

Book information: *Lines, Bars and Circles: How William Playfair Invented Graphs* by Helaine Becker Illustrated by Marie-Eve Tremblay. Accessible text:

<https://www.youtube.com/watch?v=JWiZ6CKCU7U>

Summary: This biography chronicles the life of William Playfair and his quest to display information through graphs. Embedded in this humorous book are a variety of William's own creations. While William was a scientist and innovator, he was often ostracized for his outlandish ideas. Now, one hundred years after William created these infographics, lines, bars and circles can be found everywhere!

Key vocabulary: scientific method, inventions, line graph, bar graph, pie chart



Context for learning: Given that the story begins in Will's childhood, describing Will as a practical joker and a dreamer, students might relate to Will and see that mathematics can be interesting in many ways. The story also provides a wonderful example of how mathematics is a human endeavor, and how mathematical representations (e.g., bar graphs, line graphs) only exist because someone created them as a way to represent ideas. Will's story also sparks students to identify patterns in the world around them and to understand math can be used to creatively.

Math Concepts	Practices Addressed
Represent and interpret data	MP 4: Model with mathematics
Generate and analyze patterns	MP 7: Look for an make use of structure

Opportunities to teach braille:

- Tactile graphics: line graph, bar graph, pie chart
- Number sentences that compare data over time (addition/subtraction symbols)
- Tables that show data numerically, relating the data in the table to the tactile graphic.
- Word problems (Nemeth Code within UEB contexts)

Follow-up activities:

1. Graph the student's progress through a graph.
2. Design a classroom poll and display the results graphically.
3. Look at graphs in other contexts like weather forecasts.
4. Examine data in a table and how one set of data can be displayed in two different ways (line graph vs. bar graph). Discuss when to use each type of graph or chart.
5. Walk through the school and look for how different classrooms use graphs.
6. Go through a newspaper and look for how graphs are used in the news.