

Children's Literature Assignment

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1. Lesson Plan Information	
Subject/Course: Math	Name: Rachel Kirkconnell and Danielle Lawrence
Grade Level: Grade 6	Date: January 21, 2009
Topic: Number Sense and Numeration—Numbers to 1,000,000	Time and Length of Period: 50 Minutes (10:10 am – 11:00am)

2. Expectation(s) and Learning Skills
<p>The students will:</p> <ul style="list-style-type: none"> • Represent, compare, and order whole numbers and decimal numbers from 0.001 to 1,000,000, using a variety of tools (eg. Number lines with appropriate increments, base 10 materials for decimals.) (6m11) • Demonstrate an understanding of place value in whole numbers from 0.001 to 1,000,000, using a variety of tools and strategies (eg. Use base ten materials to represent relationship between 1, 0.1 and 0.0012) (6m12) <p>Today, students will: Listen to the story, <i>How Big is A Million</i> and then discuss numbers to 1,000,000.</p>

3. Pre-assessment
<p>A. (i) Students</p> <ul style="list-style-type: none"> • Have been introduced to numbers up to 100,000 in previous years • Students are able to represent, and order whole numbers up to 100,000 • Students have used numbers up to 100,000 for multiplication, division, addition and subtraction <p>(ii) Differentiation of content, process, and/or product (may be accommodations and/or modifications)</p> <ul style="list-style-type: none"> • Students will be placed in groups based on their mathematical abilities (i.e. students who struggle with number sense and numeration will be placed in a group with one or two stronger students, to help with the understanding process) • Manipulatives will be provided for hands-on learners
<p>B. Learning Environment:</p> <ul style="list-style-type: none"> • Students will be seated at their desks for the story • Students will be divided into groups for the rich problem
<p>C. Resources/Materials:</p>

- Flip chart paper
- Tape
- Markers
- Fake money
- 5 boxes (Standard Suitcase Size)
- Book
- Chalk
- Number line
- Rulers (10)
- Calculators (10)
- *How Big is a Million?* (Written by Anna Milbourne and Illustrated by Serena Riglietti)
- Rich Problem: The Size of a Million Dollars (See Appendix A)

4. Content (The What)

- In today's lessons students will represent, compare and order whole numbers to 1,000,000 using a number line, base ten blocks and play money.
- Students will listen to the book *How Big is a Million?* During the reading of this book students will be asked to relate the numbers presented in the book to 1,000,000, using the number line.
- Following the story students will work on a rich problem, where they will calculate whether or not \$1,000,000.00 can fit into a standard suitcase.

5. Teaching/Learning Strategies (The How)

Teacher Role

(i) Introduction of the Activity, Routines and Procedures

Read Aloud: *How Big is A Million?:*

Before: Start by reading the title and showing the cover of the book, to promote discussion.

Then ask:

- 1) How big do you think 1,000,000 (one million) is?

During: Begin reading the story. As you are reading add each number to a number line on the board as you encounter each one.

- 1) Is 10 (ten) smaller or bigger than 1,000,000 (one million)?
- 2) Is 100 (one hundred) bigger or smaller than 1,000,000 (one million)?
- 3) Is 1000 (one thousand) bigger or smaller than 1,000,000 (one million)?

After: When you are finished reading the story:

- 1) On the number line where would 1,000,000 (one million) fall and what does it look like?
- 2) Discuss how students would use the number line and represent the different numbers on

the line (ie. how are you going to depict a number line that includes 10, 100, 1000 and 1,000,000)

3) Describe one place where you have seen or encountered “1,000,000” (one million).

Activity:

The Size of a Million Dollars

In this activity students will calculate whether or not \$1,000,000.00 (one million dollars) will fit into a standard sized suitcase. How large would the suitcase need to be? How heavy would it be? For this activity students will work in groups of 4 or 5. The activity/rich problem is listed below in greater detail in Appendix A.

(ii) Lesson Conclusion

- Have students present the different ways they solved the problem by putting it on chart paper and presenting it to the class. Start with one group and have them present their findings. Then have the groups who solved the problem in a different way present until all the different methods have been presented.
- Discuss each method of solving the problem and post them at the front of the class.

6. Assessment (Collection of Data) / Evaluation (Interpretation of Data)

As we move around the classroom, observations will be recorded using a performance checklist. Students completed group work will demonstrate whether they can represent, compare, and order whole numbers and from 0.001 to 1,000,000. In addition, the sharing of group work conclusions to the rich problem will also indicate the students’ understanding in this particular area.

Appendix A

Activity: The Size of a Million Dollars

In this activity students will calculate if one million dollars will fit into a standard suitcase. If so, how large would the suitcase need to be? How heavy would it be? For this activity students will work in groups of 4 or 5.



Students will be posed with the following rich problem:

Your friend Jimmy calls you last on the phone to offer you a chance to earn a million dollars. Jimmy goes on to tell you that he won \$2 million in a contest and that if you help him out he will give you \$1 million. The money was given to Jimmy in two suitcases, each contained \$1 million in one-dollar bills. Jimmy will give you one suitcase of money if your mom or dad will drive him to the airport to pick it up. Could your friend be telling you the truth? Can he make you a millionaire?

Involve students in formulating and exploring questions to investigate the truth of this claim. For example:

- Can \$1,000,000.00 in one-dollar bills fit in a standard-sized suitcase? If not, what is the smallest denomination of bills you could use to fit the money in a suitcase?
- Could you lift the suitcase if it contained \$1,000,000.00 in one-dollar bills? Estimate its weight.

Calculators will be available to facilitate and expedite the computation for analysis.

Students will be encouraged to look at the dimensions of a one-dollar bill, in order to determine how many could fit into a standard size suitcase. Note: The dimensions of a one-dollar bill are approximately 6 inches by 2.5 inches. Twenty one-dollar bills weigh approximately 0.7 ounces.

(<http://illuminations.nctm.org/LessonDetail.aspx?id=L252>)

“How Big is a Million?” by Anna Milbourne and Serena Riglietti
ISBN-13: 978-0-545-11519-3

Summary:

Pipkin, a curious young Penguin goes on a journey in the Antarctic to discover how big one million is. On his journey he meets different people who help him learn what ten is, what one hundred is and what one thousand is. Disappointed and downtrodden he returns home where his mother teaches him what one million is by taking him to look at the stars.

Appropriate Grade Level and Strand:

Strand: Number sense and Numeration

Grade Level: 6

Specific Curricular Expectations:

Number Sense and Numeration

-represent, compare, and order whole numbers and decimal numbers from 0.001 to 1000000, using a variety of tools (e.g., Number lines with appropriate increments, base 10 materials for decimals.) **(6m11)**

-demonstrate an understanding of place value in whole numbers from 0.001 to 1000000, using a variety of tools and strategies (e.g., Use base ten materials to represent relationship between 1, 0.1 and 0.0012) **(6m12)**

Suggestions for Discussion Questions:

BEFORE: Start by reading the title and showing the cover of the book. Then start a discussion by asking:

- 2) How big do you think one million is?

DURING: Begin reading the story. As you are reading add each number presented in the book to a number line on the board as you encounter each one.

- 4) Do you think ten smaller or bigger than one million?
- 5) Do you think one hundred bigger or smaller than one million?
- 6) Do you think one thousand bigger or smaller than one million?

AFTER: When you are finished reading the story:

- 4) On the number line where would one million fall and what does it look like?
- 5) (Discuss how students would use the number line and represent it)
- 6) Describe one place where you have seen or encountered “one million”.

Critique of the Book:

Accuracy: 6/6

This book talks about mathematical concepts correctly and the illustrations match the text. They define accuracy in one place as, “...illustrations must be impeccably accurate” and this is something we have found in this book. The pages where it gives a specific number (i.e. there are

ten fish; there are one hundred penguins) the illustrations depict that number precisely. (NOTE: we did not count the 1000 snowflakes or the 1000000 stars).

Visual and Verbal Appeal: 6/6

The illustrations in the book are rich and captivating. The cover is inviting depicting Pipkin with his arms open and a smile on his face. The illustrations follow the text very closely and often incorporate the text into the illustrations. For example, when Pipkin slides down the hill the words follow his path in a curvy, almost diagonal line and there are often signs or smaller writing that makes the text stand out. The text is not overly predictable and it increases interest as Pipkin gets closer to his goal and leaves you wondering if he will never find his one million that he is looking for and if he does what it will be.

Connections: 5/6

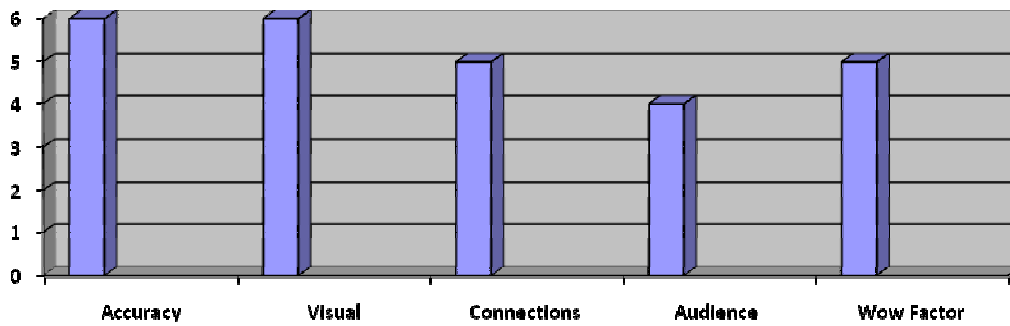
This story illustrates relationships between mathematics and the real world. As Pipkin journey's out on his own to discover how big a million is he is faced with mathematics in everyday situations. The amount of objects Pipkin continues to encounter provides readers with a visual as to how big a number physically looks in everyday life. It also keeps readers interested in what Pipkin will discover next and also may intrigue them go out into their own environment to find what a million looks like in different forms.

Audience: 4/6

This story is appealing to many ranges of audiences. Based on the illustrations, the characters and the plot the story would be great for a Grade 3 or Grade 4 classroom. However, the numbers grow in ways and lengths that are not learned until Grade 6. Although this book can be enjoyed by adults, such as us, some Grade 6 students may find it childish. However, we would still use it to demonstrate the Grade 6 concepts.

“Wow” Factor: 5/6

This story is somewhat predictable. As mentioned before there is a time near the end where you are unsure if Pipkin will find one million and if he does what could it possibly be. The story has appropriate climaxes to the ending and it reminds the reader “that mathematics is not a “closed” subject” and it sends the reader “on a crusade to discover that mathematics is “messy”...and entrenched in our existence in every way”. This book really demonstrates that numbers are all around us and are incorporated into everyday life.



Self-Assessment:

We gave ourselves 20/20 for this assignment. We feel that our assignment has all required components in greater detail. We covered all expectations, lesson plan outlines, a rich problem activity and book critique. Our questioning was open-ended where appropriate to foster conceptual understanding for how big one million is. We also included before, during and after questions throughout our lesson that used some close-ended questioning within the story. This was done to check for understanding while maintaining interest and flow within the story. Our quality of writing is articulate with few errors. The activity is clearly described and its connections are made to the expectations listed. Our critique of the book was broken into separate sections which were very detailed and well written. The critique was also very closely tied to the HMJ article that was read. In summary, we have put a lot of time and effort into this assignment and we feel that we have covered all expectations in great detail and that all components were well written.

Reference List

Milbourne, A. & Riglietti (2007). *How Big is a Million?* New York: Scholastic Inc.

National Council of Teachers of Mathematics (2009). *Too Big or Too Small?* Retrieved on December 3, 2008 from: <http://illuminations.nctm.org/LessonDetail.aspx?id=L252>