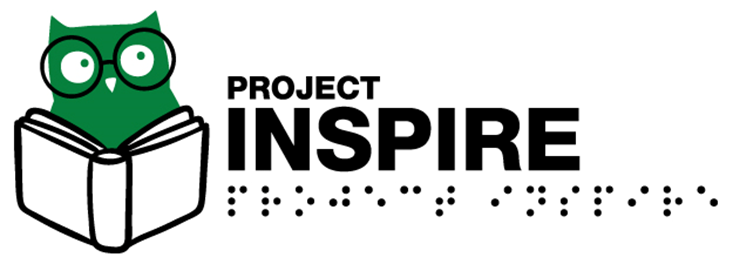
Nemeth in a Box for Middle School Students



* Susan Osterhaus, Texas School for the Blind and Visually Impaired
* Dr. Tina Herzberg, University of South Carolina Upstate
* Sara Larkin, Iowa Educational Services for the Blind and Visually Impaired



## Slide 2: Overview of Project INSPIRE

* U.S. Department of Education grant funded project
* Provides:
  + Professional development for teachers of students with visual impairments
  + Extra-curricular programming supporting the use of STEM braille codes by students in both math and science.
* Years 1 – 3 Nemeth Code
* Years 4 – 5 Some Nemeth Code, but mostly UEB Technical

## Slide 3: Nemeth in a Box

* The use of puzzles and hands-on learning experiences increase conceptual knowledge of mathematical concepts.
* However, little is known about the impact of students’ learning of Nemeth code and mathematical concepts using problem-based learning methods, especially in an online learning environment.

## Slide 4: Data Collected



* Pre- and post-test
* Field notes
* Pre- and post teacher survey
* Pre- and post student survey

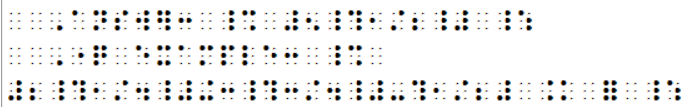
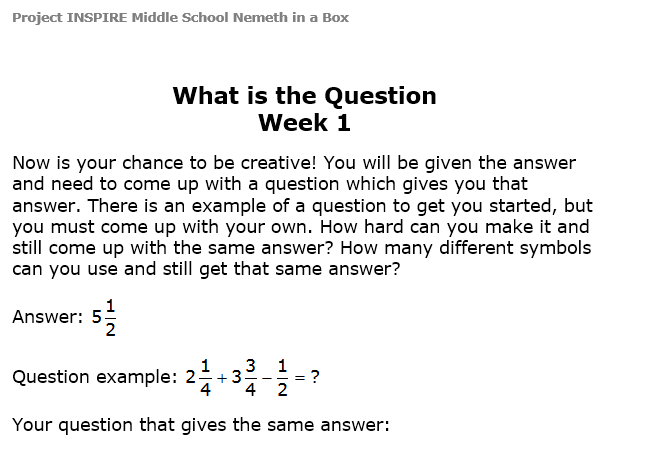
## Slide 5: Targeted Symbols and Math Concepts – Lessons 1-3

* Lesson 1 – fractions, mixed numbers, less than or equal to, greater than or equal to, and not equal to
* Lesson 2 – decimal, percent, dollar sign, cent sign, and approximately equal to
* Lesson 3 – parentheses, negative sign, order of operations, and absolute value (vertical bars)

