

Grades 2 to 5: Nemeth Code Symbols for Fractions and Spatial Problems, Instructional Tools, Materials, and Technology

Lesson 7: Tech Skills for Math
Guest: Diane Brauner

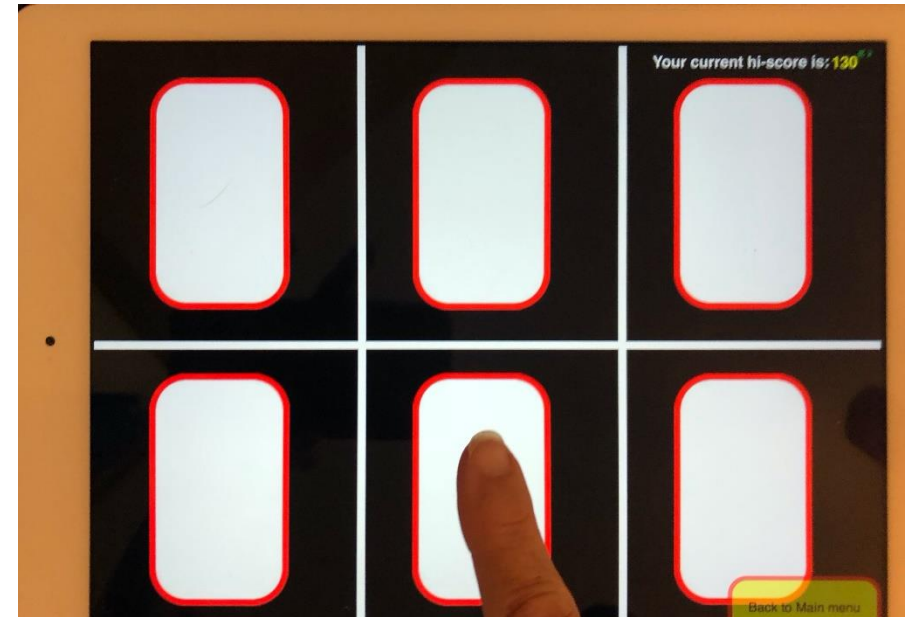


University of South Carolina Upstate, Summer 2020

Lesson 7 Objectives

Participants will be able to:

- Learn three critical screen reader tech skills which are often overlooked.
- Use these three tech skills to strongly support digital math concepts and skills.



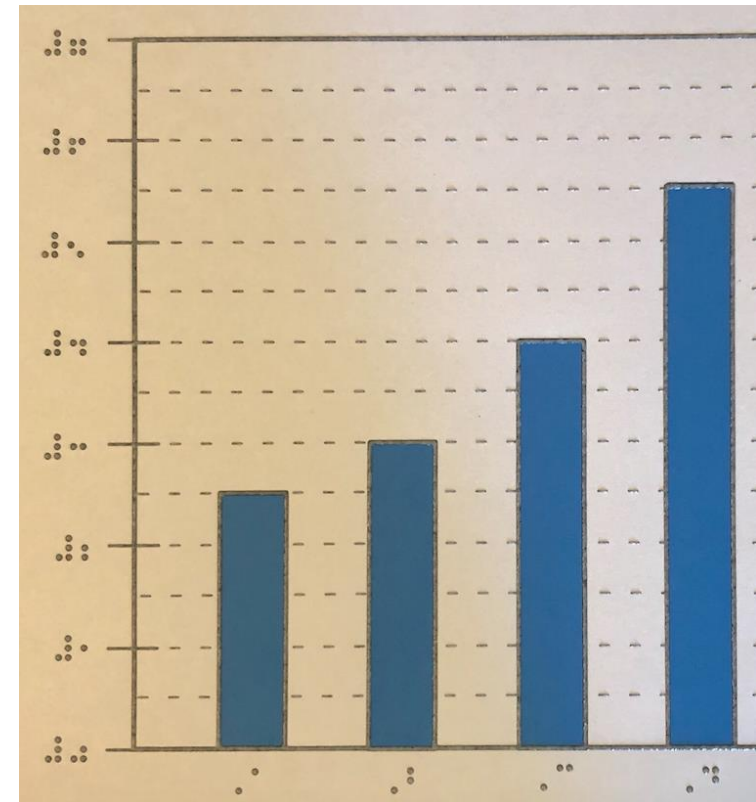
Why Digital Math



- Gamification/fun!
- 21st century classrooms
- Remote instruction
- Prepare for higher ed and work force where braille is not always available

