

Lesson Introduction  
1<sup>st</sup> Grade

My research goal is to discover how much more students can learn about different patterns when teaching with culturally relevant pedagogies and hands on demonstrations. I chose this research goal because the learning of patterns is a very important skill for the students to have; I want to make sure that they are exposed to the material in a stimulating fashion with relevant examples that they can connect to their everyday lives. Therefore, I question what the impact of a lesson on patterns that is culturally centered will have on a predominantly African American classroom. During the lesson I will aim to reach this goal of cultural relevancy by drawing upon our student's style, background and musical preferences. By using these aspects of their everyday lives in an engaging way, I hope to open their eyes to different patterns around us. I hypothesize that the students will learn about patterns more successfully when taught with physical / hands on examples (meaning using their first grade bodies as the manipulatives) that are culturally relevant to them rather than traditional methods.

The big mathematical ideas I will be emphasizing are creating and describing patterns involving geometric objects, a topic that can be found in the geometry section of the first grade Michigan GLCEs. Throughout the lesson I will expose the students to a variety of different patterns. I will focus my teaching by referencing two of the Michigan Grade Level Content Expectations (GLCEs) for first grade mathematics instruction. The first, G.SR.01.03 expects students to, "Create and describe patterns, such as repeating patterns and growing patterns, using number, shape, and size" (Michigan GLCEs 2007). I plan on introducing repeating patterns with different pattern units (AB, ABC, ABBA) to show that patterns can be simple or more complex. The second, G.SR.01.05 states that children must be able to, "Predict the next element in a simple repeating pattern" (Michigan GLCEs, 2007). They will have plenty of opportunities to predict which element comes next in a pattern as I conduct the physical portion of the lesson plan where the students act out a pattern. I will ask for students to think about the next element in the pattern and raise their hands to respond.

Adding elements of the student's culture and everyday life is a very important aspect of our lesson. I have planned to draw upon the student's backgrounds, opinions and preferences at many times during my teaching. The cultural theme I have chosen to guide the lesson is popular culture and style amongst African American youth. With all but one of the first grade students being African American, it was obvious when planning who my target audience would be and which culture the lesson should be geared for. Integrating

aspects of one's culture along with mathematics content will promote effective learning through increased engagement of the students. This idea parallels the idea of Pauline Lipman's request for culturally relevant teachers who's teaching is characterized by including, "Support for academic excellence *and* cultural integrity of African American students" (Lipman, 3).

I will go about channeling African American popular culture and style during the hands-on, demonstration portion of the lesson. Instead of using more simple elements such as colors and shapes to make patterns, I will first engage the class by creating patterns out of different African American hair styles. Many of the boys and girls wear their hair braided on a daily basis. I will ask students to notice the difference between braided and non-braided hair while creating patterns with the students acting as the manipulatives. I hope that by getting students up out of their seats and into actual patterns that they will be able to recognize the different pattern units and be able to predict which element (a person with braided or non-braided hair) will come next. I also plan to draw on their musical preferences by making patterns using pop culture icons such as Hannah Montana and Michael Jackson. I hope to encourage participation and interest by incorporating such idols that the students are familiar with and intrigued by on a daily basis.

Making connections between student's everyday lives and classroom material is a very important part of the teaching process. It is my hope that through cultural connections, the students will better grasp the concept of patterns while also feeling that their cultures are valued in the classroom.

**Your Name:** Gina Ventimiglia  
**Grade Level:** 1<sup>st</sup>  
**CT:** Lori Armstrong  
**School:** Hanstein Elementary  
**Date:** 9/29/09 and 9/30/09

Gina Ventimiglia

**Overall lesson topic/title:** Teaching patterns through culturally relevant pedagogies

**Rationale** (List Big Ideas, GLCEs, and Process Standards that will be addressed)

- G.SR.01.03 Create and describe patterns, such as repeating patterns and growing patterns, using number, shape, and size.
- G.SR.01.05 Predict the next element in a simple repeating pattern.
- Rationale: My rationale for conducting this lesson is that by using culturally centered activities and teaching strategies, the students will more fully grasp and relate to the big mathematical idea of creating and describing patterns involving geometric objects.
- Objectives:
  1. Students will be able to identify and create a variety of patterns
  2. Students will be able to identify a pattern unit within a given pattern

