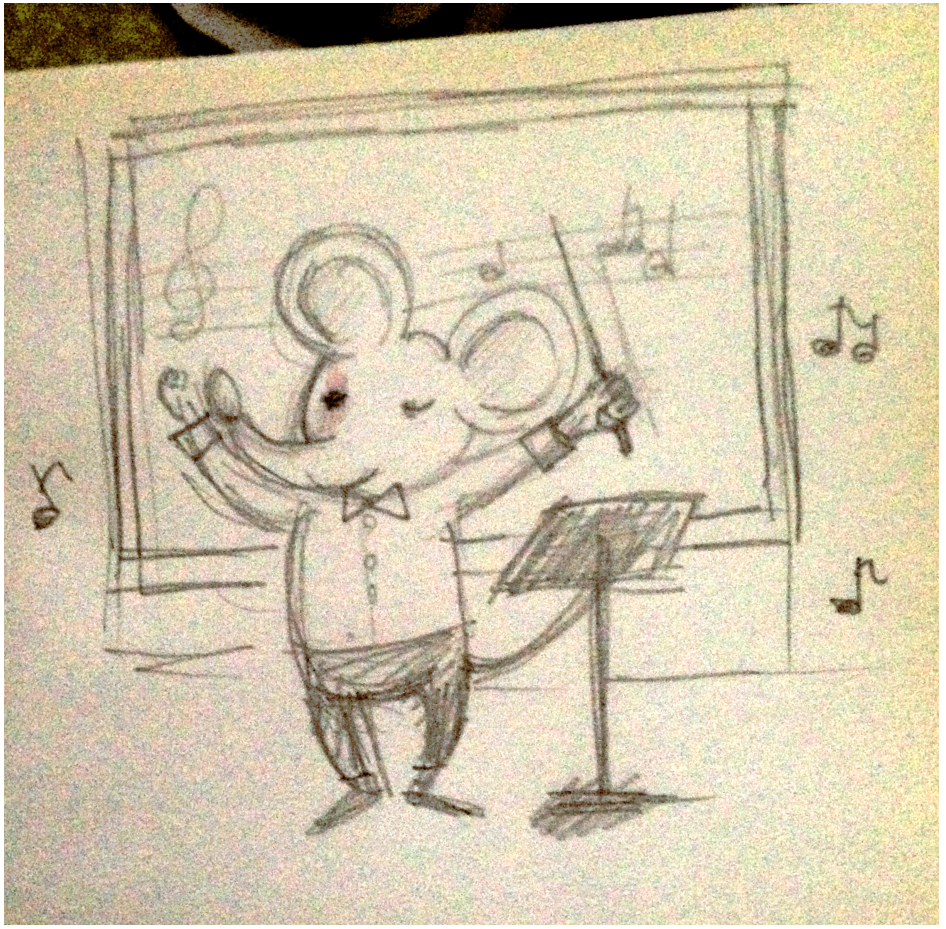
