# Teaching Students the Nemeth Braille Code: Making It Fun, Easy, and Meaningful
## CEC 2018 Convention & Expo

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# Learning Objectives

The participants will be able to:

➢ Identify three strategies that can be used to teach Nemeth code to students who read braille.

➢ Make connections between learning the Nemeth code and learning math.

➢ Use a database to find symbols and examples for a particular part of the Nemeth code.

# Background

➤ Needed a comprehensive Nemeth curriculum for students

➤ Wanted to make it fun for students, parents, and teachers

➤ Wanted it to be easy to use and accessible for all, regardless of background and previous experience with Nemeth code

➤ Wanted to introduce math concepts that go along with the Nemeth symbols being taught

➤ Sought input from students, teachers, and parents and continue to do so

# Even with all of the changes in Nemeth and UEB, how much has teaching braille reading really changed?

# According to Sally Mangold (1987), the majority of good braille readers:

➢ Display few regressive hand movements.
➢ Use a light touch when reading.
➢ Utilize a two-handed reading technique.
➢ Scan efficiently when reading material in both vertical and horizontal formats.

# Good braille readers (continued)

- ➢ Use at least four fingers when reading.
- ➢ Accurately and efficiently read letters without confusing letters which are mirror images of other letters.

# Overview

➢ Grade level specific

➢ Aligned with the Common Core State Standards

➢ Early grade levels follow a scripted curriculum

    ➢ Incorporates fun facts about transportation

    ➢ Other ECC skills addressed

➢ Higher grade levels use a searchable database

    ➢ Numerous examples

    ➢ Based on input from students

# Early Grade Level Organization

➢ Introduction

➢ Six Modules

➢ Cumulative Review and Posttest

# Module Contents

➢ Teacher/Parent Reference Materials

➢ Teacher/Parent Script and Teaching Notes

➢ Teacher/Parent Script and Teaching Notes with Answer Key in SimBraille

➢ Answer Key in Braille for the Writing Activities

➢ Student Braille Materials

# Module Contents (continued)

➢ Recording Sheet

➢ Teacher/Parent Script for Check-Up

➢ Answer Key in SimBraille for Check-Up

➢ Answer Key in Braille for Check-Up

➢ Student Braille Materials for Check-Up

# Cumulative Review and Posttest

➤ Review Activities and Games

➤ Script and Accompanying Student Braille Materials

➤ Cumulative Recording Sheet

➤ Cumulative Posttest Script, Answer Key, and Student Materials

# Samples

# Let's Look at Parts of a Module

# Intentional Underlying Strategies

➢ Progression of skills without making assumptions

➢ Reading and writing within mathematical content

➢ Integration of earlier content in later content so there is built in review

➢ Building tactile skills along the way

➢ Inclusion of lots of activities and games to make learning Nemeth code fun and engaging

➢ Opportunities to generalize skills

# Progression of Reading Skills

➢ Build symbol on a swing cell or muffin tin

➢ Read the single symbol in braille

➢ Locate the symbol in a line of full cells/guide dots

➢ Locate more than one of the same symbol in a line of full cells/guide dots

➢ Locate the symbol in a line of previously learned symbols

➢ Read a symbol at the beginning of a line and match it to another symbol in the line

# Progression of Writing Skills

➢ Build symbol on a swing cell

➢ Connect the dot configuration to the keys on the braillewriter

➢ Practice using correct finger positioning

➢ Practice writing the symbol several times

➢ Practice writing symbols as they are read aloud

➢ Practice writing the symbol in mathematical context

# Samples of Teaching Tips

➢ It is important to use the correct finger on each key when learning new Nemeth symbols. This will help the student become accurate in their writing!

➢ When you initially introduce the numeral 0, explain that it means no objects in this activity.

➢ Using the braillewriter for some of the writing activities is encouraged as it facilitates the development of motor memory.

➢ Place flash cards and hard copy braille on a nonslip surface such as rubber shelf liner so they will not move as the student is reading.

