NEPTUNE TOWNSHIP SCHOOL DISTRICT

Introduction to Multi-Media Programming

Curriculum

Grades 6-8

NEPTUNE TOWNSHIP SCHOOL DISTRICT
Office of the Superintendent
60 Neptune Blvd.
Neptune, NJ 07753-4836

May 29, 2019 Document C1#1

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NEPTUNE TOWNSHIP SCHOOL DISTRICT

INTRODUCTION TO MULTI-MEDIA PROGRAMMING CURRICULUM

Table of Contents

Curriculum

Unit Title **Page**

NEPTUNE TOWNSHIP SCHOOL DISTRICT

Introduction to Multi-Media Programming

Acknowledgements

The Introduction to Multi-Media Programming curriculum was developed for Neptune Middle School through the dedicated efforts of Michael Jahoda, Neptune Middle School Computer Science Teacher, under the guidance of Dawn Reinhardt, Department Chairperson of Mathematics, Dr. Heba Abdo, Supervisor of STEM and Dr. Sally A. Millaway, Director for Curriculum, Instruction and Assessment.

The teacher is to be commended for his dedication in creating this curriculum and for his expertise in the area of computer programing. This curriculum guide introduces the students to basic computer skills and programming applications. It is our hope that this guide will serve as a valuable resource for the staff members who teach this course and that they will feel free to make recommendations for its continued improvement.

The Introduction to Multi-Media Programing curriculum is outlined in the related pacing guide which is in alignment to the 2014 New Jersey Student Learning Standards (NJSLS) for Technology.

NEPTUNE TOWNSHIP SCHOOL DISTRICT

DISTRICT MISSION STATEMENT

The primary mission of the Neptune Township School District is to prepare students for a life-long learning process in a complex and diverse world. It is with high expectations that our schools foster:

• A strong foundation in academic and modern technologies.

• A positive and varied approach to teaching and learning.

• An emphasis on critical thinking skills and problem-solving techniques.

• A respect for and an appreciation of our world, its resources, and its people.

• A sense of responsibility, good citizenship, and accountability.

• An involvement by the parents and the community in the learning process.

NEPTUNE TOWNSHIP SCHOOL DISTRICT

Educational Outcome Goals

The students in the Neptune Township schools will become life-long learners and will:

- Become fluent readers, writers, speakers, listeners, and viewers with comprehension and critical thinking skills.
- Acquire the mathematical skills, understandings, and attitudes that are needed to be successful in their careers and everyday life.
- Understand fundamental scientific principles, develop critical thinking skills, and demonstrate safe practices, skepticism, and open-mindedness when collecting, analyzing, and interpreting information.
- Become technologically literate.
- Demonstrate proficiency in all New Jersey Student Learning Standards (NJSLS).
- Develop the ability to understand their world and to have an appreciation for the heritage of America with a high degree of literacy in civics, history, economics and geography.
- Develop a respect for different cultures and demonstrate trustworthiness, responsibility, fairness, caring, and citizenship.
- Become culturally literate by being aware of the historical, societal, and multicultural aspects and implications of the arts.
- Demonstrate skills in decision-making, goal setting, and effective communication, with a focus on character development.
- Understand and practice the skills of family living, health, wellness and safety for their physical, mental, emotional, and social development.
- Develop consumer, family, and life skills necessary to be a functioning member of society.
- Develop the ability to be creative, inventive decision-makers with skills in communicating ideas, thoughts and feelings.
- Develop career awareness and essential technical and workplace readiness skills, which are significant to many aspects of life and work.

INTRODUCTION TO MULTI-MEDIA PROGRAMMING CURRICULUM

COURSE DESCRIPTION

This course is intended for students in grade 6-8 as an introductory course to basic programming principles. Students will learn how to create simple programs using the Scratch environment. Scratch is an innovative 2D programming environment that makes it easy to create an animation for telling a story, an interactive game, or a video to share on the web.

