

Code Creators

Get Started Using Pseudocode!

Are you ready to code a computer program, but not sure where to start? Write pseudocode! Computer programmers often start projects by using everyday language to write out what they want to happen in their code--this is called pseudocode.

You'll Need (per each small group)

45 Minutes

- paper
- writing utensils

1. Introduce pseudocode. Explain that pseudocode is a way to write out a computer program using everyday language before using any coding language. This helps you understand the general structure of the program before getting stuck in the details of a language. We will apply the concept of pseudocode to explain physical movements.



Watch the SciGirls learn about pseudocode in **Code Concert** (Identify and Define).

2. Share an example. As a large group, write pseudocode that gives instructions for a simple movement. Write it out on the board or on large paper so that everyone can see the type of language and order of commands. It might be necessary for the educator or a student to act out each step, especially as a way to identify missing or confusing steps.

(waving hello)

Start with person standing

Arms straight down along sides

Open fingers on hand, so hand is flat

Bend elbow, so arm is shaped like an "L"

Turn arm, so right hand is raised

Repeat 3 times:

Bend right arm at elbow, moving hand toward head

Stop hand before touching head

Move hand in opposite direction, away from head

Lower arm to starting position



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3. Introduce the challenge. Ask youth to think about something they would like to teach, or have taught, someone.¹ What should they keep in mind while writing their pseudocode? Introduce the **SciGirls Challenge**: Write pseudocode for a movement that another group will be able to understand, recreate, and recognize.

4. Brainstorm. Divide youth into small groups.⁵ Have youth create a list of simple movements that they are familiar with¹ (for example, waving a hand, a simple dance move, throwing a ball, brushing teeth).

5. Create. Each group will write pseudocode to recreate one movement from their list. Their pseudocode should not be labeled with the name of the movement they are describing--they want other groups to be able to guess using only the steps in the pseudocode!

6. Test. Groups trade their finished pseudocode so that each group has a different piece of code to work with. Give them time to learn the code and practice the move. Allow them to work with each other to troubleshoot or clarify their pseudocode. Are the groups able to identify each movement?

7. Discuss. Ask youth to discuss why this activity was easy or hard. Was the other group able to recreate the movement? Why would writing pseudocode be helpful for computer programmers?

8. Extension. Groups can use this method to make up a dance. Youth can go to the SciGirls website to play *Code Quest*. They can use pseudocode to help them solve the challenges.



Challenge Stereotypes

Introduce youth to diverse role models to help counter stereotypes.^{4,6} Emily Meuer is a software developer at a print and billing company, programming applications to help customers order and pay bills. She likes learning something new every day! When she is not at work, she enjoys music, dancing, and reading.

Visit scigirlsconnect.org for more activities!