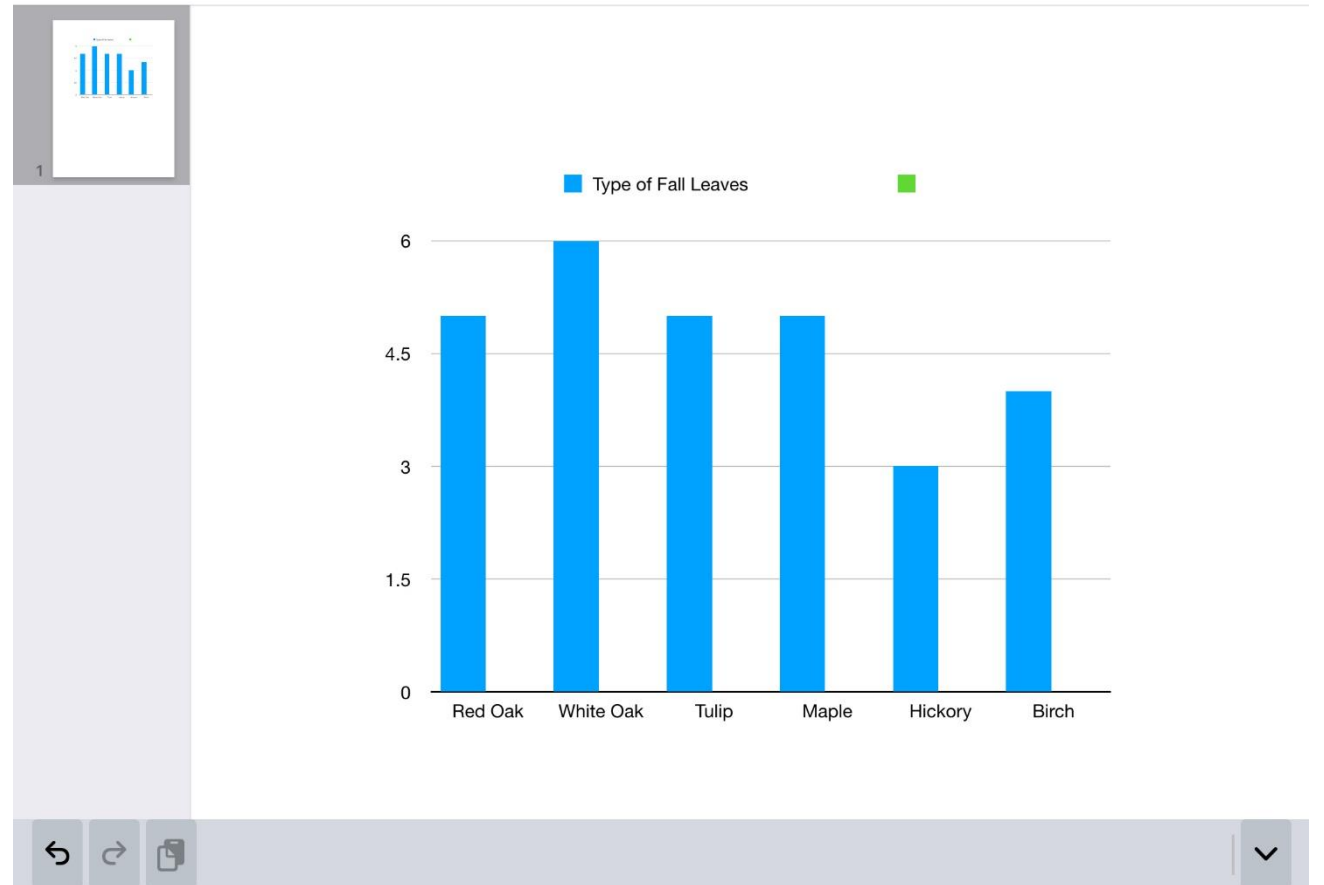
Pre-Requisites to Digital Math

- Drag a finger in a straight line across an iPad
- Use manipulatives to teach foundational concepts
- Use tactile graphics for grids, tables, charts, graphs, etc.