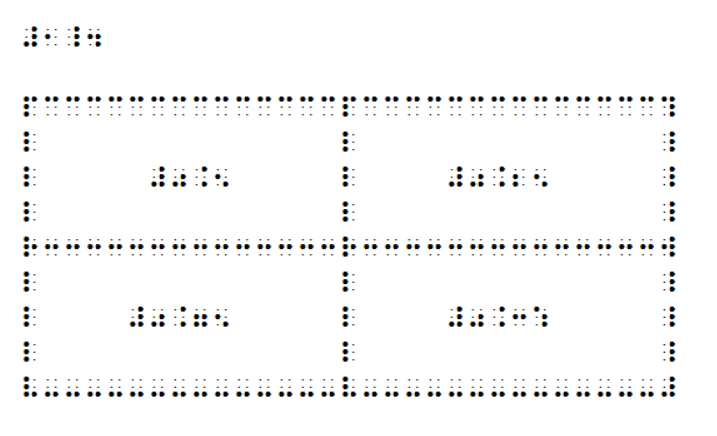
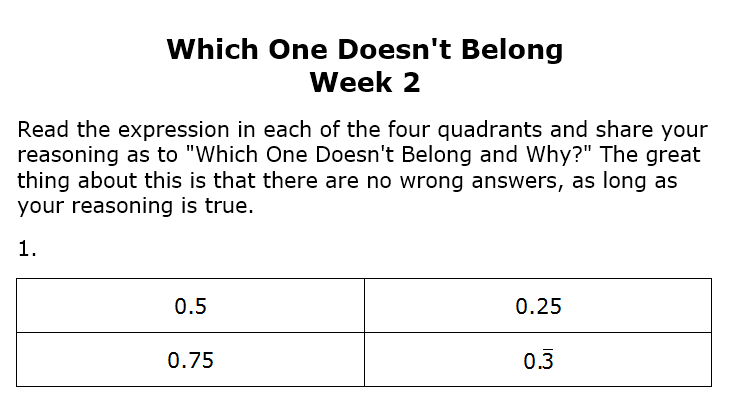
## Slide 6: Targeted Symbols and Math Concepts – Lessons 4-6

* Lesson 4 – math and science-related tables, coordinate pairs, and the mathematical comma
* Lesson 5 – exponents and degrees, including the superscript indicator, baseline indicator, hollow dot
* Lesson 6 – principal square roots

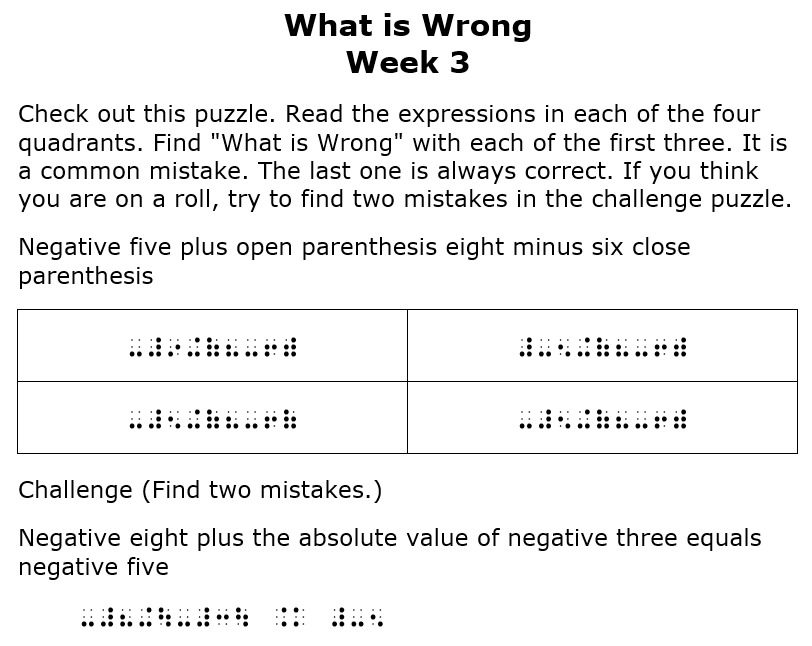
## Slide 7: What Is The Question from Week 1



