

**Project INSPIRE: Nemeth Code Symbols Used in Middle Grades and Strategies for Supporting Math Learning**

**Assignment 2 Sample Lesson Plans**

**Example 1**

Submitted by Lucy, TVI

MB is a 14-year-old 9th grade student who is enrolled in the district's developmental (lower level life skills) class. While dependent in all aspects of activities of daily living and non-verbal, M is alert and oriented, generally highly engaged in what is going on around him in the classroom. Due to ongoing skin issues following spinal surgery, M spends much of his day on a Roho mattress that is elevated on a mat table so he can interact with items on a bedside table that is placed over him. M's distance vision is quite limited due to cortical visual impairment, nystagmus, and exotropia. He responds best when target objects are within 10 to 12 inches. Recently M has been working with switch toys that he is able to activate using a gross motor overhand "slap" of a light touch large red button. His current favorite switch toy is a train.

**Lesson Plan (Part C):** The lesson will focus on counting from one to ten. The trade book, Thomas and the Ten Balloons, will be used for the lesson. The book could also be used to teach subtraction by one skills but this is a bit advanced for M at present. M's switch toy train will be incorporated in to the lesson as an attention stimulator and reward.

A. The book was selected for several reasons. Counting is a mathematics IEP goal for this student. M has shown great interest in the train switch toy in the past so a train is a familiar concept. The book has rigid plastic circular "balloons" which can be counted on each page. It is a board book so there are cut outs on each page which the student can put his finger through if he declines to touch the plastic balloons. M has shown some tactile aversions in the past to certain plastic objects, but enjoys poking his fingers through or on things when exploring. The lesson will start with M using his switch to activate the train. After he has had adequate time (5 minutes) to do this I will tell him we are going to read a book about a train and some balloons. I will also inform him that he will get to work with his train again once we have finished the book.

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- B. The book very easily lends itself to math concepts. While the text promotes subtraction skills (i.e. "10 bright balloons float up above the line. A gust of wind blows one away, and now there are ..."), my lesson will focus on rote counting skills 1 to 10. I start with hand under hand assistance with M to count the balloons on each page starting at one either by touching each plastic balloon or by letting him put his finger through each of the holes. I will pair this with counting aloud each number. I will fade the hand under hand assistance if able as we continue through the book.
- C. There are two ways I will know that the lesson has been successful. The first will be if M shows any interest at all in the activity. He generally shows interest by briefly glancing towards the materials, reaching towards them to explore them and by allowing hand under hand assistance at the beginning of a new activity. M will vigorously shake his head "no", turn away, cover his eyes with his arms and draw his hands back rapidly if he does not desire to do an activity. The other way will be if I can fade the hand under hand assistance for touching the balloons as we count each page.

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### **Example 2**

Submitted by Aimee, Braillist

Lexi is an 8<sup>th</sup> grader who often struggles with organizing her thoughts and work. I found a book that I thought would be interesting to her and give us the opportunity to improve her organizational skills. Lexi is considered blind, but can see some colors. She uses braille for all of her lessons. Lexi is very social and loves to talk while working. My hope is that this lesson would give her the opportunity to practice group work while maintaining her organization.

**Lesson Plan (Part C):** Book information: Usborne First Encyclopedia of Dinosaurs and Prehistoric Life By Sam Taplin, Illustrated By David Hancock

#### Summary:

This book is a thorough source of information on dinosaurs. It talks about types of dinosaurs, size, eating habits, and intelligence level of the dinosaurs. It also creates a timeline of the existence of dinosaurs.

#### Vocabulary:

Evolution, omnivore, carnivore, herbivore, species, mammal, ice age, timeline,

#### Context for Learning:

This book is an encyclopedia geared toward younger people. I find that it combines fun facts and scientific learning. You are able to connect math, science, and reading into one lesson with the added benefit of working on braille and organization.

#### Math Concepts:

My thought for math activities is to have Lexi determine what type of information she would be able to graph. Then she can determine what interests her more and create a bar graph for her data collection. This includes: graphing, data collection, mathematical concepts, improved communication of thoughts and data.

