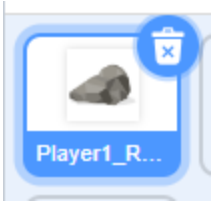
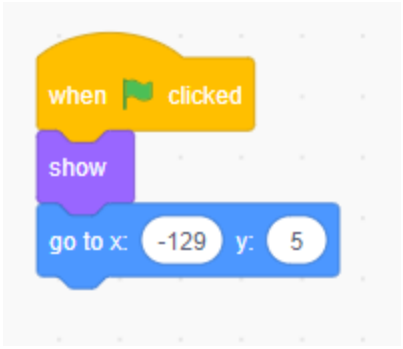
Scratch Rock, Paper, Scissors

Pre-work	1) If you already have an account, you can use that one 2) Go to https://scratch.mit.edu/ 3) If you already have a Scratch account, click Sign In *a) Enter the Username and Password for your account* *b) If you can't remember your Password (or username), use the Need Help? Link* 4) If you don't already have a scratch account, click Join Scratch *a) Choose a UserName (not your real name, but something you'll remember)* *b) Choose a Password you'll remember and enter it twice* *c) Click Next.* *d) Enter your birthdate, gender, and Country. Click Next.* *e) Enter your email address twice (you will get a confirmation email but we can leave that for later)* *f) Click Next, then OK Let's Go!*	
Getting Started	For this project, we're going to use a Starter that already had the backdrop and Sprites. Go to https://scratch.mit.edu/projects/855263456/, make sure you are logged into Scratch and then click on the green Remix button.	
Beginning Setup	Decide which version you are making. Your choices are: 1. Rock, Paper, Scissors 2. Ninja, Cowboy, Bear 3. Fire, Snowflake, Water Once you've made your choice, delete the 4 sprites you don't need so only Player1 and Player2 for your chosen pair remain. 1. Click on the sprite to remove 2. Click the trashcan image with the X in it. Update the code for your two chosen sprites so they are visible on start. Click on each sprite and make sure you are in the Code window. 1. For each sprite, make sure there is a "When <green flag> clicked" event 2. Under the event should be the "show" look 3. Add a "goto x:# y:#" motion. It will fill in with the current coordinates Player1: x:-129, y: 5 Player2: x: 128, y: 5	 

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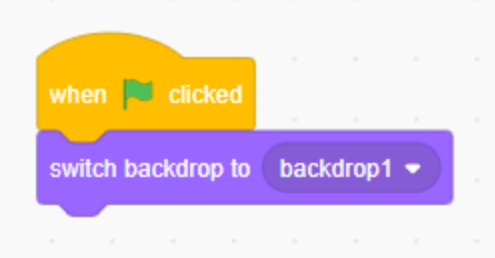
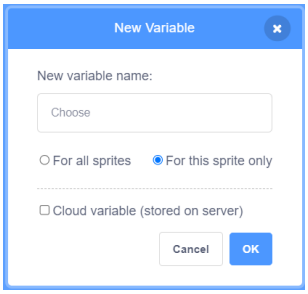
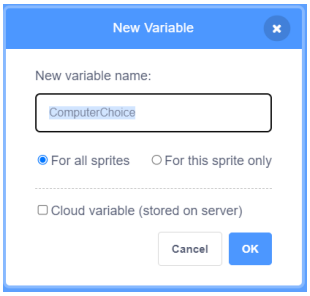
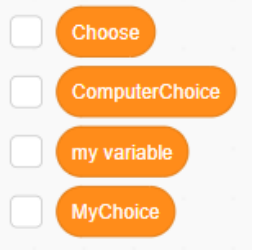
	Click on the backdrop sprite and make sure you're in the Code window. 1. Add a "When <green flag> clicked" Event. 2. Locate and add the "switch backdrop to <backdrop>" Looks block. Choose backdrop 1. TESTING STEP: Change the backdrop and move the sprites, then click the green arrow and make sure everything went back to where it should shart.	
Adding Variables	When the player is making their choice, they need to be in "Choose" mode and they should be able to change their costume to pick the one they want. We also need to store the computer's choice. To set up for this we need 3 variables: "Choose", "ComputerChoice", and "MyChoice". Click on the Player1 sprite and make sure you're in the Code window. 1. Under Variables click the Make Variable button. 2. Name it "Choose" and select the option For this sprite only. 3. Click OK. 4. Under Variables click the Make Variable button again. 5. Name is "MyChoice" and select the option For all sprites. 6. Click OK. 7. Under Variables click the Make Variable button a 3rd time. 8. Name it "Computer Choice" and select the option For all sprites. 9. Click OK. 10. Uncheck the boxes by the Variable names so they don't appear in the display window.	  