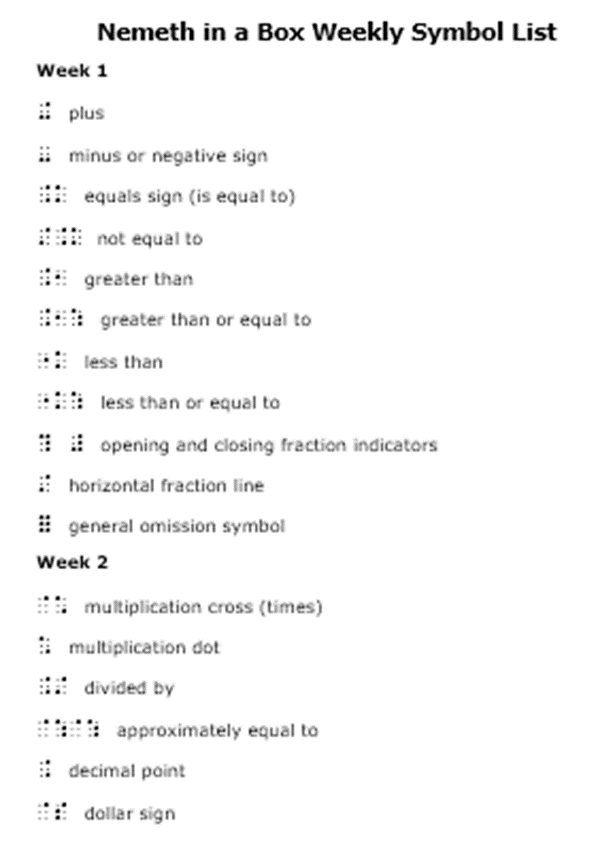
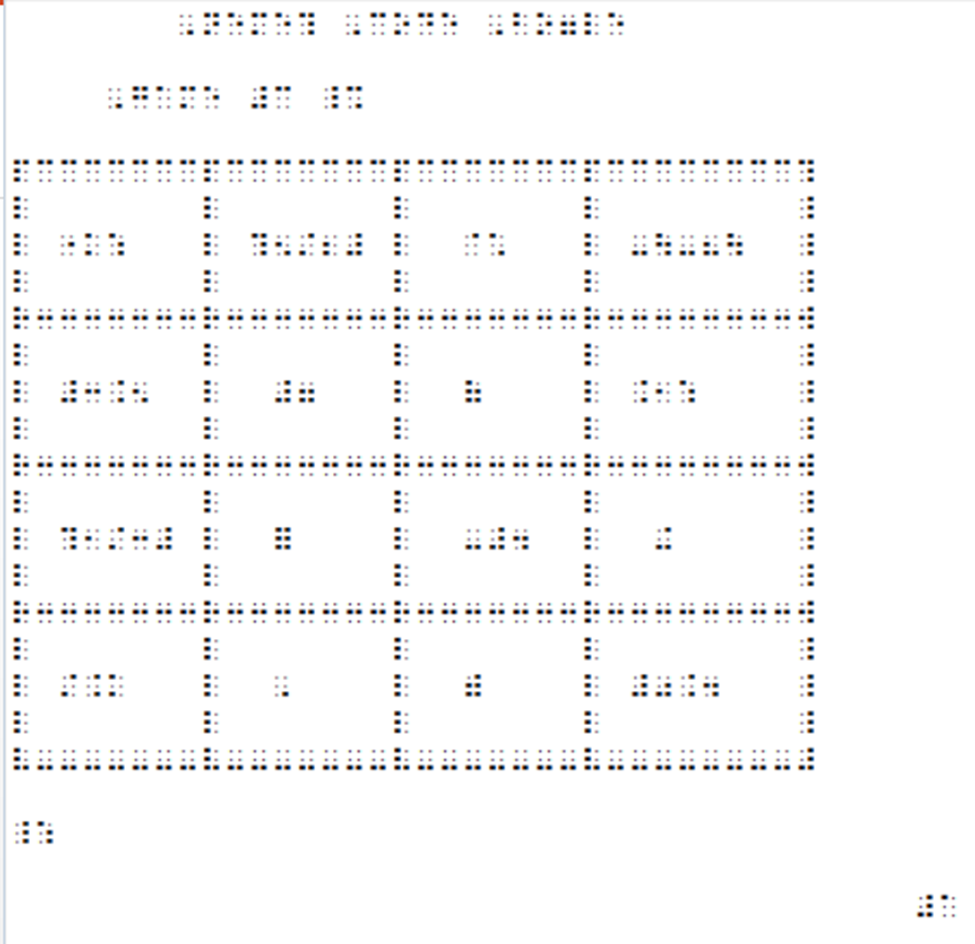
## Slide 8: Which One Doesn’t Belong from Week 2