Unit Plan	Introduction to coding (Code.org / Tynker / Scratch)
Suggested Time Frame	45 class blocks

Overview / Rationale

In this unit, students will get an introductory experience with coding and computer science in a safe, supportive environment. This unit is designed to further the student's knowledge of the computer's and its applications. Students will learn the fundamentals of programming and coding by using the following website applications; code.org, tynker.com and stratch.mit.edu (Scratch Studio). Using these applications will allow students to possess many of the features that are characteristic of more standard programming languages used around the world. All mentioned applications will help students gain the skills necessary to think creatively, reason systematically, and work collaboratively, which is essential for life in the 21st century.

Stage 1: Identify Desired Results

New Jersey Student Learning Standards for Technology

NJSLS 8.1 Educational Technology

All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge

Strand A. Technology Operations and Concepts

- **8.1.2.A.3** Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each.
- **8.1.2.A.4** Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

NJSLS 8.2 Technology Education, Engineering, Design and Computational Thinking

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Strand A. The Nature of Technology: Creativity and Innovation

- **8.2.2.A.3** Identify a system and the components that work together to accomplish its purpose
- **8.2.2.A.5** Collaborate to design a solution to a problem affecting the community.

Strand B. Technology and Society

- **8.2.2.B.1** Identify how technology impacts or improves life
- **8.2.2.B.3** Identify products or systems that are designed to meet human needs.

Strand C. Design

- **8.2.2.C.1** Brainstorm ideas on how to solve a problem or build a product.
- **8.2.2.C.3** Explain why we need to make new products.

International Technology Systems Engineering (ISTE) Standards for Technology
1. Creativity and innovation Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. a. Apply existing knowledge to generate new ideas, products, or processes b. Create original works as a means of personal or group expression c. Use models and simulations to explore complex systems and issues d. Identify trends and forecast possibilities. **2. Communication and collaboration 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.** a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats c. Develop cultural understanding and global awareness by engaging with learners of other cultures d. Contribute to project teams to produce original works or solve problems. **3. Research and information fluency Students apply digital tools to gather, evaluate, and use information.** a. Plan strategies to guide inquiry b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks d. Process data and report results. **4. Critical thinking, problem solving, and decision making Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.** a. Identify and define authentic problems and significant questions for investigation b. Plan and manage activities to develop a solution or complete a project c. Collect and analyze data to identify solutions and/or make informed decisions d. Use multiple processes and diverse perspectives to explore alternative solutions. **5. Digital citizenship Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.** a. Advocate and practice safe, legal, and responsible use of information and technology b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity c. Demonstrate personal responsibility for lifelong learning d. Exhibit leadership for digital citizenship. **6. Technology operations and concepts Students demonstrate a sound understanding of technology concepts, systems, and operations.** a. Understand and use technology systems b. Select and use applications effectively and productively c. Troubleshoot systems and applications. Transfer current knowledge to learning of new technologies.

Essential Questions:	**Enduring Understandings:**
• How will students use the 21st Century learning skills (information and communication skills, thinking and problem-solving skills, interpersonal and self-directional skills) in the design and creation of their computer programming projects? • How can students create a program that communicates an idea, entertains or solves a problem? • What are an individual's responsibilities for using technology? • What constitutes misuses and how can it best be prevented? • How can I transfer what I know to new technological situations/experiences? • When are the most sophisticated tools required? When are the simplest tools best?	***Students will understand that…*** • In order to build programming; critical reasoning, problem solving and systems thinking are necessary skills to for successful coding. • Application development requires a progression of multiple steps and a logical thought process. • Technology use can have positive or negative impact on both users and those affected by their use. • A tool is only as good as the person using it. • The design process is fundamental to technology and engineering.
Knowledge:	**Skills:**
Students will know… • The systems analysis skills necessary for computer programmers are systems design and document creation. • The function of each part of the Scratch interface. • How to create motion. • How to create an animation with multiple sprites. • How to create a story with infinite motion. • How conditional logic works. • The difference between simultaneous and sequential scripts. • How to have sprites communicate with one another.	***Students will be able to…*** • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction. • Create a story in Scratch with multiple • sprites. • Create an animation that will stop only when the stop sign is clicked. • Create an animation with conditional logic.