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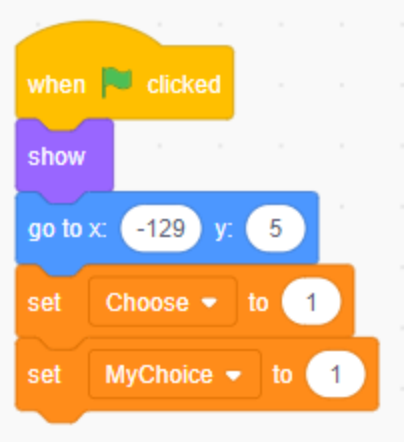
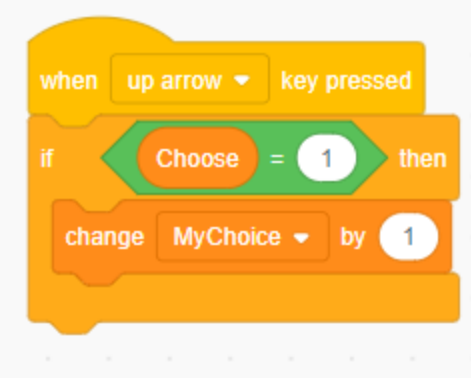
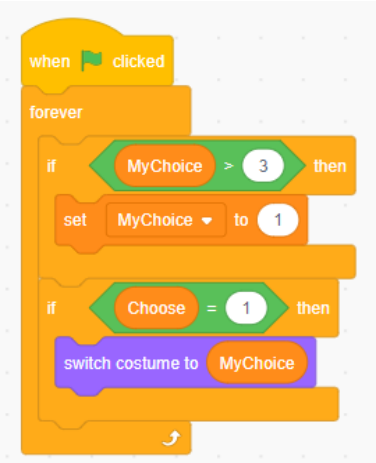
Player1 Choices	Let the player see their weapon choice. Click on the Player1 sprite and make sure you're in the Code window. 1. Under the "When this sprite clicked" event, add the Variables block "Set <variable> to #" 2. Make sure Choose is the variable and 1 is the value it sets to. 3. Add a 2nd "Set <variable> to #" block. 4. Make sure this 2nd one has MyChoice as the variable and 1 is the value it sets to. Add code for updating the value of MyChoice when the Up Arrow is pressed by the Player. 1. Add a "When <key> key is pressed" Event. 2. Change <key> to up arrow. 3. Add an "if…then" Control block. 4. In the "if…then" line, add the "# = #" Operator block. 5. Drag your Choose variable to the first part of the operator and type 1 for the 2nd part. 6. Within the "if…then" add the "Change <variable> by #" Variables block. 7. Use the MyChoice variable and the # 1. Update the sprite to match the player's weapon choice. 1. Add a 2nd "When <green flag> clicked" Event. 2. Add a "forever" Control loop. 3. Add 2 "if..then" Control blocks. 4. Add the "# > #" Operator block to the 1st "if…then" block. 5. Drag your MyChoice variable to the first part of the operator and type 3 for the 2nd part. 6. Add the "# = #"Operator block to the 2nd "if…then" block.	  