Tech Skills For Math

- Spatial concepts and mental mapping
- Earcons
- Sonification

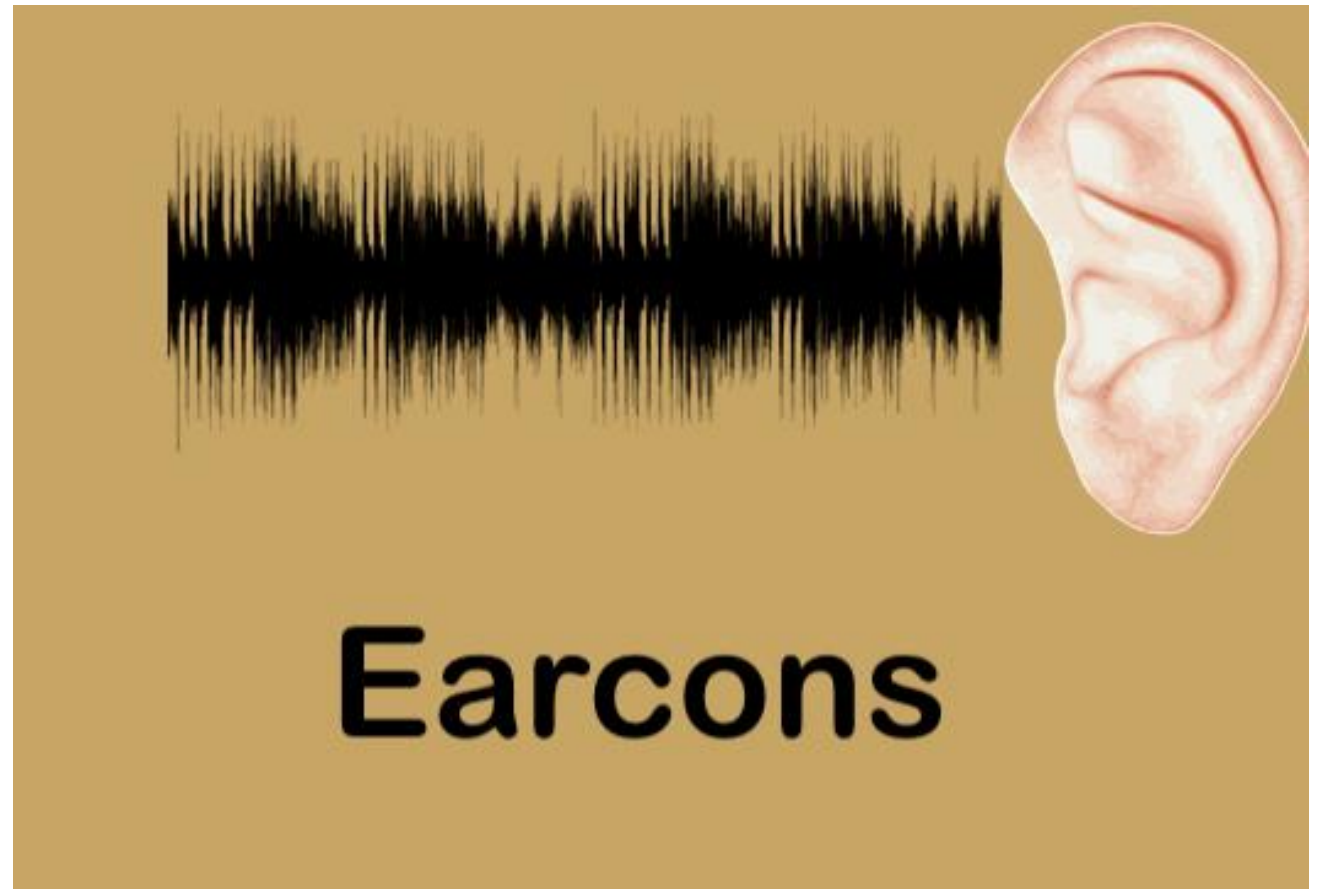


Spatial Concepts and Mental Mapping

- Power of the iPad: knowing WHERE you are in space
- Explore the screen with drag and split tap gestures
- Spatial concepts (top/bottom, quadrants, rows/columns, grids)
- Listen carefully to VoiceOver information such as type of graph, number of rows/columns, etc.