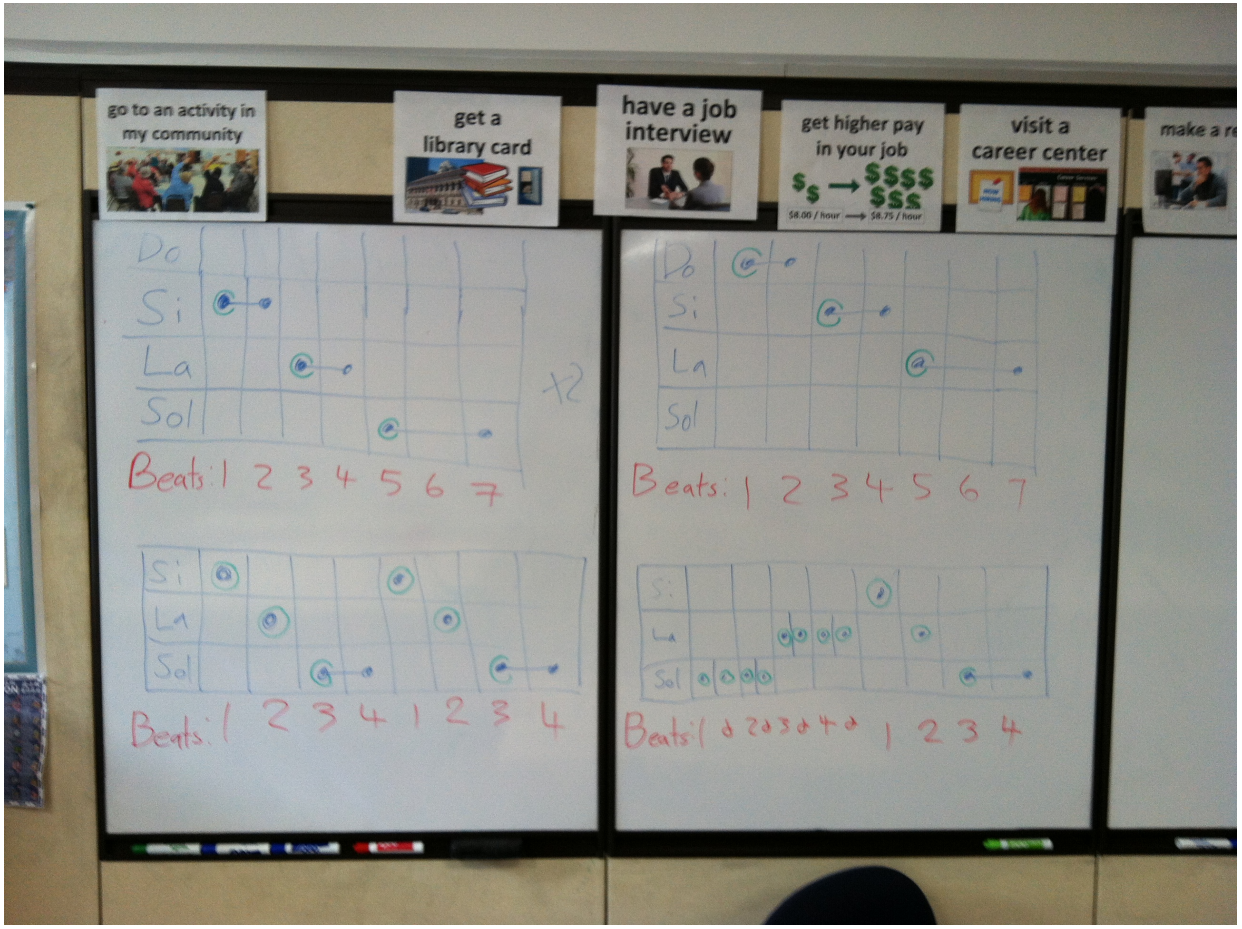
MouseMusic



