECH.8.2.12.E Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge. .				
Dec - Mar (9 weeks)	5	TECH.8.1.12.A Students demonstrate a sound understanding of	Students will enter room, log onto computers and load	- Text Objects - Pygame Skeleton	• Apply Concepts from lessons	• Lesson: Collide Point - Lesson: Creating Text Objects

		technology concepts, systems and operations. TECH.8.1.12.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology. TECH.8.1.12.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. TECH.8.1.12.D Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. TECH.8.1.12.E Students apply digital tools to gather, evaluate, and use information. TECH.8.1.12.F Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. TECH.8.2.12.A Technology systems	appropriate programs for class. Students will save and log off of the computers Quiz: RGB Quiz: Simple Shapes Test: Vector Graphics, Text, RGB and Events	- Keyboard and Mouse Events - Collide Point - RGB Color Numbers - Vector Graphics	• Connect from Previous Lessons • Create Programs • Critically Think through Activities • Debug Programs • Design flowcharts	- Lesson: Keyboard and Mouse Events - Lesson: RGB Color - Lesson: Vector Graphics Shapes - Program: Falling Dots - Program: Pygame Skeleton - Program: Vector Graphics - Program: Bouncing Square - Program: Click the Dot - Program: Drawing Pad - Program: Lottery - Program: RGB Challange - Program: Robot Vector Graphics - Program: Simple Snake - Program: Title Screens

		impact every aspect of the world in which we live. TECH.8.2.12.B Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society. TECH.8.2.12.C The design process is a systematic approach to solving problems. TECH.8.2.12.D The designed world is the product of a design process that provides the means to convert resources into products and systems. TECH.8.2.12.E Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.				
Mar - Apr (7 weeks)	6	TECH.8.1.12.A Students demonstrate a sound understanding of technology concepts, systems and operations. TECH.8.1.12.B Students demonstrate creative thinking, construct	Students will enter room, log onto computers and load appropriate programs for class. Students will save and log off of the computers Quiz: Animation Breakdowns	- Simple Animations - 2D Animations - Sprites - Sounds and Music - Creating Sprite Maps	• Connect terms from other Activities • Create Programs • Debug Programs • Design Algorithms • Organize Code • Apply Concepts • Critically Think	• Lesson: 2d Animations - Lesson: Simple Animations - Lesson: Adding Images to Program - Lesson: Creating a Sprite Map - Lesson: Sound and Music - Program: Bouncing Head - Program: Duke

		knowledge and develop innovative products and process using technology. TECH.8.1.12.C Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. TECH.8.1.12.D Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. TECH.8.1.12.E Students apply digital tools to gather, evaluate, and use information. TECH.8.1.12.F Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. TECH.8.2.12.A Technology systems impact every aspect of the world in which we live. TECH.8.2.12.B Knowledge and understanding of human,	Test: Advanced Pygame			- Program: Falling Snow - Program: Good Looking Guy - Program: Crosshairs - Program: Fireworks - Program: Flying Dragon - Program: Oscars - Program: Spinning Head - Program: Whack a Mole - Program: XBall - Program: Advanced Snake

		cultural and society values are fundamental when designing technology systems and products in the global society. TECH.8.2.12.C The design process is a systematic approach to solving problems. TECH.8.2.12.D The designed world is the product of a design process that provides the means to convert resources into products and systems. TECH.8.2.12.E Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.				
May - Jun (5 weeks)	7	TECH.8.1.12.A Students demonstrate a sound understanding of technology concepts, systems and operations. TECH.8.1.12.B Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology. TECH.8.1.12.C Students use digital media and	Students will enter room, log onto computers and load appropriate programs for class. Students will save and log off of the computers Major Program: Big Game Project	- Big Game Project - Keeping a Daily Programming Log	• Apply Concepts previously learned • Connect through arrays • Create Programs • Critically Think by 2D	- Lesson: Switching from Intro to Gameplay to Game Over Screens - Lesson: Video Game Development - Program: Screen Switching

		environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. TECH.8.1.12.D Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. TECH.8.1.12.E Students apply digital tools to gather, evaluate, and use information. TECH.8.1.12.F Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. TECH.8.2.12.A Technology systems impact every aspect of the world in which we live. TECH.8.2.12.B Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and				

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