Earcons

- Icon vs. Earcon:
What are they?
- Mainstream
Earcons
- Screen reader
Earcons



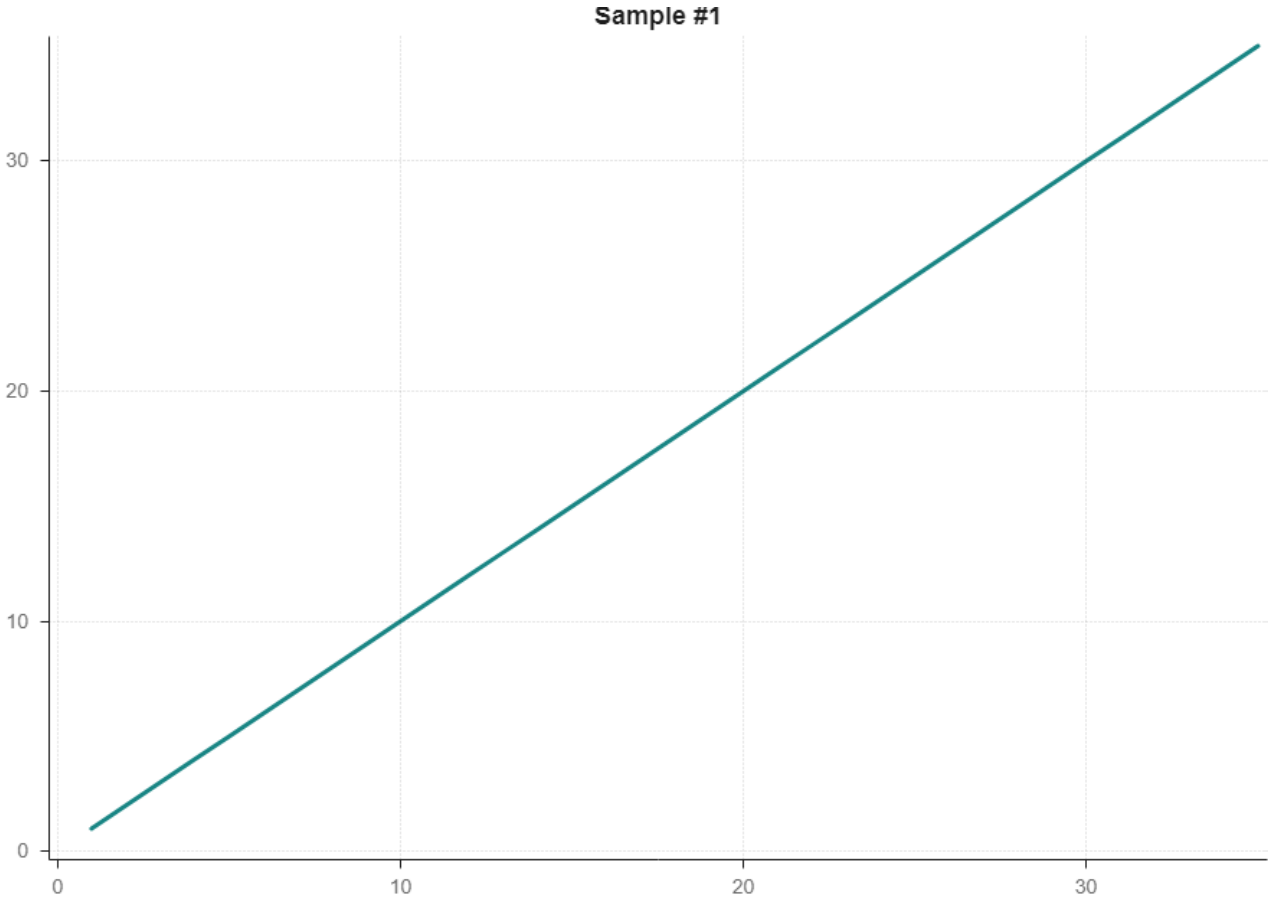
Sonification

The use of non-speech to convey information often used to make graphs accessible.