# Samples of Teaching Tips (cont.)

➢ Base ten blocks and Digi-Blocks are often used in elementary general education classrooms. If you do not have base ten blocks or Digi-Blocks, request to borrow them from a classroom teacher.

➢ There are multiple counting songs available online if you would like to incorporate music into the review of counting. Please note that by the end of kindergarten, a student should be able to count aloud to 100.

➢ Writing an equal sign – 2 fingers on the right hand, then 2 fingers on the left hand; 2 dots equals 2 dots.

# Examples of Making Connections to Math Concepts

➢ Counting

➢ Reading and writing numerals

➢ "Before" and "after"

➢ Numerical order

➢ Circle and rectangle

➢ Counting to answer "how many"

➢ Tally marks

➢ Concept of "0"

# More Examples of Making Connections to Math Concepts

➢ Patterns that incorporate the general omission symbol

➢ "One more" and "one less"

➢ Represent numbers with concrete materials, including base ten blocks or Digi-Blocks

➢ Mathematical comma for lists

➢ Numbering of math problems

➢ Place Value Chart and Hundreds Chart

# Even More Examples of Making Connections to Math Concepts

➢ Count aloud to 100

➢ Skip count by 10s beginning with 10

➢ Skip count by 10s beginning with different numbers

➢ Solving addition word problems and adding within 10

➢ Equals sign and reading/writing grade level equations including addition and/or omission symbol on either side

➢ Five-frame and Ten-frame

➢ More to Come…

# Activity Examples


MyMommyStyle.com

➢ Count using manipulatives

➢ Make a number train,
a craft foam train, a shoebox
train and/or an edible train

➢ Create a counting book from 1 to 10 by using
objects that can be easily counted

