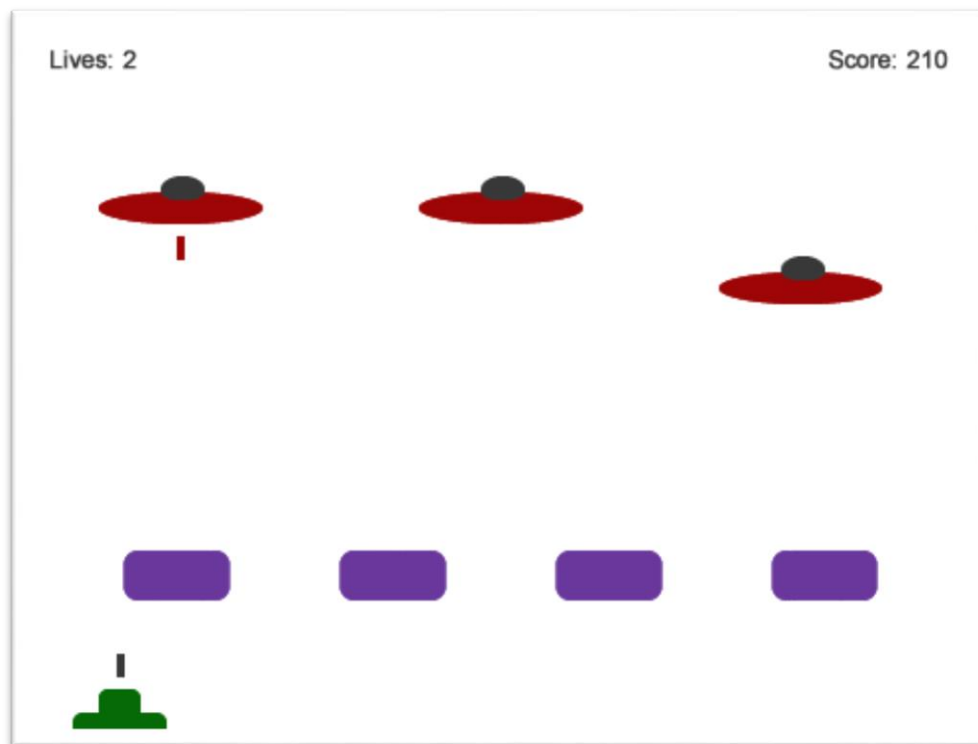# Space Invaders in Scratch

Step 1 – Create a black background:

1. Create a black (night sky) background on the stage

Step 2 – Laser Cannon Sprite:

1. Create your laser cannon sprite, this is the one at the bottom of the screen that the player controls. Remember to name it something memorable!

2. Allow the player to move the laser cannon left and right using the keyboard. (Hint: create the script to move to the left then right mouse click on it and select "duplicate" then just modify it slightly)

3. What happens when the Laser Cannon reaches the edge of the stage?

Step 3 – Laser Beam Sprite:

1. Create a Laser Beam sprite, this is the laser beam which is fired from your laser cannon up into the sky to destroy the alien space ships. Remember to change the name of sprite.

Step 4 – Firing the Laser:

2. When the "space bar" is pressed the Laser Beam sprite should move from the end of the Cannon part of Laser Cannon all the way to the top of the screen.

3. When the Laser Beam reaches the top of the screen it should disappear (as if by magic)

4. The Laser Beam should start the game hidden and only appear when fired.

5. Only allow one Laser Beam to be firing at a time. The previous Laser Beam must move all the way to the top of the screen before allowing you to fire another one.

Step 5 – Alien Space Ships

1. We need some Alien Space Ships in the sky for our Laser Cannon to destroy. Create an alien space ship sprite (name it!),

2. Get the alien space ship to randomly move about in the sky... but make it look realistic, maybe limit its movements to side to side only.

3. What happens when it reaches the edge of the screen?

Step 6 – Alien Laser Beams

1. Create another Laser Beam sprite, this time for your Alien Space Ship to use, this one will come from the sky down to the ground to try and destroy your Laser Cannon (uh oh).

2. Create a script on your Alien Space Ship sprite to create a broadcast to tell the Laser Beam to fire when the Laser Cannon is a certain distance away (look at the sensing blocks)

3. Only allow the Alien Space Craft to broadcast one fire laser beam at a time (wait until the Laser has hit its target before firing another one)… Hint: have a look at the two broadcast blocks available.

Step 7 – Destroying our Laser Cannon

1. If the Alien Space Ship manages to hit our Laser Cannon we need to know about it. Make a new costume for our Laser Cannon and make it look all destroyed! – name it something like "destroyed" so you know which one it is.

2. If the Alien Laser Beam hits the laser Cannon, make the costume for it change to the destroyed one. (Hint: this could be done with a broadcast as the Alien Laser Beam is already in a loop)

3. Make sure you switch the Laser Cannon costume back to the normal one when the game starts again.

4. Don't forget to add a sound effect when our Laser Cannon is destroyed (this is a game after all)

Step 8 – Destroying the Aliens

1. The same as in Step 7 except with our Laser Beam. When our Laser Beam hits an Alien Space Ship lets show it destroyed.

2. Don't forget to add a sound effect.

Step 9 – Disappearing Aliens

1. When the Alien space is destroyed, shortly after changing costume it should disappear (hide)

2. After a short wait the destroyed Alien should reappear, without any damage so remember to change the costume back

3. Aliens that have disappeared should not really be firing lasers (looks a bit odd otherwise) (Hint: The Alien space ship should only fire if it is close to the laser cannon **AND** the Alien space ship hasn't been destroyed)

Step 10 – Adding more Aliens

1. Duplicate your Alien space ship to add another 2 or 3 alien sprites

2. Make sure all the Aliens can fire at the Laser Cannon

Step 11 – Points

1. When any of the Alien Space ships is destroyed we should gain some points which should get added to our "score"

2. When starting a new game the "score" should be 0