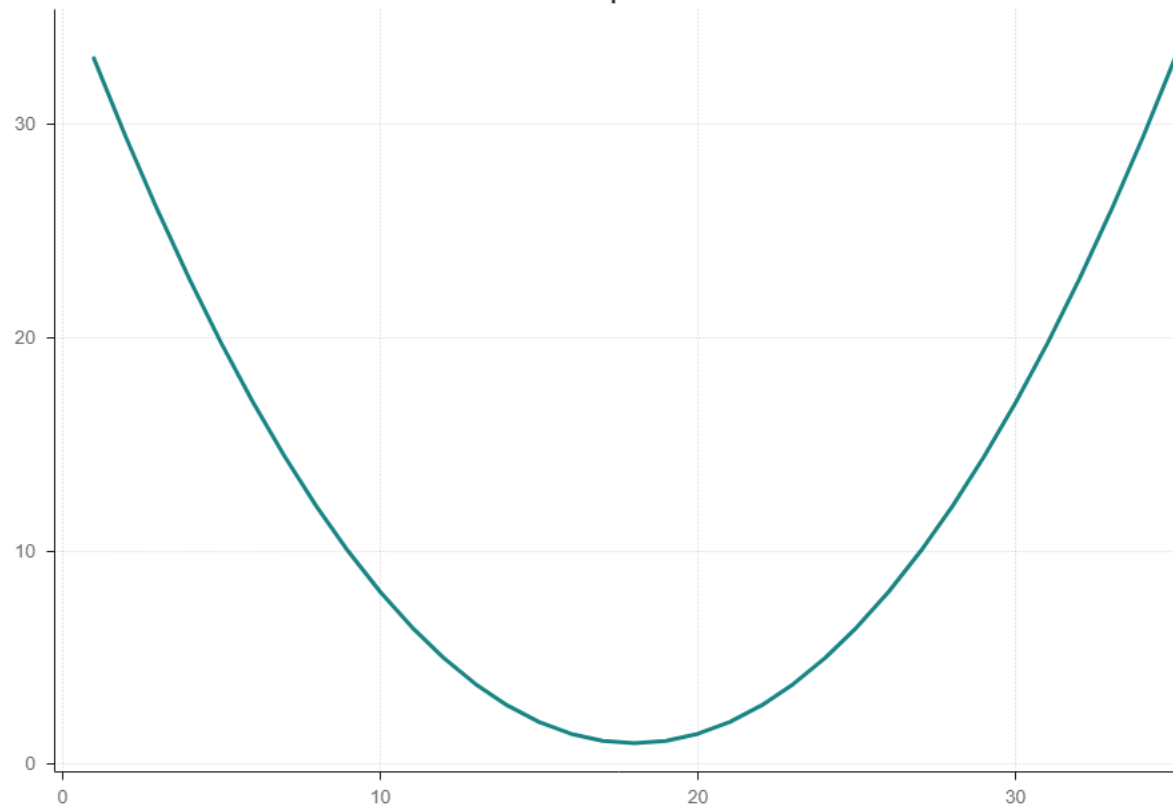


Sonification

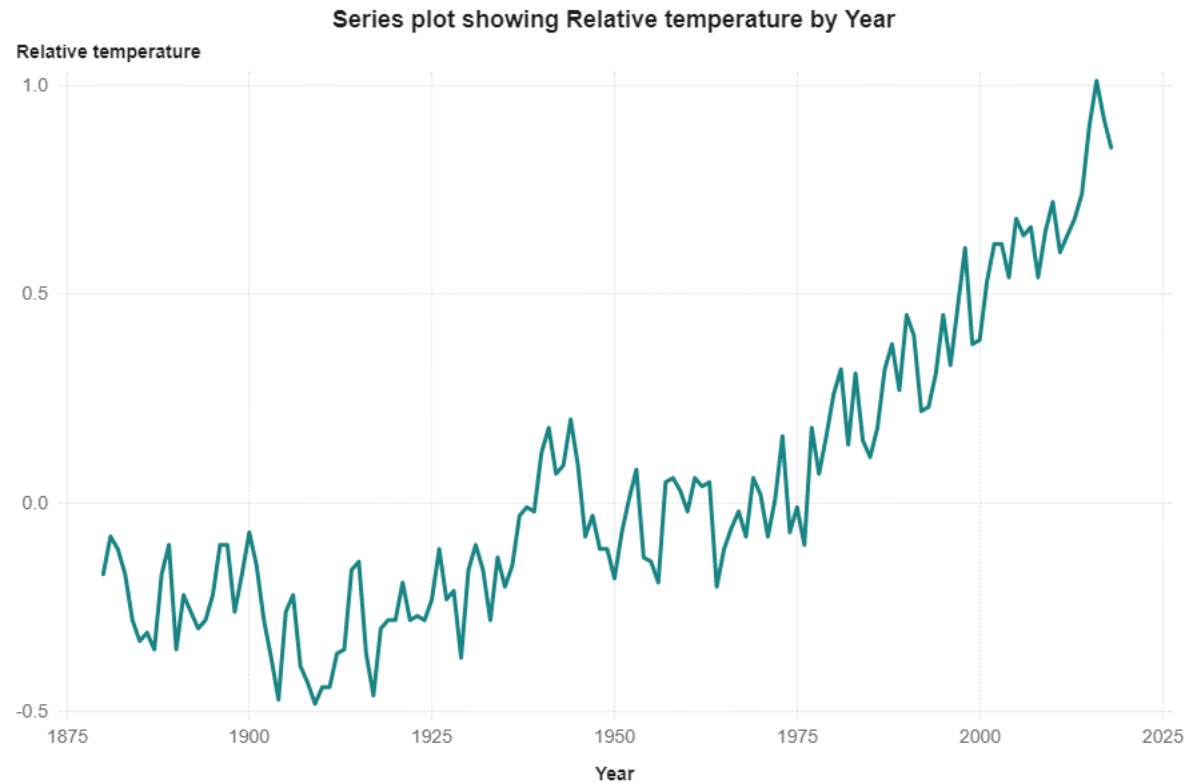
Sonification Sample 1: Ascending Line



Sonification Sample 2: Curved Line

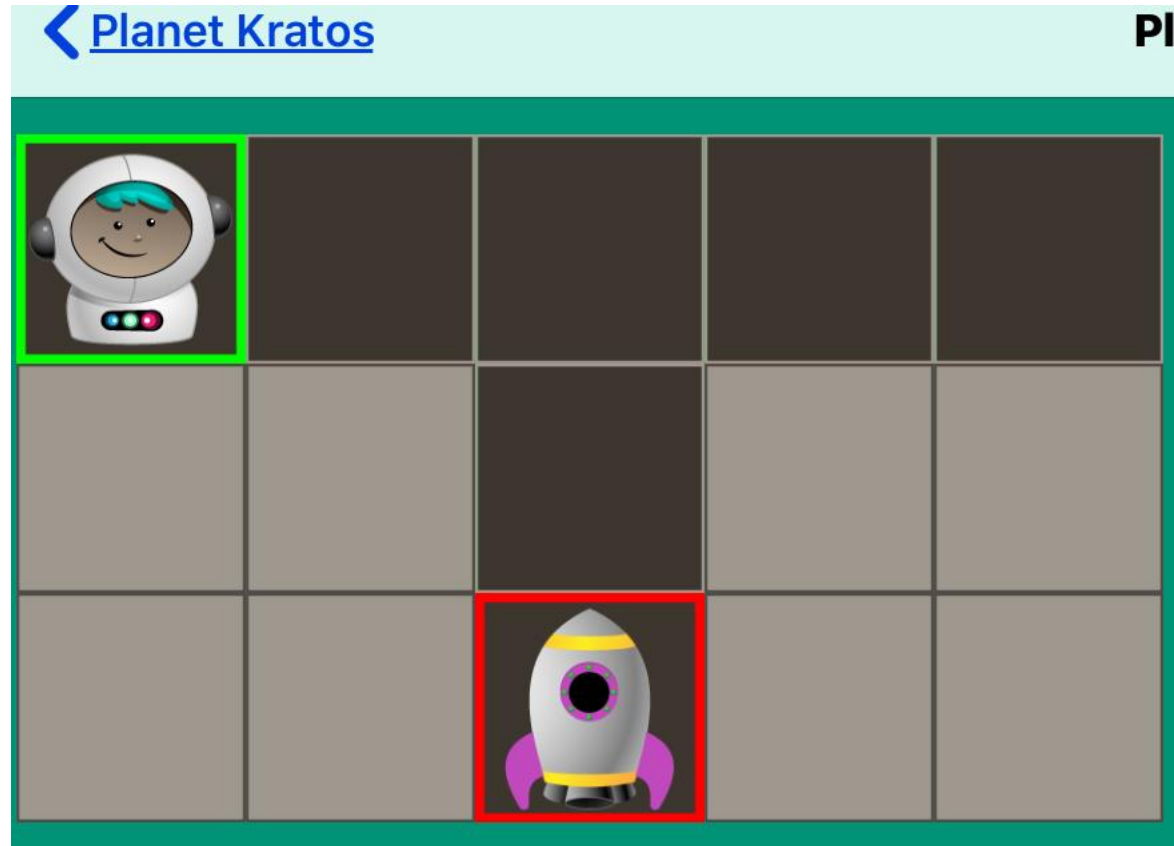


Sonification Sample 3: Numerous points on a jagged line with a general ascending trend



Temperature relative to 1951-1980 average. Data downloaded from NASA:
https://data.giss.nasa.gov/gistemp/graphs_v4/graph_data/Global_Mean_Estimates_based_on_Land_and_Ocean_Data/graph.csv

Infuse your math class with dynamic digital math games!



Teaching Grid Concepts to Young Students Using Ballyland

