Music Blocks Lesson Plan
Cookie Hunt

Age:

7-12 years

Lesson duration:

60 minutes

- Introduction: What are the components of a video game? (15m)
- Part 1: Controller/View (15m)
- Break (5m)
- Part 2: Music (20m)
- Discussion (5m)

Number of students:

Up to 10.

Rationale:

Students will get a start on creating their own video game.

Objectives:

Students will understand the connection between views and controllers.

LESSON

Introduction:

Begin by asking students to sit in a circle and explain that in today's lesson they are going to write a video game.

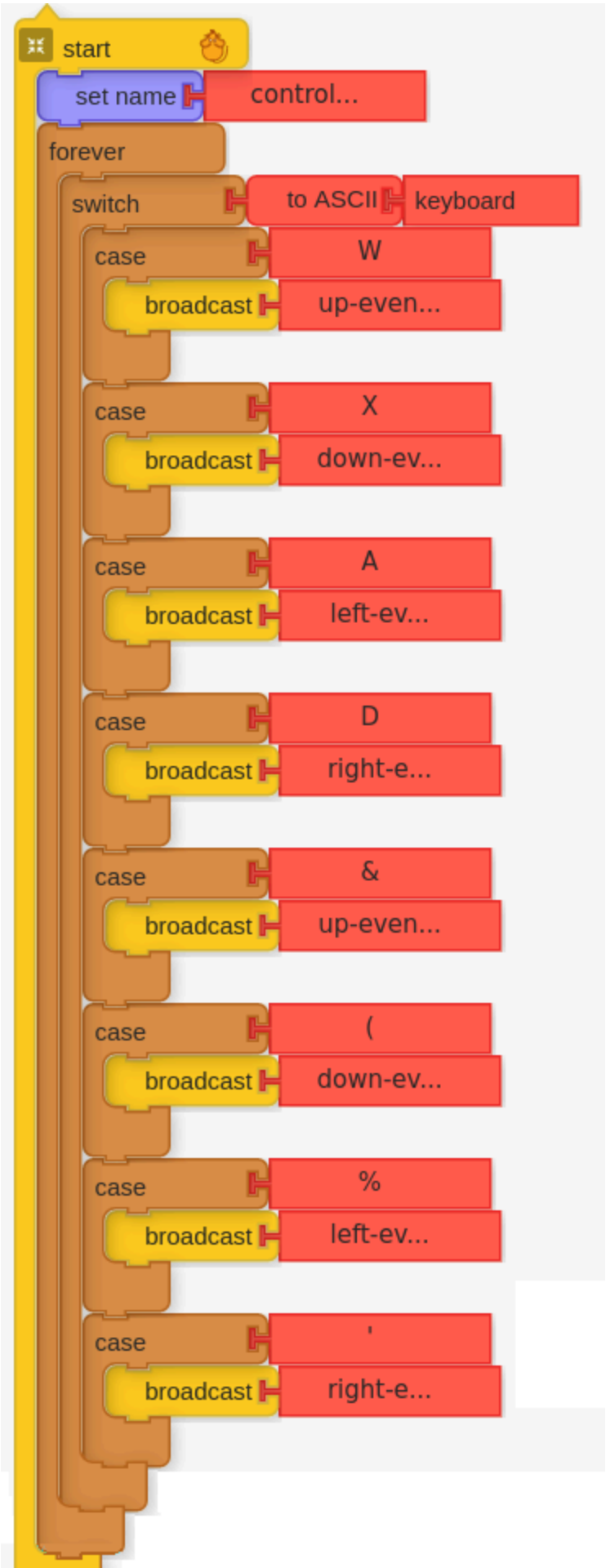
Begin by surfacing the various components of a video game: monsters and heroes, backgrounds, theme music, arsenals, levels, buttons, controllers, etc.

In today’s lesson, we will start with the concept of a controller--using keyboard input to control the movements of our characters. We’ll also compose some theme music.