#### Opportunities to Teach Braille:

Lexi is very dependent on others to help her organize her notes and work. This is the perfect opportunity to braille words that are not familiar and to create bar graphs using her braillewriter. She will also have time to practice her Nemeth braille. Lexi would also be able to practice her brailleing a timeline.

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### Follow Up Activities:

Depending on what Lexi decides to graph she could compare the life span of different dinosaurs. She could show the amount of food eaten by various dinosaurs. She can share what dinosaurs she thinks would be able to exist better in this day and age based off of her data.

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### **Example 3**

Submitted by Melissa, Braille Transcriber

This lesson will be implemented with a 9<sup>th</sup> grade student who is completely blind. She is on grade level in math and picks up concepts easily. She uses Nemeth braille for math.

#### **Lesson Plan (Part C):**

Lesson: The activity I have chosen is for my student to design a classroom poll and display the results graphically. My student will enjoy the social aspect of polling her classmates. My primary learning goal is learning to model results graphically. Because I want this to be an exploration activity, I don't want to pre-decide what type of graph she will be creating. I will have materials such as APH graph paper, wiki-sticks, sticky foam, and art tape available.

Planning: My student's interests include drama, music, math, and friends. She has told me she does not like zoos or cooking. Considering her interests, I think she would enjoy the "Lines, Bars and Circles" book. I think my student will enjoy the many twists and turns of Will's life, and that she will relate to being a bit of a dreamer. She will also be able to relate information in the book to things she has learned in science and history classes.

As we read and discuss the book, I will provide my student with sample graphs so she can explore the information that such modeling can make available. I will also give her the same information in tabular form, so that she can see how different it is interpreting data from a chart and interpreting data from a graph. I will ask specific questions that help her to explore and interpret numbers from the graphs and see how they relate to the situations they model. For example, we could take the pie chart data, "Types of Grain Planted, by Acre," and I could ask, "Is it easier to tell the proportions of grain planted in the table or in the graph? Approximately how much of the grain planted is barley?"

I will know the lesson was successful if my student has participated and engaged in the activity. I will have her come up with her poll question and then she will decide whether the information could best be conveyed in a line graph, a bar graph, or a pie chart. Not only will she use math skills, but she will also use social and communication skills, problem-solving skills, decision-making skills, and small motor skills.

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### **Example 4**

Submitted by Terri, TVI

The student is currently in 6th grade, and has many pets at home, including two hedgehogs. Though this text is written below her reading level, the interest is there, and it can be adapted for skills needed for higher grades. I assume that the student will be able to easily read the graphs in the book. The follow-up activities include graphs that are more complex with more information to read. Even a pie chart requires additional skills when measuring angles. Success is measured by answering questions about the graphs. I will use former Braille Challenge competitions as a guide for this. As we progress through the grades, more graphic information is presented, in many forms. These skills need to be pre-taught for classes, and is always good for review before Braille Challenge!

In addition, I have a paraprofessional who is training to produce tactile graphics at school. She is learning to use basic guidelines to make tactile charts and graphs with traditional graph paper, stickers, tape, braille labels, etc. as well as electronically. I can use it as a project while she is still in training, since I'm only at that school once a week on a regular basis. It is important that she is familiar with all kinds of tactile materials, so that she is efficient with her time and can provide appropriate tactile graphics in a timely manner.

Book Information: Tiger Math by Ann Whitehead Nagda and Cindy Bickel

Materials: Print copy of book

Tactile graphics for graphs in the book, produced at school

Tactile graphics for graphs researched online, produced at school

Goals:

To read a variety of tactile graphics to gain information

To develop problem solving skills in the areas of math and science

Procedure: This lesson will be taught over a period of multiple days, including follow-up activities.

1. The TVI will read aloud text on the right-facing page, modifying as needed to make it age appropriate for 7th grade. Discussion about content may follow.
2. The student will be presented with the graph to accompany the page, and answer at least 2 comprehension questions.
3. The procedure will be repeated with subsequent pages.
4. Follow-up activities will take place after the text is finished.