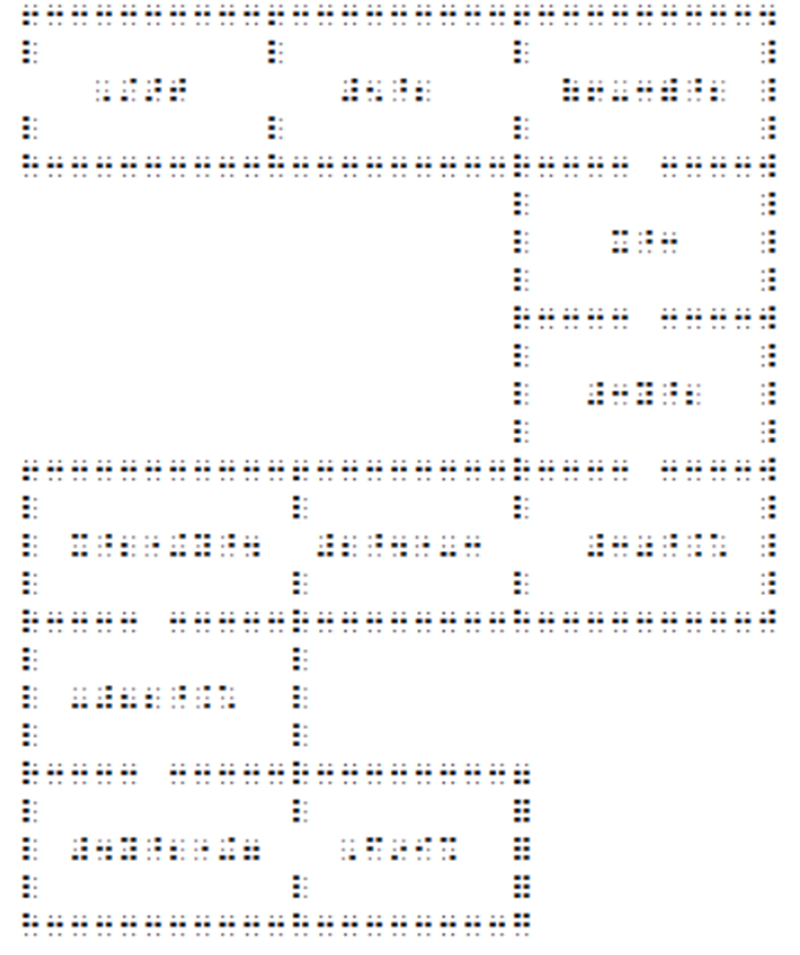
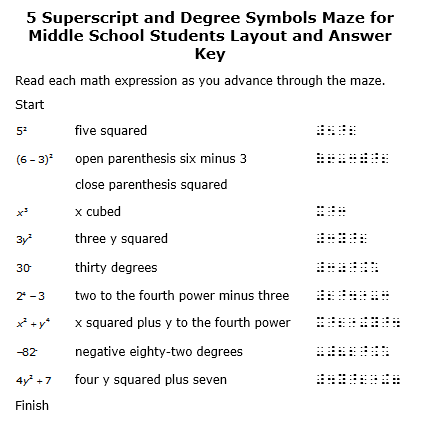
## Slide 9: What is Wrong from Week 3



