Music Blocks Lesson Plan
Picture Hunt

Age:

7-12 years

Lesson duration:

60 minutes

- Introduction: More applications distance (15m)
- Part 1: Describing location (20m)
- Break (5m)
- Part 2: Interacting with location (15m)
- Performance/Critique (10m)

Number of students:

Up to 10.

Rationale:

Students will learn more about using coordinate systems to build interactive environments.

Objectives:

Students will understand how to use the cartesian coordinates to trigger different effects in an interactive setting.

LESSON

Introduction:

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

Start off by recalling: “What is distance?” Remind them 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 from different locations on the screen. If the mouse gets close to a location, some action is taken.

Discuss how X and Y positions are used in Music Blocks (a coordinate grid.) If the students need reminding, show the coordinate grid and explore with them how it works.

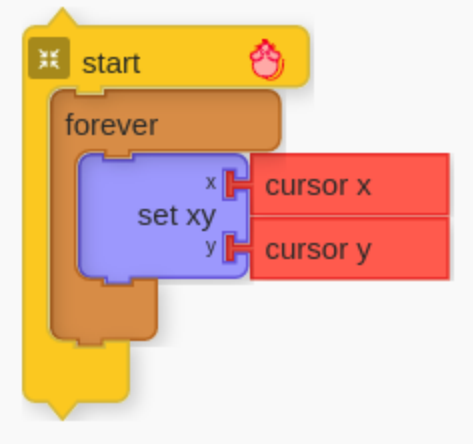
Upper left: negative X and positive Y	Upper right: positive X and positive Y
Lower left: negative X and negative Y	Lower right: positive X and negative Y

Part 1: Describing Location

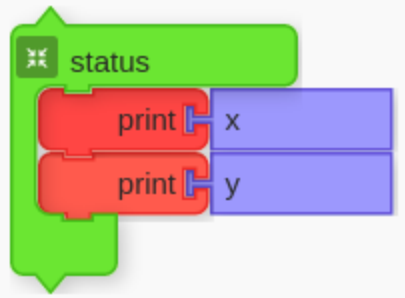
1. Have the students use the Show block to load an image onto the screen. The image will serve as the backdrop for their activities.

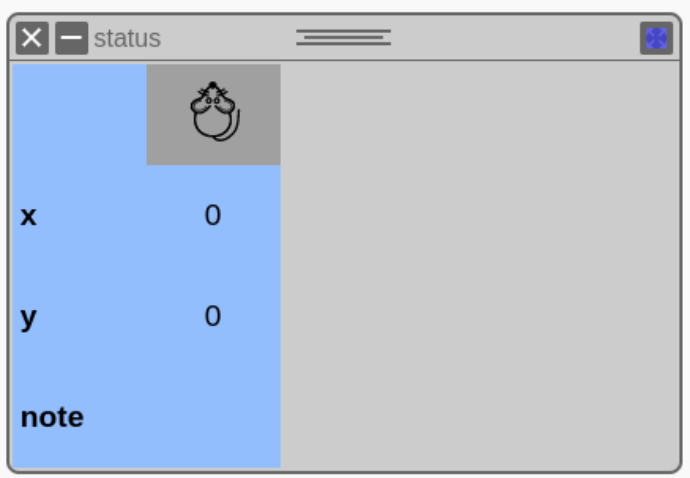
Note that the Height block is used to set the size of the picture (which is taller than it is wide) fills the entire height of the screen. (If a picture is wider than it is tall, try using the Width block instead.)

2. Now that there is a background picture on the screen, we need to find the x-y coordinates of “points of interest” on the picture.
   One way to do this is to use the mouse to point to different parts of the image.



The Status widget can be used to show the coordinates as the mouse moves.





3. Write down (in a table) the coordinates of a point of interest, for example, the nose on each face.

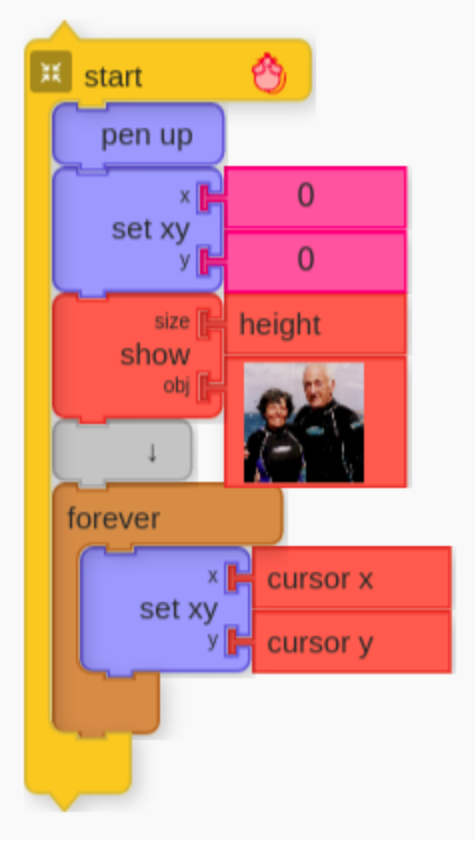
Feature	X coordinate	Y coordinate
Woman's nose	-213	68
Man's nose	68	237

We'll use these coordinates in our game.

