6.2 Happy Performer

Intro

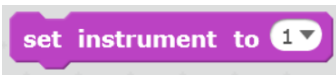Having seen the gorgeous dance of those aborigines, Mike really wants to accompany them. Now, let's learn how to play music!
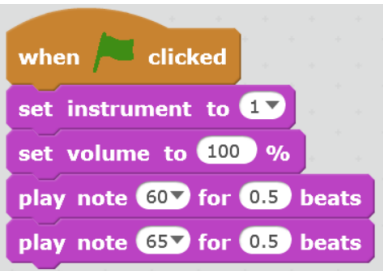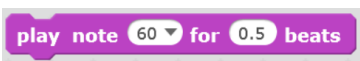
Task

1. Teach Mike how to play music, both manually and automatically, and how to import/export a list.

Start Learning

1. Scratch 2.0 Sound Module
Scratch 2.0 comes with sound module which enables us to play beautiful music.

Block	Explanation	Example
set instrument to 1▼	Scratch2.0 provides 21 types of instruments, including piano, violin, etc.	when ⚑ clicked / set instrument to 1▼ / set volume to 100 % / play note 60▼ for 0.5 beats / play note 65▼ for 0.5 beats
play note 60▼ for 0.5 beats	Set the beats	
set volume to 100 %	Set the volume	

★ Practice

Choose one instrument you like and use `play note 60▼ for 0.5 beats` to play 1, 2, 3, 4, 5, 6, 7 (do, re, mi, fa, so, la, ti).

☆ Explore
Program to control the playing via keyboard. See the below diagram which plays "do".

when a▼ key pressed
set instrument to 2▼
set volume to 100 %
play note 60▼ for 0.5 beats
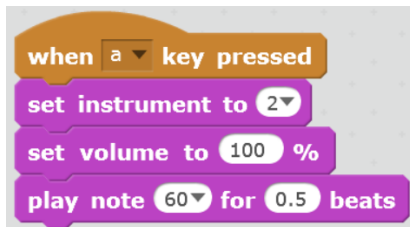
2. Auto Play
Mike has known how to play a single note, but will him be able to auto play a song? Let's first practice how to play the notes of "Twinkle, twinkle, little star, how I wonder what you are". There are 2 ways:
1) Pile up single note
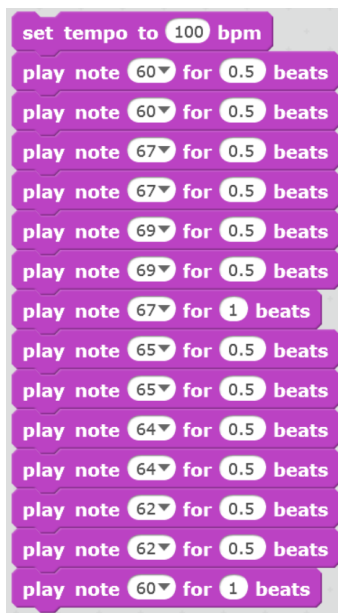
2) Make a List

List can store a great deal of data, thus we can save the consecutive notes into a list.
See the below diagram: Click "Data" - "Make a List" - name it as "Little Star", and "Ok" to save.
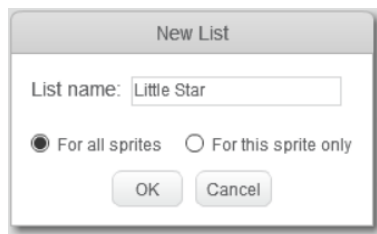
Then you will see a list on the stage. Click "+" to add a note.

Block	Explanation	Example
add thing to Little Star ▼ insert thing at 1▼ of Little Star ▼	Add data to the list.	
delete 1▼ of Little Star ▼	Delete .. from the list.	
replace item 1▼ of Little Star ▼ with thing	Replace one item from the list.	
item 1▼ of Little Star ▼ length of Little Star ▼ Little Star ▼ contains thing ?	Read one specific item from the list; Get the length of the list; Determine whether the list	

	contains a specific item.	

★ Practice

Upload "Mike.png".

Sprite	Program	Effect
Mike		

Additional Training

We may find out that we are actually using the same blocks repeatedly except the numbers may be different from each other. Can we find a way to eliminate these reduplications by looping? Can we add a beat-list to make the playing smooth? (Tips: create a new variable)

Sprite	Program	Effect
Mike		

Tips

Click and to hide variable and list on the stage.

Homework

Program to play the whole song of *Twinkle Twinkle Little Star*.