Verona Public School District
Curriculum Overview

CompSci 8: Advanced Coding/TE&D

Curriculum Committee Members:
Andor Kish

Supervisor:
Glen Stevenson

Curriculum Developed:
Summer 2015
Revised Summer 2018
Revised Summer 2022

Board Approval Date:
October 20, 2015
September 25, 2018
August 30, 2022

Verona Public Schools
121 Fairview Ave., Verona, NJ 07044
www.veronaschools.org

Verona Public Schools Mission Statement:

In partnership with a supportive community, we inspire our students to be creative, critical thinkers and compassionate global citizens through dynamic teaching, meaningful curricula, and enriching experiences.

Course Description:

Students will dive deeper into coding with Scratch and CoSpaces. Computer Science offers students the ability to learn the fundamentals behind game design, animation, how input/output works, and character creation

Prerequisite(s):

Fifth Grade Intro to Computers and Sixth Grade Intro to Coding. Seventh Grade 3D Modeling is a plus.

Standard 8: Technology Standards

The curricular expectation for the Standard 8: Computer Science and Design Thinking standards in classes that are not specifically focused on computer science or engineering is infusion and integration throughout the curriculum. These are not intended to be standards for separate, stand alone lessons. The computer science and design thinking standards and practices are to be incorporated into other disciplines and contexts as appropriate.

8.1: Computer Science	8.2: Design Thinking
X Computing Systems (CS) Networks and the Internet (NI) Impacts of Computing (IC) Data & Analysis (DA) **X** Algorithms & Programming (AP)	Engineering Design (ED) **X** Interaction of Technology and Humans (ITH) **X** Nature of Technology (NT) Effects of Technology on the Natural World (ETA) Ethics and Culture (EC)

Computer Science and Design Thinking Practices

X 1. Fostering an Inclusive Computing and Design Culture
X 2. Collaborating Around Computing and Design
X 3. Recognizing and Defining Computational Problems
X 4. Developing and Using Abstractions
X 5. Creating Computational Artifacts
X 6. Testing and Refining Computational Artifacts
X 7. Communicating About Computing and Design

SEL Competencies and Career Readiness, Life Literacies, and Key Skills Practices

The curricular expectation for the Standard 9: Career Readiness, Life Literacies, and Key Skills standards is infusion and integration throughout the curriculum. These are not intended to be standards for separate, stand alone lessons. The CLKS are to be incorporated into other disciplines and contexts as appropriate.

Social and Emotional Learning Core Competencies: *These competencies are identified as five interrelated sets of cognitive, affective, and behavioral capabilities*	**Career Readiness, Life Literacies, and Key Skills Practices:** *Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. These practices should be taught and reinforced in all content areas with increasingly higher levels of complexity and expectation as a student advances through a program of study.*
Self-awareness: The ability to accurately recognize one's emotions and thoughts and their influence on behavior. This includes accurately assessing one's strengths and limitations and possessing a well-grounded sense of confidence and optimism.	**X** **CLKS6** Model integrity, ethical leadership, and effective management. **CLKS7** Plan education and career paths aligned to personal goals.
Self-management: The ability to regulate one's emotions, thoughts, and behaviors effectively in different situations. This includes managing stress, controlling impulses, motivating oneself, and setting and working toward achieving personal and academic goals.	**CLKS2** Attend to financial well-being. **X** **CLKS4** Demonstrate creativity and innovation. **X** **CLKS5** Utilize critical thinking to make sense of problems and persevere in solving them. **X** **CLKS8** Use technology to enhance productivity, increase collaboration, and communicate effectively.
Social awareness: The ability to take the perspective of and empathize with others from diverse backgrounds and cultures, to understand social and ethical norms for behavior, and to recognize family, school, and community resources and supports.	**CLKS1** Act as a responsible and contributing community member and employee. **X** **CLKS6** Model integrity, ethical leadership, and effective management.
Relationship skills: The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups. This includes communicating clearly, listening actively, cooperating, resisting inappropriate social pressure, negotiating conflict constructively, and seeking and offering help when needed.	**X** **CLKS6** Model integrity, ethical leadership, and effective management. **CLKS9** Work productively in teams while using cultural global competence.
Responsible decision making: The ability to make constructive and respectful choices about personal behavior and social interactions based on consideration of ethical standards, safety concerns, social norms, the realistic evaluation of consequences of various actions, and the well-being of self and others.	**CLKS3** Consider the environmental, social, and economic impact of decisions. **X** **CLKS5** Utilize critical thinking to make sense of problems and persevere in solving them. **X** **CLKS6** Model integrity, ethical leadership, and effective management.