• How to have a sprite respond to a keypress. • How to use costume to simulate motion. • How to use sound to create music. • How to use variables to remember values.	• Create animations with simultaneous scripts. • Create an animation with sprites communicating with each other. • Create a script where the sprite responds to specific keys that are pressed. • Create a script with multiple costumes. • Create a script that plays music. • Create a simple game and tracks.

Integrated Social and Emotional Learning Competencies

The following social and emotional competencies are integrated in this curriculum document:

Self-Awareness

- ☐ Recognize one's own feelings and thoughts
- ☐ Recognize the impact of one's feelings and thoughts on one's own behavior
- ☒ Recognize one's personal traits, strengths and limitations
- ☒ Recognize the importance of self-confidence in handling daily tasks and challenges

Self-Management

- ☐ Understand and practice strategies for managing one's own emotions, thoughts and behaviors
- ☒ Recognize the skills needed to establish and achieve personal and educational goals
- ☒ Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals

Social Awareness

- ☐ Recognize and identify the thoughts, feelings, and perspectives of others
- ☐ Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds
- ☒ Demonstrate an understanding of the need for mutual respect when viewpoints differ
- ☒ Demonstrate an awareness of the expectations for social interactions in a variety of setting

Responsible Decision Making

- ☐ Develop, implement and model effective problem solving and critical thinking skill
- ☒ Identify the consequences associated with one's action in order to make constructive choices
- ☒ Evaluate personal, ethical, safety and civic impact of decisions

Relationship Skills

- ☒ Establish and maintain healthy relationships
- ☐ Utilize positive communication and social skills to interact effectively with others
- ☒ Identify ways to resist inappropriate social pressure
- ☐ Demonstrate the ability to present and resolve interpersonal conflicts in constructive ways
- ☒ Identify who, when, where, or how to seek help for oneself or others when needed

In this unit plan, the following 21st Century Life and Careers skills are addressed:				
Check ALL that apply – 21st Century Themes			**Indicate whether these skills are:** • **E – encouraged** • **T – taught** • **A – assessed**	**Career Ready Practices**
9.1	**Personal Financial Literacy**		ET	CRP1. Act as a responsible and contributing citizen and employee.
x	Income and Careers		ETA	CRP2. Apply appropriate academic and technical skills.
	Money Management		E	CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		ET	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		ET	CRP5. Consider the environmental, social and economic impacts of decisions.
x	Becoming a Critical Consumer		ETA	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		ET	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		ET	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	**Career Awareness, Exploration, and Preparation**		ET	CRP9. Model integrity, ethical leadership and effective management.
x	Career Awareness		ET	CRP10. Plan education and career paths aligned to personal goals.
x	Career Exploration		ETA	CRP11. Use technology to enhance productivity.
x	Career Preparation		ETA	CRP12. Work productively in teams while using cultural global competence.

Interdisciplinary Connections

New Jersey Student Learning Standards

RL.7.1. Cite several pieces of textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.7.3. Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).
W.7.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
W.7.6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
W.7.8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism
ESS3.C: Human Impacts on Earth Systems
Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.

Technology Integration

New Jersey Student Learning Standards for Technology

NJSLS 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

- Google Suite - Docs, Sheets, Slides, Forms
- Microsoft Platform – Word, EXCEL, PowerPoint

NJSLS 8.2 Technology Education, Engineering, Design and Computational Thinking
All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Career Awareness, Exploration, and Preparation

- Computer Programmer
- Software Developer
- Administrative Assistant / Data Entry
- IT Technician
- Analyst
- Web Developer

Teacher Resources	
Websites	https://scratch.mit.edu/studios/208769/ https://code.org https://www.tynker.com www.coolmath4kids.com
Texts	
Worksheets	

Stage 2 – Assessment Evidence	
Other Evidence: *Formative Assessments* • Informal Observations • Mini Animated Projects (via Scratch) • Exit Slips • Self-Assessments • Games • Questioning	**Other Evidence:** *Pre-Assessments & Summative Assessments* • Rubric Based Scoring • Formative Assessments • Performance Assessments

Accommodations and Modifications

Below please find a list of suggestions for accommodations and modifications to meet the diverse needs of our students. Teachers should consider this a resource and understand that they are not limited to the recommendations included below.

