



## Unplugged: Conditionals Lesson Plan

**Lesson Objective:** Introduce concepts of conditionals through an unplugged activity; ensure understanding of if/else structure and why it is important; confidently identify the differences between conditionals and event statements.

### Protocol:

1. Create two different paths one with chairs, one with none.
2. Give two volunteers instructions to walk straight in some direction. If they encounter a chair, they must step over it. If they reach a wall, they must sit down.
3. Once they are both sitting down, ask how you would program a robot to respond to a wall or a chair.
  - a. Remind them that you cannot say “Step over chair” unless you know there is a chair at that exact moment and you will not always know that there is a chair.
4. Define conditionals and if/else statements
  - a. If we wanted to tell a robot to do this we would use conditionals.
  - b. **Condition:** A statement that a program checks to see if it is true or false. If true, an action is taken. Otherwise, the action is ignored.
  - c. **Conditionals:** Statements that can only run if a condition is met
  - d. **If statement:** if a certain condition is met, then an action is taken. Otherwise, the action is ignored.
  - e. **If/else:** If a condition is true, an action is taken/if a condition is false, a different specified action is taken.
5. Use the block code examples to translate the tasks into instructions:
  - a. In the chair example, do you use an if statement or if/else?
  - b. Fill in the code blocks with the appropriate instructions
6. Open up a discussion of when you might use a conditional in your code.
  - a. Harvesting activity
    - i. If there is a crop, pick it, otherwise, move forward.
  - b. Phone FaceID
    - i. If face matches stored face, unlock phone
  - c. With the Spheros



- i. If rolling 0 degrees, main LED is blue. If rolling 180, main LED is red
- 7. How to differentiate between events and conditionals
  - a. Conditionals check for true or false, while events check for an action
  - b. The moment at which a conditional is checked is predetermined by the program, while an event can be triggered at any moment
  - c. EXAMPLES
    - i. Chair activity: if there is a chair in the path and there are no instructions to deal with it (a conditional), then the program cannot be completed (you will run into the chair).
    - ii. On the other hand, in the Big Event activity, when we gave a set of instructions and then interrupted you with an event, it was not a part of the pre-defined action.
  - d. Show examples of both in a program
    - i. See Block Example Pdf

This lesson plan was derived from Code.org's Course C Lesson 15: Looking Ahead with Minecraft Warm up activity. This should be done as a separate lesson.