Course Materials

Core Instructional Materials: *These are the board adopted and approved materials to support the curriculum, instruction, and assessment of this course.*	**Differentiated Resources**: *These are teacher and department found materials, and also approved support materials that facilitate differentiation of curriculum, instruction, and assessment of this course.*
• Scratch - Coding Language and Community	• Photopea • Gifmaker • Giphy • YouTube

Marking Period-At-A-Glance Pacing ~10 weeks

1	2	3	4	5	6	7	8	9	10
Unit 1		Unit 2				Unit 3	Unit 4	Unit 5	

H.B. Whitehorne CompSci 8: Advanced Coding/TE&D

Unit 1: Scene Construction (Input/Output)	Unit Duration: 10 Days

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

8.1.8.AP.2: Create clearly named variables that represent different data types and perform operations on their values.
8.1.8.AP.3: Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
8.1.8.AP.5: Create procedures with parameters to organize code and make it easier to reuse.
8.1.8.AP.7: Design programs, incorporating existing code, media, and libraries, and give attribution.
8.1.8.AP.8: Systematically test and refine programs using a range of test cases and users.
8.1.8.AP.9: Document programs in order to make them easier to follow, test, and debug
8.1.8.CS.3: Justify design decisions and explain potential system trade-offs.

ISTE Standards:

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

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

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
d. Transfer current knowledge to learning of new technologies

Interdisciplinary Standards (NJSLS):

8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions
8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables
8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
RL.8.3. Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.
RL.8.7. Evaluate the choices made by the directors or actors by analyzing the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script.
RI.8.7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text,video, multimedia) to present a particular topic or idea

Technology Integration (NJSLS 8):

Please see **Established Subject Area Goals (NJSLS**) above

21st Century Skills Integration (NJSLS 9):

CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them.
CLKS6 Model integrity, ethical leadership and effective management.
CLKS8 Use technology to enhance productivity, increase collaboration, and communicate effectively.

9.4.8.DC.1: Analyze the resource citations in online materials for proper use.
9.4.8.DC.2: Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).
9.4.8.DC.4: Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences.
9.4.8.DC.5: Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
9.4.8.DC.6: Analyze online information to distinguish whether it is helpful or harmful to reputation.
9.4.8.DC.7: Collaborate within a digital community to create a digital artifact using strategies such as crowdsourcing or digital surveys.
9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.

Transfer Goal:

Students will be able to independently use their learning to create a project that experiments with multiple outcomes, similar to a choose your own adventure. They will also be able to gain more familiarity with the computational concepts of events and parallelism and the practice of experimenting and iterating. Students will incorporate sprites they designed into the scenes.

Students will understand that:	Essential Questions:
● there is a benefit from reusing, remixing, and redesigning when coding. ● a scene often sets the mood, feeling, and emotions of an animation. ● players and a stage combined make a scene	● How is a stage different from a sprite? ● What other types of projects, beyond animations, use scene changes? ● What does the stage have in common with the sprites?

	● What is your definition of remixing? ● How have your ideas become extended or enhanced by others?
Students will know: ● backdrops can either be preloaded, uploaded, or painted within Scratch. ● the looks and events blocks are responsible for switching backgrounds. ● the stage and sprite have different defined blocks. ● backdrops can be renamed. ● created creatures can be uploaded or painted within Scratch. ● creatures need different costumes to have them come “alive”.	**Students will be able to:** ● paint, upload, and change a backdrop. ● identify the looks and events blocks for background switching. ● distinguish between the stages’ and sprite’s blocks. ● identify how to rename a backdrop and sprite. ● distinguish between an uploaded, painted, and pre-made sprite. ● identify how to create costumes for sprites.

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Students will have to create the following:

- an animation that experiments with backdrops. Their project will have multiple scenes that flow into one another. The scenes will be automatic and not user controlled.
- audio that is relevant to their story. This includes background audio, as well as ambient audio.
- a sprite, either within Scratch or in an outside program, and upload it to Scratch.
- a project, with a partner if they want, that incorporates their choose your own adventure story. Students will learn how to brainstorm with a partner and how input/outputs work in computer science.