Part 1:

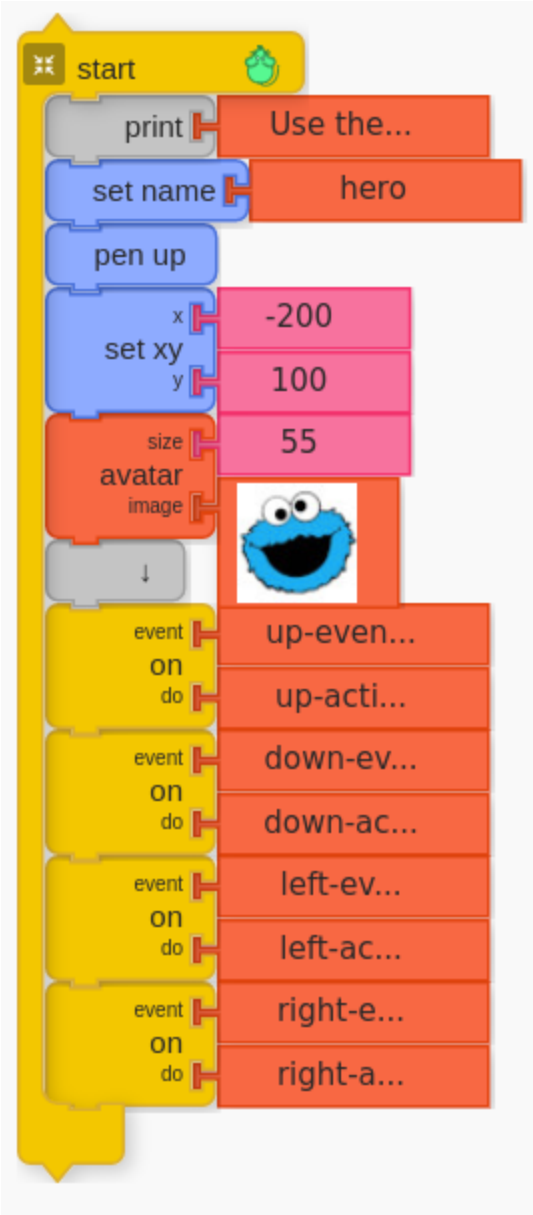
The idea behind a controller is to capture events (in this case keyboard inputs) and broadcast those events to the viewers (our hero and our monster). We use the keyboard input sensor and dispatch events for the arrow keys, which in Music Blocks get mapped to & -- up arrow, (-- down arrow, % -- left arrow, and ‘ -- right arrow. We use a switch statement to invoke a “case” for each arrow key. In the case statement we broadcast a corresponding event, e.g., up-event-hero for up arrow. We also listen for W, D, X, and A. We use those keys to broadcast events to our monster, e.g., W corresponds to up-event-monster.

We could add additional key mappings for other functions.

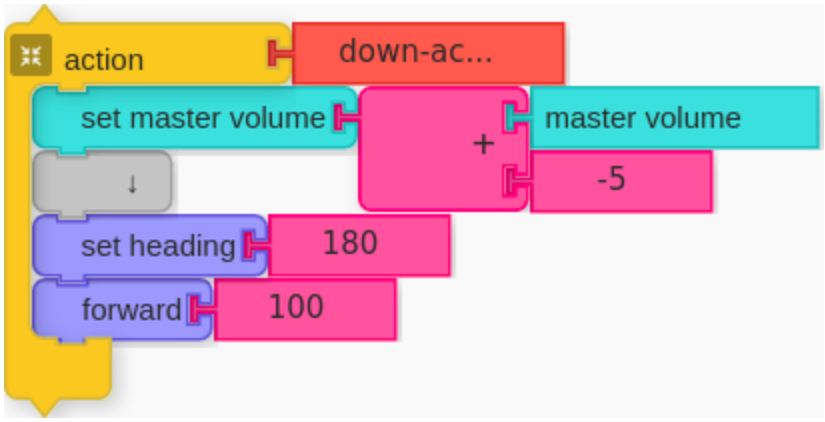

start
set name control...
forever
switch to ASCII keyboard
case W
broadcast up-even...
case X
broadcast down-ev...
case A
broadcast left-ev...
case D
broadcast right-e...
case &
broadcast up-even...
case (
broadcast down-ev...
case %
broadcast left-ev...
case '
broadcast right-e...

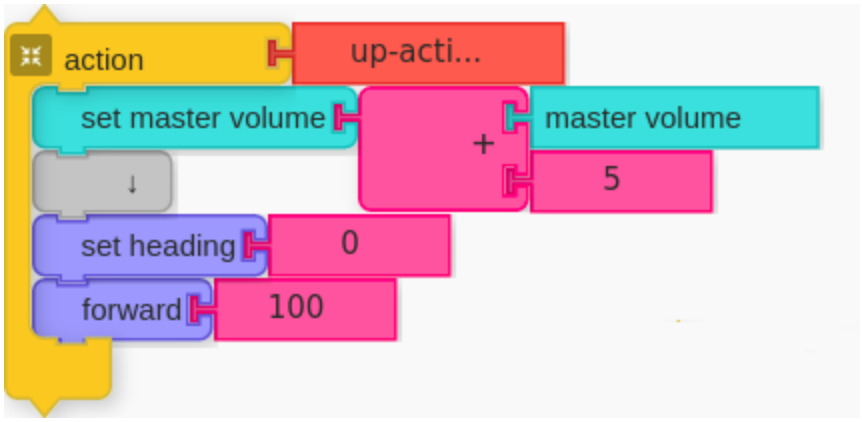
What other events might we want to control?