An **accommodation** *changes* HOW *a student learns*; the change needed does not alter the grade-level standard. A **modification** *changes* WHAT *a student learns*; the change alters the grade-level expectation.

Special Education and 504 Plans

All modifications and accommodations must be specific to each individual child's IEP (Individualized Educational Plan) or 504 Plan.

- Pre-teach or preview vocabulary
- Repeat or reword directions
- Have students repeat directions
- Use of small group instruction
- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments
- Repetition and time for additional practice
- Model skills/techniques to be mastered
- Extended time to complete task/assignment/work
- Provide a copy of class notes
- Strategic seating (with a purpose - eg. less distraction)
- Flexible seating
- Repetition and additional practice
- Use of manipulatives
- Use of assistive technology (as appropriate)
- Assign a peer buddy
- Emphasize key words or critical information by highlighting
- Use of graphic organizers
- Scaffold with prompts for sentence starters
- Check for understanding with more frequency
- Provide oral reminders and check student work during independent practice
- Chunk the assignment - broken up into smaller units, work submitted in phases
- Encourage student to proofread assignments and tests
- Provide regular home/school communication
- Teacher checks student planner
- Provide student with clear expectations in writing and grading criteria for assignments (rubrics)

Testing Accommodations:

Students should receive all testing accommodations for Benchmark assessments that they receive for State testing.

- Setting: Alternate setting for assessments, small groups, screens to block distractions

- Presentation: large print, test readers, use of audio, fewer questions on each page
- Response: answer verbally, use large block answer sheet, speech-to-text dictation, accept short answers
- Allow for retakes
- Provide study guides
- Use of reference aids such as glossary, multiplication tables, calculator
- Choice of test format (multiple-choice, essay, true-false)
- Alternate ways to evaluate (projects or oral presentations instead of written tests)
- Open-book or open-note tests

English Language Learners:

All modifications and accommodations should be specific to each individual child's LEP level as determined by the WIDA screening or ACCESS, utilizing the WIDA Can Do Descriptors.

- Pre-teach or preview vocabulary
- Repeat or reword directions
- Have students repeat directions
- Use of small group instruction
- Scaffold language based on their Can Do Descriptors
- Alter materials and requirements according to Can Do Descriptors
- Adjust number of paragraphs or length of writing according to their Can Do Descriptor
- TPR (Total Physical Response-Sheltered Instruction strategy) Demonstrate concepts through multi-sensory forms such as with body language, intonation
- Pair visual prompts with verbal presentations
- Repetition and additional practice
- Model skills and techniques to be mastered
- Native Language translation (peer, assistive technology, bilingual dictionary)
- Emphasize key words or critical information by highlighting
- Use of graphic organizers
- Scaffold with prompts for sentence starters
- Check for understanding with more frequency
- Use of self-assessment rubrics
- Increase one-on-one conferencing; frequent check ins
- Use study guide to organize materials
- Make vocabulary words available in a student created vocabulary notebook, vocabulary bank, Word Wall, or vocabulary ring
- Extended time
- Select text complexity and tiered vocabulary according to Can Do Descriptors
- Projects completed individually or with partners
- Use online dictionary that includes images for words: http://visual.merriamwebster.com/.
- Use online translator to assist students with pronunciation: http://www.reverso.net/text_translation.aspx?lang=EN.

Students at Risk of Failure:

- Use of self-assessment rubrics for check-in
- Pair visual prompts with verbal presentations
- Ask students to restate information and/or directions
- Opportunity for repetition and additional practice
- Model skills/techniques to be mastered
- Extended time
- Provide copy of class notes
- Strategic seating with a purpose
- Provide students opportunity to make corrections and/or explain their answers
- Support organizational skills
- Check daily planner
- Encourage student to proofread work
- Assign a peer buddy
- Build on students' strengths based on Multiple Intelligences: Linguistic (verbal); Logical (reasoning); Musical/Rhythmic; Intrapersonal Intelligence (understanding of self); Visual Spatial Intelligence; Interpersonal Intelligence (the ability to interact with others effectively); Kinesthetic (bodily); Naturalist Intelligence; and Learning Styles: Visual; Auditory; Tactile; Kinesthetic; Verbal

