Title: Programming for Entertainment

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Unit Identifying Information	
Content Area	**Information & Communication Technology**
Grade/Course	**Grades 8-12**
Unit of Study Title	**Programming for Entertainment**
Estimated Unit Timeframe	**6 weeks**

Priority Standards
• ***C1.0 Identify and apply the systems development process.*** • ***C3.0 Create effective interfaces between humans and technology.*** • ***C4.0 Develop software using programming languages.*** • ***C5.0 Test, debug, and improve software development work.***
Supporting Standards
• C3.1 Describe and apply the basic process of input, processing, and output. • C4.6 Use proper programming language syntax. • C5.4 Test software and projects.
Interdisciplinary Standards

Mathematical Practices	**Algebra**
1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 5. Use appropriate tools strategically. 6. Attend to precision. 8. Look for and express regularity in repeated reasoning.	N-Q: Reason quantitatively and use units to solve problems. A-REI: Represent equations and inequalities graphically.

Unwrapped Standards

"Unwrapped" Priority Standards (Copy & Paste Priority Standards; Underline Concepts; CAPITALIZE skills)
• ***C3.0 CREATE effective interfaces between humans and technology.*** • ***C4.0 DEVELOP software using programming languages.*** • ***C5.0 TEST, DEBUG, and IMPROVE software development work.***

"Unwrapped" Priority Standards CONCEPTS	**"Unwrapped" Priority Standards SKILLS**	**Levels of Cognitive Rig Bloom's/ DOK**	
1. **Design an events-based program f games or animation.** 2. **Program the events-based game o animation in an OO programming language.** 3. **Debugging Tools & Strategies.**	1. ***CREATE*** 2. ***DEVELOP*** 3. ***TEST, DEBUG, and IMPROV*** ***CTE MATRIX**	6 3, 6 4, 5	1 1, 2, 3 2, 3

Learning Targets

UNIT Learning Targets from "Unwrapped" Priority Standards in Student-Friendly Language

"Unwrapped" Priority Standard(s):

- ***C1.0 Identify and apply the systems development process.***
- ***C3.0 CREATE effective interfaces between humans and technology.***
- ***C4.0 DEVELOP game using Javascript programming language.***
- ***C5.0 TEST, DEBUG, and IMPROVE computer games.***

Learning Target(s):

- **Create fun, authentic, effective, and interactive technology.**
- **Design computer games and animations using Javascript.**
- **Test, Debug, and Update your computer programs.**

Unit Vocabulary Terms from Standard(s)

S*upporting* standards and *interdisciplinary* standards:

- C3.1 Describe and apply the basic process of input, processing, and output.
- C4.6 Use proper programming language syntax.
- C5.4 Test software and projects.

Unit Vocabulary Terms:

- Program:
- Parameter:
- Variable:
- Sprite:
- Property:
- Boolean Expression:
- Conditionals:
- Abstraction:
- Function:

STUDENT Success Criteria for UNIT Learning Targets

By the end of the unit you will be able to:
Design and develop a computer game in Game Lab:

- **Identify** and **apply** the **development** process.
- **Create** your own **Sprites**.
- Use Sprite **dot properties** to change and manipulate them.
- Use **control structures** to create an event-based program.

- **Debug** the game so that it is playable and works as intended.

Essential Questions & Scoring

Essential Questions
How can we identify and apply the development process in making a video game? **How do we use computer programming languages to create a playable video game?** **How can we animate images on a computer?** **How can we develop our game to make decisions and respond to user input?**
SHORT Constructed-Response Questions with Commentary or Solution Statement
"Unwrapped" Priority Standard Concept-Skill & Level of Rigor: • ***C1.0 Identify and apply the systems development process.*** • ***C3.0 CREATE effective interfaces between humans and technology.*** • ***C4.0 DEVELOP game using Javascript programming language.*** • ***C5.0 TEST, DEBUG, and IMPROVE computer games.*** Short Constructed-Response Question Aligned to Concept-Skill & Rigor: • **How can we develop & create fun, effective and interactive technology?** Commentary or Solution Statement: • **Know how to use conditional control if statement to create an interactive game in javascript.** • **Know how to create multiple sprites and use their dot properties to change and manipulate a gam in javascript.** • **Know how to detect and remove errors in your javascript.**
SCORING GUIDE for Short Constructed-Response Question
Advanced
Project has all of the 3 components: Define the goal, brainstorm ideas, design framework with pseudo code.