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- Research behaviors for Siberian tigers in the wild and make a presentation
- Read prepared tactile charts with more complex data.

More than one set of information may be provided such as in a double line graph.

5. Pictograph – data is shown using images
6. Bar graph – data is shown with bars of different lengths (vertical, horizontal)
7. Histogram – continuous data is shown with bars, but there is no gap between bars, as in a bar graph
8. Line graph – shows data that is connected in some way (such as change over time)
9. Pie chart – data is shown with “pie slices” by their relative sizes
10. Dot Plots – data is represented by dots

Topics may include but are not limited to

- Tiger population globally (places, increases/decreases, etc.)
- Tigers in wild life sanctuaries and zoos

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### **Example 5**

Submitted by Angela, TVI

This lesson will be implemented with a 5<sup>th</sup> grade student who is completely blind. His primary mode of reading is braille. He has above average listening skills and is able to communicate verbally. He is high functioning academically and attends a general education fifth grade classroom for math, with reinforcement of Nemeth braille during small group instruction in the resource room.

**Lesson Plan (Part C):** I would choose to use the book: *Lines, Bars and Circles* because my student is currently working on learning about different types of data sets and the Nemeth symbols used in mathematics. The goal for the lesson is that the student will learn to read line graphs, bar graphs, and pie charts written in Nemeth code, answering questions about the data sets using his Perkins Braille and other materials. Materials needed include the book, *Lines, Bars, and Circles* written by Helaine Becker, the APH MathBuilders Unit 8 Kit-Data Collection, and *Everyday Math Fifth Grade Workbook* provided to the student in Nemeth braille with tactile graphics. Also, we will need various textured papers, Wikki Stix®, push pins, beads, and wheels for the student to create their own graphs.

- A. I chose this book because the student is currently working on learning about data sets and different types of graphs in his fifth grade classroom, so this book is relevant to his current situation. I will support my student's interest in data sets and creating graphs by allowing him to poll the class and create a graph of his own choosing using textured papers and/or wheels.
- B. I will support my student in connecting math ideas to the book by having open discussions with the student about the book, having him create a poll with his class and creating his own graph. He will also be able to recognize that mathematics, particularly data sets, are created by mathematicians, including himself. Lastly, I would connect graphing and data sets to science activities that the student enjoys. Questions: What graphs did Will create? Why did he create those graphs? Do you think Will was a dreamer? What other graphs do you feel Will could create?  
Follow-Up Activity: Create a poll for the student's fifth grade classroom on their favorite type of Luigi Mansion Ghost (this is a game that a lot of the kids play, including my student), and have my student create a chart and bar or pie chart displaying the information using tactile materials and his braille notetaker.



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- C. Indicators that this lesson is successful will be my student demonstrating the ability to read graphs written in Nemeth braille, completion of the reading graphs worksheets in his *Everyday Math* book, and my student creating a poll, and tactile graphic using the information from his poll.

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### **Example 6**

Submitted by Mary, Secondar Paraeducator

This lesson is for a middle grade student who was born with partial vision but is now completely blind. She began learning braille in early elementary, and has been using a Perkins brailier since the first grade. She completed math assignments using braille on the Perkins, supplemented with the MathWindow®, abacus, and tactile graphing boards. In early middle school, she was deemed ready to use the BrailleNote™ and BrailleNote™ Touch. She continues to use the supplemental materials, much as a sighted student would use scrap paper for figuring. She has a talking TI-84 calculator that she will use as she advances to algebra, trigonometry, and calculus.

**Lesson Plan (Part C):** The book is called Do the Math: Secrets, Lies, and Algebra by Wendy Lichtman. It is about a student, Tess, who uses algebra to solve problems in her life. I will be using Chapter 13 Number Lines:

Materials include either a braille copy of the book or a document that they can read on their BrailleNote™, brailled copy of the assignment, the Math Window® (numeric tiles that are used with a magnetic board to map out math problems, equations), a Perkins braillewriter and braille paper, and blank number lines created by the teacher. The student can also practice making her own.

I chose this book because it dealt more with real life and was written at a level I thought the student would appreciate. In chapter 13, the number line is demonstrated in such a way to say "Being negative is not a bad thing." Tess travels in a different direction to arrive at school than some of her friends.

We will discuss the subject content. Sample questions are: When you feel negative, is it sometimes a good thing? Can it be looked at from different perspectives? Tess used the idea of how far her bus stop was from the school - comparing the distance between the travel distance of her friends using number lines, and eventually inequalities.

I will complete the assignment with them, scaffolding the process, modeling, working through their problems with them, and comparing answers to see how their work/answers show they did it correctly.

Indicators that will allow me to know the lesson was successful is their enjoyment of the story, whether they could relate to it, and diligence in mapping out the distance and directions traveled to and from school.

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### **Example 7**

Submitted by Maylene, CTVI, COMS, Secondary Certified Math Teacher

Suzie is a freshman who is slightly below grade level. She has lost all vision in the last 12 months and has been learning the braille code as well as sensitizing her fingers to gain information tactually in the current school year. She is enrolled in an Expanded Core Curriculum (ECC) math class where she works on pre-algebra as well as learning Nemeth Code. Suzie will be taking grade-level algebra 1 next school year. Her reading speed is currently fairly slow. She has been reading and Nemeth Code in the ECC math class and has learned the basics of Nemeth Code needed for the pre-algebra level. Suzie struggles with understanding fractions.

**Lesson Plan (Part C):** The lesson I have planned for Suzie is designed to build a better understanding of fractions in a fun way. Learning objectives include understanding fractions as part of a whole, equivalent fractions, adding and subtracting fractions with a common denominator, and improper fractions. The book I will use in this lesson is titled, "The Hershey's Milk Chocolate Fractions Book" by Jerry Pallotta, published by Scholastic. This book uses a Hershey's chocolate bar that is drawn whole in the book and then in smaller sections representing a variety of fractions that can be demonstrated with the chocolate pieces. There are some pages that demonstrate other ways to think about fractions with cows, "moos", cocoa nuts on a tree, multiple whole candy bars, and sugar canes growing from the ground. The back of the book has a summary of many fractions in drawings.

Suzie and I share a love of chocolate. I have planned this activity as a fun way to better understand fractions. Suzie has learned about fractions using fraction manipulatives, but this will engage her in a new way. I plan to have several chocolate bars on hand for her to break the candy bar up into larger sections to demonstrate halves, thirds, and fourths of the whole bar as well as smaller sections using twelfths.

First, we will take the whole chocolate bar, or 1 bar, and ask her to count the pre-pressed sections of chocolate. There are 12 sections or twelfths. I will read the pages of the book to her, and she will count out the sections to make each fraction in the book. I will ask her to use additional candy bars to demonstrate halves, and fourths. Then she will use the first bar which she has broken into 12 sections to show me equivalent fractions with the larger pieces. She can also do this by simply counting the smaller sections in the unbroken larger parts. I intend to have her demonstrate a variety of fractions with different denominators. She will keep the larger sections for later use, but I will have her keep them together in the form of one whole.

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The next section of the lesson will involve adding and subtracting fractions with like denominators. She will take the 12 sections of one candy bar and demonstrate adding selected fractions as I read the book to her. I plan to spend extra time on understanding the concept of simplifying the fraction, or equivalent fractions, by showing her that a fraction like  $\frac{3}{12}$  is the same size as the fraction  $\frac{1}{4}$  in candy bar sections, and how she can count the small sections in the unbroken larger parts. She will also add fractions like  $\frac{3}{12} + \frac{9}{12} = \frac{12}{12} = 1$  whole candy bar and compare the size with an unbroken whole bar.

The book has some other examples of fractions including a page that uses whole cows to demonstrate fractions, e.g., 1 red spotted cow out of 5 total cows is the fraction  $\frac{1}{5}$ . This demonstrates that fractions can be part of a whole without breaking up the initial object. This is also demonstrated in the book in some other ways using cocoa pods on a tree, sugar cane stocks, and one candy bar out of 10 bars. I will ask Suzie to think of other examples for part of a whole and discuss her ideas and write them down.

The next concept in the book is simplifying fractions and showing that they cannot be further simplified, like  $\frac{2}{12} = \frac{1}{6}$  by dividing both numbers in the fraction by a common factor of 2. Other examples are demonstrated in the book like  $\frac{10}{12} = \frac{5}{6}$  which cannot be simplified further. Other fractions are then explored like  $\frac{5}{12}$  and  $\frac{7}{12}$ .

The last concept in the book is improper fractions. Using two candy bars, Suzie can make a variety of fractions to demonstrate more than one bar with the sections. The book shows  $\frac{13}{12}$ . I plan to have Suzie play with the idea by showing me other improper fractions. I will ask Suzie to make several improper fractions with the chocolate bars and then compare them with whole bars and extend the lesson into mixed numbers.

Suzie has two class periods for math at different times of the day. I intend to read the book to her and have her explore fractions with the chocolate bars over two class periods initially. Suzie knows all the Nemeth Code symbols for this book, and I will ask her to read the book independently for review on a different day without the use of the candy bars. And of course, Suzie will be allowed to eat the chocolate at the end of the lesson!

### Conclusion:

Suzie's overall understanding will be evaluated during the lesson with some extra questions that are not in the book, and I will adjust questions as appropriate. The following day I will use fraction pieces to quiz Suzie on her level of understanding using a different denominator than the candy bar fractions. I may find other candy bars that have a different number of

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sections and do the activity again asking her to identify the names for the fractions, (e.g., a Kit Kat has fourths).

Demonstrate fifths:  $\frac{1}{5} + \frac{2}{5}$

Demonstrate thirds:  $\frac{6}{3} = \frac{2}{1} = 2$

Demonstrate fourths:  $\frac{1}{4} + \frac{3}{4} = \frac{4}{4} = 1$

I plan to extend this lesson to the understanding of decimals eventually. I will have her use a calculator initially and teach her how to perform long division to get the decimal answers.

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### **Example 8**

Submitted by Emily, Paraprofessional/Braille Transcriber

This lesson will be implemented with a 6<sup>th</sup> grade student who is completely blind. She is a solid braille reader who reads at a 3rd-4th grade level due to some mild cognitive impairment. She was placed in a regular 6th grade math class but some of the concepts taught were modified to more accurately reflect 4th or 5th grade math concepts as needed. Math was a challenge not only due to the math concepts but also because she didn't understand why she "had to learn something so hard because I will never have to use it in real life."

She was under the impression that you only used adding, subtraction, multiplication and maybe division in the real world. Her parents, and sadly other teachers or support staff, never helped her experience anything other than that because it took time to figure out. Thankfully beginning in 5th grade her math teacher, a new TVI, and myself (as a new paraprofessional) began to show her that math of all kinds was used in the real world as you cook, do crafts, garden, shop, etc.

Math became more practical, hands on and not just the standard book work!! It was great to see her slowly begin to like math a little more. Even though she would still say it was hard until the day she graduated!! This lesson about using trade books to support students in math was amazing and something I honestly never really thought of. It would have been of great benefit for this student in a variety of ways, primarily being her love of reading. Enjoying a great story and learning math at the same time equals a very fun way to see math practically and used in real life.

**Lesson Plan (Part C):** As I began preparing for this lesson, I remembered one particular math class that was pretty challenging for this student. The class was beginning a pre-Geometry unit on measuring the area of all kinds of shapes. She had no concept of what shapes "looked like" and why we would need to measure them. I found a fun story in the TVI's classroom set of books that I thought would fit well - Bigger, Better, BEST! by Stuart J. Murphy. It is a book in the MathStart series. I chose it because the story showed the concept of measuring area in a couple of different ways and multiplying the numbers as well. It also does a great job describing visual concepts that I can then apply to model and practice with the student. The book is practical and I love that the math concept I am hoping to teach is easily embedded in the book in a fun way that I believe this student will really enjoy because she has 2 younger siblings!

Primary Goal-

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- Student learns how to measure area of a square or rectangle first using unit squares then moving to formula  $A = l \times w$
- Be able to measure area on a large scale; once comprehension attained move to a smaller scale
- Understand how measuring area can be applied/used in real life

### Materials Needed-

- Bigger, Better, BEST! book in braille
- Post it notes and 8x11 paper (represents different units of measurement i.e. inches vs centimeters)
- Things to measure: desk, braille book, tote on desk, different books, boxes, chalk board, classroom window
- Braille ruler
- Tactile/braille graph paper and graphic tape
- Math textbook and worksheet in braille

### Plan to Connect Book to Content-

During one-on-one tutoring time, I will pre-teach the concept of measuring area using the story Bigger, Better, BEST!

Read the story together

- Check comprehension of verbal description of pictures, supplement using the tactile/braille graph paper and graphic art tape if needed.

Teach measuring area with square units

Hands on activity of using paper and post-it notes to measure things around the room (start larger then move smaller). Different sizes of paper represent different units of measurement. Emphasize they must use same unit for individual shape.

Introduce the area formula  $A = l \times w$ . Make the connection between square units and the formula (multiplying  $l \times w$  is same as filling in the whole shape with post it notes)

- Does student understand How many squares (post it notes) are there in a rectangle (book cover) equals the same as  $A = l \times w$ ?

Transition to measuring items using a braille ruler and the area formula

Practice with a variety of things around the room

Discuss when you would use this in real life:

- Refer back to the story- comparing sizes, measuring a space for curtains, etc.
- Using prior knowledge of this student's love of gardening in her flower box; talk about how important to know area of container to know how many seeds are needed

Attend class lesson, and observe student to see if connections are made

Complete assigned worksheet and book work

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### Indicators of Success:

To what extent does the student independently measure a variety of squares and rectangles with a ruler, and then use the formula to calculate the area?

Does student participate, keep up with class lesson and complete braille book assignments (worksheet and book work)?

Can the student measure her planter box at home and report back the area to me?



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### **Example 9**

Submitted by Jennifer, TVI

Student AB is a sixth-grade student who is new to the district. According to medical records, AB has a vitreous disorder, uveitis associated with Juvenile Rheumatoid Arthritis, glaucoma, macular scars for the chorioretinitis, and aphakia. He has light perception in his left eye and a 20/250 acuity with a 6-inch viewing distance. He has restricted visual fields and has very limited distance acuity. AB uses a combination of tactual, auditory, and visual sensory channels. According to AB, he used print materials in 2nd grade, but in 3rd grade "the eye disease attacked my eyes and I was totally blind." After medical procedures, AB regained some vision in his right eye. He reluctantly uses the braillewriter, cane, CCTV, and ZoomText. While he would prefer to use print, it is not efficient; he has difficulty reading 36-point font and his reading speed is extremely slow. He receives materials in braille, but does not like working out math computations with the braillewriter. He would benefit from abacus instruction.

### **Lesson Plan (Part C):**

I will use the Unusual Chickens for the Exceptional Poultry Farmer (braille copy) to work on decimal computations on the abacus. AB enjoys reading and is placed in the advanced Language Arts class. We will work on page 70 (Worksheet #1) to learn how to solve division problems with whole and decimal numbers. We will use an abacus to solve the problem, a braillewriter for AB to write his answers, and a talking calculator for him to check his work.

### **Materials Needed**

- a. Braillewriter
  - b. Talking calculator
  - c. Abacus
- A. I chose this book because AB, like the main character Sophia, recently moved from a large, urban city. I thought he might relate to this experience since both Sophia and AB are navigating a new place/local culture. It combines AB's interest in literature with infused math activities. In addition, this is a great opportunity to connect real life situations with math. Helping AB understand how a new tool (like the abacus) can be a more discreet way to solve math problems. He resists drawing attention to his visual impairment; the abacus is a smaller and quieter tool compared to the braillewriter and talking calculator. Throughout this book, we might discuss Sophia's independence and proactive actions - a "back door" approach to encouraging self-advocacy and independence skills.

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- B. Given AB's reluctance to use his cane, this is a good opportunity to introduce the idea of a guide dog. We can apply similar math questions posed in this book to the costs of owning a guide dog.
- If you owned a guide dog, how much dog food do you need to purchase monthly?
  - If a dog requires  $\frac{1}{2}$  cup of food 2 times per day, how many pounds is this? What is the difference between cups (volume) and pounds (weight)?
  - How much will it cost per month? Per year?
- C. I will know the lesson was successful if AB can make accurate computations on the abacus for real-life situations, and if he is able to identify various problems and select the most appropriate tools to solve each problem.

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### **Example 10**

Submitted by Teresa, Braille Transcriber

The student is currently in 6th grade, and has many pets at home, including two hedgehogs. Though this text is written below her reading level, the interest is there, and it can be adapted for skills needed for higher grades. I assume that the student will be able to easily read the graphs in the book. The follow-up activities include graphs that are more complex with more information to read. Even a pie chart requires additional skills when measuring angles. Success is measured by answering questions about the graphs. I will use former Braille Challenge competitions as a guide for this. As we progress through the grades, more graphic information is presented, in many forms. These skills need to be pre-taught for classes, and is always good for review before Braille Challenge!

In addition, I have a paraprofessional who is training to produce tactile graphics at school. She is learning to use basic guidelines to make tactile charts and graphs with traditional graph paper, stickers, tape, braille labels, etc. as well as electronically. I can use it as a project while she is still in training, since I'm only at that school once a week on a regular basis. It is important that she is familiar with all kinds of tactile materials, so that she is efficient with her time and can provide appropriate tactile graphics in a timely manner.

**Lesson Report (Part B):** I had my student conduct a classroom poll indicating what type of gaming system his peers use at home. I created a list of the most common systems for the students to fill out using tally marks. Then my student used this info to make his own data sheet using tally marks. Finally, my student used this data to make a bar graph. I also put the info into a pie chart to show my student how it would look in that form.

After reading the book, Lines Bars and Circles, I discussed with the student the type of poll he would conduct using a tally sheet and how he would put the information into a bar graph. The student found the book very interesting. He also liked the idea of finding out what types of systems his friends used.

The student enjoyed walking around the room to get his poll sheet filled out. He interacted with his peers by presenting the poll question: "What type of gaming system do you have?"

I feel the lesson was successful because the topic was of interest to this age group. We were able to review the math topics of tally sheets, tally marks,

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bar graphs, pie chart, and data sheets. The student also learned that he needed to use perseverance when collecting the data, as his peers can be somewhat overactive.

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Brittany Snow - [BrittanySnow@outlook.com](mailto:BrittanySnow@outlook.com)

Amanda is blind and cognitively delayed. She needs extra support in the classroom and has a paraprofessional to assist her. Math is not her favorite subject, but she loves to read. Amanda enjoys eating, dancing and playing games with her family.

In this lesson we will read How William Playfair Invented Graphs by Helen Becker. She will read a braille copy. The reason I chose this book is because this student loves to read books that she can gain knowledge from and that gives her ideas. Amanda will read the story aloud and then answer multiple choice questions. This will ensure she has an understanding of what she has read. I will engage and create supportive conversation to enhance Amanda's understanding making it fun, imaginative and creative. I will provide shapes for Amanda to use and make things out of that may be of interest to her. Amanda will answer multiple choice questions to be sure she has an understanding of what she has read. Amanda will be able to correlate how mathematics applies in human endeavors. Amanda will understand that mathematical representations were created by people that are like herself.

As a follow up activity, Amanda will choose three of her favorite games such as UNO, goldfish and tic tac toe. She will ask her classmates to vote on which game is their favorite out of the three. With this information Amanda will learn how to read a bar graph.

If Amanda can identify the different parts of the graph and how many students liked each game, this will indicate that the lesson was successful.