Music Blocks Lesson Plan
Conversions

Age:

7-12 years

Lesson duration:

75 minutes
- Introduction: Representations (15m)
- Part 1: Staff Paint (25m)
- Break (5m)
- Part 2: Staff Quiz (20m)
- Performance/Critique (10m)

Number of students:

Up to 10.

Rationale:

Students will explore different representations of music and how to convert between representations.

Objectives:

Students will understand what is meant by multiple representations and explore how to convert between representations.

LESSON

Introduction:

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

Go around the circle, assigning each student to explain a way in which they might represent a note.

Someone will likely say "do, re, mi" and someone else might say "C, D, E". But are there other representations? How about a key on a piano? What note does each key represent? Or the strings on a guitar? Or different finger positions? What about the notes on a staff? Or the "frequency" of the note, as represented by a number, e.g., 220 for A in octave 3 or 392 for G in octave 4, or the picture of the note as seen in the Oscilloscope Widget.
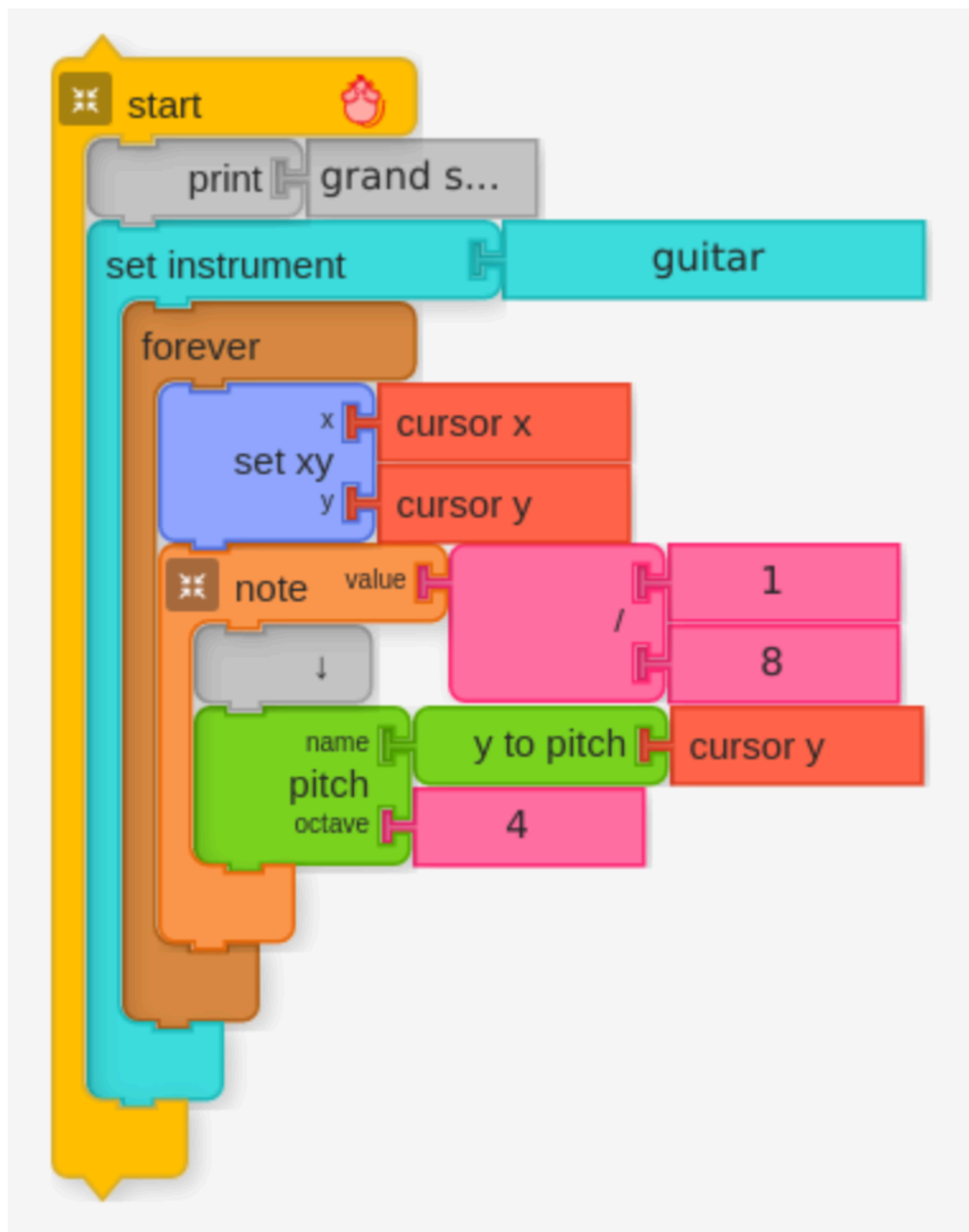
These are but a few of the representations of notes.

