

NIPISSING UNIVERSITY

Assignment 3: Children's Literature and Mathematics

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Submitted to: Daniel H. Jarvis

Course code: EDUC 4274

Course name: Mathematics Education (Primary/Junior)

Date due: Wednesday, January 7, 2009.

Summary



(Image courtesy of Google image search)

Bemelmans, Ludwig. Madeline. New York: Penguin Books, 1998. ISBN: 0-14-056439-X

Ludwig Bemelmans's classic children's story, Madeline, which was first published in 1939, takes place in at an old vine-covered boarding school in Paris. Each story revolves around the twelve little girls who live and learn there, and their head mistress Miss Clavel. While the story centres around the lives of these twelve little girls (who dress in the same outfits and walk in two straight lines), the star of the book is introduced. Madeline is described as high-spirited spontaneous, mischievous, and precocious. Although she is the smallest of the twelve girls, she is very brave, unafraid of mice and tigers and getting dirty. Her courage is tested one night, however, when she wakes up in pain with appendicitis. Miss Clavel is awoken by her cries of pain and Madeline is rushed to the hospital to have her appendix removed. Back at the house, all of the girls miss Madeline so Miss Clavel takes the girls to visit her in the hospital. They come with flowers and find Madeline in her hospital bed in good spirits, surrounded by toys and candies she received from her father. She also proudly shows off her scar, as the girls look on with envy. After their visit, Miss Clavel is awoken again by crying. She hurries to the bedroom where she finds the girls crying in pain, all of them wanting to go to the hospital and get gifts and a scar like Madeline!

Appropriate Grade Level/Math Strand

After carefully reviewing the mathematics curriculum, we feel that Madeline is a strong piece of literature that is most appropriate for Grade 1. In addition, in terms of extending, creating and building an understanding of mathematics, Madeline is a story that offers many opportunities for younger children. Specifically, the curriculum strand that we will be focusing on is Patterning and Algebra for Grade 1 students. Within the story, there are ongoing patterns that build on students' pre-existing knowledge of patterning and algebra. Through the illustrations, the author gives opportunities for students to visualize what they know and allow room for the growth of new knowledge.

Lesson Plan Information	
Subject/Course: Mathematics	Name: Jennifer Chaiet and Diana Sibenik
Grade Level: 1	Date: Wednesday January 7, 2009
The Specific Curricular Expectations: Patterning and Algebra in Ludwig Bemelmans <u>Madeline</u> .	Time and Length of Period: 9:00 am – 9:45am (40 minutes)
The Specific Curricular Expectation(s) and Learning Skills	
<ul style="list-style-type: none"> • 1m58: Identify, describe, extend and create repeating patterns • 1m59: Demonstrate an understanding of the concept of equality, using concrete materials and addition and subtraction to 10 <p>Following the Read Aloud, the teacher will ask discussion questions related to patterning and algebra (see below for questions).</p> <p>Students will participate in a mathematical activity that focuses on using manipulatives to make the number twelve (as dictated in Ludwig Bemelmans <u>Madeline</u>).</p>	
Pre-assessment	
<p>A. (i) Students</p> <ul style="list-style-type: none"> • Identified and reproduced simple patterns (e.g. red blocks alternating with blue blocks) • Created and extended simple patterns using a variety of materials or actions (e.g. popsicle sticks, pebbles, stickers, counters) <p>(ii) Differentiation of content, process, and/or product (may be accommodations and/or modifications)</p> <ul style="list-style-type: none"> • An EA will be made available for students with exceptionalities • Students will have the opportunity to work with an EA at the round table for one on one instruction and or/ with a more advanced student • Have a variety of manipulatives available and be prepared with additional questions to make sure the students understand the concepts 	

B. Learning Environment

- Before, during and shortly after the Read Aloud, students will be arranged on the carpeted area in front of the rocking chair, where they will listen to the story and answer questions about the book.
- During their exploratory task, students will be at the arts and crafts table. Before they start their mathematical lesson, students will be given the opportunity to think, pair and share in groups of four, the main ideas and concepts in the book.
- For the actual application process, students can work either independently or with a partner.

C. Resources/Materials

- Bemelmans, Ludwig. Madeline. New York: Penguin Books, 1998. ISBN: 0-14-056439-X
- Popsicle sticks
- Small Madeline figurines, small hats, small beds and buttons
- White paper with 3"-4" diameter circles drawn on them
- Construction paper
- Yarn
- Scissors, glue
- Markers

Content (The What)	Teaching/Learning Strategies (The How)
<p>A. Introduction (motivational steps/hook/activation of students' prior knowledge)</p> <p>Prior to the Read Aloud, build on prior knowledge by singing the song, 12 Little Monkeys, a song that visually and musically teaches the concept of subtraction.</p> <p style="text-align: center;">12 Little Monkeys Swinging in a tree, Along came a crocodile as quiet as can be The first monkey said, "You Can't catch me" SNAP!</p> <p>Continue to sing the song until there are no more monkeys.</p>	
<p>B. Content for New Learning</p> <ul style="list-style-type: none">• Conduct a <u>Madeline</u> Read Aloud• Familiarize the students with manipulatives such as small figurines, counters which	<p>B. Teaching/Learning Strategies for New Learning</p> <p>Introduce the story, <u>Madeline</u> and do a Read Aloud.</p>

the students will be use to practice patterning and algebra.

- Review all of the patterns that occur in the story such as two lines of six and have the students demonstrate and show how to make these patterns using the different manipulatives.
- Build on pre-existing knowledge and introduce new strategies to encourage the students to skip count by two's up to twelve, by fives and ten to twenty.
- Students will learn how to set up manipulative side by side in two's and three's to represent equal distribution and patterning when counting to twenty.

Suggestions for Discussion Questions

BEFORE: The teacher should ask a few open-ended questions before reading.

“Who is familiar with Madeline?”

“Who has read any of the Madeline books?”

The teacher should encourage the students to make predictions about the story by asking the following questions:

“What do you see on the cover page?” “What kinds of colours, patterns do you see on the cover?” “What do you think the story is about?”

DURING:

“Why do you think the girls always walked in two straight lines?”

“What did you notice about the girls’ style of clothing?”

“What kinds of routines did the girls partake in?”

“Why was Madeline crying in the night?”

“Why did Miss Clavel think something was wrong when she was in her bed?”

“Why did each of the other girls want her appendix out?”

AFTER:

The teacher should ask the students, “What was the main idea in the story?”

“How many girls were in the story?” and “How do we know that there are that many girls?”

In small groups have the students use manipulatives and show how many girls are in the book. Ask the students, “How are the girls shown in the book?” (scattered formation, in order)

“What types of patterns and set up help us to figure out the number of girls in the story?”

Tell the students that they will have the opportunity to think, pair and share to come up with their own way to shown a form of pattern representation that occurred in the story. The students will have the opportunity to use the manipulatives, act out, as well as to draw out their work on paper and present to the whole class.

“How can you make connections to the story through your own personal lives?”

“If you had to make changes to the book what would they be?”

5. Consolidation/Recapitulation Questions (Check for understanding/scaffolded practice)

(5 minutes)

Ask the students, “What kinds of patterns did you learn after reading the Madeline story?” “How are you able to show the number twelve in a pattern set up?” (two lines of six) “Can you show the number twelve in a different pattern?” “What was the pattern formation of the girls when Madeline was not with the rest of the girls (for example, when Madeline was in the hospital)?” “How will you be able to skip count to twelve and to twenty?”

6. Application (Moving from guided, scaffolded practice to increasingly independent practice and understanding / gradual release of responsibility)

(15 Minutes)

-Arrange the students in small groups of three or four.

-Once the students figure out that there are twelve girls in the story, give each child 12 counters, manipulatives. And have the children in their groups arrange the manipulatives in 2 lines just like the story shows the twelve girls. Then have the students come up with their own arrangement of the counters. Ask the students, “How many are in each line?” What other arrangements can be made with the counters? (For example, 3x4, 4x3, 6x2, 12x1).

-Ask the students, “What happens if you put 5 or 7 counters in a line?” Have the students shown their work using the manipulatives, draw it out on paper or shown their work on the black board.

-Each girl brought Madeline a flower when she was in the hospital. “How many flowers Madeline receive all together? “How many flowers would Madeline have gotten if each girl brought 2 flowers each and 3 flowers each?” Have the students demonstrate and show their work.

-In order for the students to be prepared for the extension of the lesson, brain storm and have the students come up with a few examples of things that are shown by twos. Emphasis to the students that the twelve girls in the story are shown in patterns of two lines of six and two by two.

7. Lesson Conclusion

(5 minutes)

- Ask the students to identify some of the patterns they learned in the Madeline story. “How were the twelve girls shown in the story?” “What kinds of patterns did you come up with to make the number twelve?” (Groups of two, three, four)
- As an extension to the lesson, have the students go home and find other things that are arranged by twos such as a dozen eggs, shoes by the front door, kitchen sinks and salt and pepper shakers.

8. Assessment (collection of data) / Evaluation (interpretation of data)

-While the students are working in their small groups and think, pair and sharing, the teacher will circulate and observe the students practicing and showing how they are representing the specific patterns such as making groups of two up to twelve that were shown in the Madeline story.

-Will pay attention to the students who are experiencing difficulties with the patterning skills and skip counting and I will provide them with individual guidance and feedback before I formally assess them.

-Will be taking anecdotal records, for each student working individually and in small groups of three and four.

-Will also be using a checklist

Critique of Ludwig Bemelmans "Madeline"

After careful consideration and thought, below is a critique of "Madeline" using Hellwig, Monroe, & Jacobs' (2000) criteria of children's literature based on their five categories: Accuracy, Visual & Verbal Appeal, Connections, Audience, and "Wow" Factor. We have included a score out of six for each category, as well as a rationale for our score. Quite often, many earlier subjects are about memorization, drills and learning skills by rote memory. The most positive aspect of "Madeline" is the repetitive aspect. Learning about Madeline and her school mates as they deal with new situations is enjoyable and easy for beginner

ACCURACY 6/6

RATIONALE: We give "Madeline" a perfect score for accuracy because we feel it best describes Hellwig, Monroe and Jacob's definition of accuracy. In their article, *Making Informed Choices: Selecting Children's Trade Books for Mathematics Instruction*, Hellwig, Monroe and Jacobs define accuracy as the integrity of the concepts presented in the book (Hellwig, Monroe and Jacobs 2000, page 140). On each and every page of "Madeline", everything illustration corresponds to what is being conveyed in the text. In terms of mathematics, the book displays information in a manner that accurately addresses the issues of addition and subtraction patterns. Experts believe that concepts should be labeled and portrayed correctly and accurately (Hellwig, Monroe and Jacobs 2000, page 140). "Madeline" keeps a steady beat, a routine if you will, of events that portray "12 girls in two straight lines" and remembers to keep Madeline singled out. In addition, it accurately shows the unbalanced

lines when Madeline is in the hospital. Overall, Bemelmans has carefully created a story that presents accurate information about math principles that can be used in the classroom.

VISUAL AND VERBAL APPEAL 4/6

RATIONALE: We decided to give “Madeline” a rating of four out of six because we felt the story is a little dated. Although “Madeline” is a classic piece of children’s literature that has been around for seventy years, the question remains: does it still appeal to young readers in 2009? It has been said, that a book must have pictures that enhance the text and not distract from it (Hellwig, Monroe and Jacobs 2000, page 140). Ludwig Bemelmans, the author and illustrator of “Madeline”, has created a story with fun, impressionistic artwork that can be enjoyed on each and every page. While the pictures are quite vivid, each page consists of drawings that convey a different mood, corresponding to the different events in the story. Furthermore, in choosing a proper book for the classroom, content should be clear and engaging making the reader want to turn the page, prompting further interest in the topic (Hellwig, Monroe and Jacobs 2000, page 140). The recurring images of the 12 girls in two straight lines and their everyday lives at school may not appeal to all children (see audience category for more information regarding this topic). If the book is redundant or overly predictable, the mystery is gone and with it, the reader’s enjoyment (Hellwig, Monroe and Jacobs 2000, page 140). While the rhymes are catchy, and the story is exciting, the plot is rather predictable, which could make it a dull experience for children who have been exposed to books with a faster pace or a strong high-concept.

CONNECTIONS 3/6

RATIONALE: Unfortunately, we had to give “Madeline” a three out of six for connections. Overall, “Madeline” is a book that consists of many themes that are appropriate for students in the primary grades. In selecting a good book for integrating a math lesson, the content must establish a balance of information what is not too “preachy” or obvious, but also, should avoid being too vague. At the highest level, Hellwig, Monroe and Jacobs feel that an ideal book for mathematics should provide a context for learners to make meaningful connections between mathematics and their own experiences (Hellwig, Monroe and Jacobs 2000, page 139). While “Madeline” has a few elements that children can relate to (i.e. routines and patterns through the little girls in two straight lines), it is almost too vague to do an entire math unit. There is not enough information in the book to provide a strong backbone to a corresponding lesson. On the other hand, if a teacher is extending “Madeline” for all areas of curriculum, one or two lessons may be enough. It is important to offer many opportunities for children to make these connections in the classroom, even though finding the right books and activities at the right moment can be a real struggle with first graders (the level we chose to base our lesson).

AUDIENCE **3/6**

RATIONALE: While finding a score for the “audience,” we had to look at both positive and negative points. On the positive side, the mathematical content in “Madeline” is subtle and does not appear to be specifically a “math book”. A good book for integrating mathematics is one where the students can enjoy the book without explicit identification of the mathematics (Hellwig, Monroe and Jacobs 2000, page 141). Furthermore, as we mentioned before, “Madeline” is a book that is almost seventy years old. While it is a classic, there are some problematic aspects of the story that may not be appealing to all audiences. In the simplest terms, “Madeline” is about twelve little white girls who look the same, dress the same and go to a rich boarding school in France. To be used effectively to build a common experience among students, a trade book should appeal to different interests and accommodate all the children in the classroom, both male and female and with diverse backgrounds (Hellwig, Monroe and Jacobs 2000, page 142). With this in mind, the lack of points in this final score is based on the lack of diversity seen in “Madeline”.

‘WOW’ FACTOR **3/6**

RATIONALE: Prior to selecting “Madeline”, we had no previous knowledge of the different points one should consider when integrating literature and mathematics. Overall, we give “Madeline” a three out of six, because it just covers the limited requirements of a quality trade book. A perfect score in this category should offer layers of richness beyond the predictable or expected (Hellwig, Monroe and Jacobs 2000, page 139). “Madeline” however, offers a very simple story where new readers can take comfort in its predictability and repetitious patterns. While it still provides a very beginners look to counting, numeracy and patterns, there is not enough in the story to expand on this thinking.

Self Assessment **18/20**

Overall, we are giving ourselves a grade of eighteen out of twenty because we feel we followed the majority of the criteria needed to successfully complete this assignment. First, we selected a trade book for the integration of a math activity and we demonstrated the ability to plan a simple activity using the Grade One Ontario curriculum. We also critically examined the elements of “Madeline” using the article by Hellwig, Monroe, & Jacobs’ (2000) and their criteria of children’s literature based on their five categories: Accuracy, Visual & Verbal Appeal, Connections, Audience, and “Wow” Factor. While we hardly regard ourselves as “experts”, we worked very hard on this assignment and left room for improvement and to receive constructive feedback and assistance as needed.