**Materials & supplies needed:**

- Count / Pattern strips
- Crayons
- Prepared cards
- Colored tiles
- White Board Marker and White Board
- Students

**Procedures and approximate time allocated for each event**

**LAUNCH (“BEFORE”)**

(15 minutes)

- To start the lesson and make children see the purpose I will tell them that there are patterns everywhere. How do we know when our parents should get ready to drive again? Don't we use the pattern of the lights, green, yellow, red, green to determine that? When you are looking for a friend's house you know which side of the street it is on because house numbers are patterns. So we need to be able to find patterns to help us find out different things.
- We have talked about patterns this year already and today we are just going to build on the ideas and thoughts that you already know about patterns. As you get older you will begin seeing more and more patterns in mathematics, especially when you start adding and multiplying.
- To do this lesson I need everyone's cooperation because we will get to color, play with blocks and even use you, the students, as examples so don't get too comfortable because we will be having you move. I know that you will be able to handle yourselves but if you cannot, then you will be asked to sit out when we begin moving around, and believe me NO ONE wants to miss out on participating during math today! (Sound enthused about the lesson).
- Here are a few patterns on the board and I am going to introduce to you a new math vocabulary word called a pattern unit. Then I will explain to the students that they need to create these patterns with their tiles that I am going to give them.
- Before I let the students go and begin making patterns with their tiles, I will state to them that we want patterns, and they are not to just play with the tiles. Very clear expectations and directions will be given throughout the lesson, such as this, in order to obtain the best results from the students.
- I will explain to students that we are going to talk about pattern units first. In

**Academic, Social and Cultural(e.g. linguistic) Support during each event for my focus students:**

1. One modification I will have is what I do with students who are quick workers. I know that some students will finish building patterns with their tiles fairly quickly and become bored with them, causing them to distract other students. If I see this occurring, I will have students pair up with other students that were finished working and allow them to make patterns using crayons on a piece of paper together on one of the back tables. This way they are moving to a new activity, working on enriching their skills with a partner, and keeping them from distracting students that are moving slower.

2. A second modification I will make is for the handful of students that I know will struggle with gaining the concept of how patterns work. It is my hope that the physical demonstrations will aid in their understanding and development of this concept, however, if it does not and they still struggle, I will provide more individualized help for them. Because this lesson allows my CT to be an observer, I will ask her to help these particular students who are struggling.

order to move onto the more active and fun part we have to understand how patterns work and therefore I will need their full attention. Students are expected to follow directions carefully and if they do not they know there are consequences of sitting out during the physical portion of the lesson. I expect that students will work quietly on the patterns they make with their tiles and use the examples on the board to complete them. I also expect that as we begin moving for physical examples students will be careful and safe and listen to directions very carefully so they do not risk hurting themselves or each other. Students will also know that I expect the same behavior from them today as I always do, if not better, because of the other learners that we have in our classroom.

- Supplies will be distributed after the short talk on a pattern unit. The students will get the tiles passed out by the teacher. After we are finished with this activity, the students will receive pre made cards with a picture on them from the teacher. Once we are done with that activity, I will close the lesson. Pending on time and attention from the students, we will either have them color their favorite pattern using pattern strips right away or we will wait until the afternoon and start fresh. These pattern strips will provide an assessment for us to know how much information the students understood through the lesson taught.

### EXPLORE (“DURING”)

(40 minutes)