<u>High Achieving</u>:

Extension Activities

- Allow for student choice from a menu of differentiated outcomes; choices grouped by complexity of thinking skills; variety of options enable students to work in the mode that most interests them
- Allow students to pursue independent projects based on their individual interests
- Provide enrichment activities that include more complex material
- Allow opportunities for peer collaboration and team-teaching
- Set individual goals
- Conduct research and provide presentation of appropriate topics
- Provide students opportunity to design surveys to generate and analyze data to be used in discussion
- Allow students to move through the assignment at their own pace (as appropriate)

<u>Strategies to Differentiate to Meet the Needs of a Diverse Learning Population</u>

- Vocabulary Sorts-students engage with the vocabulary word by sorting into groups of similar/different rather than memorizing definitions
- Provide "Realia" (real life objects to relate to the five senses) and ask questions relating to the senses
- Role Play-students create or participate in role playing situations or Reader's Theater
- Moving Circle-an inside and outside circle partner and discuss, circles moves to new partner (Refer to Kagan Differentiated Strategies)
- Brainstorm Carousel-Large Post Its around the room, group moves in a carousel to music. Group discusses topic and responses on paper. Groups rotate twice to see comments of others. (Refer to Kagan Differentiated Strategies)

- Gallery Walk-Objects, books, or student work is displayed. Students examine artifacts and rotate.
- Chunking-chunk reading, tests, questions, homework, etc to focus on particular elements.
- Think Pair Share Write
- Think Talk Write
- Think Pair Share
- Note-taking -can be done through words, pictures, phrases, and sentences depending on level
- KWL (Know, Want to Know, Learned)/KWHL(Know, What to Know, How Will I Learn, learned)/KWLS (Know, Want to Know, Learned, Still Want to Know) /KWLQ (Know, What to Know, Learned, Questions I Still Have) Charts
- Corners Cooperative Learning Strategy: http://cooperativelearningstrategies.pbworks.com/w/page/28234420/Corners.
- Circle Map strategy- place the main topic in a small circle and add student ideas in a bigger circle around the topic. Students may use their native language with peers to brainstorm.
- Flexible grouping -as a whole class, a small group, or with a partner, temporary groups are created: http://www.teachhub.com/flexible-grouping-differentiated-instruction-strategy.
- Jigsaw Activities -cooperative learning in a group, each group member is responsible for becoming an "expert" on one section of the assigned material and then "teaching" it to the other members of the team: http://www.adlit.org/strategies/22371/.

Rubric Scratch Studio Animation

Rubric Categories	4	3	2	1
Creativity/ Appearance	Super creative and original. Time was spent planning and designing unique features.	Creative and appearance helps draws users attention.	A little creative and appearance is lacking important features.	Is not creative and appearance is flawed.
Programming (Scripts)	Scripts are all working, very well designed and using advanced programming techniques. Student has very good understanding of scripts.	All scripts are working and the student understands all the scripts.	Scripts may have some errors and do not work perfectly. Student does not understand some of the scripts.	Scripts do not work.
Programming (Overall Project)	Project showed advanced understanding of Scratch Studio design platform.	Project showed understanding of game Scratch Studio platform.	Project showed some understanding of Scratch Studio design platform.	Project showed little understanding of Scratch Studio design platform.
Process (plan, design, create, test and evaluate)	Student made significant use of the design process. Used project time constructively, finished early or added additional elements. Animation was unique and creative with 100% original content	Student used design process. Used project time constructively. Animation was a creative remix or original that included many original sprites, background or sound effects.	Student tried out the design process. Used project time well sometimes. Animation was a an adapted idea and included some original sprites, background or sound effects	Student did not get involved in design process Did not use project time well. Animation was not original and did not include any original sprites, background or sound effects

Stage 3 – Learning Plans

Code.org - Minecraft Designer and Adventurer (5 Class Periods)