Our hero listens for events to trigger his/her movements. In this case, our hero is Cookie Monster and his movements are calls to corresponding action blocks.

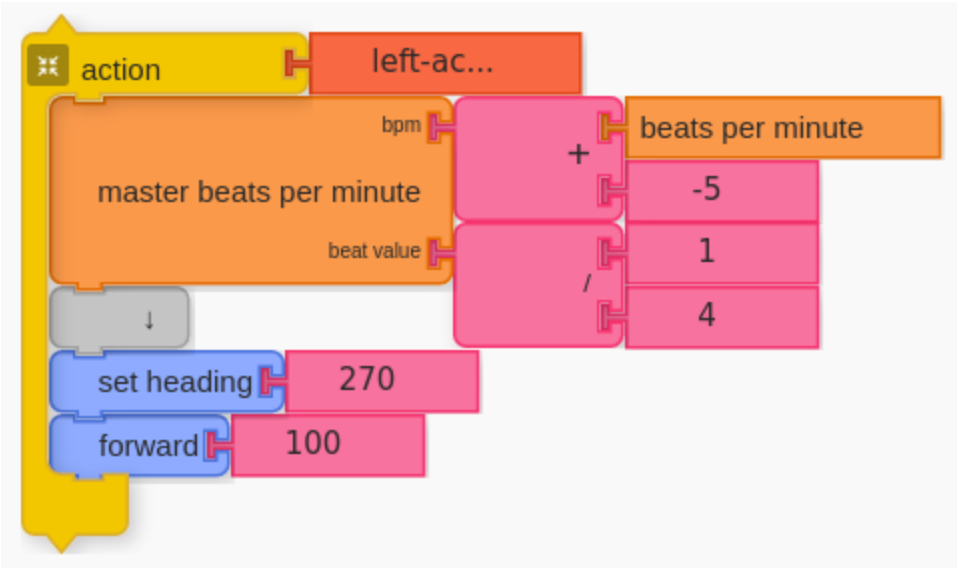


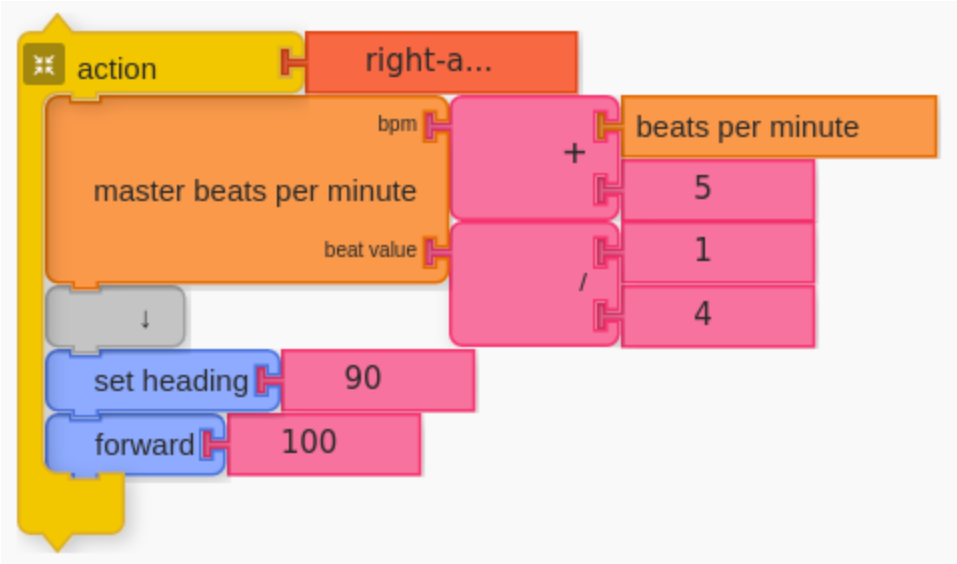
The up and down actions move our hero, and also adjust the volume of the theme music.





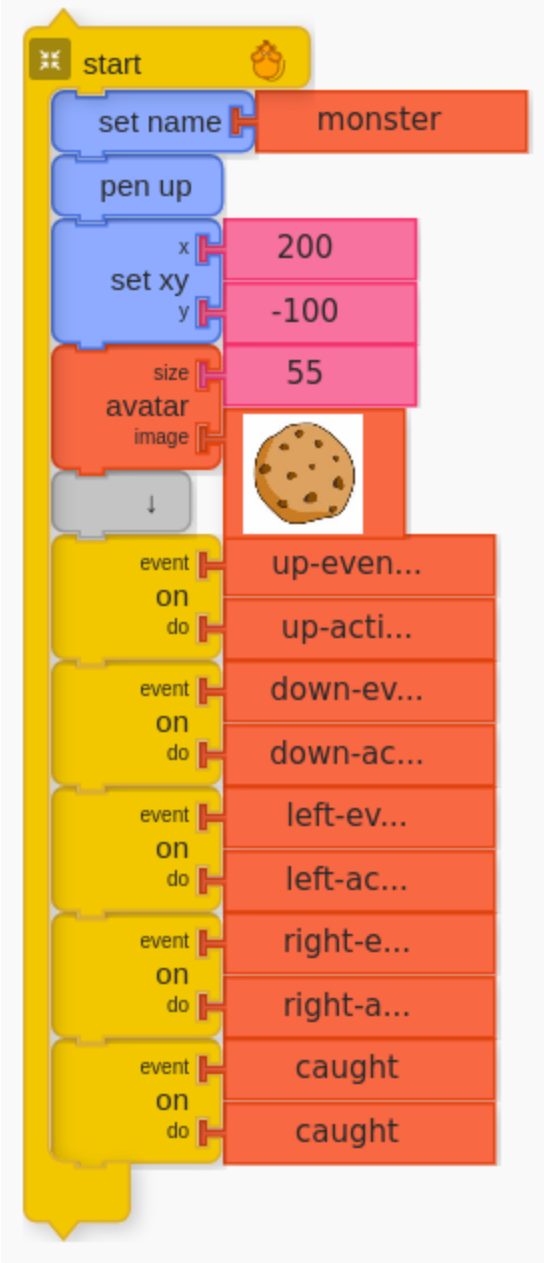
The left and right actions also move our hero and adjust the tempo of the theme music. It speeds up when our hero goes right and slows down when our hero goes left.



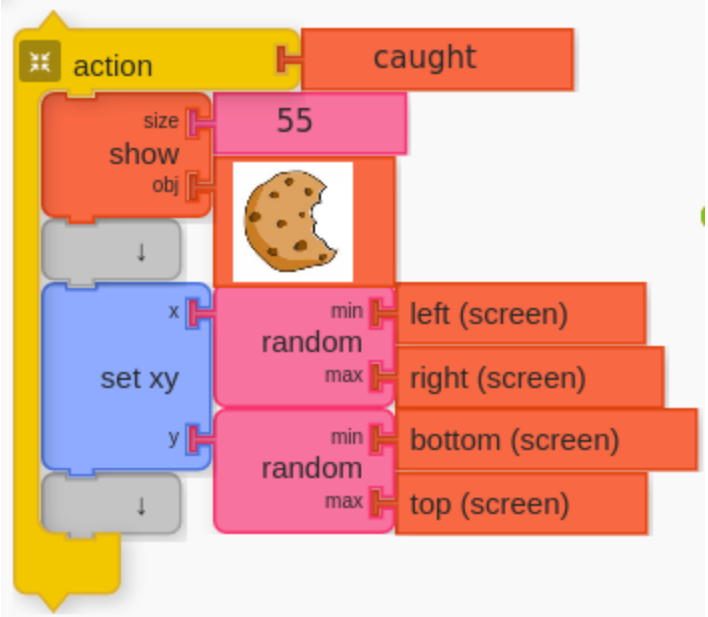


What other changes might we make as our hero moves?

Our monster listens to the monster events and calls the same actions.



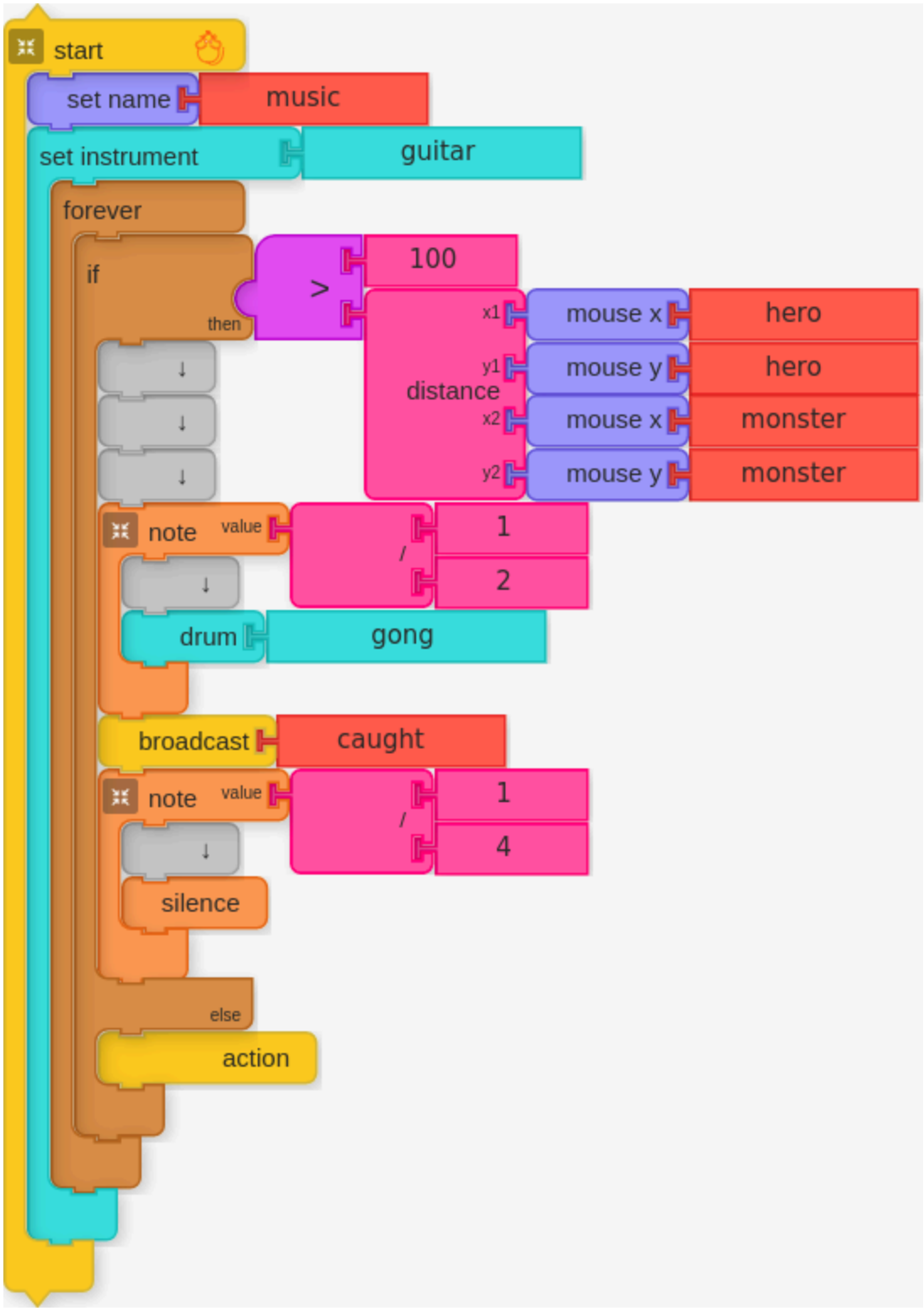
There is one other event, “caught” that our monster, a cookie in this case, is listening for. When that event is triggered, a bitten cookie is placed on the screen and our monster flees to another (random) part of the screen.



Part 2

Video games always have music.

The music start block is used to play our theme music. We also use it to periodically check to see if our hero has caught up with our monster. If the “distance” between them is < 100, we play a gong sound and broadcast a “caught” event.


start
set name
music
set instrument
guitar
forever
if
then
>
100
distance
x1
mouse x
hero
y1
mouse y
hero
x2
mouse x
monster
y2
mouse y
monster
note
value
/
1
2
drum
gong
broadcast
caught
note
value
/
1
4
silence
else
action

There are many enhancements you can make to your game. You could add a background, stage more elaborate battles, use a box to keep score, set parameters with sliders, have the music better reflect the action, etc.

Performance/Critique:

1. Have each student explore some musical ideas for their video game.
2. Engage in a discussion about their games. Are they fun? How can they be improved?

Key events:

- Introduction of key concepts: the controller and the viewer.

Materials:

- Music Blocks software

Assessment:

- Observe participation.
- Are the students able to master the basic concepts?
- Did the students incorporate their own ideas?