- Students will be handed their tiles.
- Students will be told to choose create the patterns off the board (AB, AAB, or ABC). (This will informally assess their understanding of patterns based on my modeling and direction at the board.) ---see before section
- Once students have completed working with their pattern tiles, I will explain to the students that they will be physically demonstrating these three types of patterns.
- The first pattern the children will demonstrate is the AB pattern with braids/no braids. I will first model the pattern by creating a line of four students that will show the braids/no braids pattern. She will point out the pattern unit in order to review the new math term that they learned during the before section of the lesson. Once I establish the braids/no braids pattern, she will ask the students if anyone knows who could come next in the pattern. (I will explain to the class that if they want to contribute to the discussion, they must raise their hand and wait to be called on.)
- Students will raise their hands and complete the patter by calling out the appropriate student with either braids (in their hair) or no braids (in their hair). Once the pattern can no longer be dragged out (ABAB), the remaining students will chant with me the pattern braids/no braids. Gina will stand behind the line of students and move down the line as the pattern is pointed out and chanted by the students.
- After the AB pattern is finished, the students will sit right where they are on the carpet with their eyes on the board to see the next pattern they will be creating.
- The next pattern I will be demonstrating is the AAB pattern.
- Gina will then explain she is going to hand out pictures to the students face down. Each student will receive a picture of either Michael Jackson or Hannah Montana. She will explain that they may not look at it until she tells them they can. She will tell the students that the picture she gives them is the picture they must keep. “You get what you get and you don’t throw a fit!”
- I will demonstrate the AAB pattern by placing six students in a line that show the pattern: Michael, Michael, Hannah, Michael, Michael, Hannah.
- I will then ask the students who thinks that they should go in the pattern next
- I will occasionally ask the students why they think their picture belongs next

She knows her students well and will be able to watch them and assist them in a more one on one basis.

3. A third modification I will make is for George. He has Cerebral Palsy and therefore it takes him longer to write and color. I will allow him extra time to complete his pattern strips in the beginning of the lesson. He can complete his patter strips after the physical demonstrations of patterns, during the time when other students are building patterns with their tiles. This way he will not feel pressured to hurry and complete his patterns and he work at his own pace. By allowing him to finish it after the physical demonstrations / examples he will also not feel left out of the more active part of the lesson.

4. A fourth modification I will make is for my class as a whole. I know that my students need some review before moving into an activity. Therefore, in the beginning of the lesson I will model on the board what we are going to be talking about. I will put up an example of all three different patterns and walk them through the similarities and differences between these patterns. Hopefully this will warm my students up to this mathematical concept so they will better participate and understand deep meaning out of the physical demonstrations / examples of patterns.

5. A final modification I will make is with regards to my entire class. Often students get to come up to the board and write answers down or be the leader in a game such as I-Spy. However, they often complain about not always getting a turn. Although I feel that it is good for them to learn that not every time they will have a turn during a lesson, I also think it is important to include all students during some group lessons. Therefore, all students in the classroom will be a part of the physical patterns we make. Students will all be actively participating by getting up and creating the patterns with their bodies. All students are necessary to make the patterns, making them feel valued in the classroom environment. They will know that they were a necessary part of

in the pattern in order to promote oral thought processes.

- I will again have the students chant the AAB pattern, “Michael, Michael, Hannah”, as she moves down the line. If the pattern unit is not complete at the end of the line, I will ask the students to verbally finish the pattern unit.
- The students will again sit right where they are on the carpet and wait for the final pattern is that they are going to make.
- The last pattern I will demonstrate is the ABC pattern using rhythm through motions (clap, foot stomp, lap clap).
- I will call on nine students who are proving that they can handle themselves in this very active setting to stand in line at the front of the classroom. She will then tell the remaining students that they are the audience. She will explain good audience behavior (quiet, listening, attentive) and tell them they will have their turn next.
- I will explain that they will be doing a rhythm pattern using their body to make sounds. She will demonstrate the three motions: clap, foot stomp, lap clap. Then she will explain that each child will have a different motion to perform in order to show the ABC pattern.
- Next, I will go down the line of students assigning each child one of the three motions. I will check the students’ memory by first asking the student who are clapping to raise their hands, then having the foot stompers raise their hands, and finally having the lap clappers raise their hands. She will remind them of their motion if necessary.
- I will go down the line and point to one student at a time to show their motion. Once the students understand, she will have them perform the pattern without her guidance.
- After they finish, the groups will switch. If the next group’s number is not divisible by three, I will pick students to fill in the gap.
- The students will go through the same process as the first group, with the first group as their audience.
- After they finish, all students will return to their seats.
- This next portion of the lesson will either be taught directly after the physical demonstrations or later in the afternoon depending on the attention of the students. If we choose to wait to have students complete the pattern strips until the afternoon, it might present us with a few different pieces of information and provide us with interesting observations. One, it will test how long lasting the knowledge was for the students after the culturally relevant teaching that occurred. Also, it will allow students a break from making patterns, as this is a lengthy lesson for beginning of the year first graders. Finally, this will allow us to more calmly assess our students as it will be a fresh time and students will hopefully be actively engaged and ready to work first thing after lunch. To assess the students’ knowledge of the three patterns, they will make patterns by coloring pattern strips. I will have them pick a pattern (AB, AAB, or ABC). She will tell them to make a pattern like the braids/no braids, Michael, Michael, Hannah, or Clap, Stomp, Pat pattern, and have them show that pattern using crayons to color their pattern strips. I will be walking around the room checking on how well the students comprehend the different patterns.