Other Evidence:

Formal:

- Task check points and products

Informal

- Student use of discipline specific vocabulary
- Teacher observation

Stage 3: Activities

Learning Activities:

- Create an animation that experiments with backdrops. Their project will have multiple scenes that flow into one another. The scenes will be automatic and not user controlled.
- Create audio that is relevant to their story. This includes background audio, as well as ambient audio.
- Create a sprite, either within Scratch or in an outside program, and upload it to Scratch.
- Create a project, with a partner if they want, that incorporates their choose your own adventure story. Students will learn how to brainstorm with a partner and how input/outputs work in computer science.

Reference Materials

- Scratch - Coding Language and Community
- Photopea
- Gifmaker
- Giphy
- YouTube

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)

1. Use of calculator
2. Use of a math grid
3. Access to electronic texts
4. Preferential Seating
5. Provide extended time (Tests, Projects, Quizzes, Classwork, etc.)
6. Provide written notes
7. Modified assignments and/or given in shorter segments
8. Provide graphic organizers
9. Provide study guides for assessments
10. Provide written directions for longer assignments
11. Provide orals directions as well as written
12. Establish a non-verbal cue to redirect attention
13. Check for understanding
14. Include student in small group instruction
15. Advance notice of large assignments and assessments
16. Call on student only when he/she volunteers
17. Oral follow-up/ brainstorming
18. Pair with friend for assignments
19. Directions/ tests read aloud
20. Close and consistent communication with home
21. Allow use of ChromeBook
22. Allow use of voice typing
23. Create electronic lab sheets
24. Allow frequent and active movement breaks
25. Include sensory breaks if and when needed
26. Allow to stand during written work
27. Teach organizational and time management strategies
28. Encourage appropriate socialization with peers
29. Breaking up of larger assignments when appropriate
30. Assignments will be given in shorter segments/ checked for correctness
31. Simplify complex directions
32. Do not penalize for spelling errors
33. Positive Reinforcement System
34. Test in smaller group setting
35. Provide visuals to teach concepts
36. Have students engage in hands on learning
37. Small group teaching when possible
38. Model and use gestures to aid in understanding
39. Model tasks by giving one or two examples before releasing students to work independently
40. Self-paced tutorials/walkthroughs that the students may use to recall information.

Differentiation for English Language Learners

1. Provide alternate ways for the student to respond (verbal/pictographic answers instead of written)
2. Substitute a hands-on activity or use of different media in projects for a written activity
3. Provide word banks / word walls
4. Prepare and distribute advance notes
5. Provide model sentence frames and sentence starters for both oral responses and written responses
6. Provide additional time to complete assessments and assignments
7. Model and use gestures to aid in understanding
8. Model tasks by giving one or two examples before releasing students to work independently
9. Present instructions both verbally and visually
10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
18. Accept correct answers on test or worksheets in any written form such as lists, phrases, or using inventive spelling
19. Allow editing and revision before grading
20. Design projects and assessment for student that require reduced sentence or paragraph composition
21. Give alternative homework or class work assignments suitable to the student’s linguistic ability for activities and assessments
22. Utilize alternate reading assignments/materials at the student’s reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster’s Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.
28. Support use of student’s primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:

- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Differentiation for Enrichment:

1. Know their interests by doing an interest inventory
2. Keep them active/offer flexible seating
3.
4. Vary groupings (from working alone to larger groups and/or cross-grade groupings)
5. Allow them to incorporate other subject and topics
6. Teach decision-making
7. Model organization strategies based on “real-world” scenarios
8. Use brain breaks (puzzles, doodle notes)
9. Encourage reading of all types - biography, scientific journals, etc
10. Pre-assess to avoid rehashing prior knowledge
11. Teach them to practice mindfulness
12. Find a mentor within their interest area (possibly Skype with scientists/engineers, etc.)
13. Practice like professionals
14. Submit inventions
15. Community Service Learning
16. Model curiosity
17. Provide opportunities for open-ended, self-directed activities
18. Provide instruction in research skills needed to conduct an independent study in student’s interest area
19. Provide independent learning opportunities
20. Use advanced supplementary/reading materials
21. Encourage the use of creativity
22. Ask higher level questions
23. Provide opportunities to develop depth and breadth of knowledge in a subject area
24.

Additional Resources:

Serving Gifted Students in General Ed Classrooms
Practical Recommendations and Interventions: Gifted Students

H.B. Whitehorne CompSci 8: Advanced Coding/TE&D

Unit 2: Game Creation	Unit Duration: 20 Days

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

8.1.8.AP.1: Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode.
8.1.8.AP.2: Create clearly named variables that represent different data types and perform operations on their values.
8.1.8.AP.3: Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
8.1.8.AP.5: Create procedures with parameters to organize code and make it easier to reuse.
8.1.8.AP.7: Design programs, incorporating existing code, media, and libraries, and give attribution.
8.1.8.AP.8: Systematically test and refine programs using a range of test cases and users.

