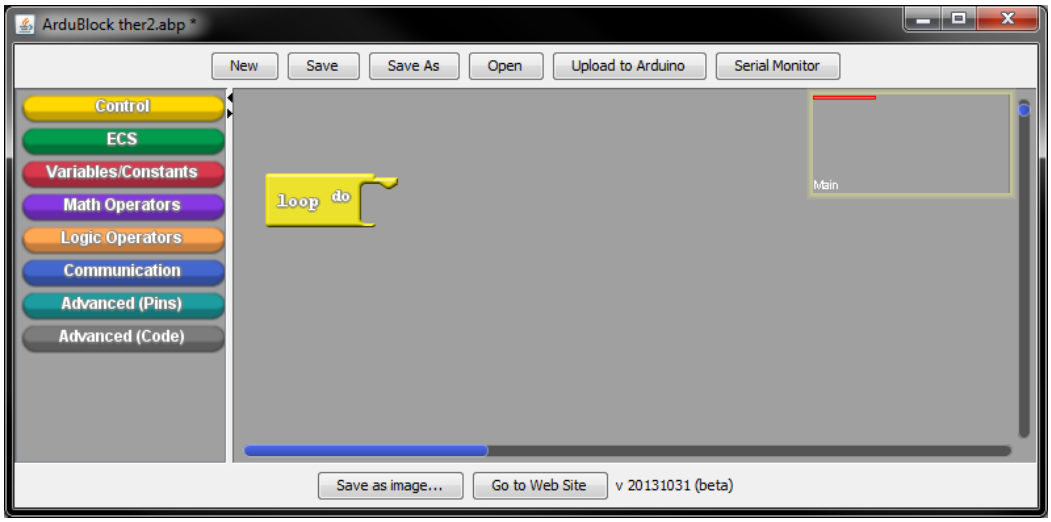
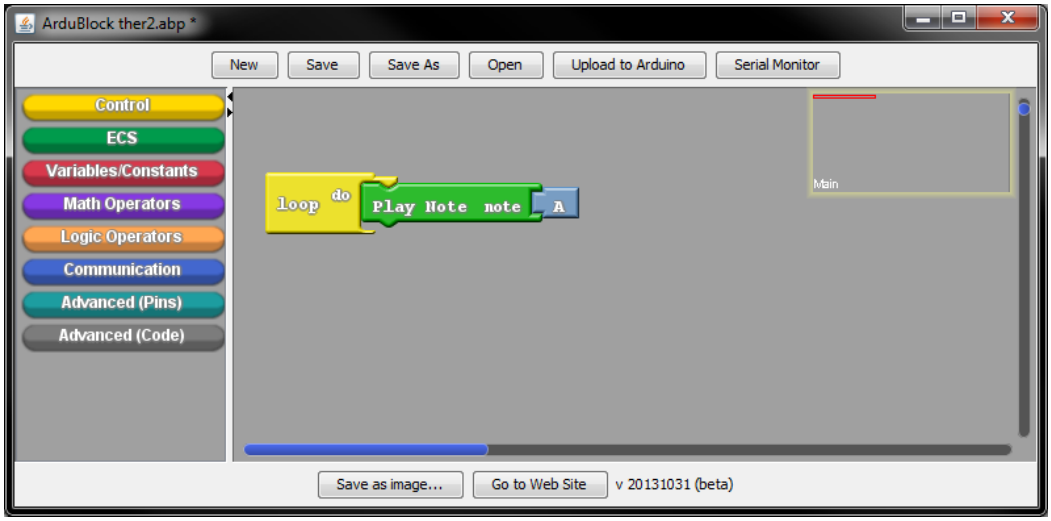
## Playing Notes

1. Because our programs have access to a speaker, they are able to play series of musical notes while they run. Like last time, begin by placing a **loop** block, found in the **Control** drawer.

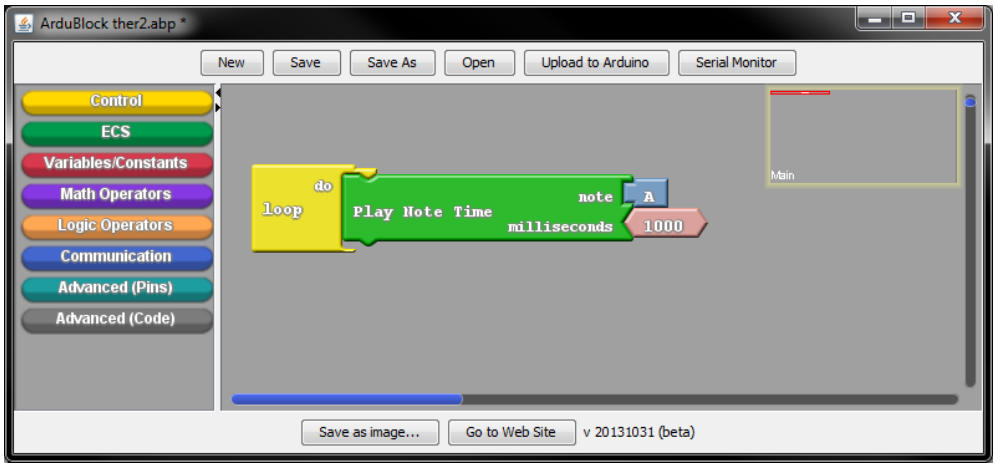



2. Place a **Play Note** block from the **ECS** drawer inside of the **loop**. Leave the note as default, A.

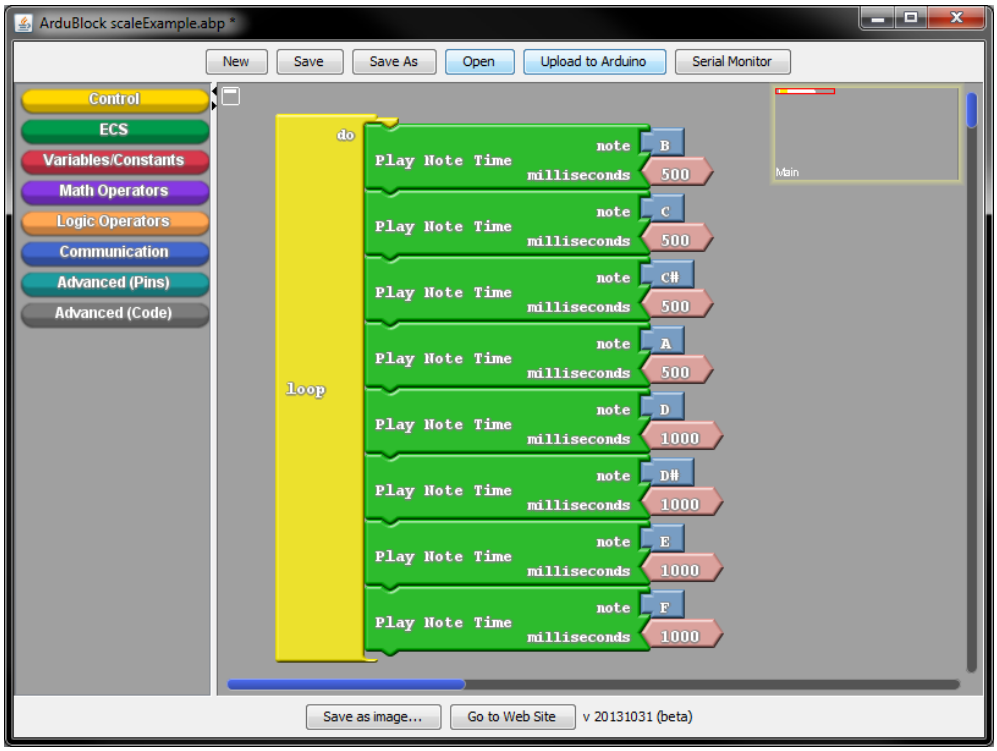



3. Click the *Upload to Arduino* button at the top of the program to load your program to the board. When you reset the board, you will hear an A note playing forever. This isn't much of a song, but we'll add to it throughout this tutorial.
4. We can change the note which plays by modifying the **Note** block connected to the right side of our **Play Note** block. Please use the handout of available notes, which your teacher can provide for you. The **Play Note** block is great for continuously playing a tone, but we want to create a melody. Remove the **Play Note** block and replace it with **Play Note Time**, also found in the **ECS** drawer. This block plays the attached note for as long as the attached time says. By default, it plays an A note for

1000 milliseconds, which is the same as 1 second. Go ahead and try running your code again to hear the difference.




5. As you can see from the notes handout, our programs have access to standard notes and sharps, and can play notes from a range of octaves. We can also specify specific frequencies as numbers if we wish. To do so, use a **Play Frequency** or **Play Frequency Time** block, both of which are found in the **ECS** drawer. They work in the same way as **Play Note** and **Play Note Time**, but take numeric frequencies as inputs instead of letter names for notes.
6. Add notes to your melody to create a scale, as seen below. You will have the chance to create your own song using the **note** and **delay** blocks, but let's start with something simpler.




7. Run the program again to hear how it works. You will hear a basic chromatic scale, repeating over and over again. If there is still time left, explore the **note** and

**frequency** blocks found in the **ECS** drawer. You can combine these blocks with the **LED** blocks from the previous tutorial to make a light pattern go along with your scale, or add **delay** blocks to insert rests between your notes.