➢ Locate the general omission symbol in several lines
of braille and identify and write the missing number
that the general omission symbol is representing
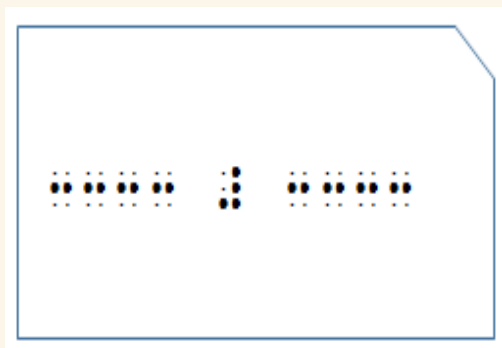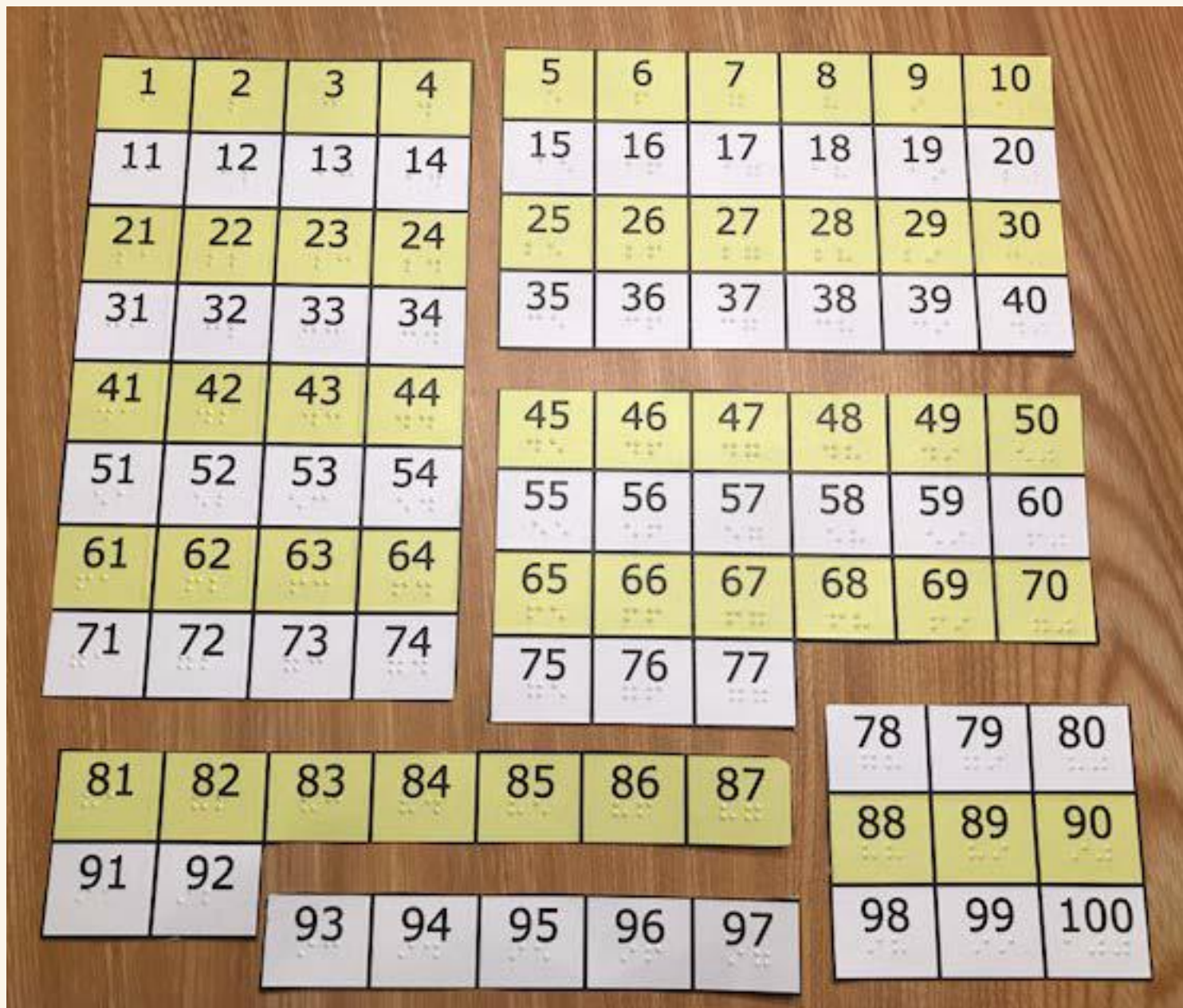
➢ Use a Grid Board to create a number chart

