

## Lesson Plan

### Creating Conditionals

**Book:** *Video Game Coding*

**Series:** Coding

**Level:** Navigator

#### Objective

To help students explore the function of conditionals in computer programming and creating games.

#### Supplies

- *Video Game Coding* book
- “Conditionals with Cards” video from the Code.org website: <https://studio.code.org/s/course-2018/stage/10/puzzle/1>
- Projector or computer screen
- A deck of cards
- Several sets of dice
- Paper and pencils

#### Before the Activity

Read *Video Game Coding* out loud to students, or assign it to students to read on their own.

#### Activity

Play the “Conditionals with Cards” video for students. Review the following key concepts from the video: “Conditionals are what make a computer seem smart. A computer program that includes conditionals can react to the user and change its course of action. Think about your favorite video game. Do you earn more points for some actions than you do for others? This occurs because the computer is using conditionals. It’s the way a computer makes a decision.”

To create conditionals, people often use phrases that begin with “if.” For example, restate the example conditional from the video: “If I draw a seven, [then] everyone claps. Else, everyone says, ‘Aww.’”

Cards are not the only way to create conditionals, though. As the video’s narrator says, conditionals are a common part of many games. The conditionals can control how a game’s players can move or score. In fact, many games—not just video games—use conditionals. In the game Farkle, for instance, players roll five dice. *If* players roll four of the same number, then they get 1,000 points. *When* players score during their turn, they can choose to roll again.

*If and only if* they score more points with this next roll, they can add those points to their score. *Else*, they lose all the points from that turn. Point out the italicized words in each sentence to students. These words are some of the ways that people commonly express conditionals.

Today, students will work together in their groups to invent a new game. They will write the rules using conditionals. Give each group a set of dice. Have students take a few minutes to brainstorm other possible conditionals. If students struggle to think of ideas, remind them that an “if” statement can relate to the individual numbers, the sum of the numbers, or even the roll that comes before or after. The “then” statement can relate to the player who rolled the dice—or to the opponent! Students can also include an “else” phrase to describe what will happen otherwise.

Each game should include at least 10 rules. Give each group time to write and test their game’s rules. Then collect the list of rules from each group.

### **Evaluation**

Give each group 1 point for each rule that is written as a conditional, for up to 10 points.

### **Standards**

This lesson may be used to address the Common Core State Standards’ speaking and listening standards, grade 5 (SL 5.1, 5.2), and the National Science Education Standards’ Content Standard E, grades 5–8.