

## Problem

Write a program that simulates the game of "Rock, Paper, Scissors". The user will play against the computer. The player and computer will both choose one of the three options: rock, paper, or scissors. The winner will be determined by these rules:

- Rock breaks scissors: rock beats scissors
- Paper covers rock: paper beats rock
- Scissors cut paper: scissors beats paper

## Solution

### Assumptions

- It's OK to enter numbers in place of "rock", "paper", or "scissors".
- The game will only be played once, then the program will end.

### IPO Chart

#### Input

playerChoice (represents rock, paper, or scissors)

#### Processing

Prompt for and get the player's choice

Computer generates a random choice

Determine the winner

Display the winner

#### Output

computerChoice

Winner

### Algorithm

1. Display "Enter 1 for rock, 2 for paper, or 3 for scissors"
2. Get playerChoice
3. computerChoice = generate random number
4. computerChoice = computerChoice mod 3 + 1     // limit the choice to 1 through 3
5. Display computerChoice

    If playerChoice = computerChoice Then

6.     Display "It's a tie!"

    Else

        If playerChoice = 1 And computerChoice = 3 Then

7.             winner = 1

        Elseif playerChoice = 3 and computerChoice = 1 then

8.             winner = 2

        Elseif playerChoice > computerChoice then

9.             winner = 1

        else

10.            winner = 2

        EndIf

    EndIf

    If winner = 1 Then

11.         Display "You win!"

    Else

12.         Display "Computer wins!"

    EndIf

**Test Data**

playerChoice = 2

computerChoice = 33    Note: This isn't an input, but we need to simulate the random number generator

Display: Computer Wins

**Desk Check**

Line	Executed (Optional column)	playerChoice	computerChoice	winner	Display (Optional column)
1	Y	-	-	-	
2	Y	2	-	-	
3	Y	2	33	-	
4	Y	2	3	-	
5	Y	2	3	-	Computer choice: 3
6	N				
7	N				
8	N				
9	N				
10	Y	2	3	2	
11	N				
12	Y	2	3	2	Computer Wins!