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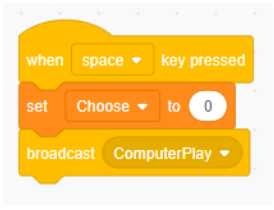
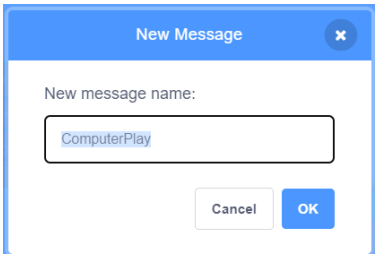
	7. Drag your Choose variable to the first part of the operator and type 1 for the 2nd part. 8. Inside the “if MyChoice > 3 then” block, add a “set <variable> to #” Variables block. 9. Set the variable to MyChoice and # to 1. 10. Inside the “if Choose = 1 then” block, add a “switch costume to <...>” Looks block. 11. Drag your MyChoice variable over the costume name in the “switch costume to <...>” block.	
Testing	Test your code. Click the <green flag>. Click on the up arrow to make sure the player can see the choices.	
Finalize Player Choice	The player makes their choice by pressing the spacebar when they see the weapon they want. Click on the Player1 sprite and make sure you’re in the Code window. 1. Add a “When <key> key is pressed” Event. 2. Make sure <key> to set to space. 3. Add a “set <variable> to #” Variables block. 4. Set the variable to Choose and the # to 0. 5. Add a “broadcast <message>” event block. 6. Select New message and name it ComputerPlay.	 
Computer Makes its Choice	The Computer (Player2) receives the message and makes its choice. Click on the Player2 sprite and make sure you’re in the Code window. 1. Under the “When this sprite clicked” event, add the Variables	

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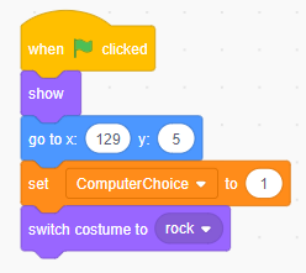
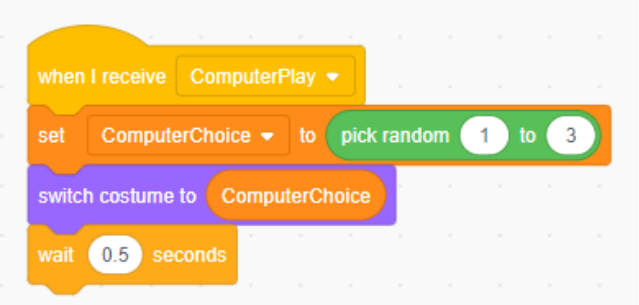
<table>
<tr>
<td></td>
<td>block “Set <variable> to #”
2. Make sure ComputerChoice is the variable and 1 is the value it sets to.
3. Add a “set costume to <costume” Looks box and make sure rock is the costume.

Click on the Player2 sprite and make sure you’re in the Code window.
1. Add a “when I receive <message>” Event.
2. Make sure the message is set to ComputerPlay.
3. Add a “set <variable> to #” Variables block.
4. Set the variable to ComputerChoice
5. Set the # to the “pick random # to #” operator with the values as 1 and 3.
6. Add the “switch costume to <costume>” Looks block.
7. Drag the ComputerChoice variable over the costume in the “switch costume to <costume>” block.
8. Add a “wait # seconds” Control block.
9. Set the # to 0.5.</td>
<td> 


</td>
</tr>
<tr>
<td>Testing</td>
<td colspan="2">Test your code. Click the <green flag>. Press the up arrow and make sure you see all the choices. Press the space key and see what choice the computer makes. Repeat and make sure you get different computer choices.</td>
</tr>
<tr>
<td>Determine Winner</td>
<td>After the computer has made its weapon choice, the winner can be determined.

Click on the Player2 sprite and make sure you’re in the Code window.
1. After the “wait 0.5 seconds” block in the “when I receive ComputerPlay” Event block, add 7 “if…then” Control blocks (one on top of the other).
2. For the first “if…then” Control</td>
<td></td>
</tr>
</table>

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block, add a “# = #” Operator. From Variables, drag ComputerChoice to the first # and MyChoice to the 2nd.