• 2 or more Background
• 3-5 Sprites
• Sprite Properties
  ○ .setAnimation
  ○ .x and .y,
  ○ .scale or .rotation
• Increment/decrement
  ○ .x and .y
  ○ scale or .rotation
• Control Structures
	• Video explaining game and code. All 4 met.
	  ○ Explain what your program does.
	  ○ Explain how you used control structures to execute differing paths.
	  ○ Explain how you created sprites for b and characters.
	  ○ Explain how you detected and remov errors in your javascript game.

• 4 or more if()
  ○ Triggered by sprite
  ○ Triggered by user input
• 6-7 comments that organize the code.
• Minimal syntax errors, the code runs as expected.	

Progressing

Program uses most of the following Javascript:Define the goal, brainstorm ideas, design framework. 2 met.

• 1 Background
• At least 2 Sprite
• At least 2 Properties
  ○ .setAnimation
  ○ .x and .y,
  ○ .scale or .rotation
• 1 Increment or decrement
  ○ .x and .y
  ○ scale or .rotation
• Control Structures
• 2-3 if()
  ○ Triggered by sprite
  ○ Triggered by user input
• 4-5 Comments that organize the code.
• Some syntax errors, the code runs, but not as expected
	• Video explaining game and code. 2 met.
	  ○ Explain what your program does.
	  ○ Explain why you used if statements.
	  ○ Explain how you created sprites for bg and characters.
	  ○ Explain how you detected and removed errors in your javascript game.

EXTENDED-Response Question SCORING GUIDE

Advanced

Make a 1-minute video that includes all 4 components:

- Explain what your program does.
- Explain how to use control structures to execute differing paths.
- Explain how to create sprites and how to use dot properties to change and manipulate sprites.
- Explain how to detect and remove errors in your javascript game.

Goal

Make a 1-minute video that includes 3 components:

- Explain what your program does.
- Explain how to use control structures to execute differing paths.
- Explain how to create sprites and how to use dot properties to change and manipulate sprites.
- Explain how to detect and remove errors in your javascript game and how to debug in Game Lab.

Progressing

Make a 1-minute video that includes 2 components:

- Explain what your program does.
- Explain how to use control structures to execute differing paths.
- Explain how to create sprites and how to use dot properties to change and manipulate sprites.
- Explain how to detect and remove errors in your javascript game.

Beginning
Make a 1-minute video that includes 1 component:

- Explain what your program does.
- Explain how to use control structures to execute differing paths.
- Explain how to create sprites and how to use dot properties to change and manipulate sprites.
- Explain how to detect and remove errors in your javascript game.

Task Synopses

Synopses of Authentic Performance Tasks
Planning Task Create Task Video Task Workflow Graphic
Engaging Scenario
1. Create the Engaging Scenario **after** designing the tasks. S- Classroom Hack-a-thon C- Create a video game or animation R- Creator A- Fellow students, Principal Brown P- Video Game or Animation Write the Engaging Scenario: Mini Coding Hack-a-thon at Lincoln High School! In two weeks' time, you will show off your amazing coding skills and create an authentic video game or animation using all the tools you learned this quarter. At the end of the Hack-a-thon, you will show your game or animation to fellow students and Principal Brown! Prizes will be given for the most authentic story/game, best graphics/art, most organized code, most creative images, and more!
Performance Task # 1 **In Detail**
Plan Project

"Unwrapped" Concepts, Skills, Bloom's/DOK Levels:

- **Design an events-based program for game or animation.**

Supporting Standard(s):

- **C1.0 Identify and apply the systems development process.**

Interdisciplinary Standard(s):

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
5. Use appropriate tools strategically.