ISTE Standards:

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Interdisciplinary Standards (NJSLS):

8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π2
8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables
8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies

Technology Integration (NJSLS 8):

Please see **Established Subject Area Goals (NJSLS**) above

21st Century Skills Integration (NJSLS 9):

CLKS4 Demonstrate creativity and innovation.
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9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.

Transfer Goal:

Students will be able to <u>independently</u> use their learning to become more familiar with experimental practices of experimenting and iterating, testing, and debugging, reusing and remixing, and abstracting and modularizing by building and extending a self-directed scroll x game.

Students will understand that:

- constructive criticism will help push boundaries and think outside the box.
- common game mechanics involve extensions
- computational practices consist of conditionals, operators, and data.

Essential Questions:

- What was challenging about designing your game?
- What are you proud of in your game?
- What are useful variables to use in game creation?

- computational practices consist of abstract and modularizing

- What are different ways of increasing difficulty in your game?
- Describe your process of adding extension(s) in your game

Students will know:
- broadcast blocks trigger new levels.
- variable blocks are required to keep score.
- extensions add difficulty to a game.
- interaction adds complexity and usability to a game.
- clones repeat a sprite without having to copy or duplicate it.
- sensing blocks at interaction to a game.
- the difference between operators, data, and conditionals.

Students will be able to:
- identify how to incorporate multiple levels in a game.
- identify how to create a variable block.
- distinguish between extensions.
- identify how to add complexity to a game.
- distinguish between copied sprites and cloned sprites.
- distinguish between operators, data, and conditionals.
- identify sensing blocks.

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:
Students will create the following:
- a scroll x game, think old school Super Mario Bros., in which the sprite causes the background to move either left or right when a key is pressed. The main sprite will be animated and must jump/dodge obstacles throughout the game. The game will include 10 terrains that move throughout the game. Students will also have to think about the object of the game and how a player can win and lose at it. Audio must be included, as well as, win and game over screens.

Other Evidence:
Formal:
- Task check points and products

Informal
- Student use of discipline specific vocabulary
- Teacher observation

Stage 3: Activities

Learning Activities:
- Create a scroll x game, think old school Super Mario Bros., in which the sprite causes the background to move either left or right when a key is pressed.
- The main sprite will be animated and must jump/dodge obstacles throughout the game.
- The game will include 10 terrains that move throughout the game.
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7. Modified assignments and/or given in shorter segments
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10. Provide written directions for longer assignments
11. Provide orals directions as well as written
12. Establish a non-verbal cue to redirect attention
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14. Include student in small group instruction
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19. Directions/ tests read aloud
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21. Allow use of ChromeBook
22. Allow use of voice typing
23. Create electronic lab sheets
24. Allow frequent and active movement breaks
25. Include sensory breaks if and when needed
26. Allow to stand during written work
27. Teach organizational and time management strategies
28. Encourage appropriate socialization with peers
29. Breaking up of larger assignments when appropriate
30. Assignments will be given in shorter segments/ checked for correctness
31. Simplify complex directions
32. Do not penalize for spelling errors
33. Positive Reinforcement System
34. Test in smaller group setting
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10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
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22. Utilize alternate reading assignments/materials at the student's reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster's Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.
28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:
- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Differentiation for Enrichment:
1. Know their interests by doing an interest inventory
2. Keep them active/offer flexible seating
3.
4. Vary groupings (from working alone to larger groups and/or cross-grade groupings)
5. Allow them to incorporate other subject and topics
6. Teach decision-making
7. Model organization strategies based on "real-world" scenarios
8. Use brain breaks (puzzles, doodle notes)
9. Encourage reading of all types - biography, scientific journals, etc
10. Pre-assess to avoid rehashing prior knowledge
11. Teach them to practice mindfulness
12. Find a mentor within their interest area (possibly Skype with scientists/engineers, etc.)
13. Practice like professionals
14. Submit inventions
15. Community Service Learning
16. Model curiosity
17. Provide opportunities for open-ended, self-directed activities
18. Provide instruction in research skills needed to conduct an independent study in student's interest area
19. Provide independent learning opportunities
20. Use advanced supplementary/reading materials
21. Encourage the use of creativity
22. Ask higher level questions
23. Provide opportunities to develop depth and breadth of knowledge in a subject area
24.