	Instructional Strategies	*Descriptions*
Lesson Objective:	***We are learning to***… • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, learners of all ages receive an introductory experience with coding and computer science in a safe, supportive environment. Students will begin a tutorial of code.org; Minecraft Designer. Students will be expected to watch various video tutorials and complete basic coding as determined by their progress in a sequential format. Students can watch each video tutorial as many times as needed until each step is completed. • Upon completion of www.code.org, Minecraft Designer, students will complete code.org, Minecraft Adventurer. • Students will be expected to watch various video tutorials and complete basic coding as determined by their progress in a sequential format. • Students can watch each video tutorial as many times as needed until each step is completed. • Upon completion of code.org, Minecraft Adventurer, students will have a discussion on vocabulary used on Minecraft Designer and Minecraft Adventurer.	

Code.org - Star Wars and Frozen (5 Class Periods)		
	Instructional Strategies	***Descriptions***
Lesson Objective:	***We are learning to***… • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, learners of all ages receive a more in depth experience with coding and computer science in a safe, supportive environment. Students will begin a tutorial of code.org; Star Wars. Students will be expected to watch various video tutorials and complete basic coding as determined by their progress in a sequential format. Students can watch each video tutorial as many times as needed until each step is completed. • Upon completion of www.code.org, Star Wars, students will complete code.org, Frozen. • Students will be expected to watch various video tutorials and complete basic coding as determined by their progress in a sequential format. • Students can watch each video tutorial as many times as needed until each step is completed. • Upon completion of code.org, Star Wars and Frozen, students will complete an additional coding application of their choice on code.org. . **Day 4**: Student Activities / Tasks / Projects	

Tynker.com - Hot Wheels and Code Commander (5 Class Periods)		
	Instructional Strategies	***Descriptions***
Lesson Objective:	***We are learning to…*** • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, learners of all ages receive a more in depth experience with coding and computer science in a safe, supportive environment. Students will begin a tutorial of code.org; Hot Wheels. Students will be expected to watch various video tutorials and complete basic coding as determined by their progress in a sequential format. Students can watch each video tutorial as many times as needed until each step is completed. • Upon completion of www.Tynker.com, Hot Wheels, students will complete www.Tynker.com; Code Commander. • Students will be expected to watch various video tutorials and complete basic coding as determined by their progress in a sequential format. • Students can watch each video tutorial as many times as needed until each step is completed. • Upon completion of code.org, Star Wars and Frozen, students will complete an additional coding application of their choice on Tynker.com **Day 4**: Student Activities / Tasks / Projects	

Scratch - Getting Started With Scratch, Make A Birthday Card, and Animate Your Name (5 Class Periods)

	Instructional Strategies	*Descriptions*
Lesson Objectives:	***We are learning to***… • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction. • create a story in Scratch with multiple • sprites. • Create an animation that will stop only when the stop sign is clicked. • Create an animation with conditional logic. • Create animations with simultaneous scripts. • Create an animation with sprites communicating with each other. • Create a script where the sprite responds to specific keys that are pressed.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, students will begin a using Scratch Studio by first watching a tutorial; "Getting Started With Scratch." Students will then follow a guided tour on the fundamentals of using Scratch Studio. Upon completion of the tutorial, students will then follow guided instructions; • Begin logging into Scratch and locating the right sidebar. • Begin watching the tutorial video on "getting started with scratch." • Complete each tutorial, mastering the main focus areas for each "Getting Started With Scratch"tutorial. • Once "Getting Started With Scratch" is fully completed students will move on to the next two tutorials, "make a birthday card" and "animate your name". • Upon completion of these three tutorials, students will enter "Scratch Studio" and practice using the studio space to create animation.	

