This worksheet contains four exercises that students can complete individually or in groups. The first three parts will be done on paper, and part 4 includes an online activity:

**Part 1:** Students think of and write an example of a conditional from their everyday lives and draw a flowchart to represent it.

**Part 2:** Students write conditional statements to reflect given scenarios.

**Part 3:** Given conditional statements and an input for the program, students run through the conditional and determine what action the program would take.

**Part 4:** Students complete an interactive activity on [Code.org](http://Code.org) called Bee Conditionals. The activity uses code in the form of blocks. Students will drag blocks together to control the bee’s actions. They’ll return to the worksheet to flesh out one of the conditionals they created in the activity.

You can begin this sequence by reviewing vocabulary from the video and interactive lyrics as a class:

- **Conditionals:** statements that only run under certain conditions, or when certain criteria are met
- **Condition:** something that must be true in order for something to happen
- **Program:** a series of steps to complete a task that a computer can understand
- **Control Flow:** the order in which a program carries out instructions
- **Control Flow Statements:** code that directs the program to run in different ways depending on what else is happening
- **Coding:** the process of writing instructions for a computer in a language that it can understand
- **Syntax:** a set of rules for how a coding language is written
- **Pseudocode:** language that’s more precise than English but less precise than a coding language that a computer can understand

Spend a few minutes demonstrating the concept of conditionals for the class by picking two student names. Say, "If your name is [name #1], raise one hand. *Else if* your name is [name #2], raise both hands. *Else*, sit on both of your hands." You can change the "action" of raising hands to anything that works in your classroom.
ON ONE CONDITION...
Student Worksheet

Think of an example of a conditional from your everyday life. What is something you do depending on whether a condition is met? For example, imagine you have a free period in your schedule, and you use a conditional to decide what to do during it. Each day, you think:

If I have soccer practice later, I'll go to the library get some homework done.
Else if the weather is nice, I'll hang out with my friends at the tables outside.
Else, I'll hang out with my friends in the cafeteria.

Write your conditional below. Feel free to add as many else if conditions as you want, or none at all if it doesn’t work for your conditional. Work on a separate sheet of paper if you need more space.

If ____________________________________________________________
Else if _________________________________________________________
Else __________________________________________________________

We use flowcharts for our conditional statements in the video to show what happens when each condition evaluates to true or false. **On the following page, draw a flowchart for the conditional you came up with.** Here’s an example flowchart using our free period scenario:
Part 2

Read each scenario below, and write a conditional to represent how it works. Write it in English or in any form of pseudocode or real code that you want.

A
You’re writing a program that will cause your phone to do different things depending who’s calling you. The program will check to see who is calling and then decide what to do:

• If your friend Drea is calling, automatically answer the call.
• If your friend Drea is not calling, but your mom is calling, automatically send a text message that says, “Hi, mom.”
• If anyone else besides your mom or Drea is calling, play your voicemail message.

Conditional:  
__________________________________________________________  
__________________________________________________________  
__________________________________________________________

B
An exercise app will play different music depending on how fast you are running. The program will check to find out how fast you’re running to determine what kind of music to play:

• If you’re running 7 miles per hour or faster, the app will play hip-hop music.
• If you’re not running 7 miles per hour or faster, but you are running 5 miles per hour or faster, the app will play pop music.
• If you’re running slower than 5 miles per hour, the app will play smooth jazz.

Conditional: (Hint: If you’d like, try writing this conditional using inequality symbols.)
__________________________________________________________  
__________________________________________________________  
__________________________________________________________  
__________________________________________________________
Below, we’ve written two conditionals and provided the input that the program would use. Go through each conditional with the input provided and figure out what the outcome would be.

Here’s an example. This conditional determines what a robot will do depending on what its level of happiness is:

**Conditional**

If robot happiness is high, the robot will breakdance.

Else if robot happiness is medium, the robot will moonwalk.

Else, the robot will cry.

**Input**

Robot happiness is medium.

**Outcome**

The robot will moonwalk.

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You’re playing a game where you roll a die and win points depending on the number you roll.

**Conditional**

If you roll a 5 or above, your team gets 1 point.

Else if you roll a 3 or above, the other team gets 1 point.

Else, neither team gets a point.

**Input**

You roll a 2.

**Outcome**

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A program sorts names into different columns depending on the letters it contains.

**Conditional**

If the name contains more consonants than vowels, put the name in column 1.

Else if the name contains more vowels than consonants, put the name in column 2.

Else, put the name in column 3.

**Input**

The name is Maria.

**Outcome**
In this activity, you’ll control a bee’s actions and direct it to do things like get nectar from flowers and make honey from the nectar. This game uses code in the form of blocks. You’ll drag blocks together to make the bee take actions like “move forward” and “turn right.” You’ll use blue blocks for conditional statements, and you can adjust the condition and the action the program will take if the condition is true.

This activity uses another key concept that you’ll find across coding languages: looping. Looping is the action of doing something over and over a certain number of times. The game uses a pink block for a loop, and you can change the number of times you want the action to be repeated.

After you finish playing, pick one of the if statements you created in the activity and write it below. Come up with else if and else statements for this conditional and add them below the if statement. Consider: what do you want the bee to do if the if condition isn’t true? What if the else if condition isn’t true?

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Part 4

Practice using conditionals in an online activity on Code.org!

Go to https://studio.code.org/s/course2/stage/13/puzzle/1 to play “Bee Conditionals.”