Meet Mr. Mouse, our MouseMusic Teacher

Content Inspiration for MusicMouse



Music can be displayed on a matrix. Above is an image from an actual lesson at MusicLaunch at BCNC. Photo taken 2015-02-14. Above is the Beatles tune “All You Need is Love”. Below is “Hot Cross Buns”. Where are the two melodies similar, where are they different? MusicMouse can teach musical concepts in a similar way.

Hot Cross Buns for MouseMusic

Numb:	Solfa:				
3	Mi	O			
2	Re		O		
1	Do			O	--
Time:		1	2	3	4

“Hot Cross Buns” is a melody that is rich in important musical concepts. That is why it is often the starting point for musical pedagogy. Above is one possible representation of “Part A” (of 2 parts) of “Hot Cross Buns”. Students and teachers can see the solfege, the meter, and the notes.

MusicMouse's “CheeseChunks”

Once students spend time to create something like you see above, then they can use this as a “piece” (module, chunk) that they can use to create form.

Important NOTE: This “piece” would/should look a little more abstract than this.

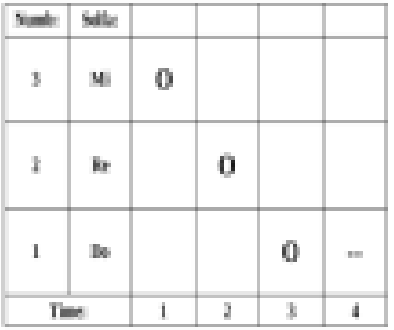


Illustration 1:
Example of a "piece" or "chunk". We can call it "chunk A".

Next Step:
Students can then go back into the “piece editor” / “chunk editor” and create the next vital piece to the form of Hot Cross Buns (Next Page).

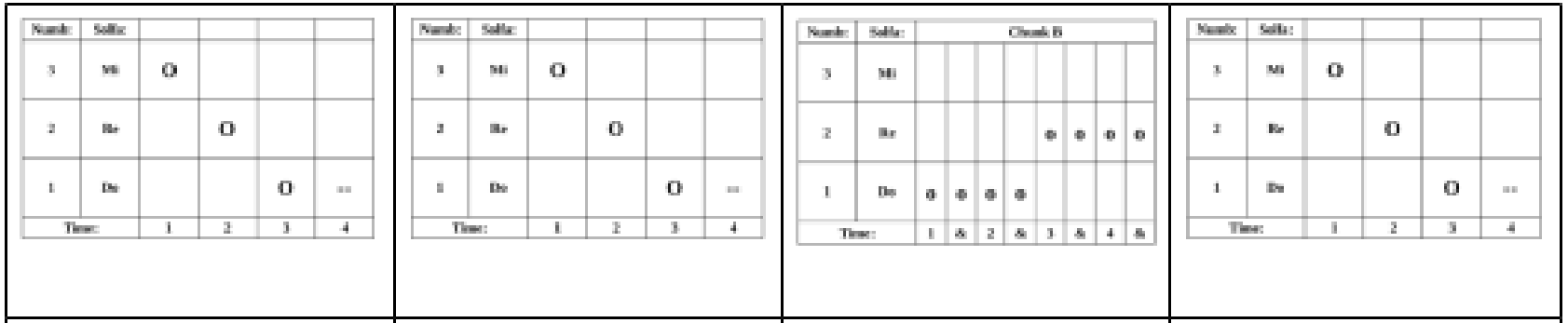
MusicMouse's “CheeseChunks” (2)

Numb:	Solfa:	Chunk B							
3	Mi								
2	Re					0	0	0	0
1	Do	0	0	0	0				
Time:		1	&	2	&	3	&	4	&

Each Chunk becomes modular. By working on chunks separately, students can focus on a particular place in the music, while building something that they will use as part of the larger whole in a latter lesson. Above would be Part B of Hot Cross Buns.

Putting the Chunks Together

Finally, students can put their chunks together to create a longer musical form



Chunk A	Chunk A	Chunk B	Chunk A

Example 3: *Students would be challenged to understand musical form by putting the musical chunks, that they created in the "chunk editor" together, into a larger string. They can work non-linearly and they would be encouraged, of course, with extensions to manipulate this into their own inventions.*

Students would begin as described here. They would be learning some fundamental concepts in music—pitch, rhythm, and form. They would also be using a tool that could then modulate, as Turtle art does, into other applications. For example...

Extensions:

Students would be able to extend even the most basic exercise, as the Hot Cross Buns (HCB) above in the following ways:

1)They could “plug-in” sounds/soundfonts that they create in other software.

2)They can manipulate the chunks, or the order of the chunks to create new melodies and forms.

3)They could manipulate the number of beats to create different time signatures (3/4, 5/4)... the possibilities are endless for extension purposes.

