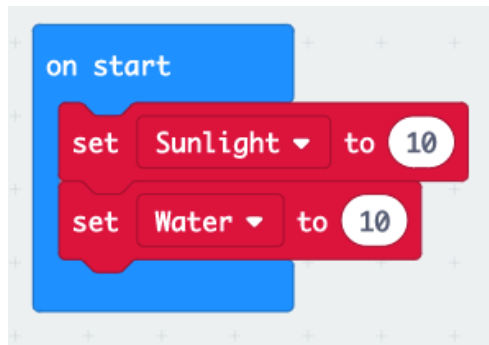
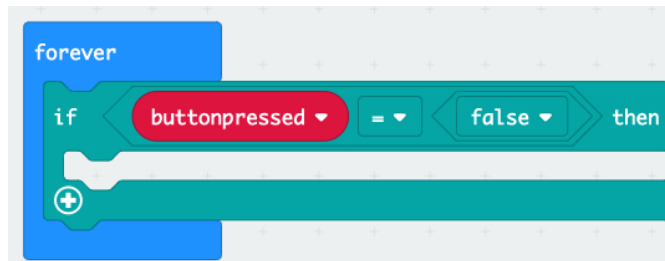


Digital Garden – Teacher Coding Sheet.

- Have students create some variables by clicking on the **Variables tab** and selecting **Make a Variable**. Have the students name them “**counter**”, “**buttonpressed**”, “**sunlight**”, and “**water**”.
- In the “**on start**” **block** drag and drop from the Variable tab the “**Set –blank- to**” **block** and set it “**sunlight**” by hitting the drop down box and then another “**Set –blank- to**” **block** and set it to “**water**”. Set both these variables to 10.

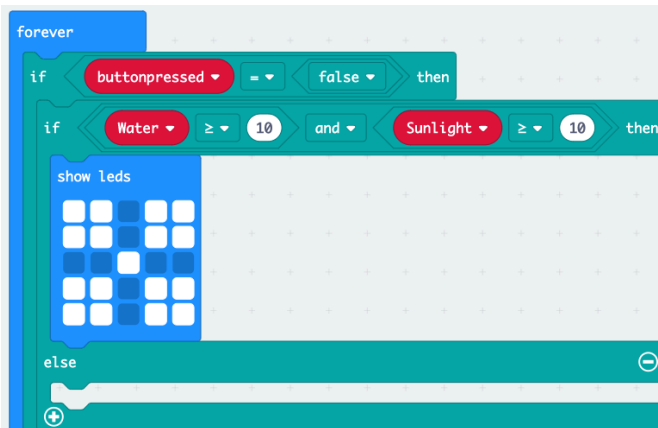


- From the **Logic tab** grab an “**if**” **block** and drag it into the “**forever**” **block** and then grab a comparison “**=**” **block** and drag it into the hexagon slot of the “**if**” **block** and in that comparison block place the “**buttonpressed**” variable in the first slot and in the second slot place a “**false**” **block** from the Boolean section of the **Logic tab**.

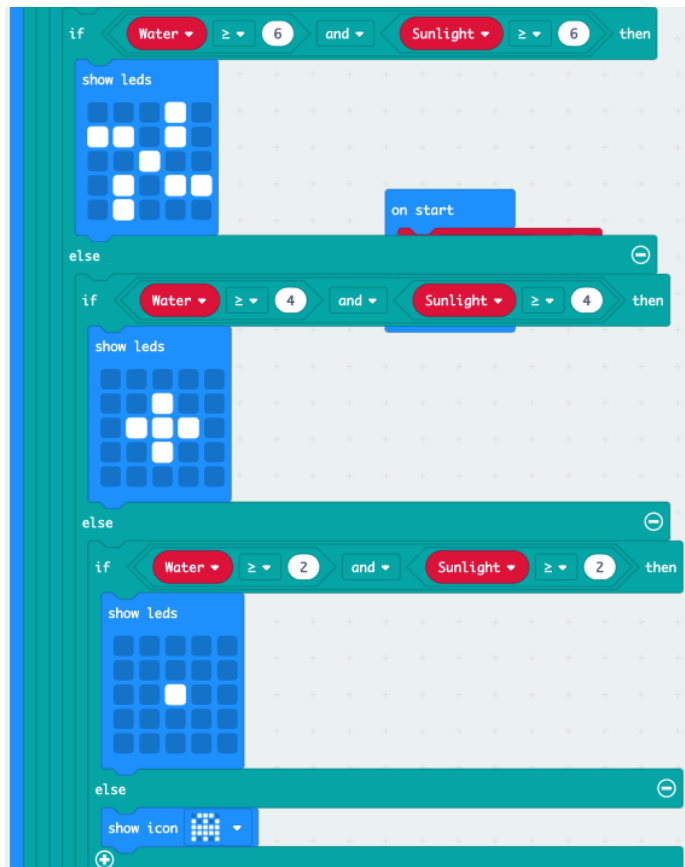


- In the Logic Tab you’ll find the “**If Then Else**” **block**. Drag and snap the block beneath the “**If buttonpressed**” **block**, from the **Logic tab** drag the “**and**” **block** into the slot that says, “**true**” in the “**If Then Else**” **block**, then from the **Logic tab** drag a comparison “**<**” **block** into the first hexagon and in the second hexagon place another. Then set both those blocks to “**greater than or equal too**”. Then place the variable “**water**” in the first circular slot of comparison block and the number 10 in the other slot. Do the same with the other comparison block but place the variable “**sunlight**” in the first slot instead. Afterwards place a “**show leds**” **block** from the **Basic tab** within

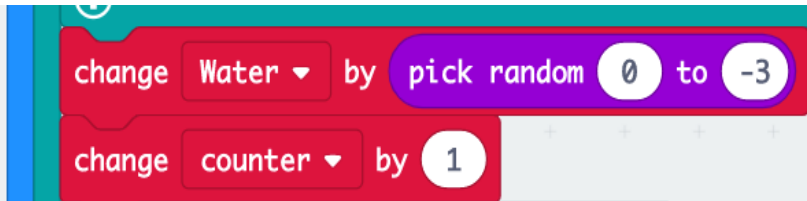
that “if water greater than or equal to 10 and sunlight greater than or equal to 10” block, and have students draw a “healthy plant”.



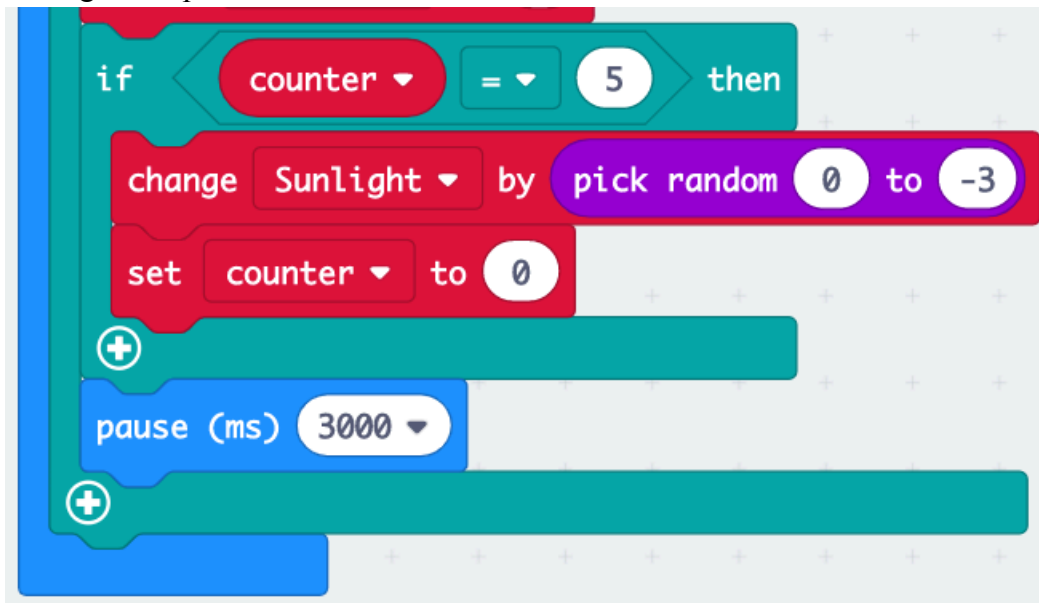
- Next duplicate the “if water greater than or equal to 10 and sunlight greater than or equal to 10” block by right clicking that block. Then place the duplicated block in the “else” section of your previous block. Set the comparison blocks to 8 instead of 10, and then continue this process again and again lowering the number by 2 intervals each time, until you create a “if water greater than or equal to 2 and sunlight greater than or equal to 2” block. In each of the cases create a more “Sickly” plant image until the last block, which should be a single pixel in the middle. In the final “else” section place a ghost icon from the **Basic tab**.



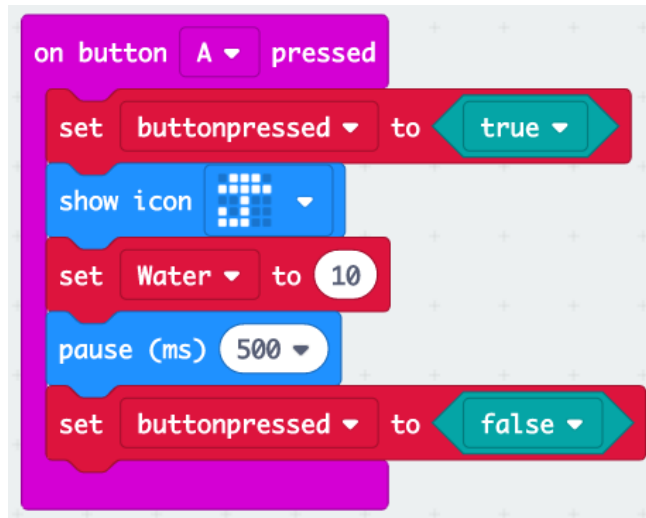
- Now at the very bottom (still within the original **“if buttonpressed = false”** block) from the **Variables tab** place a **“change by”** block and set the variable to **“water”**. Then from the **Math tab** drag the **“pick random”** block and set it from **“0 to -3”**, this will decrease our **“water”** variable by a random number between 0 and 3, this is one of the factors that causes our plant to **“wilt”** because of our comparisons. Next you’ll place a **“change by”** block underneath and set the variable to **“counter”** and set it to **“by 1”**, this will increase our variable by 1 every cycle.



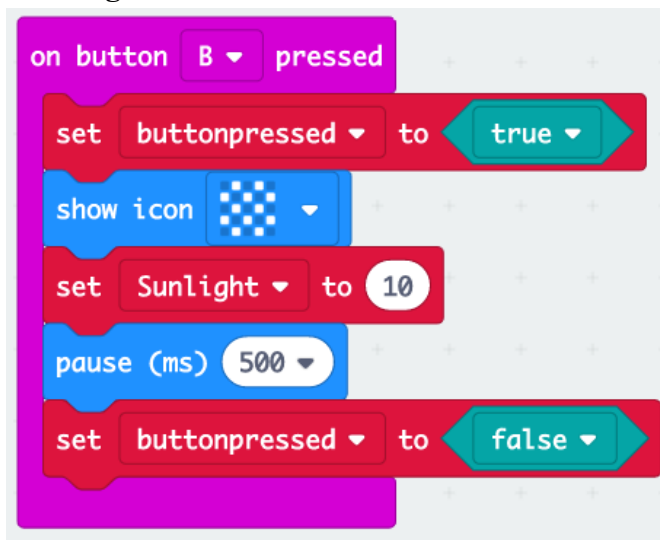
- Next we’ll attach a **“if”** block from the **Logic tab** and we’ll add a **“=”** comparison block to the hexagon slot, in the comparison block’s first slot we’ll place the **“counter”** variable and in the second slot we’ll type **5**. In this **“if counter = 5”** block we’ll drag a **“change by”** block and set the variable to **sunlight** and in the **“by”** we’ll drag another **“pick random”** block from the **Math tab** and set it from **“0 to -3”**. Beneath this we’ll add a **“set to”** block and set the variable to **“counter”** and leave the **“to 0”**. These blocks will only activate once **“counter” = 5** and then it will decrease our **“sunlight”** variable by a random number between 0 and 3, and then set our counter back to 0. Beneath this **“if counter = 5”** block place a **“pause”** block from the **Basic tab** and set it to **3000**, which is 3 seconds. This will have our program wait 3 seconds before continuing its loop.



- Next we'll add two buttons that will water and give our digital plant some sunlight. First grab a **“on button A pressed”** block from the **Input** tab. In the A block place a **“set to”** block from the **Variables** tab and set the variable to **“buttonpressed”** and in the circle drag a **“true”** block from the **Logic** tab beneath this block place a **“show icon”** block to and umbrella. Under this block place a **“set to”** block and set the variable to **“water”** and set the 0 to 10, then add a **“Pause”** block and set it to 500 which is half a second, and at the end of the block add another **“set buttonpressed to”** block but this time drag a **“false”** block from the Logic tab instead of true. These true or false statements are important because it makes sure the program is only performing one of the tasks at a time. It keeps the digital plant from losing more water while you water it (press A).



- Lastly duplicate the **“on button A pressed”** block by right clicking the block selecting duplicate. Then set this duplicated block to **“B”** instead of **“A”**, also change the icon to a sun and **“water”** to **“sunlight”**



- Click **“DOWNLOAD”**. You now have a working Digital Plant for your Digital Garden