Task 1 Detailed Student Directions:
Plan your project:

- **Brainstorm ideas**
- **Planner Quiz in Canvas**
  - **Plot a Theme/Storyline**
- **Google Doc**
  - **Plan Blocks/Images needed**

SCORING GUIDE -- Performance Task 1

Advanced

- Define the goal, brainstorm ideas, design framework with pseudo code.
  - all 3 met

GOAL

- Define the goal, brainstorm ideas, design framework with possible code blocks.
  - 3 met but some were incomplete.

Developing

- Define the goal, brainstorm ideas, design framework with possible code blocks.
  - 2 met

Beginning

- Define the goal, brainstorm ideas, design framework
  - 1 met

Performance Task # 2
In Detail

Create Project
"Unwrapped" Concepts, Skills, Bloom's/DOK Levels:

- ***C3.0 Create effective interfaces between humans and technology.***

- ***C4.0 Develop software using programming languages.***
- ***C5.0 Test, debug and improve software development work.***

Supporting Standard(s):

- **C3.1 Describe and apply the basic process of input, processing, and output.**
- **C4.6 Use proper programming language syntax.**
- **C5.4 Test software and projects.**

Interdisciplinary Standard(s):

Algebra

- N-Q: Reason quantitatively and use units to solve problems.
- A-REI: Represent equations and inequalities graphically.

Task 2 Detailed Student Directions:
Using your planner begin coding in Game Lab:

- **Background, Sprites, Variables**
- **Conditional if() Statements**
  - **Movement Keys, Counter Pattern**
  - **Sprite Interactions, changes**
  - **Variables**
- **Start Screen**
- **EndScreen**

SCORING GUIDE -- Performance Task 2

Advanced

- 2 or more Background
- 3-5 Sprites
- Sprite Properties
  - .setAnimation
  - .x and .y,
  - .scale or .rotation
- Increment/decrement
  - .x and .y
  - scale or .rotation
- Control Structures
- 4 or more if()
  - Triggered by sprite
  - Triggered by user input
- 6-7 comments that organize the code.
- Minimal syntax errors, the code runs as expected.

GOAL

- 2 Backgrounds

- 3 Sprites
- Sprite Properties
    - .setAnimation
    - .x and .y,
    - .scale or .rotation
- Increment/decrement
    - .x and .y
    - scale or .rotation
- Control Structures
- 4 if()
    - Triggered by sprite
    - Triggered by user input
- 6-7 Comments that organize the code.
- Minimal syntax errors, the code runs as expected.

Developing

- 1 Background
- At least 2 Sprite
- At least 2 Properties
    - .setAnimation
    - .x and .y,
    - .scale or .rotation
- 1 Increment or decrement
    - .x and .y
    - scale or .rotation
- Control Structures
- 2-3 if()
    - Triggered by sprite
    - Triggered by user input
- 4-5 Comments that organize the code.
- Some syntax errors, the code runs, but not as expected

Beginning

- 0-1 Background
- 0- 1 Sprite
- 0-1 Properties
    - .setAnimation
    - .x and .y,
    - .scale or .rotation
- 0-1 Increment or decrement
    - .x and .y
    - scale or .rotation
- Control Structures
- 0-1 if()
    - Triggered by sprite
    - Triggered by user input
- 1-3 Comments that organize the code.
- Syntax errors, the code doesn't run.

Performance Task # 3
In Detail

Record Video

"Unwrapped" Concepts, Skills, Bloom's/DOK Levels:

- **C1.0 Identify and apply the systems development process.**

Supporting Standard(s):

- **C3.1 Describe and apply the basic process of input, processing, and output.**

Interdisciplinary Standard(s):

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
5. Use appropriate tools strategically.
6. Attend to precision.
8. Look for and express regularity in repeated reasoning.

Task 3 Detailed Student Directions:

In Canvas, record a Video explaining your project and the code:

Detailed description of what your program does.

