Guide to Programming with Music Blocks

Music Blocks is a programming environment for children interested in music and graphics. It expands upon Turtle Blocks by adding a collection of features relating to pitch and rhythm.

The Turtle Blocks guide is a good place to start learning about the basics. In this guide, we illustrate the musical features by walking the reader through numerous examples.

The Music Blocks basic documentation is also a good resource.

And there is a short Guide to Debugging to help you with your programming.

This guide details the many musical features of the language.

TABLE OF CONTENTS

- 1. Getting Started
- 2. Making Sounds
 - i. Note Value Blocks
 - ii. Pitch Blocks
 - iii. Multiple pitches
 - iv. Rests
 - v. Drums
- 3. Programming with Music
 - i. Actions
 - ii. Pitch Transformations
 - a. Step Pitch Block
 - b. Sharps and Flats
 - c. Adjusting Transposition
 - d. Summary of Pitch Movements
 - e. Set Key
 - f. Fixed and Movable Pitch Systems
 - g. Intervals
 - a. Absolute Intervals
 - b. Ratio Intervals
 - h. Chords
 - i. Inversion
 - j. Converters
 - iii. Note Value Transformations
 - a. Dotted Notes
 - b. Speeding Up and Slowing Down Notes via Mathematical Operations
 - c. Repeating Notes
 - d. Swinging Notes and Tied Notes
 - e. Beat
 - f. Staccato and Slur Blocks
 - g. Backwards
 - iv. Other Transformations
 - a. Set Volume and Crescendo Blocks
 - b. Setting Instrument
 - c. Setting Key and Mode
 - d. Vibrato, Tremelo, et al.
 - v. Voices
 - vi. Graphics
 - vii. Interactions
 - viii. Ensemble
- 4. Widgets
 - i. Monitoring Status
 - ii. Generating groups of Notes
 - a. The Phrase Maker
 - b. The Rhythm Block
 - c. Creating Tuplets
 - d. what is a Tuplet?
 - e. Using Individual Notesf. Using a Scale of Pitches
 - iii. Generating Rhythms (or How to Make a Drum Machine)
 - iv. Musical Modes
 - v. Changing Meter
 - vi. The Pitch-Drum Matrix
 - vii. Exploring Musical Proportions
 - viii. Generating Arbitrary Pitches
 - ix. Changing Tempo
 - x. Creating Custom Timbres
 xi. The Music Keyboard
 - xii. Changing Temperament
- xiii. The Oscilloscope

- 5. Beyond Music Blocks
 - i. LilyPond (or How to Generate Sheet Music)
 - ii. Other Exports
 - iii. The JavaScript Editor
- 6. Appendix
 - i. Beginner Palette Tables ii. Advanced Palette Tables

Many of the examples given in the guide have links to code you can run. Look for ${\tt RUN\ LIVE}\$ links.