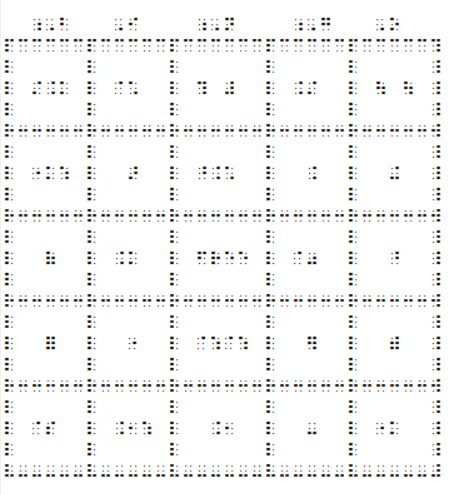
## Slide 10: Boggle from Week 4



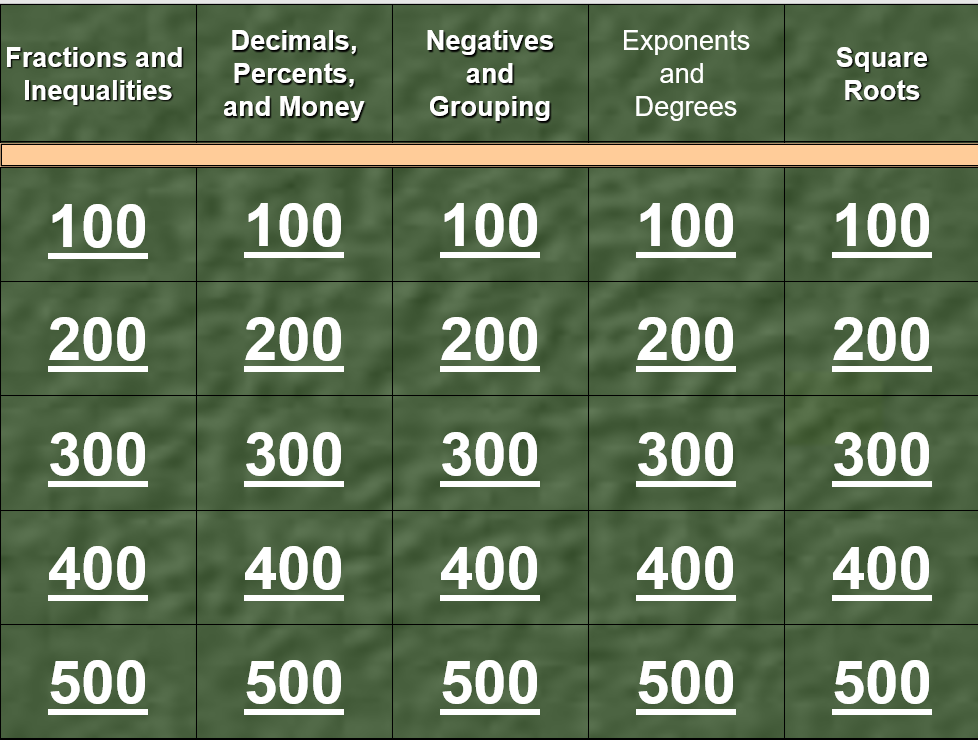
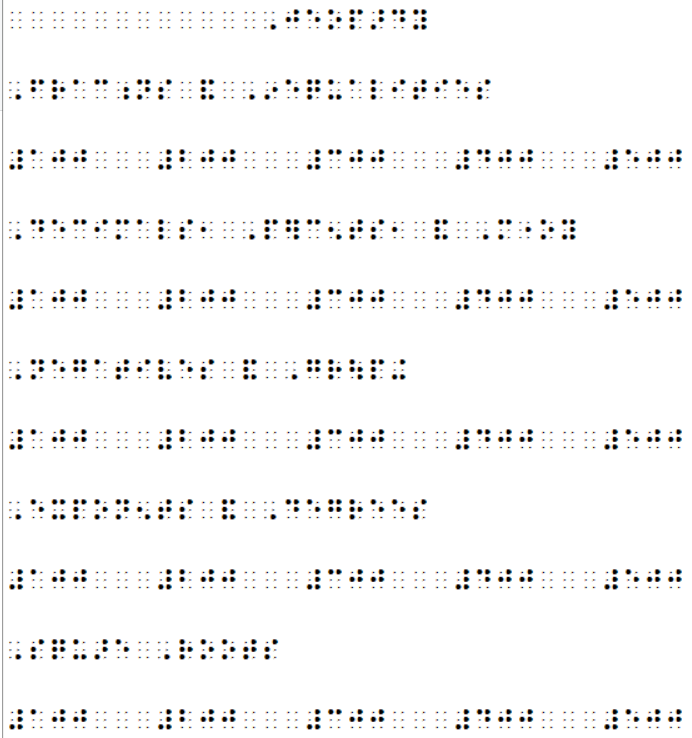
## Slide 11: Maze from Week 5