Part 1:

Staff Painter, an exploration of converting between representations in Music Blocks.

Introduce the Y to Pitch block, found on the Pitch palette. It converts a y position on the screen to a note, as determined by the Grand Staff graphic overlay.

If you attach the Cursor Y block, which tracks the mouse y-position on the screen, you can use the Y to Pitch block to make a paint program.

```
start

print ⊢ grand s...

set instrument ⊢ guitar

forever
    set xy
        x ⊢ cursor x
        y ⊢ cursor y

    note  value ⊢ 1 / 8
        ↓
        pitch
            name ⊢ y to pitch ⊢ cursor y
            octave ⊢ 4
```

Introduce the students to the Pitch Convert block (also found on the Pitch palette). Explain and demonstrate how it can be used to convert between different representations.
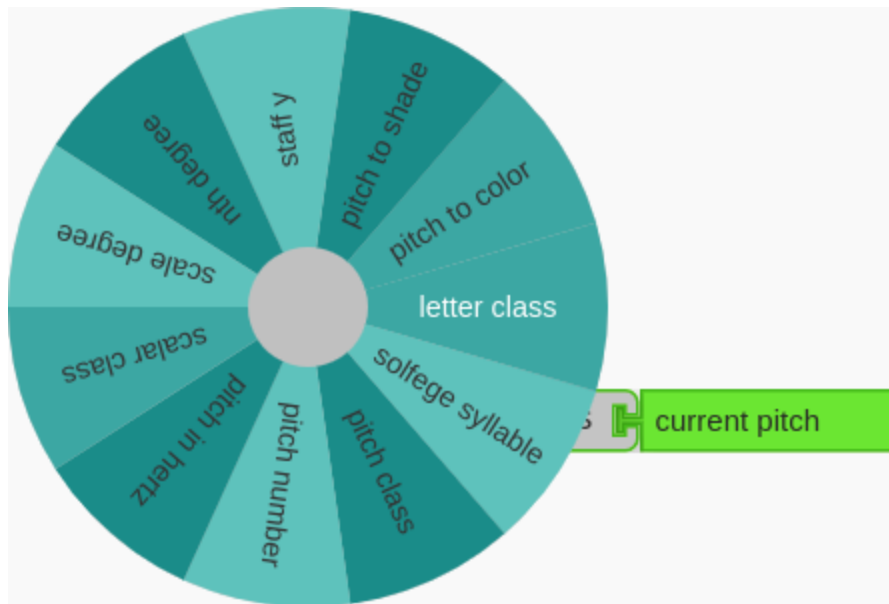

Try using Pitch to Color as a way to change the color of the paint as the pitch changes.
How can you use the Pen up and Pen down blocks to draw a dot on the staff instead of a line?
(Hint: You may need a Forward block too.)

