

# CULTURALLY RELEVANT PEDAGOGY

Culturally Relevant Pedagogy:  
Teaching Toward Student Interest in an Algebra Classroom

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A thesis submitted to the Department of Education and Human Development  
of The College at Brockport, State University of New York,  
in partial fulfillment of the requirements for the degree of Master of Science.

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## CULTURALLY RELEVANT PEDAGOGY

### **Abstract**

Teachers utilize countless strategies in hopes of their learners becoming connected with the material. Unfortunately, said strategies may or may not be effective, depending on how they are approached and how the students react. Culturally Relevant Pedagogy is a strategy that is becoming more popular by educators. This curriculum project presents three examples that align with Cultural Relevant Pedagogy based upon students' interests, hobbies and cultural upbringings. The curriculum provided explores opportunities to successfully practice Culturally Relevant Pedagogy through color-conscious disposition, informed variation and holding students to high expectations regardless of diversities.

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## **Introduction**

Many teachers struggle with keeping all students interested in the mathematics being taught. Bryner (2007) shared that about 75% of students reported that material being taught was uninteresting. There are pedagogical strategies available to instructors who seek to maximize student engagement. It begins with differentiating instruction to meet the needs of each individual learner. The purpose of this curriculum project is to offer multiple examples, and benefits, of differentiating instruction using Culturally Relevant Pedagogy (CRP) grounded in real-world problems that relate with student interests, upbringings and cultural backgrounds.

The following curriculum presents three examples of how to integrate CRP in the classroom based on student interest and ability. Gay (2002) defined CRP as using cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching. Mark and Lateefah Id-Deen (2020) presented that mathematics teachers who focus on CRP need to: (a) have a color-conscious disposition; (b) have high standards and expectations for all students; and (c) include informed variation in response to student differences. The curriculum provided was designed to meet individual student needs and align with Mark and Lateefah Id-Deen (2020) work. As in all instruction, the content provided aligns with the assorted urban-suburban student population for whom the lessons were designed. With appropriate organization and the alignment of student learning objectives with state standards, each example can be modified by any educator that is interested in making these lessons their own.

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### Literature Review

#### Culturally Relevant Pedagogy

Classrooms within middle and secondary schools throughout the United States are incredibly diversified nowadays. “Between 2000 and 2015, the percentage of White students in the U.S. decreased from 61% (28.8 million) to 49% (24.7 million), while the percentage of Hispanic/Latinx students increased from 16% (7.6% million) to 26% (13.1 million)” (Mark & Id-Deen, p. 2). Furthermore, the enrollment of Asian students, Black students and English learners has all increased between the years 2000 and 2015. With schools nationwide becoming melting pots of a variety of learners, educators must take intentional efforts to incorporate cultural relevant pedagogy into their instruction. CRP is a differentiated method of instruction where the teacher “...focuses on the academic and personal success of students as individuals and as a collective by ensuring students engage in academically rigorous curriculum and learning, that they more fully understand and feel affirmed in their identities and experiences and, that they are equipped and empowered to identify and dismantle structural inequities—positioning them to transform society” (Escuerdo, 2019). In other words, the instructor plans to relate their lessons, assessments and materials to individualized student interest and cultural background in order for their learners to grasp a firm understanding of the content being portrayed.

Sandra Mason, a teacher, takes this into consideration, and her “...pedagogical strategies represent efforts to ‘center’ her students in the process of acquiring knowledge for social change” (Tate, p. 172). Being completely aware of the diversity within her classroom, Ms. Mason attempts to mold her students into abstract thinkers and problem solvers that can manipulate a given question as opposed to mere students that simply memorize a certain process. She

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accomplishes this by centralizing her approach to instruction on factors such as cooperative group work, questioning content, and open-end problem solving connected to student realities.