Scratch - Make It Fly, Make Music, and Race to the Finish (5 Class Periods)		
	Instructional Strategies	***Descriptions***
Lesson Objective:	***We are learning to…*** • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction. • create a story in Scratch with multiple • sprites. • Create an animation that will stop only when the stop sign is clicked. • Create an animation with conditional logic. • Create animations with simultaneous scripts. • Create an animation with sprites communicating with each other. • Create a script where the sprite responds to specific keys that are pressed. • Create a script with multiple costumes. • Create a script that plays music. • Create a simple game and tracks.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, students will be introduced to new features of Scratch Studio. Students will be challenged to use new commands and scripts to animate their scene in Scratch Studio. As guidance, students will watch tutorials for each level of progress in Scratch Studio. Students will follow guided instructions; • Begin logging into Scratch and locating the right sidebar. • Begin watching the tutorial video on "make it fly." • Complete each tutorial, mastering the main focus areas for each tutorial. • Once "getting started with scratch" is completed move on to the next two tutorials, "make music" and "race to the finish". • Upon completion of these three tutorials, students will enter "Scratch Studio" and practice using the studio space to create animation.	

Scratch - Hide and Seek Game, Fashion Game, and Make A Story (5 Class Periods)		
	Instructional Strategies	***Descriptions***
Lesson Objective:	***We are learning to…*** • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction. • create a story in Scratch with multiple • sprites. • Create an animation that will stop only when the stop sign is clicked. • Create an animation with conditional logic. • Create animations with simultaneous scripts. • Create an animation with sprites communicating with each other. • Create a script where the sprite responds to specific keys that are pressed. • Create a script with multiple costumes. • Create a script that plays music. • Create a simple game and tracks.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, students will be introduced to new features of Scratch Studio. Students will be challenged to use new commands and scripts to animate their scene in Scratch Studio. As guidance, students will watch tutorials for each level of progress in Scratch Studio. Students will follow guided instructions; • Begin logging into Scratch and locating the right sidebar. • Begin watching the tutorial video on "Hide and Seek Game." • Complete each tutorial, mastering the main focus areas for each tutorial. • Once "Hide and Seek Game" is completed move on to the next two tutorials, "Fashion Game" and "Make A Story". • Upon completion of these three tutorials, students will enter "Scratch Studio" and practice using the studio space to create animation.	

Scratch - Create a Pong Game, Let's Dance, Catch Game, and Create a Virtual Pet (7 Class Periods)		
	Instructional Strategies	***Descriptions***
Lesson Objective:	***We are learning to***… • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Develop a game board and control a sprite move in any direction. • Create a story in Scratch with multiple sprites. • Create an animation that will stop only when the stop sign is clicked. • Create an animation with conditional logic. • Create animations with simultaneous scripts. • Create an animation with sprites communicating with each other. • Create a script where the sprite responds to specific keys that are pressed. • Create a script with multiple costumes. • Create a script that plays music. • Create a simple game and tracks.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, students will be introduced to new features and complete their tutorials of Scratch Studio . Students will be challenged to use new commands and scripts to animate their scene in Scratch Studio. As guidance, students will watch tutorials for each level of progress in Scratch Studio. Students will follow guided instructions; • Begin logging into Scratch and locating the right sidebar. • Begin watching the tutorial video on "Create a Pong Game." • Complete each tutorial, mastering the main focus areas for each tutorial. • Once "Create a Pong Game" is completed move on to the next two tutorials, "Let's Dance", 'Catch Game" and "Create a Virtual Pet". • Upon completion of these three tutorials, students will enter "Scratch Studio" and practice using the studio space to create animation.	

Scratch - Movie Scene (3 Class Periods)	

	Instructional Strategies	*Descriptions*
Lesson Objective:	***We are learning to***… • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction. • Create a story in Scratch with multiple sprites. • Create an animation that will stop only when the stop sign is clicked. • Create an animation with conditional logic. • Create animations with simultaneous scripts. • Create an animation with sprites communicating with each other. • Create a script where the sprite responds to specific keys that are pressed. • Create a script with multiple costumes. • Create a script that plays music. • Create a simple game and tracks.
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, students will create an original Scratch Studio animated scene using skills previously learned. Students will be challenged to use commands and scripts to animate their scene in Scratch Studio. As guidance, students will follow instructions; • Students are going to create a scene with 2-3 sprites. • Sprites must have 10-15 blocks. • There must be two-three loops other than "forever". • There must be 2-3 sounds in the scene. • The scene must be 25-30 seconds long. • The scene must have captions and dialogue. • The scene must have a "PROBLEM" that leads to a tragic end. (Meaning something sad or bad needs to happen. Think about Looney Tunes endings) • Upon completion students will present their scenes to the class for viewing and discussion.

