|  |  |  |
| --- | --- | --- |
| **UNIT 4** |  |  |

# Lesson: Day 18, 19: Rock Paper

|  |  |  |  |
| --- | --- | --- | --- |
| Overview Have you ever played ‘Rock, Paper, Scissors’? In this programming opportunity, you will be creating a program, using Scratch, to play Rock, Paper, Scissors against a computer that is running your program. Lesson Summary Have you ever played ‘Rock, Paper, Scissors’? On My Mentor [@http://www.k16bridge.org/ ] find the .pdf called ‘Rules for playing Rock, Paper, Scissors’ (or RPS) and read over them.  If you understand the game, find an elbow partner and play a ‘best of five’ round of RPS. [If needed have one of the partnerships further describe the game of RPS to the rest of the class before playing another ‘best of five’ rounds of RPS.  Before starting in on your Scratch program, take some time with an elbow partner to craft some ‘pseudocode’ in your journals which could be ‘read’ by another human being, preferably one that has never played RPS, for the purpose of allowing them to play their first ‘best of five’ rounds of RPS with you.  ***Pseudocode*** is an outline of a program, written in a form that can easily be converted into real programming statements it is simply one step - an important one - in producing the final code (in this case using Scratch). The benefit of using pseudocode is that it enables you to concentrate on the steps or algorithm(s) needed for solving a particular problem or process without worrying about all the syntactic details of a particular programming language. In fact, you can write pseudocode without even knowing what programming language you will use for the final implementation. (This description is an altered version of one that can be found @ <http://www.webopedia.com/TERM/P/pseudocode.html>  Now that you better understand the game, the Scratch project that you will be working on this lesson will be to construct an RPS game program from ‘scratch’.  Understand, that there is an rps starter.sb file, if needed, which your instructor will use as an overview of what you will need to construct on your own. For now, however, here are a few items to make note of   * The variables for ROCK, PAPER and SCISSORS. * The variables for player and computer. * How the ‘else’ part works if the condition of the ‘if’ is false. * You will need to change the script that starts with “When I receive determine winner” under the computer sprite. * If you have time you may change more features. * You will work in pairs to create an outline ‘pseudocode’ to handle all the cases for the computer choosing ROCK. * This pseudocode is an algorithm. * Presentation Mode Demo (a working example created by the instructor, following the guideline above and in the project description and rubric) will be shared with you before you begin your Scratch program.   **PROJECT**: That said your job is to construct a Rock Paper Scissors program, using the pseudocode outline that you constructed with your partner. When working on the computer, remember to switch roles at least every 15 min. If you finish, early, develop an extension for keeping score of the wins for the computer and player. CS Content In this lesson student will engage in   * *Appling their knowledge of conditionals* * *Appling their knowledge of iteration* * *Create and use examples of variables* * *Appling their knowledge and use of broadcast events* * *Effectively designing, developing, and testing algorithms using the Scratch programing language(s).* * *Demonstrating their knowledge of and proficiency in data representation and abstraction* |  |  | Objectives **Students will be able to:**   * Apply knowledge of conditionals to complete a Rock, Paper, Scissors program  Materials and Prep  * instructor demo rps.sb file * *Rules for playing Rock, Paper, Scissors.pdf* * rps solution.sb file * rps solution b.sb file * <https://scratch.mit.edu/projects/12942272/>  Resources **Online resources**   * [*http://www.wikihow.com/Play-Rock,-Paper,-Scissors*](http://www.wikihow.com/Play-Rock,-Paper,-Scissors)   **Student Documents**   * rps starter.sb file   **Student Tutorials**   * <http://learnscratch.org/sc2-u3/sc2-l15>   **Code Studio**   * N/A   **Video**   * On ‘Random Numbers’ * <https://www.youtube.com/watch?v=tKoE88_Hul8>   **Assessments**   * N/A  Notes Please be advised, this lesson is in a draft form until it was been taught a few times. |