### **Benefits of Cultural Relevant Pedagogy**

With the presence of engagement, there is an opportunity to learn. After a group of teachers conducted research in New Zealand, they "...found that when they invited students...to contribute their funds of knowledge and lived experiences from their homes and communities, the students were able to utilise this rich resource in their...learning" (Cowie et al., p. 2). When learners are given the chance to become engaged with the content in regard to their own culture, interests and home lives, they're able to fabricate their own individual understanding of said material. The previously stated instructors "...used a variety of activities to elaborate on the big idea for a unit. Different modes... and audiences provided students with a variety of different entry points into...learning and ways of displaying what they knew..." (Cowie et al., p. 4). Giving learners an opportunity to prove what they understand is a necessity, but allowing them to present their knowledge in a manner that corresponds with their own curiosities and individuality guides them toward success.

### **Gathering Student Information**

Culturally Relevant Pedagogy can show itself in lesson planning, instruction and even assessments. From relating word problems to student interest to conducting a culture-based activity related to algebraic equations, Culturally Relevant Pedagogy is accessible to make a positive impact on student learning. Of course, to teach toward student interest and capture their attention while portraying mathematical content, the teacher first needs to know what his or her students enjoy. It is not beneficial to plan an entire lesson based around the interests of just a handful of students. In that case, the teacher would taking the risk of potentially losing the

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remainder of their students' undivided attention being that the content being taught could be considered uninteresting to them.

A simple way to determine students' origins and what things they are each individually fond of is by distributing a survey at the beginning of the year asking the learners to share their upbringing and hobbies. This survey can be as vague or specific as the educator prefers, spanning from questions like "If you could meet one celebrity, who would it be?" to "If you could eat a meal with one celebrity, who would it be and what would you be eating?"

For teachers who describe themselves as 'resourceful,' a quick Google search can be the convenient solution. There are a plethora of resources that can be found online that educators are able to sift through in hopes of finding a potential survey candidate they can utilize in their own classroom. Normally, surveys should consist of general questions such as 'What do you like to be called?' and 'What is your favorite subject?' for the teacher to gain a broad understanding of their students. These results can be used to create small talk and build rapport. In order to plan future lessons around student interest and practice CRP, instructors need to aim their attention on more specific questions like 'What are your favorite things to do when you're not in school?' and 'What hobbies and activities (sports, arts, games) do you like?' After reviewing these answers and finding some common ground between the populations of learners, there are endless possibilities teachers are able to engage with in order to partake in CRP and connect with student interest while effectively delivering content that aligns with state standards. Examples of said possibilities can be found later on in this thesis. An example of the author's student survey is provided below. One of his student's completed student survey can be found in the Appendix toward the end of this thesis.

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### Algebra 1 Student Survey

Hello! My name is Mr. Monday, and I am beyond stoked to be your Algebra 1 teacher this year. This is my fourth year teaching; my third year teaching high school as I taught one year of middle school math. My wife, Alyssa, and I like to hike with our two dogs, Hazel and Java, as well as play Scrabble! I enjoy listening to jazz and alternative music in my spare time. I also play tennis quite often. Tell me a little bit about yourself!

Your Name: \_\_\_\_\_ Nickname? \_\_\_\_\_

Your favorite subject in school: \_\_\_\_\_ Why? \_\_\_\_\_

---

Do you enjoy math? \_\_\_\_\_ Why/ why not? \_\_\_\_\_

---

What type of music do you enjoy listening to? \_\_\_\_\_

Do you play any sports or instruments? \_\_\_\_\_

What do you enjoy doing on the weekends with free time? \_\_\_\_\_

---

Waffles or pancakes? \_\_\_\_\_

The author wanted to connect with his students on a personal level; therefore he made it a point to ask if they had a specific nickname they like to be called. It is always beneficial to be aware of which students are actually interested in the content at-hand, so don't be afraid to ask. Students will be brutally honest about how they feel toward a particular discipline, especially mathematics, which is too often the least popular high school course for many students. By

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knowing this, the educator can focus on students who admit they do not enjoy learning mathematics and convince them otherwise. Also, the author inquired about the type of music his students enjoy because he plays music during students' independent work time. He thought if he could play music that his students enjoy, they'd be able to focus better.

It helps to know if one's students are involved with school in other ways as it allows students to see that their teacher wholeheartedly cares about them. Also it gives the instructor an opportunity to plan ahead and attend a sporting event or show that their student may be a part of. Regarding CRP, this may open the door for the teacher to create content, especially application problems, based around these extracurricular school activities. Lastly, the author decided to add a not-so-serious question toward the end of the student survey. This portrays a sense of humor, and a chance to use the word 'pancakes' or 'waffles' in a future relatable word problem in order to grab his students' attention.