Additional Resources:
Serving Gifted Students in General Ed Classrooms
Practical Recommendations and Interventions: Gifted Students

H.B. Whitehorne CompSci 8: Advanced Coding/TE&D

Unit 3: Commercial	Unit Duration: 5 Days

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

8.1.8.AP.1: Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode.
8.1.8.AP.2: Create clearly named variables that represent different data types and perform operations on their values.
8.1.8.AP.3: Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
8.1.8.AP.5: Create procedures with parameters to organize code and make it easier to reuse.
8.1.8.AP.7: Design programs, incorporating existing code, media, and libraries, and give attribution.
8.1.8.AP.8: Systematically test and refine programs using a range of test cases and users.

ISTE Standards:

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

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

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
d. Transfer current knowledge to learning of new technologies

Interdisciplinary Standards (NJSLS):

1.2.8.Pr4a: Experiment with and integrate multiple forms, approaches and content to coordinate, produce and implement media artworks that convey purpose and meaning (e.g., narratives, video games, interdisciplinary projects, multimedia theatre)
RL.8.3. Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.
RL.8.7. Evaluate the choices made by the directors or actors by analyzing the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script.
RI.8.7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text,video, multimedia) to present a particular topic or idea

Technology Integration (NJSLS 8):

Please see **Established Subject Area Goals (NJSLS**) above

21st Century Skills Integration (NJSLS 9):

CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them.
CLKS6 Model integrity, ethical leadership and effective management.
CLKS8 Use technology to enhance productivity, increase collaboration, and communicate effectively.

9.4.8.DC.1: Analyze the resource citations in online materials for proper use.
9.4.8.DC.2: Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).
9.4.8.DC.4: Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences.
9.4.8.DC.5: Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
9.4.8.DC.6: Analyze online information to distinguish whether it is helpful or harmful to reputation.
9.4.8.DC.7: Collaborate within a digital community to create a digital artifact using strategies such as crowdsourcing or digital surveys.
9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.

Transfer Goal:

Students will be able to <u>independently</u> use their learning to design a commercial that is able to show feelings and emotions, through animation, and use transitions and audio to enhance the mood of the animation.

Students will understand that:

- Storyboarding is a way to stay focused and on task.
- The advantage of using vector graphics over bitmap graphics.
- Emotions will help a story unfold.
- Conditional and variable statements work together in order for the objects to move in relation to each other.
- Project feedback is essential to find bugs that are often overlooked and to check the progress of a project

Essential Questions:

- What goes into making a commercial?
- How are transitions used to add effect?
- How is sound used to provide atmosphere?
- What resources are needed for your project?
- How are you going to make your project progress?

H.B. Whitehorne CompSci 8: Advanced Coding/TE&D

Students will know:
- what a local variable is
- what a cloud variable is
- What vector graphics are
- How gifs are created
- How loops are created
- outside resources and the remixing of past projects may aide in the development of the new project.

Students will be able to:
- distinguish when to use a local and/or a cloud variable
- identify the difference between a local and a cloud variable
- identify the difference of vector and bitmap graphics.
- identify how convert a video to an animated gif

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:
Students will create the following:

- a project, in which the students will need to create a character, in Scratch or another project, that has various forms of emotions that can be expressed as the animation unfolds. Students will have to include background objects positioned at different distances and have the objects move in relation to parallax that is present, which will be determined by their character.

Other Evidence:
Formal:
- Task check points and products

Informal
- Student use of discipline specific vocabulary
- Teacher observation

Stage 3: Activities

Learning Activities:
- Create a project, in which the students will need to create a character, in Scratch or another project, that has various forms of emotions that can be expressed as the animation unfolds.
- Students will have to include background objects positioned at different distances and have the objects move in relation to parallax that is present, which will be determined by their character.

Reference Materials

- Scratch - Coding Language and Community
- Photopea
- Gifmaker
- Giphy
- YouTube

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)
1. Use of calculator
2. Use of a math grid
3. Access to electronic texts
4. Preferential Seating
5. Provide extended time (Tests, Projects, Quizzes, Classwork, etc.)
6. Provide written notes
7. Modified assignments and/or given in shorter segments
8. Provide graphic organizers
9. Provide study guides for assessments
10. Provide written directions for longer assignments
11. Provide orals directions as well as written
12. Establish a non-verbal cue to redirect attention
13. Check for understanding
14. Include student in small group instruction
15. Advance notice of large assignments and assessments
16. Call on student only when he/she volunteers
17. Oral follow-up/ brainstorming
18. Pair with friend for assignments
19. Directions/ tests read aloud
20. Close and consistent communication with home
21. Allow use of ChromeBook
22. Allow use of voice typing
23. Create electronic lab sheets
24. Allow frequent and active movement breaks
25. Include sensory breaks if and when needed
26. Allow to stand during written work
27. Teach organizational and time management strategies
28. Encourage appropriate socialization with peers
29. Breaking up of larger assignments when appropriate
30. Assignments will be given in shorter segments/ checked for correctness
31. Simplify complex directions
32. Do not penalize for spelling errors
33. Positive Reinforcement System
34. Test in smaller group setting
35. Provide visuals to teach concepts
36. Have students engage in hands on learning
37. Small group teaching when possible
38. Model and use gestures to aid in understanding
39. Model tasks by giving one or two examples before releasing students to work independently
40. Self-paced tutorials/walkthroughs that the students may use to recall information.

Differentiation for English Language Learners
1. Provide alternate ways for the student to respond (verbal/pictographic answers instead of written)
2. Substitute a hands-on activity or use of different media in projects for a written activity
3. Provide word banks / word walls
4. Prepare and distribute advance notes
5. Provide model sentence frames and sentence starters for both oral responses and written responses
6. Provide additional time to complete assessments and assignments
7. Model and use gestures to aid in understanding
8. Model tasks by giving one or two examples before releasing students to work independently
9. Present instructions both verbally and visually
10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
18. Accept correct answers on test or worksheets in any written form such as lists, phrases, or using inventive spelling
19. Allow editing and revision before grading
20. Design projects and assessment for student that require reduced sentence or paragraph composition
21. Give alternative homework or class work assignments suitable to the student's linguistic ability for activities and assessments
22. Utilize alternate reading assignments/materials at the student's reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster's Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.
28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:
- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Differentiation for Enrichment:
1. Know their interests by doing an interest inventory
2. Keep them active/offer flexible seating
3.
4. Vary groupings (from working alone to larger groups and/or cross-grade groupings)
5. Allow them to incorporate other subject and topics
6. Teach decision-making
7. Model organization strategies based on "real-world" scenarios
8. Use brain breaks (puzzles, doodle notes)
9. Encourage reading of all types - biography, scientific journals, etc
10. Pre-assess to avoid rehashing prior knowledge
11. Teach them to practice mindfulness
12. Find a mentor within their interest area (possibly Skype with scientists/engineers, etc.)
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17. Provide opportunities for open-ended, self-directed activities
18. Provide instruction in research skills needed to conduct an independent study in student's interest area
19. Provide independent learning opportunities
20. Use advanced supplementary/reading materials
21. Encourage the use of creativity
22. Ask higher level questions
23. Provide opportunities to develop depth and breadth of knowledge in a subject area
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Additional Resources:
Serving Gifted Students in General Ed Classrooms
Practical Recommendations and Interventions: Gifted Students

H.B. Whitehorne CompSci 8: Advanced Coding/TE&D

Unit 4: Debugging	Unit Duration: 3 Days

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

8.1.8.AP.9: Document programs in order to make them easier to follow, test, and debug.

ISTE Standards:
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

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

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
d. Transfer current knowledge to learning of new technologies

Interdisciplinary Standards (NJSLS):

8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π2
8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables
8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies

Technology Integration (NJSLS 8):

Please see **Established Subject Area Goals (NJSLS**) above

21st Century Skills Integration (NJSLS 9):

CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them.
CLKS6 Model integrity, ethical leadership and effective management.
CLKS8 Use technology to enhance productivity, increase collaboration, and communicate effectively.

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9.4.8.DC.5: Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
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9.4.8.DC.7: Collaborate within a digital community to create a digital artifact using strategies such as crowdsourcing or digital surveys.
9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations

Transfer Goal:

Students will be able to <u>independently</u> use their learning to find and correct the bugs that exist in already made programs, animations, and games.

Students will understand that:	Essential Questions:
● there are multiple ways to solve and problem and reach an endpoint. ● debugging is a process not only in computer science, but in all subjects and life. ● problem solving creates active thinkers.	● How do you go about analyzing mistakes? ● Can you give an example of where there are two different ways to an end result?
Students will know:	**Students will be able to:**
● debugging is a vital computer programming process. ● there is not a right or wrong way to identifying bugs ● bugs are a natural part of the coding and building process. ● exploring bugs will help to explore a range of concepts and testing procedures	● identify bugs in a program, game, or animation. ● distinguish between successful and unsuccessful ways to debug. ● identify procedures that work for the individual. ● identify concepts that work for an individual vs. a group.