Scratch - Car Commercial (5 Class Periods)		
	Instructional Strategies	***Descriptions***
Lesson Objective:	***We are learning to…*** • Locate and explain two different coding communities, and how they can help students learn coding. • Identify the concept of coding and what 'code' means • Identify key computer science vocabulary. • Develop a game board and control a sprite move in any direction. • create a story in Scratch with multiple sprites. • Create an animation that will stop only when the stop sign is clicked. • Create an animation with conditional logic. • Create animations with simultaneous scripts. • Create an animation with sprites communicating with each other. • Create a script where the sprite responds to specific keys that are pressed. • Create a script with multiple costumes. • Create a script that plays music. • Create a simple game and tracks.	
Suggested Student Learning Activities:	**Day(s) 1-5**: In this lesson, students will create an original Scratch Studio animated scene "car commercial" using skills previously learned. Students will be challenged to use commands and scripts to animate their scene in Scratch Studio. As guidance, students will follow instructions; • Students are going to create a scene with 3-7 sprites. • Sprites must have 15-20 blocks. • There must be two-three loops other than "forever". • There must be 10-15 sounds in the commercial. • The commercial must be 30-40 seconds long. • The commercial must have captions and dialogue. • The commercial must be a "car commercial" selling any kind of car the students wish). The commercial should be a comedy, adventure or thrilling. • The commercial must have a price for the car. • Upon completion students will present their scenes to the class for viewing and discussion.	

Intro to Multimedia Programming - Daily Pacing Guide

Day	Lesson	Topic / Activity	Day	Lesson	Topic / Activity	Day	Lesson	Topic / Activity
1	CODE.org and Tynker.com	**Minecraft Designer & Adventurer**	16	SCRATCH	**Getting Started, Birthday Cards, & Name Animation**	31	SCRATCH	**Creating a Pong Game, Let's Dance Catch, & Virtual Pets**
2		Minecraft Designer & Adventurer	17		Getting Started, Birthday Cards, & Name Animation	32		Creating a Pong Game, Let's Dance Catch, & Virtual Pets
3		Minecraft Designer & Adventurer	18		Getting Started, Birthday Cards, & Name Animation	33		Creating a Pong Game, Let's Dance Catch, & Virtual Pets
4		Minecraft Designer & Adventurer	19		Getting Started, Birthday Cards, & Name Animation	34		Creating a Pong Game, Let's Dance Catch, & Virtual Pets
5		Minecraft Designer & Adventurer	20		Getting Started, Birthday Cards, & Name Animation	35		Creating a Pong Game, Let's Dance Catch, & Virtual Pets
6		**Star Wars & Frozen**	21		**Make It Fly, Make Music, Race to the Finish**	36		Creating a Pong Game, Let's Dance Catch, & Virtual Pets
7		Star Wars & Frozen	22		Make It Fly, Make Music, Race to the Finish	37		Creating a Pong Game, Let's Dance Catch, & Virtual Pets
8		Star Wars & Frozen	23		Make It Fly, Make Music, Race to the Finish	38		**Movie Scene**
9		Star Wars & Frozen	24		Make It Fly, Make Music, Race to the Finish	39		Movie Scene
10		Star Wars & Frozen	25		Make It Fly, Make Music, Race to the Finish	40		Movie Scene
11		**Hot Wheels & Code Commander**	26		**Hide and Seek, Fashion, & Make a Story**	41		**Car Commercials**
12		Hot Wheels & Code Commander	27		Hide and Seek, Fashion, & Make a Story	42		Car Commercials
13		Hot Wheels & Code Commander	28		Hide and Seek, Fashion, & Make a Story	43		Car Commercials
14		Hot Wheels & Code Commander	29		Hide and Seek, Fashion, & Make a Story	44		Car Commercials
15		Hot Wheels & Code Commander	30		Hide and Seek, Fashion, & Make a Story	45		Car Commercials

NEPTUNE TOWNSHIP SCHOOL DISTRICT
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