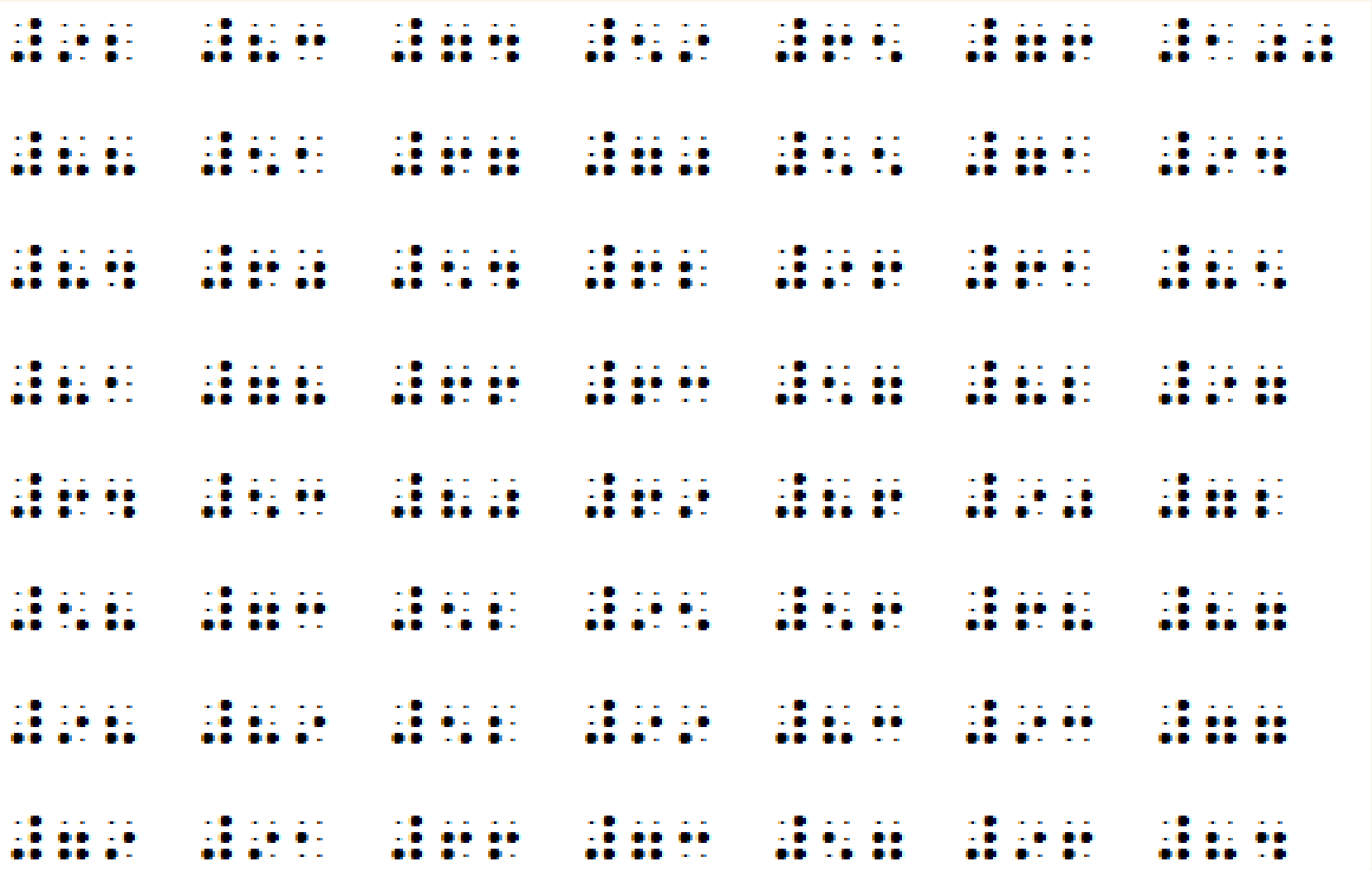# Let's Look at Sample Activities

# Sample Games

# Let's Look at a Game

# Examples of Games

➢ Building the Hundreds Chart

➢ Number Search

➢ Feed the Monster

➢ Maze

➢ Guess My Number

➢ Connect Four

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# Searchable Database

➢ Glossary of terms used in math which are linked to a description of how to write each in Nemeth code related to that content.

➢ Several terms land you on the same description so if your terminology is slightly different, you still get the same description.

➢ Lots of examples from easy first to more complex later in the file.

# Searchable Database Samples

Includes the following:

➢ Samples in Nemeth code with SimBraille for teachers

➢ Samples in Nemeth within EBAE as a brf file for students

➢ Samples in Nemeth within UEB contexts as a brf file for students

# Searchable Database Contents

- ➢ Absolute Value
- ➢ Alpha (lowercase)
- ➢ Angle brackets

  ⋮

- ➢ Exponent
- ➢ Exponent of an exponent
- ➢ Fahrenheit

  ⋮

- ➢ Vertical Bar
- ➢ Vector Notation
- ➢ Whole numbers

# Sample from Searchable Database

# Let's Look at a Sample

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# Use With Other Products

➢ *Nemeth at a Glance*

➢ APH Products that support math instruction

➢ Online APH Nemeth Tutorial

➢ The Nemeth Braille Code for Mathematics and Science Notation, 1972 Revision and updates

➢ General math manipulatives

➢ Child's math textbook