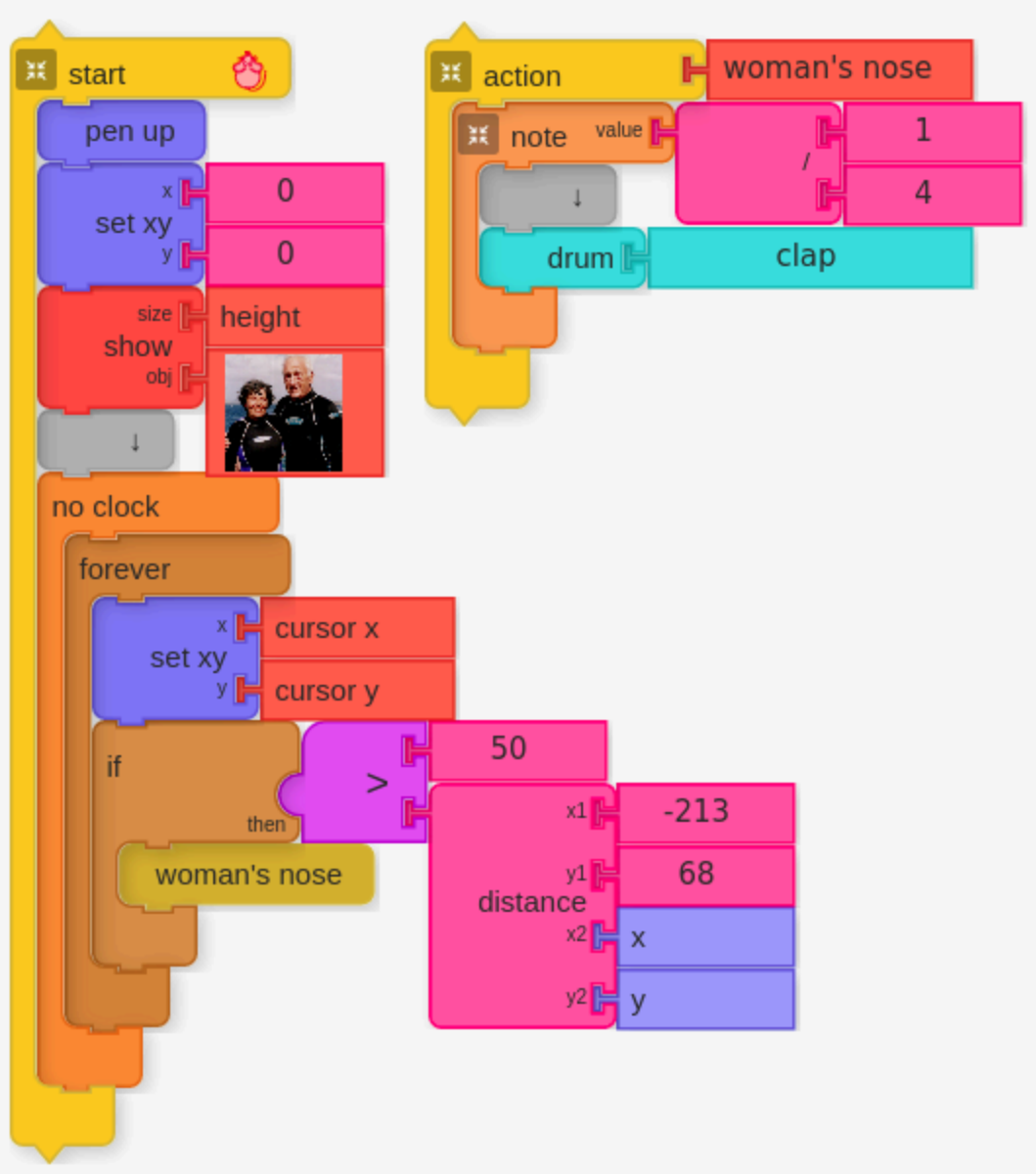
Break

Part 2: Interacting with Location

1. Write a program that continuously moves the mouse around the screen.

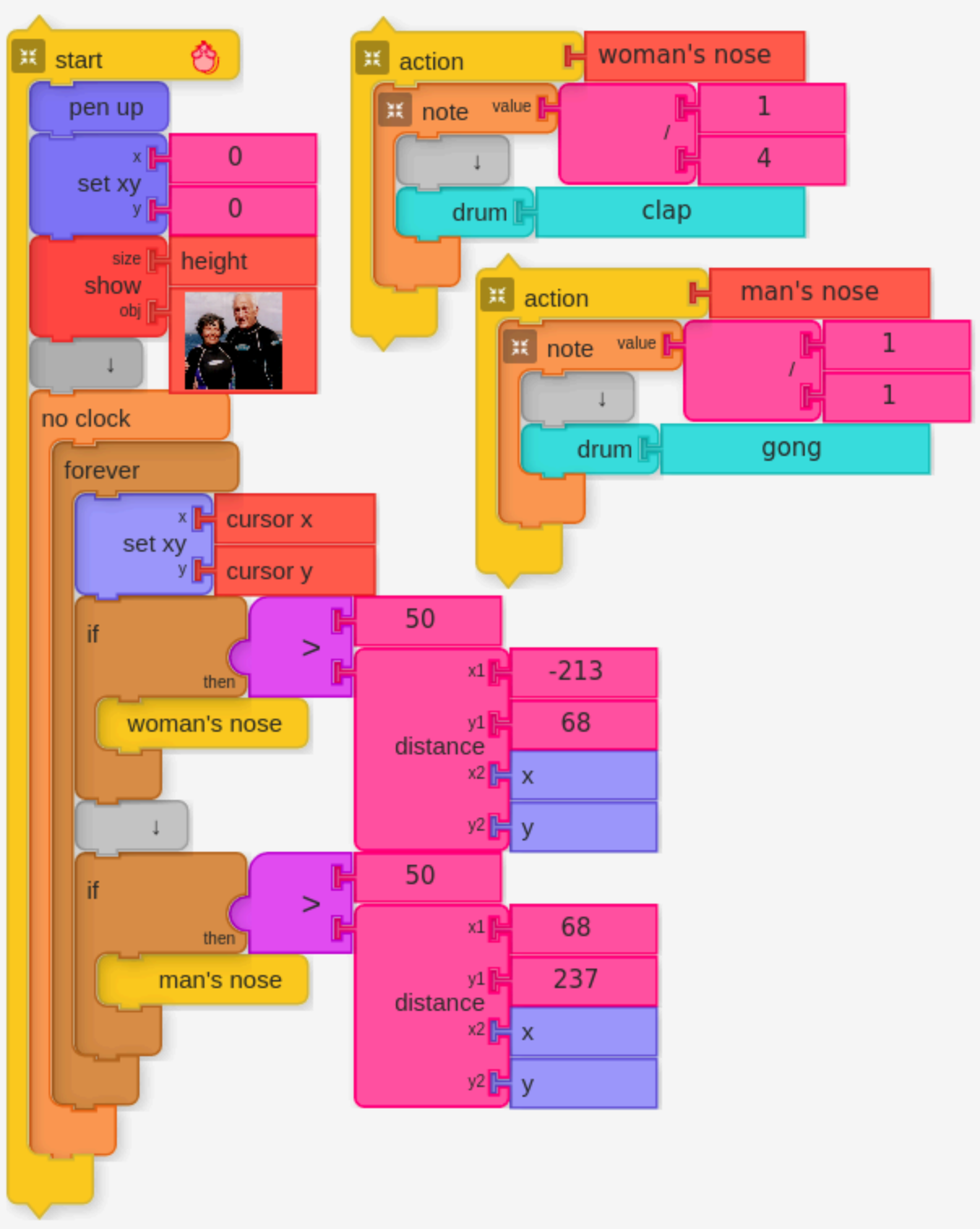


2. Now we'll use the Distance block to determine if we are near one of the points of interest.



If 50 is greater than (>) the distance to the woman's nose, then do the Action called "woman's nose". (Note that we use the coordinates that we recorded earlier in our table.)

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



Similarly we can write a test for the man’s nose using the coordinates from the table.

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, cartesian coordinates, conditionals.
- The students create their own interactive games and narratives.

Materials:

- Music Blocks software
- Background images downloaded from the internet

Assessment:

- Observe participation.
- Does the program perform as expected?
- Is the Distance block used appropriately?
- Are grid coordinates used appropriately?

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