Unit 4

Instructional Day: 18  
Topic Description: This lesson requires students to apply their knowledge of conditionals to develop a Rock Paper

Scissors program in Scratch.

Objectives:

The students will be able to:  
Apply knowledge of conditionals to complete a Rock Paper Scissors program.

Outline of the Lesson:

• Review of Rock Paper Scissors rules (5 minutes)

• Rock Paper Scissors discussion (10 minutes)

• Rock Paper Scissors project (40 minutes)   
Student Activities:

• Review Rock Paper Scissors rules.

• Participate in Rock Paper Scissors discussion.

• Complete Rock Paper Scissors project   
Teaching/Learning Strategies:

Review of Rock Paper Scissors rules  
o Lead a class discussion—students volunteer to share the rules for Rock, Paper Scissors.

Rock Paper Scissors discussion  
o Give students a tour of rps starter.sb.

Show them how there are variables for ROCK, PAPER and SCISSORS.  
Ask: Why might it be easier to work with the variables instead of just using numbers?

(Answer: It makes the code easier to read.) Show students variables for player and computer.

Ask how does the computer determine if they will choose rock, paper, or scissors? (Answer: It randomly chooses one using “pick random 0 to 2”.)

• Closely examine the computer’s “when I receive showPick” script

• Explain how the else part works if the condition of the if is false.

• Ask: Why don’t you need a statement that says “if computer = scissors”? (Answer: You   
asked if it was = to rock and that was false, then you asked if it was equal to paper and that was false so the only thing left was for it to equal scissors. Hence, you can just put the “switch to costume scissors” in the else.)

• Instruct students that they only need to change the script that starts with “When I receive determine winner” under the computer sprite. (They may change more features if they have time.)

Facilitate them in writing some pseudo code to handle all the cases for the computer choosing ROCK. Remind students that this is an algorithm.

o Create two versions, one like rps solution.sb and one like rps solution b.sb.; this way students can choose the method that they understand better.

o Show students a working example in presentation mode (so they can’t see the blocks). Exploring Computer Science—Unit 4: Introduction to Programming 172

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Rock Paper Scissors project  
o Circulate room and help students with projects.  
o Allow students to try various approaches to solving the problem.  
o If students finish, offer them extra credit for keeping score of the wins for the computer and player.

Resources:

• rps starter.sb

• rps solution.sb

• rps solution b.sb

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