21 Computational Thinking Gold GameStar   (5-7 periods)

21 Computational Thinking	21.Gold GameStar

Overview of this Thing: Computational thinking can be used to take a complex problem, understand what the problem is, and develop possible solutions to solve or explain it. In this Thing, students will learn about the stages of computational thinking (decomposition, pattern recognition, abstraction, algorithms, evaluation).

Thing Learning Objectives:
1. Understand computational thinking [Computational Thinker].
2. Be able to solve complex problems using computational thinking [Computational Thinker].
3. Be able to break down a problem into smaller, more manageable parts [Computational Thinker].
4. Know how to look for patterns and sequences [Computational Thinker].
5. Be able to focus on important information only [Computational Thinker].
6. Be able to develop a step-by-step solution to the problem [Computational Thinker].
7. Know how to use coding to automate a task [Computational Thinker].
8. Understand computational design by applying technology to a problem [Innovative Designer].
9. Understand programming as you complete hands-on activities, solving problems encountered [Computational Thinker].
10. Understand the coding your program creates [Empowered Learner] encountered [Computational Thinker].

This Quest: Students will get an overview of Gamestar Mechanics and learn the basics.

Special Note: Due to the game being Flash, as now January 1, 2021, the app will have to be downloaded on your PC or Mac.

Quest Learning Objectives:
I can:
- Explain the key elements of a good online game.
- Create a game in Gamestar Mechanic using game design principles.

Link to [Vocabulary Quizlet](#)

Vocabulary:

- **Avatar**: An avatar is the digital representation of a physical person in a virtual world or game.
- **Component**: A component is a physical part of a game, such as a character, a block, or an object.
- **Mechanics**: Mechanics is an action an avatar can take in a game, such as jumping, collecting, exploring, etc.
- **Space**: The space is the area in which the game is being played; the whole scene.
- **Sprites**: Sprites are 2D Graphic objects that can be moved around on a computer screen.

Pre-Planning

For accommodation ideas, visit the [Accommodations Page](#).

In this Quest, students will:

- Go to [Gamestar Mechanic](#) and create an account
- Watch [Gamestar Mechanic Teacher Trailer](#) (2:36) to start learning about Gamestar Mechanic
- Complete Episodes 1-2, playing Gamestar Mechanic quests
- Complete Episodes 3-4 to learn about the elements of game design
- Complete Episode 5 to learn to balance fun and challenge in a game
- build their own game based on a challenge card, applying what they learned in Episodes 1-5
- Play and evaluate the games of other students and revise games based on the feedback they receive

Tools/Apps/Videos to be pre-checked for access by the student:
Due to the game being Flash, as now January 1, 2021, the app will have to be downloaded on your PC or Mac.

Preplanning for this unit is essential. While Gamestar Mechanic is easy to use, the teacher needs to set up student accounts and review the lesson plans from the Gamestar Mechanic Teacher Guide. There are materials to print for the offline portions of the lessons. Also, we recommended that you complete the first five episodes on your own so you can guide students through the activities.

Accounts
Gamestar Mechanic offers both free and paid memberships. To complete the quest, only a free account is required.

Teachers can set up a teacher account and then create free student accounts that can be monitored. For students who get hooked on Gamestar Mechanic and want to continue through higher levels, a teacher can purchase a lifetime membership for $2 per student (through their teacher account).

Time Management
Time management will be a major component of this unit. Gamestar Mechanic states the lessons can be completed in 1-1.5 hours, but this varies depending on our class length and student abilities. You can manage this by setting a deadline for students to complete certain tasks so you can come together to do in-class activities, spreading the lessons out over several class periods, or assigning unfinished activities as homework.

Students will finish the tasks at different rates. Additional activities could include:
mentor struggling students and help them create a game
Create additional games or complete additional challenges
Play games designed by other students

Helpful tutorial videos or extra resources for the teacher for this Quest

Websites

- *Gamestar Mechanic*

Videos from Outside Sources

- *Gamestar Mechanic Intro YouTube*

21T4S Quizzes

- *Vocabulary Quizlet*

Gamestar Mechanic Teacher Trailer (2:36)
Gamestar Mechanic Learner Guide
Gamestar Mechanic Teacher Guide PDF
Gamestar Teacher Community
Gamestar Teacher Community
Gamestar Teacher Guide

Student Checklist 21.Gold Gamestar Student Checklist

Broken Link or Content Update Report

Please select this link or the broken link icon to report any broken links, or content no longer applicable so that we can quickly update it. Thank you for your help.

Assessment Options: *Ideas for assessing student work for this Quest? Link to a rubric you create for this Quest, a quiz, and or a worksheet you create. See Rubric by Liz Kolb.*	**Rubrics from Gamestar Mechanic**
Notes:	