SfS Away from the Classroom!

T03: Conditionals in Code (Recommended for Grades 3-8)

Please use the following resources to learn about conditional statements in computer programs.

Watch these Videos: Code.org video on Conditionals and Code.org video IF and IF/ELSE statements

Answer these questions:

- What are the two parts of a conditional statement?
- Why is a conditional statement called "conditional"?
- In programming, how do you provide an alternative if the "if" part of the conditional is false?

Activities: Follow these directions to program your "self-driving car" through a maze!

You will need:

• 3 sheets paper • ruler (optional, for drawing grid)	• pencil • scissors	• 1 game piece (a coin, a pebble, or something similar) for your "car"

1. Draw a grid (see below) on one sheet of paper.
2. Draw and cut out the tokens for STOP, detour, etc. on a second sheet of paper.
3. Place your "self-driving car" game piece on the "START" space.
4. On the third piece of paper, write conditional statements (directions) for your car to go from START to STOP.
    a. For example:*IF it is possible to move forward, THEN move 1 square forward. ELSE, turn right.*
5. Test your code until your self-driving car can go from the START space to the END space on the grid with the fewest lines of code.
    a. Try "nesting" one conditional statement inside another, just like Bill did with the flower-eating zombie in the video!
6. Now add obstacles by placing the paper game tokens (STOP, detour, etc.) on the grid.
7. Write new code, with conditional statements, to drive the car from START to END while following the rules for each of the tokens:

    - *Stop sign*: car must stop and wait 5 seconds before moving forward
    - *House*: car cannot move through this space
    - *Detour sign*: car must move in the direction of the detour arrow if it reaches this space
    - *Coin*: car must collect all coins on the board before completing the game

Make observations & use Claims, Evidence, and Reasoning!

1. **Claim**: The IF part of a conditional statement may be very broad or quite specific.
    - **Evidence**:
    - **Reasoning**:

2. **Claim**: The order in which a set of conditional statements is written is important for a program to work.
    - **Evidence**:

    - **Reasoning**: