Music Blocks Lesson Plan
Heroes and Monsters

Age:

7-12 years

Lesson duration:

60 minutes

- Introduction: What is distance? (15m)
- Part 1: Theme music (20m)
- Break (5m)
- Part 2: At a distance (15m)
- Performance/Critique (10m)

Number of students:

Up to 10.

Rationale:

Students will learn how easy it is to program some basic video game effects.

Objectives:

Students will understand how to use the Distance block to trigger different effects in a video game simulation.

LESSON

Introduction:

Begin by asking students to sit in a circle and explain that in today's lesson they are going to learn about gaming software.

Start off by asking: “What is distance?” Have one student measure the distance between two other students by counting paces. Explain that the Distance block can measure the distance between two points (or two mice).

Then explain that the goal of today's activity is to measure the distance between a hero and a monster. If the monster gets close to the hero, some action is taken.

Part 1:

A. Theme Music

Both the hero and the monster need theme music. Compose short phrases for each and place them into appropriately named Action blocks.

Note: Since the theme music will be played only sporadically, you need to use a No Clock block as a wrapper around your music.[1]

B. Some enhancements

You can use Avatar blocks to assign images to your hero and your monster. Be sure to give your hero and monster names using Mouse Name blocks from the Ensemble palette.

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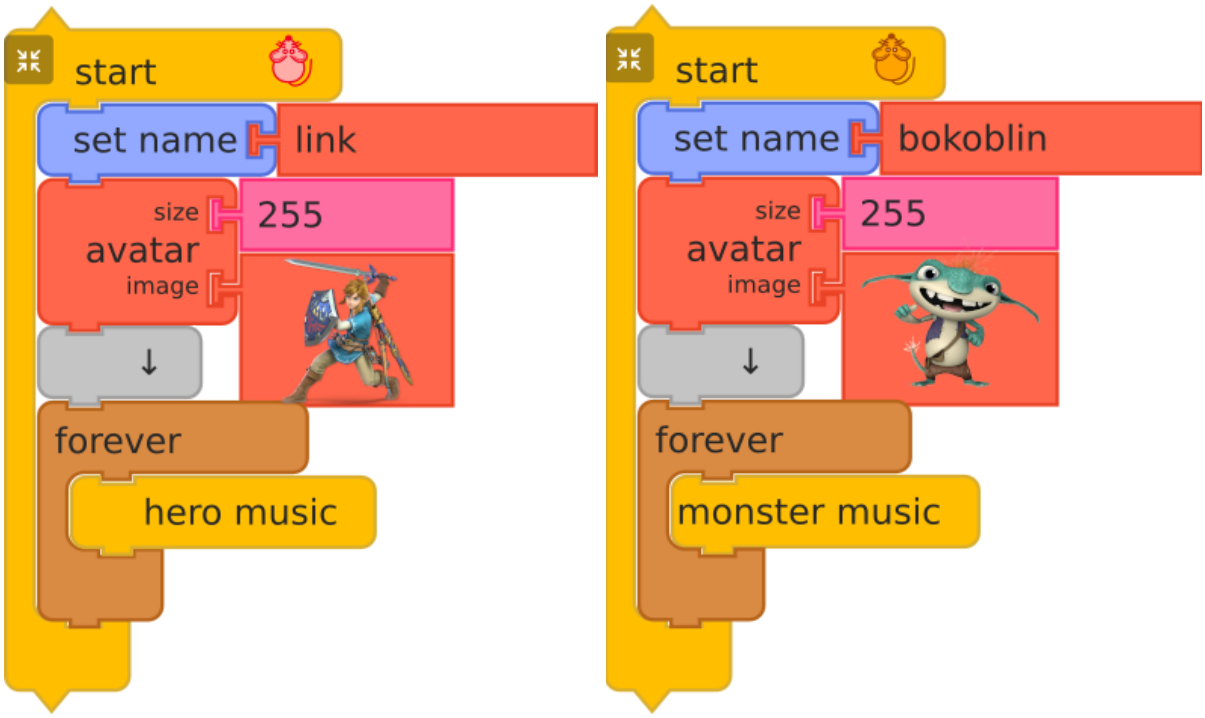
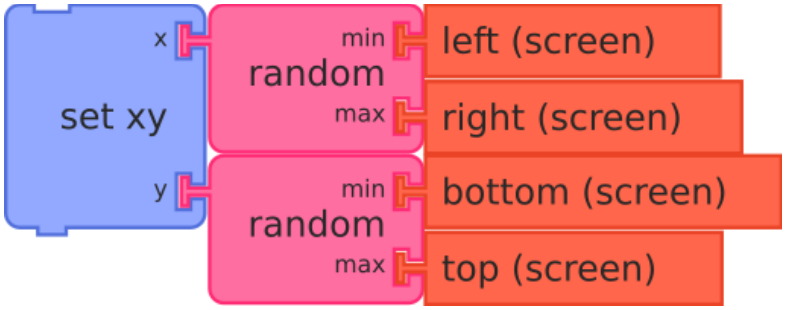
[1] Music Blocks has an internal "conductor" maintaining the beat. When the Run button is clicked, the program begins and an internal master (or "conductor") clock starts up. All of the music tries to stay synced to that clock. For example, if you have multiple voices (mice), they all share the same conductor in order to keep on the same beat. If a voice (mouse) is falling behind, Music Blocks tries to catch up on the next note by truncating it. If it is an 1/8 note behind and the next note is a 1/2 note, then only an 3/8 note would be played, so as to catch up. That is a somewhat extreme example—usually the timing errors are only very very small differences. But in some situations, the timing errors can be very large. This is when the *No-clock* block is used. A typical problem is when the music is not played continuously. Imagine an interactive game where a hero is battling a monster. Our hero plays theme music whenever the monster is defeated. But that might occur at any time, hence it is not going to be in sync with the conductor. The offset could be tens of seconds. This would mean that all of the notes in the theme music might be consumed by trying to catch up with the conductor. The *No-clock* block essentially says, do your own thing and don't worry about the conductor.

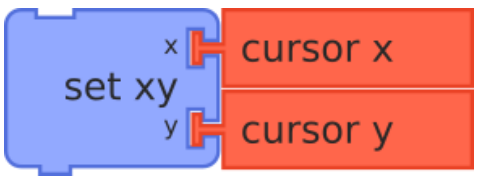


C. Some movement

Using the Set XY block, you can have the monster move around the screen. Why might we use the Pen Up block?



Optionally have the hero move as well. Perhaps under the control of the cursor.

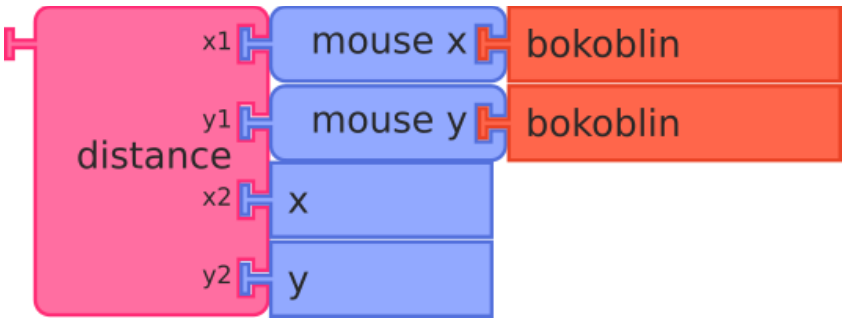


Break

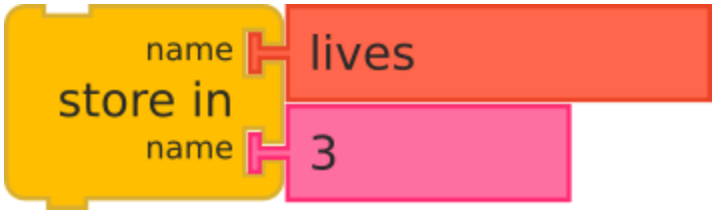
Part 2

A. At a Distance

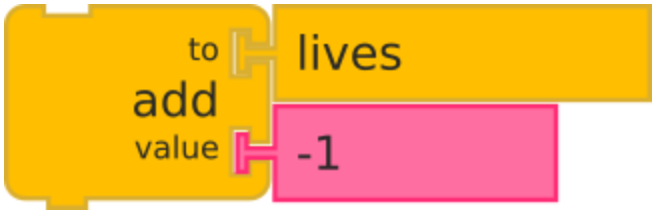
Measure the distance between the monster and the hero. If the monster gets close to the hero, take some action. You'll need both the Distance block and the Mouse X and Mouse Y blocks from the Ensemble palette.



A box can be used to keep track how many times the hero "hits" the monster.

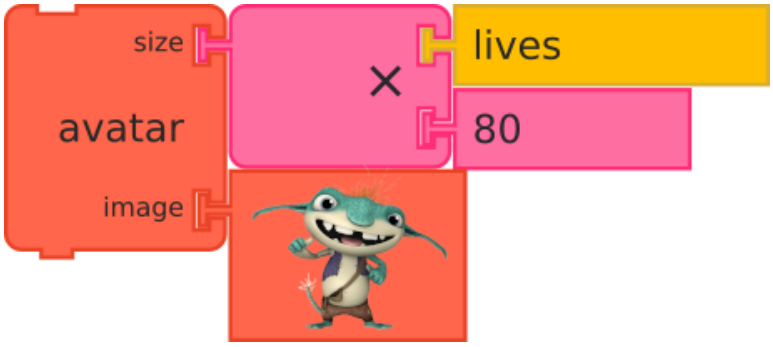


Subtract one from the lives each time the monster is hit. After some number of "hits", the monster can disappear.



B. Embellishments

The monster could grow smaller as it gets hit.



The monster's theme music could grow louder (or faster) as it gets closer to the hero.

Performance/Critique:

1. Have each student show their game.
2. Engage in a discussion about their different approaches.

Key events:

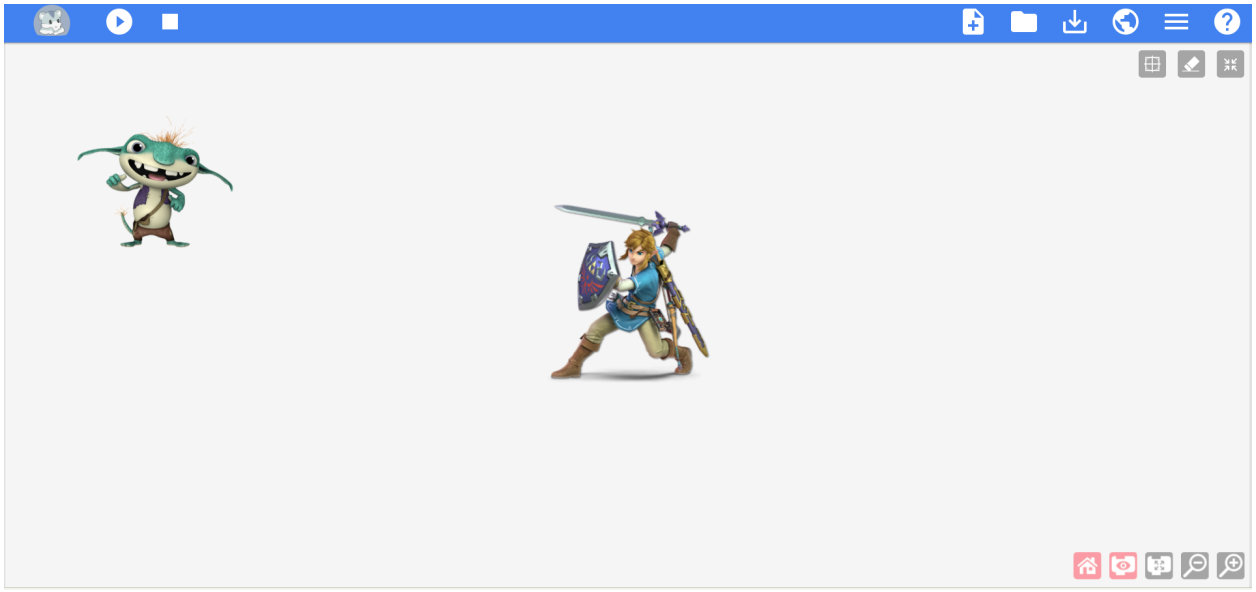
- Introduction of key concepts: distance, theme music.
- The students create their own interactive games and narratives.

Materials:

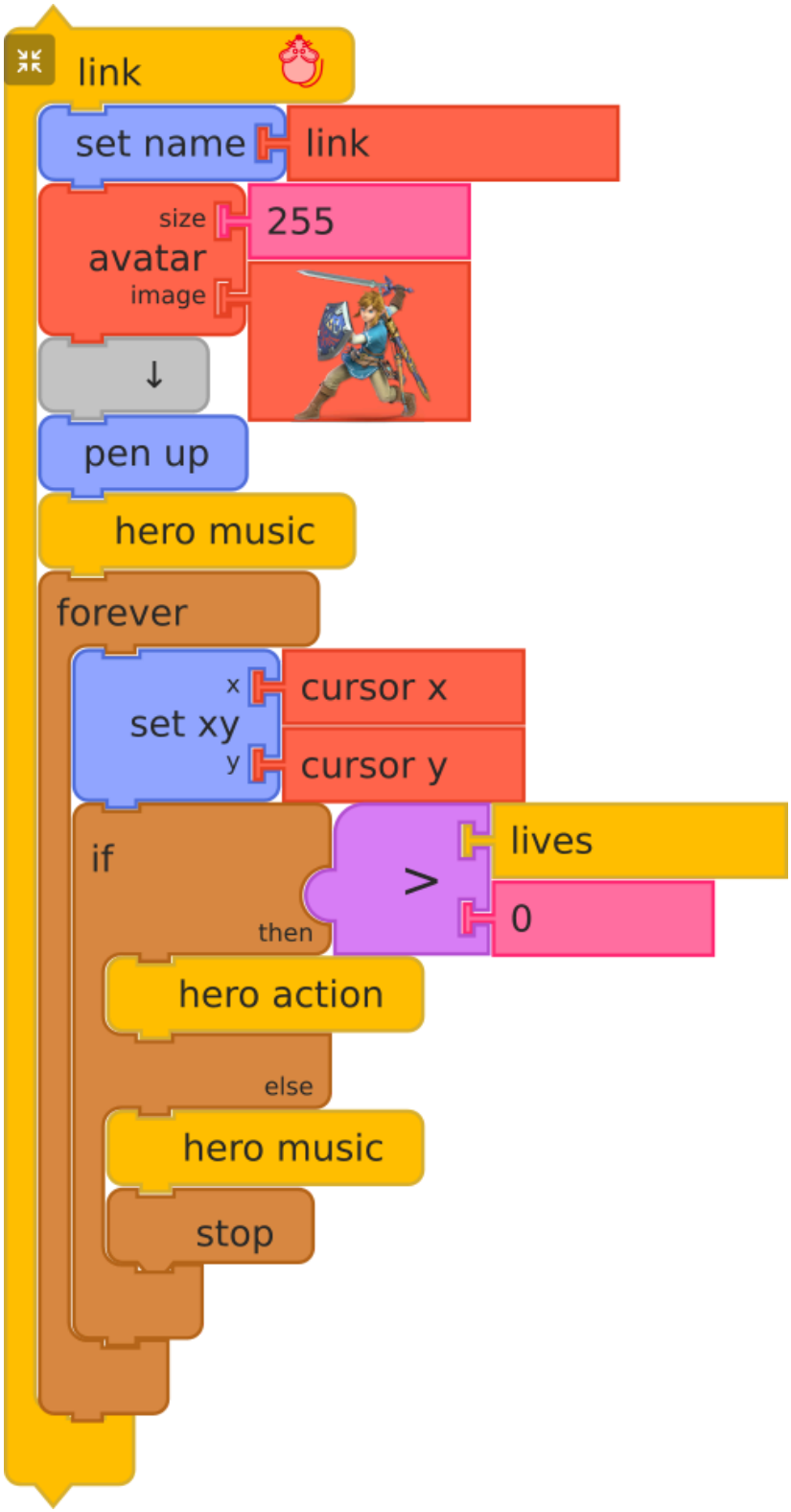
- Music Blocks software
- Avatar images downloaded from the internet

Assessment:

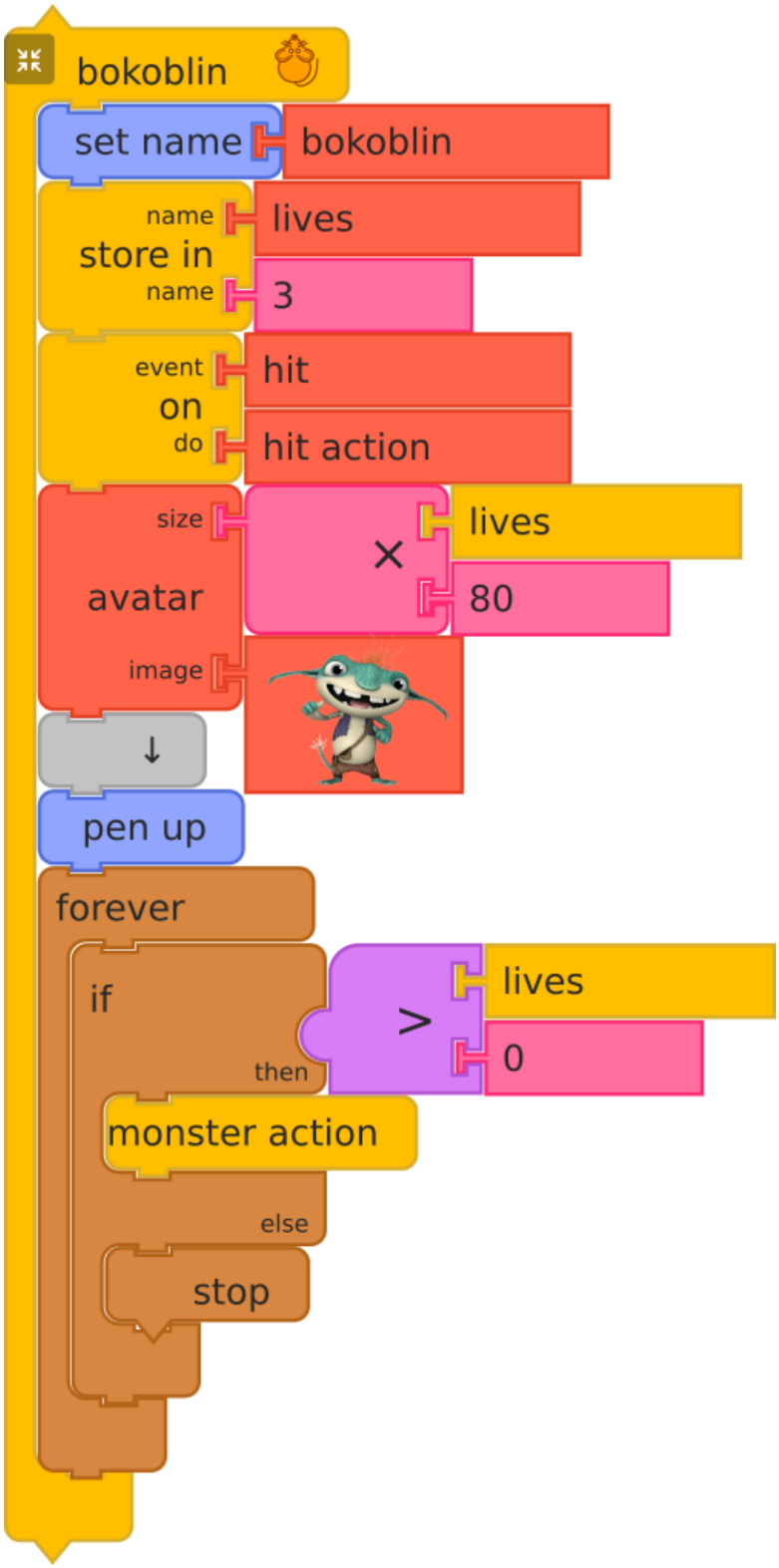
- Observe participation.
- Do the hero and monster perform as expected?
- Is the Distance block used appropriately?



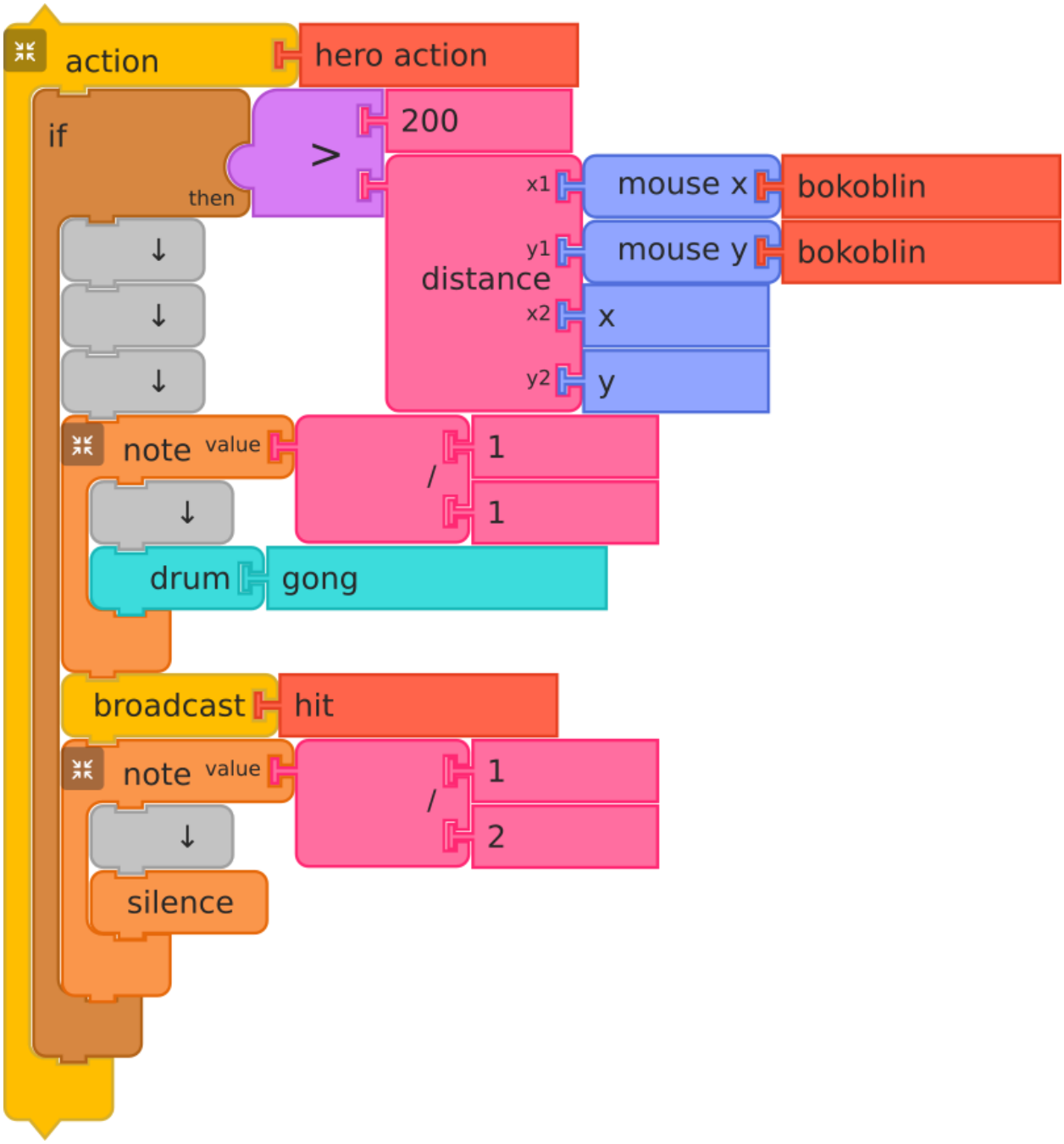
Link™ vs a Boboblin™ from Zelda™.



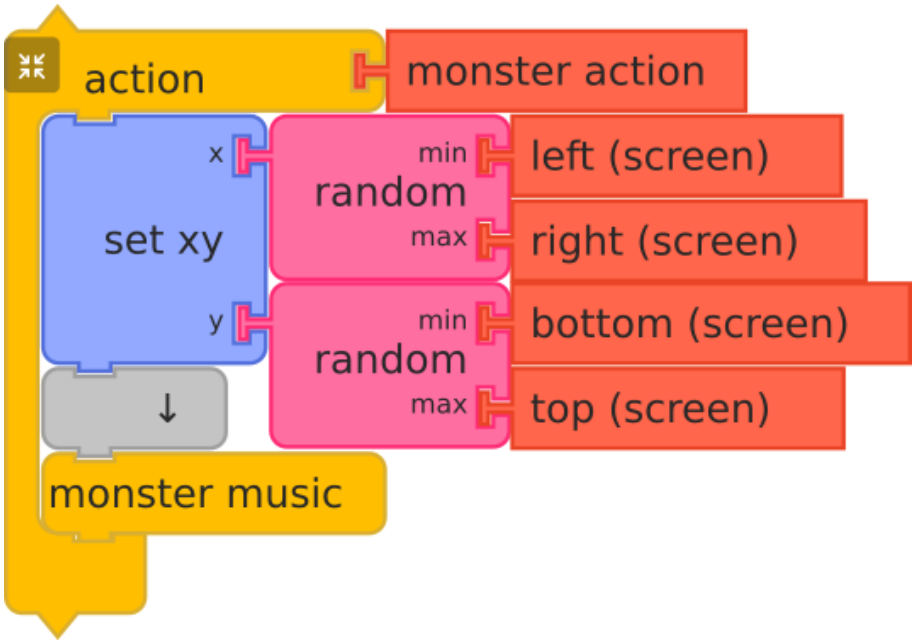
Our Hero (Link): She/he follows the cursor around the screen. If the monster has lives, she/he does what heroes do—the Hero Action. Otherwise, it is GAME OVER—she/he plays her/his theme music and stops.



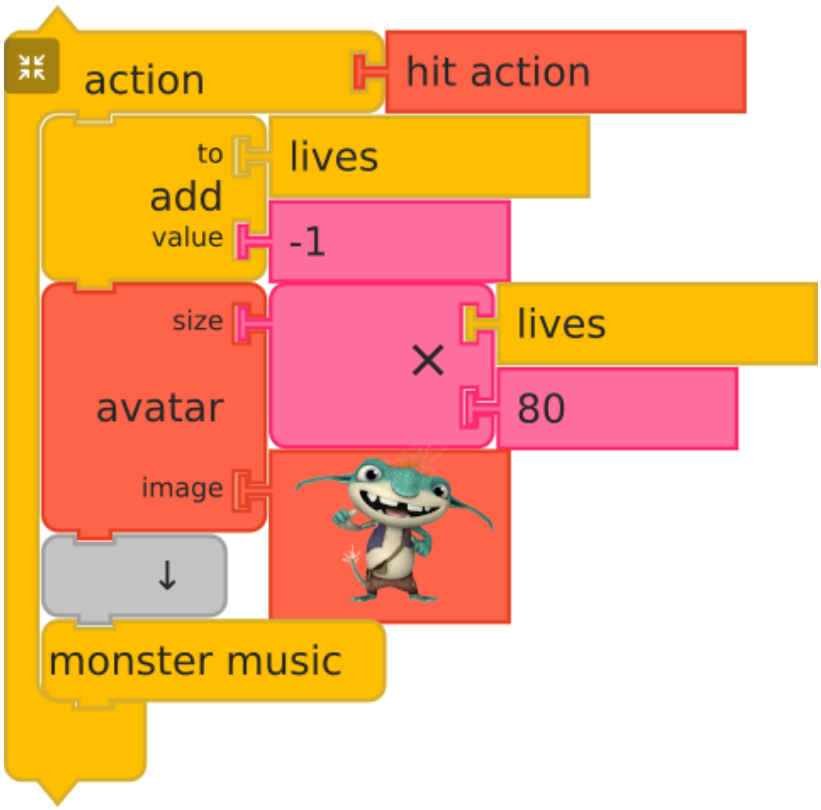
The Monster (Boboblin). Start with 3 lives. If you are hit, do the Hit Action. If lives > 0, keep doing Monster Action.



The Hero Action: If the monster is nearby (200 > distance), then play the sound a gong and broadcast a “hit”.



The monster action: Jump to a random place on the screen and play the monster theme music.



The Hit Action: When the monster is hit, subtract one life and shrink the size of the avatar.