Describe how you used if() statements to create movement and user interactions with your project.

Describe a situation where you encountered a bug in your code and how you fixed it.

SCORING GUIDE -- Performance Task 3

Record Video

Advanced

- Video explaining game and code. All 4 met.
  - Explain what your program does.
  - Explain how you used control structures to execute differing paths.
  - Explain how you created sprites for bg and characters.
  - Explain how you detected and removed errors in your javascript game.

GOAL

- Video explaining game and code. 3 met.
  - Explain what your program does.
  - Explain how you used control structures to execute differing paths.
  - Explain how you created sprites for bg and characters.
  - Explain how you detected and removed errors in your javascript game.

Developing

- Video explaining game and code. 2 met.
  - Explain what your program does.
  - Explain how you used control structures to execute differing paths.

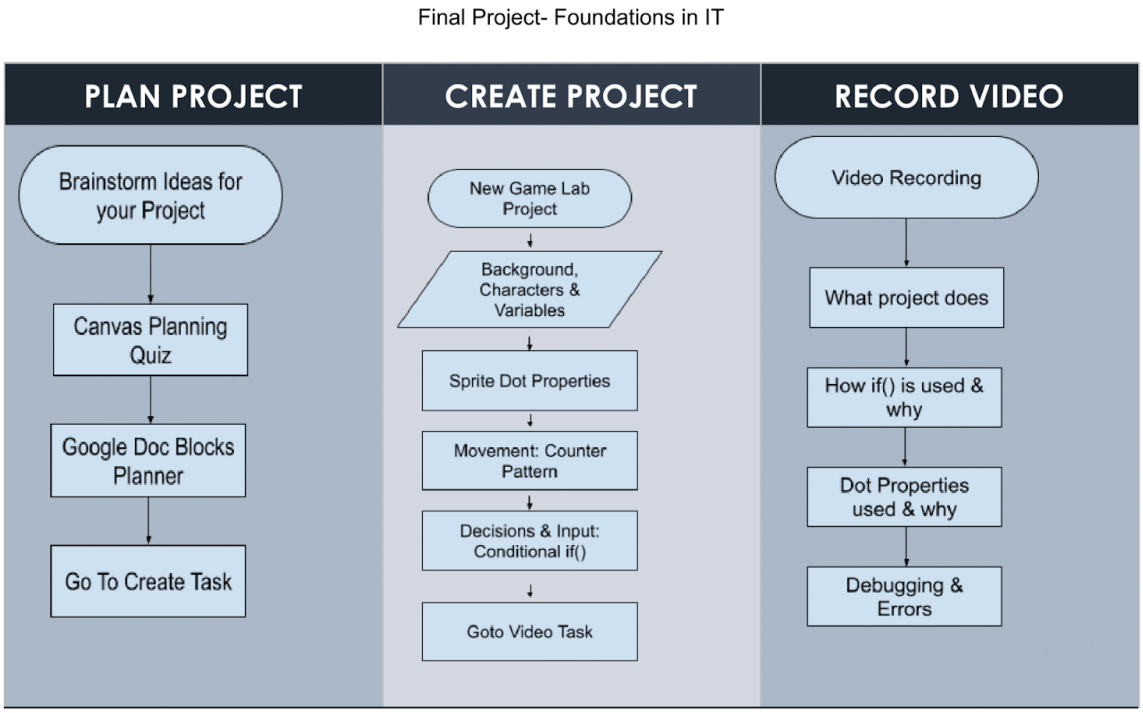
- Explain how you created sprites for bg and characters.
- Explain how you detected and removed errors in your javascript game.

Beginning

- Video explaining game and code. 1 met.
  - Explain what your program does.
  - Explain how you used control structures to execute differing paths.
  - Explain how you created sprites for bg and characters.
  - Explain how you detected and removed errors in your javascript game.

Notes:

Workflow graphic



*Project Due June 7th at Midnight.
**Final Exam Open from June 1st - June 7th at Midnight.