Stage 2: Acceptable Evidence

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Transfer Task & Unit Assessments:

Students will be asked to solve 3 different sets of debug problems. All sets of problems have errors and bugs in them that the students must find and solve. The students will have to fix the program, animation, and/or game so it works properly and smoothly. There is more than one way to debug the issues.

Other Evidence:

Formal:

- Task check points and products

Informal

- Student use of discipline specific vocabulary
- Teacher observation

Stage 3: Activities

Learning Activities:

- Students will be asked to solve 3 different sets of debug problems.
- All sets of problems have errors and bugs in them that the students must find and solve.
- The students will have to fix the program, animation, and/or game so it works properly and smoothly.
- There is more than one way to debug the issues.

Reference Materials

- Scratch - Coding Language and Community
- Photopea
- Gifmaker
- Giphy
- YouTube

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)

1. Use of calculator
2. Use of a math grid
3. Access to electronic texts
4. Preferential Seating
5. Provide extended time (Tests, Projects, Quizzes, Classwork, etc.)
6. Provide written notes
7. Modified assignments and/or given in shorter segments
8. Provide graphic organizers
9. Provide study guides for assessments
10. Provide written directions for longer assignments
11. Provide orals directions as well as written
12. Establish a non-verbal cue to redirect attention
13. Check for understanding
14. Include student in small group instruction
15. Advance notice of large assignments and assessments
16. Call on student only when he/she volunteers
17. Oral follow-up/ brainstorming
18. Pair with friend for assignments
19. Directions/ tests read aloud
20. Close and consistent communication with home
21. Allow use of ChromeBook
22. Allow use of voice typing
23. Create electronic lab sheets
24. Allow frequent and active movement breaks
25. Include sensory breaks if and when needed
26. Allow to stand during written work
27. Teach organizational and time management strategies
28. Encourage appropriate socialization with peers
29. Breaking up of larger assignments when appropriate
30. Assignments will be given in shorter segments/ checked for correctness
31. Simplify complex directions
32. Do not penalize for spelling errors
33. Positive Reinforcement System
34. Test in smaller group setting
35. Provide visuals to teach concepts
36. Have students engage in hands on learning
37. Small group teaching when possible
38. Model and use gestures to aid in understanding
39. Model tasks by giving one or two examples before releasing students to work independently
40. Self-paced tutorials/walkthroughs that the students may use to recall information.

Differentiation for English Language Learners

1. Provide alternate ways for the student to respond (verbal/pictographic answers instead of written)
2. Substitute a hands-on activity or use of different media in projects for a written activity
3. Provide word banks / word walls
4. Prepare and distribute advance notes
5. Provide model sentence frames and sentence starters for both oral responses and written responses
6. Provide additional time to complete assessments and assignments
7. Model and use gestures to aid in understanding
8. Model tasks by giving one or two examples before releasing students to work independently
9. Present instructions both verbally and visually
10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
18. Accept correct answers on test or worksheets in any written form such as lists, phrases, or using inventive spelling
19. Allow editing and revision before grading
20. Design projects and assessment for student that require reduced sentence or paragraph composition
21. Give alternative homework or class work assignments suitable to the student's linguistic ability for activities and assessments
22. Utilize alternate reading assignments/materials at the student's reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster's Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.
28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:

- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Differentiation for Enrichment:

1. Know their interests by doing an interest inventory
2. Keep them active/offer flexible seating
3.
4. Vary groupings (from working alone to larger groups and/or cross-grade groupings)
5. Allow them to incorporate other subject and topics
6. Teach decision-making
7. Model organization strategies based on "real-world" scenarios
8. Use brain breaks (puzzles, doodle notes)
9. Encourage reading of all types - biography, scientific journals, etc
10. Pre-assess to avoid rehashing prior knowledge
11. Teach them to practice mindfulness
12. Find a mentor within their interest area (possibly Skype with scientists/engineers, etc.)
13. Practice like professionals
14. Submit inventions
15. Community Service Learning
16. Model curiosity
17. Provide opportunities for open-ended, self-directed activities
18. Provide instruction in research skills needed to conduct an independent study in student's interest area
19. Provide independent learning opportunities
20. Use advanced supplementary/reading materials
21. Encourage the use of creativity
22. Ask higher level questions
23. Provide opportunities to develop depth and breadth of knowledge in a subject area

Additional Resources:

Serving Gifted Students in General Ed Classrooms
Practical Recommendations and Interventions: Gifted Students

H.B. Whitehorne CompSci 8: Advanced Coding/TE&D

Unit 5: Portfolio Creation	Unit Duration: 4 Days

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

8.2.8.ITH.1: Explain how the development and use of technology influences economic, political, social, and cultural issues.
8.2.8.NT.1: Examine a malfunctioning tool, product, or system and propose solutions to the problem.
8.2.8.NT.2: Analyze an existing technological product that has been repurposed for a different function.
8.2.8.NT.3: Examine a system, consider how each part relates to other parts, and redesign it for another purpose.
8.2.8.NT.4: Explain how a product designed for a specific demand was modified to meet a new demand and led to a new product.

ISTE Standards:

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

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

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
d. Transfer current knowledge to learning of new technologies

Interdisciplinary Standards (NJSLS):

1.5.2.Pr5a: Explain the purpose of a portfolio or collection. Ask and answer questions regarding preparing artwork for presentation or preservation.
1.5.2.Pr4a: Select artwork for display, and explain why some work, objects and artifacts are valued over others. Categorize artwork based on a theme or concept for an exhibit.

Technology Integration (NJSLS 8):

Please see **Established Subject Area Goals (NJSLS**) above

21st Century Skills Integration (NJSLS 9):

CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them.
CLKS6 Model integrity, ethical leadership and effective management.
CLKS8 Use technology to enhance productivity, increase collaboration, and communicate effectively.

9.4.8.DC.1: Analyze the resource citations in online materials for proper use.
9.4.8.DC.2: Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).
9.4.8.DC.4: Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences.
9.4.8.DC.5: Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
9.4.8.DC.6: Analyze online information to distinguish whether it is helpful or harmful to reputation.
9.4.8.DC.7: Collaborate within a digital community to create a digital artifact using strategies such as crowdsourcing or digital surveys.
9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.

Transfer Goal:

Students will be able to independently use their learning to create a Google Site that showcases some of the work that they have created over the years in not only computer class, but as well as others.

Students will understand that:

- What a portfolio is
- how to choose work for a portfolio
- Websites are a great way to house a portfolio.
- Portfolios show the growth of an individual
- Google Sites is a simple, yet creative tool used to create a website

Essential Questions:

- How do you go about choosing what should and should not go in a portfolio?
- Why are portfolios used? How can they help you in your academic and future professional careers?

Students will know:

- Portfolios are a great way of showing growth
- Portfolios are not only one type of medium, but mixed.
- Websites have a hierarchy for order and navigation
- Drag and drop websites are the easiest way to create a portfolio

Students will be able to:

- Identify what pieces of work should go in their portfolio
- Identify a uniform theme for their Google Site
- Identify when to use or not use a nested menu
- identify ways to promote their work and how the basics of SEO (search engine optimization) works

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Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Students will be asked to create a portfolio on Google Sites, that they will update throughout high school, that displays some of their best work. Students will create a typical personal portfolio website and be shown examples that go over what pages should be included and how to organize them

Other Evidence:

Formal:

- Task check points and products

Informal

- Student use of discipline specific vocabulary
- Teacher observation

Stage 3: Activities

Learning Activities:

- Students will be asked to create a portfolio on Google Sites, that they will update throughout high school, that displays some of their best work.
- Students will create a typical personal portfolio website and be shown examples that go over what pages should be included and how to organize them

Reference Materials

- Scratch - Coding Language and Community
- Photopea
- Gifmaker
- Giphy
- YouTube

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)

1.

Differentiation for English Language Learners

1. Provide alternate ways for the student to respond (verbal/pictographic answers instead of written)
2. Substitute a hands-on activity or use of different media in projects for a written activity
3. Provide word banks / word walls
4. Prepare and distribute advance notes
5. Provide model sentence frames and sentence starters for both oral responses and written responses
6. Provide additional time to complete assessments and assignments
7. Model and use gestures to aid in understanding
8. Model tasks by giving one or two examples before releasing students to work independently
9. Present instructions both verbally and visually
10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
18. Accept correct answers on test or worksheets in any written form such as lists, phrases, or using inventive spelling
19. Allow editing and revision before grading
20. Design projects and assessment for student that require reduced sentence or paragraph composition
21. Give alternative homework or class work assignments suitable to the student's linguistic ability for activities and assessments
22. Utilize alternate reading assignments/materials at the student's reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster's Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.
28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:

- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Differentiation for Enrichment:

1.