Plant Life

Project Link: https://scratch.mit.edu/projects/476564491

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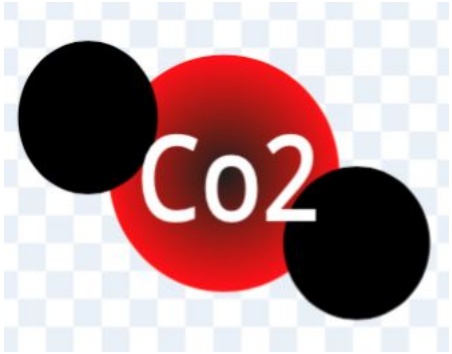
Overview:

When we start the program by pressing the green flag, it begins by the Sun being cloned across the screen, which is during the day and the plant is giving out oxygen, that is being cloned as well. After this, the program turns to night time. While this is occurring, the plant is taking in carbon dioxide, which is being cloned as well.

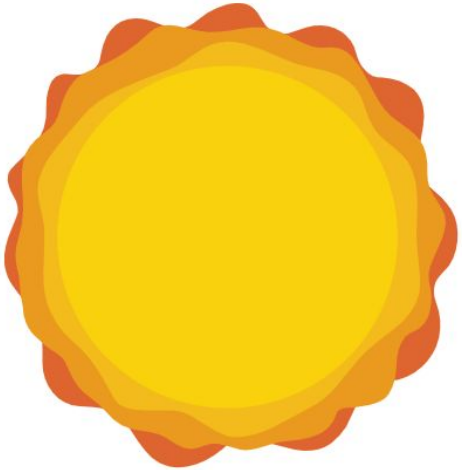
Sprites



I created Co2 sprite to symbolize cellular respiration at night

I created O2 sprite to symbolize oxygen from cellular respiration during the day

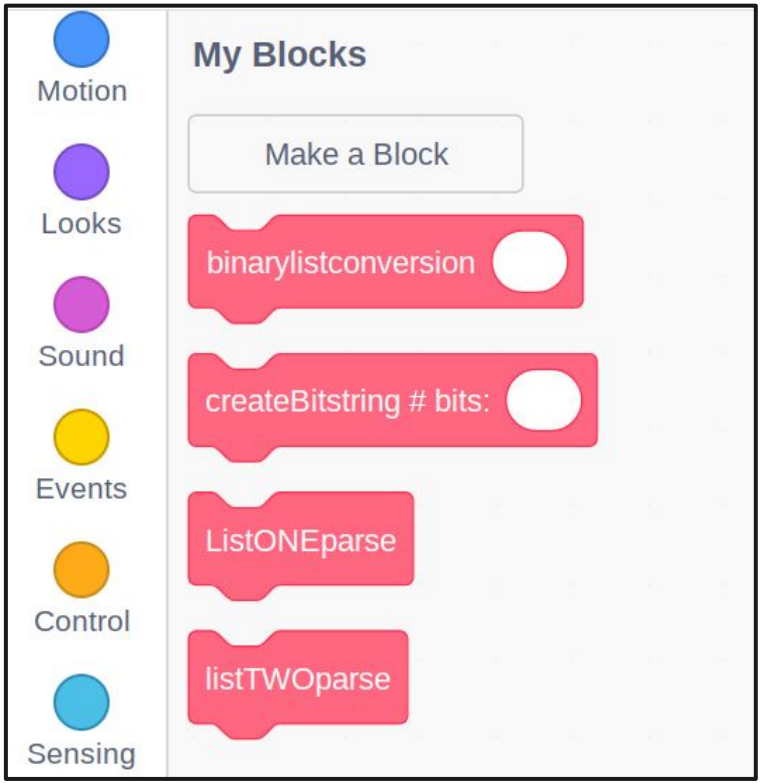
I used this clipart as a sprite to show a diagram for the plant cellular respiration.