Part 2

Variations: A music quiz

In the example below, we use the Letter Class converter to get the note letter name of the note associated with the y position of the mouse. The prompt in the quiz is to position the mouse over a "C". The program is designed to play a drum beat "until" the converter returns a C. (Note that any C on the staff will match.)
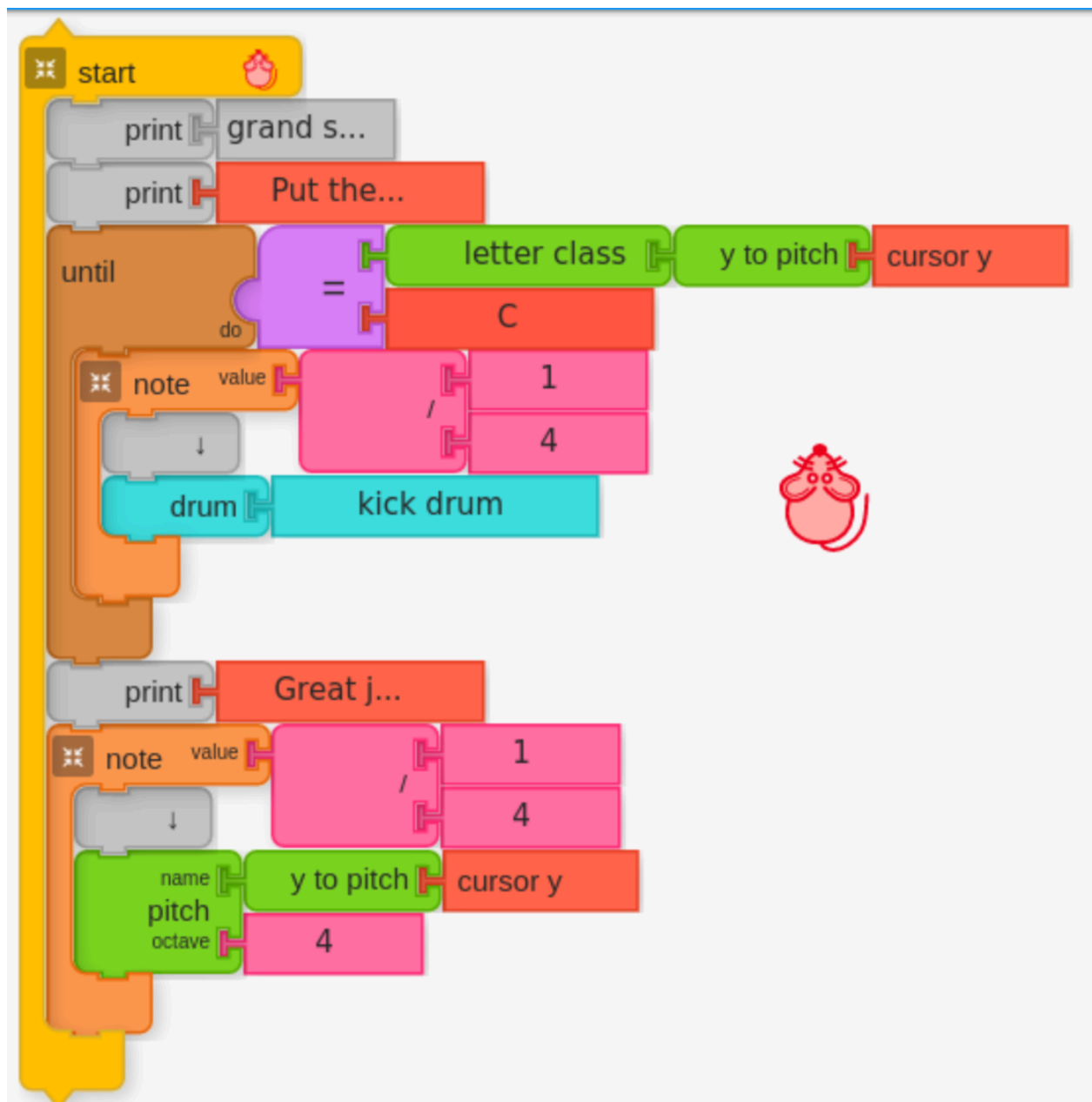
Can you use the converter block to make your own quiz?

Performance/Critique:

1. Have each student perform their compositions, explaining how they used conversions between representations.
2. Engage in a discussion about more things they could do with conversions.
3. Ask if there are other aspects of music that can have multiple representations, such as note value?

Key events:

- Introduction of key concepts: representations and conversion
- The students create their own programs using conversion.

Materials:

- Music Blocks software

Assessment:

- Observe participation.
- Do the programs include conversion between different representations?
- Are they used creatively?