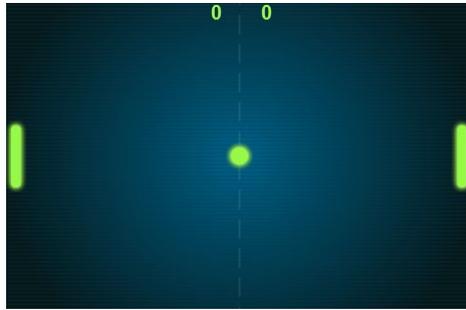




**LEARN PROGRAMMING  
VIDEO GAME EDITION**

**PONG**

# Pong Game

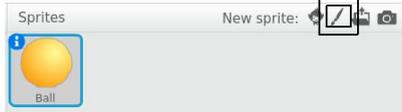
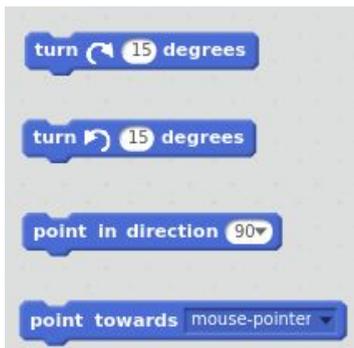


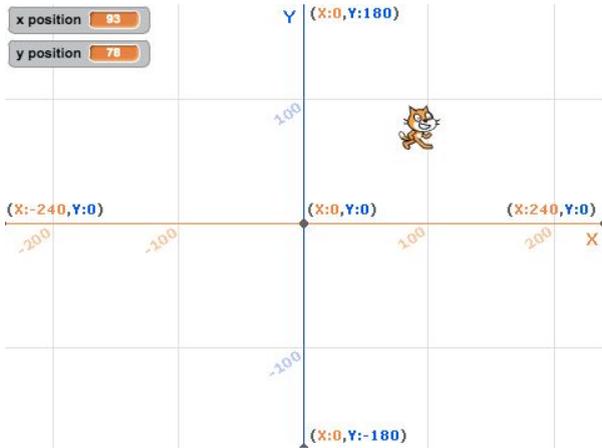
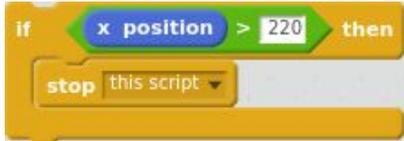
Step	Challenge - Move that ball!	Hints
1	Change the cat sprite to a ball  Rename the sprite if the name is not meaningful	<ul style="list-style-type: none"> <li>• There is already a ball in the library but you can also draw one</li> <li>• Click on  if you want to change the name of the sprite</li> </ul>
2	When the flag is clicked, make the ball move 10 steps	<ul style="list-style-type: none"> <li>• This 10 will be the speed of the ball, you can try other values to see what happens</li> </ul>
3	When the flag is clicked we want the ball to move forever so include the move 10 steps in a forever loop	<ul style="list-style-type: none"> <li>• Look in Control for the forever block</li> </ul>
4	When your ball hits the side it stays there. We want it to rebound. Look in motion, there is a special block about rebounding that can help us.	<ul style="list-style-type: none"> <li>• This block also has to be placed in the forever block (along with the move 10 steps)</li> <li>• You can stop the ball by pressing the stop button near the flag</li> </ul>
CP	Now you should have a bouncing ball going forever!	

## Additional Information

It is possible that the ball acts funny when it rebounds, that is because it turns 180 degrees when it hits the edge. You can change that by clicking on the  of the sprite rebounding and change the rotation style. Here are the values:

-  Rotate 180 degrees when hit border
-  Horizontal flip when bouncing on edge
-  Does nothing when bouncing on edge

Step	Challenge - Get those sliders ready!	Hints
1	<p>Now it's time to create the sliders. Create 2 of them, one for each player.</p> <p>Make sure you rename those 2 sprites to something meaningful like Player1 and Player2</p> <p>Place these sprites at their starting position</p>	<ul style="list-style-type: none"> <li>You can draw the sliders if you click on the brush</li> </ul>  <ul style="list-style-type: none"> <li>Holding shift when drawing ensure your line is straight</li> <li>You can right click and hit duplicate on any sprite to quickly create a copy</li> </ul>
2	<p>Make those sliders move. The player1 slider will move up &amp; down by clicking on W &amp; S. The player 2 with Up &amp; Down</p>	<ul style="list-style-type: none"> <li>Make sure you add your scripts to the right sprite!</li> <li>You want to move your sliders by adding or subtracting the y corresponding to the up or down movement</li> </ul>
3	<p>The ball now needs to hit the sliders and rebound. On the ball script we will add</p>	<ul style="list-style-type: none"> <li>The rebound is a little bit tricky so here is a way to do it</li> </ul> 
4	<p>Now it is all good but the game is boring because the angle of the ball is too easy. On flag clicked, change the orientation of the ball.</p>	<ul style="list-style-type: none"> <li>Many blocks can do this in movement</li> </ul> 
CP	Now we can play!	

Step	Challenge - Who wins?	Hints
1	<p>Find if a ball go passed the slider. We need to understand the coordinates in scratch. Look at the image below.</p>  <p>If the ball has a X coordinate <math>&gt; 220</math> or <math>&lt; -220</math> that means it is passed the slider. In the forever loop, add the If block to stop the script if the ball goes behind the slider.</p>	<ul style="list-style-type: none"> <li>You can see the coordinates at the bottom of your play screen <code>x: 240 y: -180</code> X = horizontal axis Y = vertical axis</li> <li>The coordinate you see is the one of your mouse pointer</li> <li>Here is an example of the script added to the forever loop</li> </ul> 
2	<p>After you played the game, if you click the flag the game does not start, Why?</p>	<ul style="list-style-type: none"> <li>Does your ball X is <math>&gt; 220</math> or <math>&lt; -220</math>? If so what happens in your script?</li> <li>What block action could you do at the beginning of the game would solve this problem?</li> </ul>
3	<p>In the data menu, add a new variable named Exchanges, this will create a set of new blocs. Try to add 1 to this variable every time a player touches the ball</p>	<ul style="list-style-type: none"> <li>Make sure your value is reset to 0 when you click on the flag!</li> </ul>
4	<p>Try to add new features, invent some or get idea from the list on the next page!</p>	
CP	<p>Let's have fun now!</p>	

**Add some fun to the game**

Start the direction of the ball in a random direction

When we press a button, the ball moves a little faster

Everytime we hit a slider, the ball goes a little faster

Every 5 seconds, the background changes

Every 30 seconds, the ball disappears for a few seconds

Everytime it hits a slider, the ball changes color

The ball leaves a trail behind it (like a pen)

On random event, the ball and/or the slider freezes for a few seconds

Show the number of exchanges you made with the ball

Add a splash screen at the beginning of the game explaining the controls to move the sliders and the extra features and a big start button for starting the game

Add sound everytime there is a rebound



**Think and code your own feature! Everything is possible... Try it!**