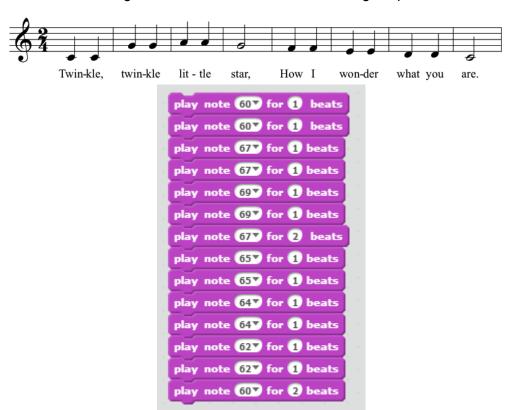
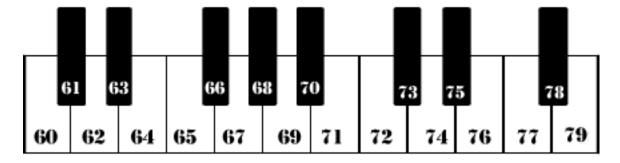
Sheet Music in Scratch

- You can write sheet music in Scratch using the "play note" block and the "rest" block.
- The following music can be written in the following script.



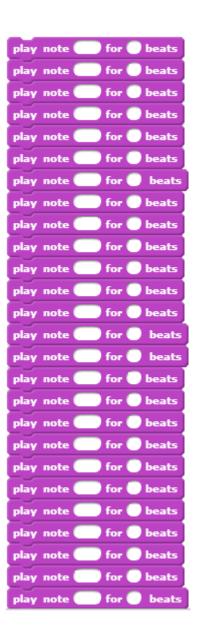
- The music follows the beats that are written in the music, with the quarter note having a length of one beat.
- The notes are in increments of half steps, and Scratch defines 60 as middle C. This results in the following arrangement of notes.



(The notes go higher than 79, and lower than 60. This is just an example of how the keyboard is numbered in Scratch)

Try filling in the code for "Mary had a Little Lamb"





Polyphonic Music in Scratch

- Multiple melodic and harmonic lines can be written in Scratch.
- By using the "when flag is clicked" and the "broadcast" blocks you can create music that will play at the same time.
 - NOTE: Sometimes they will get off-beat. Try using a combination of flag and broadcast for this, or give all of the parts the same rhythm.
- The following code is the beginning of "Phantom of the Opera"

```
when 🖊 clicked
when 🖊 clicked
                                   when 🖊 clicked
                                                                           eat 8
                                      epeat (8)
                                                                         play note 697 for 0.5 beats
                                      play note 657 for 0.5 beats
   play note 62° for 0.5 beats
                                                                        play note 68 for 0.5 beats
  play note 61° for 0.5 beats
                                     play note 647 for 0.5 beats
                                                                          peat ③
                                     repeat 3
   epeat 3
                                                                         play note 697 for 0.5 beats
   play note 627 for 0.5 beats
                                      play note 657 for 0.5 beats
                                                                        play note 697 for 0.5 beats
  play note 62 for 0.5 beats
                                     play note 65♥ for 0.5 beats
                                                                        play note 687 for 0.5 beats
  play note 617 for 0.5 beats
                                     play note 64♥ for 0.5 beats
                                                                        play note 677 for 0.5 beats
  play note 60° for 0.5 beats
                                     play note 63 for 0.5 beats
  play note 597 for 0.5 beats
                                                                        play note 66♥ for 0.5 beats
                                     play note 62 for 0.5 beats
                                                                          peat 8
                                                                         play note 657 for 0.5 beats
   play note 587 for 0.5 beats
                                      play note 617 for 0.5 beats
                                          play note 647 for 0.5 beats
  play note 57° for 0.5 beats
                                     play note 60° for 0.5 beats
   epeat 3
                                     repeat 3
                                                                         play note 65° for 0.5 beats
    play note 58 for 0.5 beats
                                      play note 617 for 0.5 beats
  play note 58 for 0.5 beats
                                                                        play note 65° for 0.5 beats
                                     play note 61 for 0.5 beats
                                                                        play note 667 for 0.5 beats
  play note 59♥ for 0.5 beats
                                     play note 62♥ for 0.5 beats
                                                                        play note 67♥ for 0.5 beats
  play note 60♥ for 0.5 beats
                                     play note 637 for 0.5 beats
                                                                        play note 68♥ for 0.5 beats
 play note 617 for 0.5 beats
                                     play note 647 for 0.5 beats
```

 Try making your own polyphonic music. You can use different instruments to make ensemble pieces.