3. Inside the first “if…then” Control block, add a “broadcast <message>” Event block.
4. Select New message and give it the name “TieGame”.
5. For the 2nd thru 7th “if..then” Control blocks, add a “<> and <>” Operator and inside each <> place a “# = #” Operator. Inside each “if…then” Control block add a “broadcast <message>” Event block. Then make the following updates:

2nd block:
Left Condition: MyChoice = 1
Right Condition: ComputerChoice = 2
Message: ComputerWins

3rd block:
Left Condition: MyChoice = 1
Right Condition: ComputerChoice = 3
Message: PlayerWins

4th block:
Left Condition: MyChoice = 2
Right Condition: ComputerChoice = 1
Message: PlayerWins

5th block:
Left Condition: MyChoice = 2
Right Condition: ComputerChoice = 3
Message: ComputerWins

6th block:
Left Condition: MyChoice = 3
Right Condition: ComputerChoice = 1
Message: ComputerWins

7th block:
Left Condition: MyChoice = 3
Right Condition: ComputerChoice = 2
Message: PlayerWins

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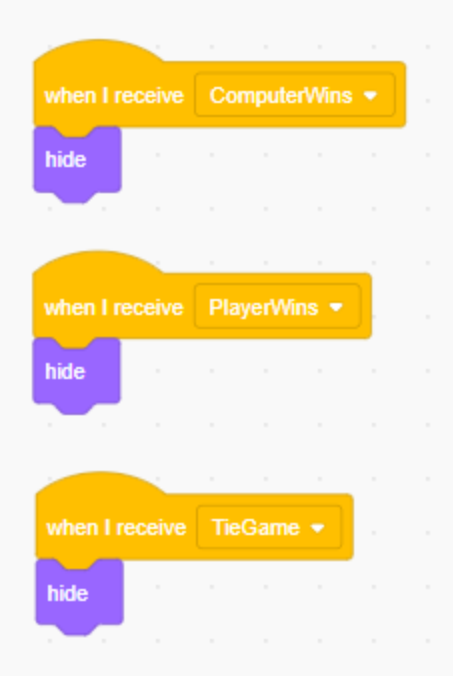
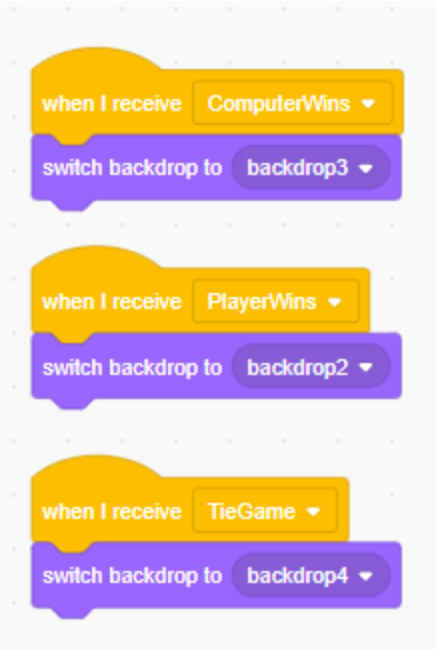
Broadcast Results	Now that the winner has been determined, we need to let the player know. Click on the Player1 sprite and make sure you're in the Code window. 1. Add a "when I receive <message>" Event block. 2. Set message to ComputerWins 3. Add the "hide" Looks block. 4. Add a "when I receive <message>" Event block. 5. Set message to PlayerWins 6. Add the "hide" Looks block. 7. Add a "when I receive <message>" Event block. 8. Set message to TieGame. 9. Add the "hide" Looks block. Click on the Player2 sprite and make sure you are in the Code window. 1. Complete the same 9 steps you did for the Player1 sprite. Click on the Backdrop and make sure you are in the Code window. 1. Add the "when I receive <message>" Event block. 2. Set message to ComputerWins. 3. Add the "switch backdrop to <backdrop>" Looks block. 4. Set backdrop to backdrop3. 5. Add the "when I receive <message>" Event block. 6. Set message to PlayerWins. 7. Add the "switch backdrop to <backdrop>" Looks block. 8. Set backdrop to backdrop2. 9. Add the "when I receive <message>" Event block. 10. Set message to TieGame. 11. Add the "switch backdrop to <backdrop>" Looks block. 12. Set backdrop to backdrop4.	 

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Testing	Test your code. Click the <green flag>. Remember to press the up arrow key to see the choices and space to make the choice. Play multiple times so you can see each outcome.

Other things to try:

- Display a ? for the Computer's weapon at the beginning of the game until its choice is revealed.
- Have the Player1 Sprite give directions for the game.
- Provide the option to play again.

My Notes: