SOUND AND DATA

AT-HOME KIT

Data, Played Out Loud

Scaling a range, reading a two-axis grid, and mapping one quantity onto another.

AGE RANGE
2nd grade and up

TIME NEEDED
About 20 minutes per child

THE BIG IDEA

A data set is a range of numbers. A keyboard, or even just your voice, is a range of pitches. Stretch one range to fit the other, and you can hear a graph instead of just looking at it. This is a short activity, about 20 minutes, and works well as a one-on-one project with a parent or older sibling.

WHAT YOU'LL NEED

- ☐ Graph paper (included with this kit, or any grid paper)
- ☐ A pencil
- ☐ Something to make eight or so different pitches: a keyboard or piano, a phone piano app, a xylophone, or just your own voice

No keyboard at home? A free piano app on a phone works exactly as well for this, or use your voice and just aim for "low," "medium," and "high" notes.

A FEW DATA SETS TO TRY

- The high temperature for each of the last seven days
- How many steps you took each day this week
- The heights of everyone in your family
- Your own idea, five to eight numbers, no negatives, is all it needs

STEPS

1. **Write down your numbers**
   Pick a data set from the list above, or make up your own. Write the values in a row.

2. **Plot them on the graph paper**
   Put the order (day 1, day 2, and so on) along the bottom, and the value going up the side. Mark a dot for each number, then connect the dots.

PHOTO GOES HERE

Photo: your finished graph

3 **Find the smallest and biggest number**
Circle both. The distance between them is the “range,” and it is what you are about to stretch onto your instrument.

4 **Match low to low, high to high**
Your smallest number becomes your lowest note. Your biggest number becomes your highest note. Everything else goes roughly in between, based on how close it is to the top or bottom.

5 **Play your data as a song**
Go through your numbers in order and play the matching note for each one. Listen to the shape. Does it climb? Does it wobble up and down?

PHOTO GOES HERE

Photo or video: playing your data song

6 **Try it again with a different data set**
Compare the two “songs.” Which one sounds more dramatic? Can you guess which graph had the bigger range just from listening?

TALK ABOUT IT

- What would it sound like if every number were the same?
- What if there were only two very different numbers?
- Could a sibling or parent guess your data just from the song?

Nothing unusual here

No special precautions for this one. Just the usual: keep small objects and cables away from very young children.