## Slide 12: Bingo from Week 6



## Slide 13 Jeopardy



## Slide 14: Spring 2021

* Twelve students successfully completed Nemeth in a Box.
* Scores for the completers on the 14-item reading pretest ranged from 0-13 with an average of 7.2.
* Scores on the reading posttest ranged from 3-14 with an average of 11.7.
* Of the 12 completers, 11 successfully demonstrated competency by scoring 75% or higher (at least 11 out of 14) on the posttest.

## Slide 15: Survey Results

* All students indicated that they would like to participate in another Nemeth in a Box program or other events Project INSPIRE might offer.
* They also indicated that they would recommend the Nemeth in a Box program to other students.

## Slide 16: In Their Words – What They Liked Best

* Boggle
* I liked getting to know new people and play the math games.
* Getting to know some of my blind peers from around the country
* I enjoyed most though, is the puzzle, "Which one Doesn't Belong." I enjoyed this because I got to give out my own opinion on which one I thought was different, and I also got to listen to other's opinions and choices.

## Slide 17: More About What They Liked

* I really enjoyed working as a team and figuring out the problems. And the games!
* I enjoyed the “What is the Question” most. I liked connecting with other people that I can relate to the most.
* Everything
* I enjoy the fact that I learned a lot more [Nemeth] symbols while still having fun.
* The teachers and games

## Slide 18: Summer 2021

* Student feedback was very positive.
* Data analysis is continuing.

## Slide 19: Just in Time…

* Many students with visual impairments did not have accessible materials during COVID-19 in order to fully participate in the general education curriculum (Rosenblum et. al, 2020; Rosenblum et. al, 2021).
* Many students with visual impairments also missed opportunities to be around their same age peers (Rosenblum et. al, 2020; Rosenblum et. al, 2021).
* However, with Nemeth in the Box, students had…
  + High-quality, accessible materials
  + Expert teachers
  + Opportunities to socialize with peers
  + Learning within Expanded Core Curriculum

## Slide 20: What Is Next?

* Spring and Summer 2022
  + Nemeth in a Box for middle school students
  + UEB Technical in a Box for middle school students
  + Mission INSPIRE
* Early 2023
  + Nemeth in a Box for high school students



## Slide 21: What about the Teachers and Paraprofessionals?

* Fall 2021 – not too late!
  + Geometry and Tactile Graphics for Students in Grades 3 to 8 [repeat from summer 2021]
  + Nemeth Code Symbols Used in the Middle Grades and Strategies for Supporting Math Learning [NEW]
* Spring/Summer 2022
  + Nemeth Code Symbols Used in the Middle Grades and Strategies for Supporting Math Learning [repeat from fall]
  + Nemeth Code Symbols Used in High School and Strategies for Supporting Math Learning [NEW]

## Slide 22: Sharing Together

* Weekly “Happy Hour” sessions
* Sign up for fall courses at <https://uofsc.co1.qualtrics.com/jfe/form/SV_6x2pcyohIBLfKsK>
* Posting of free self-paced courses at <https://www.pathstoliteracy.org/resources/project-inspire-free-self-paced-courses-increase-stem-potential-individuals-who-read>
* Email list to learn about upcoming opportunities <https://uofsc.co1.qualtrics.com/jfe/form/SV_8wzwsiIDiLX6mB7>

## Slide 23: Contact Information



* Thank you for your kind attention.
* Now it’s time for questions.
* For more information, contact
  + Tina Herzberg at [herzberg@uscupstate.edu](mailto:herzberg@uscupstate.edu)
  + Susan Osterhaus at [osterhauss@tsbvi.edu](mailto:osterhauss@tsbvi.edu)
  + Sara Larkin at [sara.larkin@iaedb.org](mailto:sara.larkin@iaedb.org)