

# Coding for Good Badge 2: Digital Game Design

## Ambassador Badge





# What is the Digital Game Design Badge?

When you play a video game, you enjoy the end product of a many-step process. Game makers have to create every aspect of the game: the scenario, challenges, goals, characters, and every possible choice players could make. It's a complex and creative process that combines imagination and a strong understanding of computer programming and design.

Step 1: Brainstorm game “for good” scenarios

Step 2: Create a G.I.R.L. avatar for your game

Step 3: Learn about decision trees in game design

Step 4: Design your game

Step 5: Playtest and iterate your game



# What is the Digital Game Design Badge?

Follow along with Girl Scouts of Western Ohio to learn more about this badge!

Steps 1 and 2:

<https://www.facebook.com/GSWOH/videos/240573137284620/>





## Step 1: Brainstorm "game for good" scenarios

Game makers create the worlds that their characters inhabit. That means they create scenarios that include the setting, plot, and sequence of events. The scenarios reflect the game mechanics—or the rules and what the characters need to do to reach a goal.

What kind of scenario could you create for a game that promotes positive change? How could the goal of a game impact the setting, plot, or sequence of events? What kind of challenges could characters face and how can the challenges reflect the positive message you're trying to send?





# Step 1: Brainstorm "game for good" scenarios

## Thought Starter Questions:

What do you like most about your favorite video game: the characters, setting, game play, or story? Why?

What do you like least about video games you've played? Why?

What video world would you like to live in? Why?

What kind of video games would you like to develop?

How can you use what you like — or dislike — about different games when you design your own game?





## WORDS TO KNOW

**Avatar** an electronic image that represents a person or character. Avatars can be manipulated by a computer user, like the player of a video game.

**Condition** a type of statement or test which will result in the condition being either true or false. They are used in the 'decision-making' part of an IF-ELSE statement.

**Consequence** in decision trees, a consequence refers to the result of a decision that has been made.

**Decision tree** a tool often used in the organization of many video games. It has a flowchart, or tree structure, that helps game developers design the structure and logic of the player's choices and consequences.

**Game mechanics** the instructions given to the computer on how the game is played. They're specific to the type of game: for example, in chess, all the moves relate to the game pieces. In video games, the rules of the world

created by the game's designers are game mechanics. This can include how avatars move and how players beat a level.

**IF-ELSE statement** tests whether a condition is true and then runs one piece of code if the condition is true, or another if it's false. They're used by computers to make decisions. This is how the code looks in JavaScript:

```
if (condition to be
    tested goes here) {
    this code runs if
    condition is true
} else {
    This code runs if
    condition is false
}
```

**Narrative** the story in a video game. It can have many different paths that are created by players making choices and facing consequences.

**Node** one element of a decision tree. This is the part of the decision tree where the question lives. The first node of the decision tree is called the **root node**. The nodes that come after the decisions are called **child nodes**. Nodes that don't have children are called **leaves** or **leaf nodes** (like with real trees, the leaves are at the end of the branches). In decision trees for game design, leaf nodes represent the end, or culmination, of one possible game. Trees can have multiple levels of child nodes and many leaves.

**Playtest** playing a newly developed game to test it for flaws and to identify possible improvements.

**Scenarios** the details of a situation, including the settings and sequences of events for a game, scene, or plot. It's part of the setup in many types of games.



## Step 2: Create a G.I.R.L. Avatar for your game

**Once you have a scenario for your game, you need a character to play in it.** Game makers create each of the characters in their games. They might allow the players to customize their characters a bit by changing the way they look or choosing different traits to emphasize. The main personality of the characters, though, is usually determined by the game makers. They create characters by designing their look and sound, providing a back story, and creating the different situations where they makes choices.

**What would a G.I.R.L. character be like?  
How could you show her G.I.R.L.  
qualities through your design choices?**





## Step 3: Learn about design trees in game design

**Game makers design choices for players with decision trees.** With every choice a character makes, the story changes and moves forward. Every choice has a **consequence**. That means that each decision causes some kind of result or effect. Games with decision trees let the players have some freedom to shape the story, making them fun to play.

To allow players to make choices in a game, programmers use **conditionals** in their program. They're the commands that let the computer understand decisions. A common conditional is the IF-ELSE statement. It tells the computer IF \_\_\_\_\_ is true, do \_\_\_\_\_. ELSE (meaning if not), then do \_\_\_\_\_. For example, if the player clicks on the door, open the door and let the character walk through. Else, open the trap door in the floor and let the character fall through the floor below.





Hi, I'm Chloe!



Do you want to leave the house on Saturday afternoon?

NO

YES

Do you want to watch content on a screen?

NO

Read a book

NO

Watch a movie

YES

Go on a bike ride

YES

Play a video game

Do you have a pet dog?

NO

Walk your dog

YES

## Step 3: Design Trees

- In role-playing games, players get to make **narrative** decisions. Narrative means "story."
- When you, as a player, are given the chance to make a decision that changes the story in a game you're playing, you've made a narrative decision.
- The green image to the left is a basic example of narrative decisions represented as a design tree.
- When creating video games, developers store open-ended narratives like this using a tool called a decision tree.
- A **decision tree** allows game developers like you to build and organize an open-ended story. Decision trees have a flowchart or tree structure that helps design **consequences** (the results of a decision that has been made) of open-ended stories.
- Decision trees give players a sense of freedom when playing the game by letting them make choices.



# Plug It In!

**GSUSA has a partnership with [Vidcode](#) to support you in learning to code!**

While coding on a device is not a necessary part of this badge, it can be a great way to increase your coding knowledge. Follow [this guide](#) for instructions on how to get started!





# Coding For Good

## Coding For Good



Coding  
Basics



Digital  
Game Design



App  
Development