The Sun sprite in our program was added to show that it is daytime

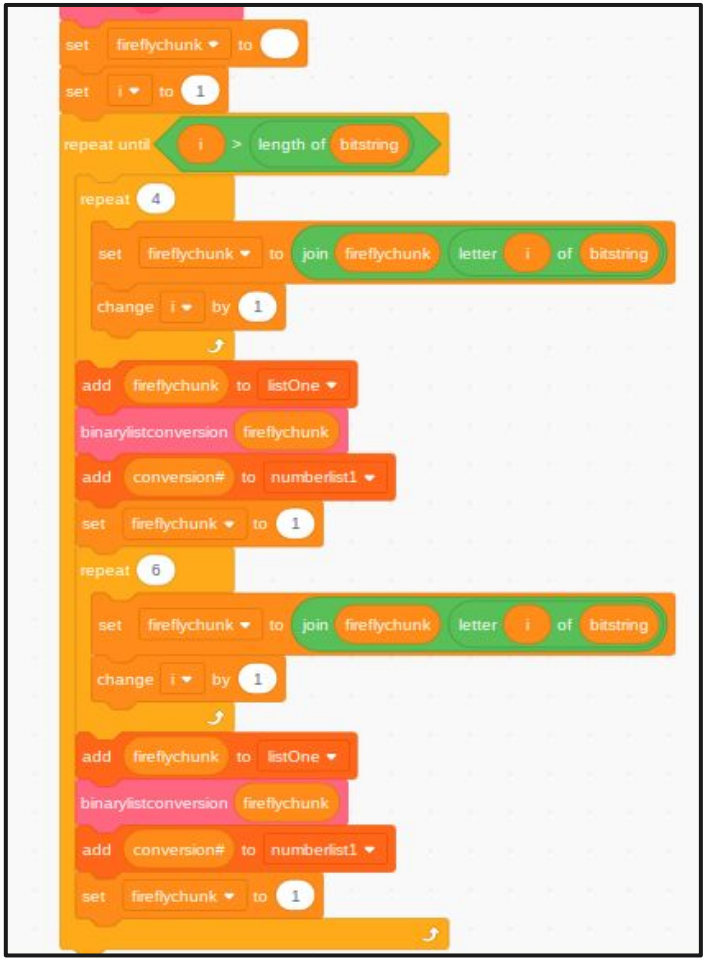
Custom Blocks

In our program, we created four custom blocks. Two of the custom blocks were made in order for us to begin to create our lists, which were “ListONEparse” and “listTWOparse”. Moreover, another custom block is “binarylistconversion”, which this block is important because it helps convert the binary code on the list to a simple demand, which is then used to determine the actions of the sprites. Lastly, our other custom block “createBistring # bits:”, is important because it allows us to change the number of bits we need, whether we need more data we would increase the number or if we need less data we could decrease the input because the number we input into the block is how many ones and zeros are shown on the bitstring.



List 1 & List 2

List 1 and List 2 have the same blocks in their strings and are being used to convert bits into two other separate lists. Both of the lists codings have specific numbers on the repeat blocks to show a numeric pattern in the lists. However, a difference between the lists is that List 2 has a greater amount of bits because we added two more repeats to it compared to List 1 which we could see how in numberlist2, it's numbers are greater. (image of lists in next slide)



The image shows the coding used for both List 1 and List 2

After looking at the image of the code for List #1 on slide 3, we can see how in this code for List #2 the difference of how the first repeat block is 5 while on List 1 the input is 4, and how the second repeat block is 7 while on List 1 the input is 6.

This image shows how our listOne and listTwo which are the bare binary are converted to their numberlist which is the parsed or simplified binary.

Binary Strings being parsed to create the lists

To begin, our code for “ListONEparse” and “listTWOparse” are put into repeat until blocks that go through all the bits from the bistring. From there, there are inner repeat blocks which loop to get the parsed bits from the bistring. It is important that it loops because it places the bit into “respirationchunk”. When the repeat loops has completed, it will add the “respirationchunk” into both lists. After that, we still added two other repeat blocks of 4 and 6 on list 1 and on the list 2 the repeat blocks were 5 and 7.