4)They could sequence and automate certain musical patterns in ways similar to “Turtle Art”. Probably, the output would sound like minimalistic music if the parameters are pitch, rhythm, and/or form.

5)They could output musical material into other applications, such as TurtleArt.

6)They could output into MIDI, Lilypond, XML, etc.

Extension 1 – Plug in

Extension #1: They could “plug-in” sounds/soundfonts that they create in other software –

- Students could use recording software to record their own instruments, voice, sounds as soundfont samples to became the MIDI sound for their melody.
- Students could create virtual instruments by manipulating parameters such as harmonics etc., which would be a great lesson/exploration in physics.
- Students could see their results in wave form or on the spectrum analysis of [the software that is already in Sugar].

Extension 2 – Musical Manipluatives

Example 2: They can manipulate the chunks, or the order of the chunks to create new melodies and new forms –

- Instead of A,A,B,A for Hot Cross Buns, you can do A,B,B,A – students could learn/explore a lot about form this way and get to be creative
- Students can create their own melodies, and since the results are made into chunks (instead of just linear) they will have a much higher success-rate to create aesthetically-pleasing melodies. They focus on small parts of a melody, get it right (sounding good), and then they move onto creating a form out of the good chunks they have created.
- Students can create their own melody, but as the form of something that they know will work—A,A,B,A from HCB, for example.

Extension 3 – Beat Manipulatives

Example 3: They could manipulate the number of beats to create different time signatures (3/4, 5/4)... the possibilities are endless for extension purposes –

- This is pretty self-explanatory, but a possible extension-exercise for something as seemingly simple as Hot Cross Buns would be to listen to, and dictate “All you Need is Love” by the Beetles. “All you Need is Love” is in 7/4 time, but has the same melodic fragment as HCB, so students would be introduced to manipulating this parameter in a genuinely musical way.

Extension 4 – Automation

Example 4: They could sequence and automate certain musical patterns in ways similar to “Turtle Art” –

- Students could take either do this via a) the “chunk editor” and create logic-sequences for melodies and pitch or b) manipulate the order of the chunks via logic-sequences. They could put in “if-then” arguments, for example, etc. (below)
- As for melodies and rhythm (editing the chunks themselves), students could tell the machine to “go up one step, down two *for* every quarter note beat” *contained* within one octave *forever* in diatonic major, starting from Do – this would create a chunk that made a sequence (Do, Re, Si, Do, La, Si, Sol, La, Fa, Sol, Mi, Fa, Re, Mi, [Repeat]) which could be used with another sequenced chunk (probably sound like minimalistic music) or with a composed melody, or improvised upon.
- As for form, basically it would be the same as for melodies and rhythms, but the parameters are different so the choices and results would vary (e.g. Play A,A,B,A, then play form transposed +1 [B,B,C,B] until all possibilities are exhausted)

Extension 4 – Application Interaction

Example 5: They could output musical material into other applications, such as TurtleArt –

- All of the aforementioned creations by the student could then be made into a [modular] operation that could be executed by turtle art.
- A simple application of this may be like the “print” function on turtle art [where the turtle does his commands and then “prints” the commanded text when asked].
- A more complex application of this may be to make output parameters of turtle art commands become the input for the music or visa-versa. (e.g. one step forward indicates one musical beat – this could be used to synchronize the turtle in choreography, for example. Another could be once the turtle has completed a box, he the music transposes up a step.)

Extension 6 – Learning Coding Logic via Musical Concepts

Example 6: They could output into MIDI, Lillypond, XML, etc. –

- Everything mentioned above could be exported as a MIDI, Lillypond, MusicXML, or other file (python?) to create the possibility for a) study of programming languages (lillypond is programming language in my opinion) and b) use for more robust applications, such as importint MIDI into Arduor, Audacity, Lillypond (of course) etc.
- I do not know exactly how more complex applications (such as in example 5) would work, but I imagine that would be a mix of programming languages.