### **SUMMARIZE (“AFTER”)**

(5-10 minutes)

- I will have all of the students sit back in their assigned seats so that we have some sort of order. I will ask which pattern they liked making the most and what type of pattern it was. This is a good place for students to correct their peers if the wrong type of pattern is said. I will sit down on the same level as the students so they know I am listening to their thoughts and opinions. Students will raise their hands because they do not yet have much practice in discussions.

making the pattern successful, thus including all students and hopefully building on their understanding of this mathematical concept.

<ul style="list-style-type: none"> <li>• To make sure that all students have an equal chance to cooperate I may call on students who are quiet and guide them to answer our questions. Or I may just call on them to get their opinions. I can also ask particular students how they thought about the patterns and ask other students to raise their hands if their thoughts were similar.</li> <li>• To make sure that the students are listening to each other, I will look around the room and make sure that I address any talkers or students who are not doing a good job of listening right away to make them aware that I am watching them.</li> <li>• I will then ask the students if they remember any previous lessons that were similar to this one and ask which they liked better? Did they enjoy the activeness of this activity or do they prefer to have a teacher stand and talk to them about it?</li> <li>• I will draw on students prior knowledge about patterns in the before section of the lesson. Students have made and seen patterns before but very simple ones. Therefore I will build on their knowledge in this lesson, ultimately preparing them for future experiences such as addition patterns.</li> <li>• So today we learned about patterns and a pattern unit. Who can show me what a pattern unit is? Great a pattern unit is the part of the pattern that repeats. You all did a wonderful job participating today and I am very proud of you!</li> </ul>	
<p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• The pattern tiles that students complete at the beginning of the lesson will act as a sort of informal assessment and warm the students up for the bigger portion of the lesson. I will be able to see if students were able to understand the mini-lesson that was presented to them on the board and apply it to their pattern tiles. I will also be able to see what patterns students tend to make on their own; therefore telling us what patterns need to be further stressed. Additionally, having these pattern tiles will allow us to identify the students that are quickly able to make patterns and students that cannot make patterns at all. This will provide a good marker for me to compare to my final assessment of the patterns students will make with the pattern strips. It will hopefully allow me to either prove or disprove my hypothesis.</li> <li>• To assess the students' knowledge of the three patterns, they will make color patterns out pattern strips. I will have them pick a pattern (AB, AAB, or ABC). I will tell them to make a pattern like the braids/no braids, Michael, Michael, Hannah, or Clap, Stomp, Pat pattern, and have them show that pattern using the strips. I will be walking around the room checking on how well the students comprehend the different patterns. Students will be instructed to not just color anything but a pattern that they learned today. They will know that these strips will need to be turned in to me. The students will get the color strips passed out by the teacher and crayons, which they will get themselves, to work on their patterns.</li> <li>• Process of Analysis: I will analyze my students by looking at their pattern strips and wooden tiles to check for AB, AAB, and / or ABC patterns. I will also analyze the student's responses to culturally themed patterns (braids / no braids, Michael / Hanna, and body motions). I will observe their excitement level throughout the lesson as well. I will analyze the students' understanding of patterns when they create patterns using the students in the classroom. I will observe the students as they figure out how to complete and continue on with patterns. These will all provide helpful and essential information as I complete my reflection.</li> </ul>	<p><b>Academic, Social, and Linguistic Support during assessment</b></p>