CODING WITH CARDS

You can create code without a computer! In this activity you will write an algorithm that uses conditional statements to create your own card game. An **algorithm** is a list of steps you can follow to finish a task. A recipe or instructions to a game are examples of algorithms. In computing, a **conditional** is a statement that only runs under certain conditions and is sometimes called an If-Then Statement. We use conditionals in our daily lives, such as "if it's raining, then I will take an umbrella." Conditional statements make a computer seem smart and as though it's making decisions, but these decisions are based on what a human has programmed it to do using conditional statements.

THE GOAL:

Write an algorithm with conditional statements to create your own card game.

WHAT YOU NEED:

- Deck of Cards
- Pencil
- Paper

TRY THIS:

Here's a sample game for you to play to help you get started:

Sample algorithm for Coding with Cards

```
Place cards facedown in the center of the table

Repeat until one team scores 10 points
    TEAM 1 draws one card from deck
    If (CARD IS RED)
        THEN Award TEAM 1 one point
    ELSE
        Award TEAM 2 one point
    TEAM 2 draws one card from deck
    If (CARD IS RED)
        THEN Award TEAM 2 one point
    ELSE
        Award TEAM 1 one point

End Game
```

Now, think about the rules for your game. How will points be scored? Are all cards worth the same amount of points? How will the game end? Write the algorithm, or instructions, for your game clearly so that they are easily understood by others. You can write it in "pseudocode" like the example, or just write it in words. Be sure to include conditionals, or if-then-else statements. Create several different algorithms to share. In this game, you get to make all the rules and the possibilities are endless!

This activity was adapted from a lesson created by Code.org and Thinkersmith https://code.org/files/ConditionalsHoC.pdf.

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CODING WITH CARDS CON'T

MORE TO EXPLORE:

- Learn another way to play this game: https://youtu.be/UymN4lTL50s
- Algorithms explained by BBC Learning: https://youtu.be/Da5TOXCwLSg
- Learn about conditionals from Bill Gates, the co-founder of Microsoft: https://youtu.be/m2Ux2PnJe6E
- Can you write code to help the Angry Bird navigate a maze? https://studio.code.org/hoc/1

READ ALL ABOUT IT!

- **Ada Lovelace, the Poet of Science by Diane Stanley**
- **Understanding Coding by Building Algorithms by Patricia Harris**

STANDARDS:

This activity aligns with Oklahoma Academic Standards for Computer Science: Algorithms for K-5

DID YOU KNOW?

Although the concept of algorithms has been around since antiquity, Ada Lovelace was the first person to write an algorithm intended for a machine. A mathematician in the 1800's, she realized the possible power of machine computing.

TELL US WHAT YOU THINK!

Or type this into your browser: shorturl.at/aiCFR

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