### **Culturally Relevant Pedagogy**

#### **Lesson 1: Exponent Properties Rap Based on Color-Conscious Disposition**

This first CRP lesson integrates music and rapping into classroom instruction. This form of Culturally Relevant Pedagogy is a clear example of color-conscious disposition as it adhered to a bulk population of the author's students' preferred choice of music. Clearly, positive outcomes can be derived when learners are given the chance to be able to engage with standards and tether a mathematical concept to their own personal cultural differences and interests.

From a survey that students took during the first week of instruction, it was clear that a majority of the class enjoyed listening to hip-hop music. Aimed towards student engagement, which increases the opportunity to learn, rap and lyrics were used to teach a lesson on exponents. The hip-hop music was adopted from Greg Harlston, a mathematics teacher in Rochester, NY.

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The lesson began just like any other: with a Warm-Up to activate the student's prior knowledge and review what they learned the day before. Immediately after going over the Warm-Up and answering questions, the author clicked to the next slide and began to rap. This caught the students by surprise because it's not everyday that learners are able to see their teacher 'spit rhymes'. The lyrics can be found in the exponent rap below:

### **Rule #1: PRODUCT RULE**

*When you see a product, simplify components. Keep the same base and add the exponents.*

$$x^2 \cdot x^3 = x^{2+3} = x^5 \quad \text{ADD THE EXPONENTS!}$$

### **Rule #2: QUOTIENT RULE**

*Now I'm moving to division and you know I'll never stop, when it comes to exponents, take the bottom from the top. Yep, subtract the bottom from the top; subtract the bottom from the top.*

$$\frac{x^4}{x^1} = x^{4-1} = x^3 \quad \text{SUBTRACT THE EXPONENTS—TAKE THE BOTTOM ONE FROM THE TOP!}$$

### **Rule #3: POWER RULE**

*An exponent raised to a POWER in the sky, you take the two exponents and you multiply.*

$$(x^5)^2 = x^{5 \cdot 2} = x^{10} \quad \text{MULTIPLY THE 2 EXPONENTS}$$

*In this example, you can clearly see that every EX-PO-NENT gets times by 3.*

$$(4x^2 \cdot y^6)^3 = 4^{1 \cdot 3} \cdot x^{2 \cdot 3} \cdot y^{6 \cdot 3} = 4^3 \cdot x^6 \cdot y^{18}$$

*In my 2<sup>nd</sup> example that I do adore, every EX PO NENT gets times by 4.*

$$(2^2 \cdot 3^3 \cdot y^9)^4 = 2^{2 \cdot 4} \cdot 3^{3 \cdot 4} \cdot y^{9 \cdot 4} = 2^8 \cdot 3^{12} \cdot y^{36}$$

*My final example dropped down from the heavens, because every POWER gets multiplied by 7.*

$$\left(\frac{2^4}{3^{-1}}\right)^7 = \frac{2^{4 \cdot 7}}{3^{-1 \cdot 7}} = \frac{2^{28}}{3^{-7}}$$

### **Rule #4: NEGATIVE EXPONENT RULE**

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*Rule number 4 won't make you rich, but when you see a negative, FLIP IT AND SWITCH!*

$$(3^{-4}) = \frac{3^{-4}}{1} = \frac{1}{3^4}$$

FLIP THE FRACTION AND SWITCH THE SIGN OF  
THE EXPONENT!

### **Rule #5: ZERO POWER RULE**

*Rule number 5 and I'm almost done, anything to zero is gonna be ONE.*

$$10^0 = 1$$

*So NOW that I'm done with my properties, I want every BO DY to sing along with me.*

*5 to 0 is gonna be (ONE)*

*10 to 0 is gonna be (ONE)*

*20 to 0 is gonna be (ONE)*

*100 to the 0 is gonna be (ONE)*

*$(5x^2y^{-1}z^4)$  to 0 is gonna be (ONE)*

You can access the rap at the following link:

<https://www.youtube.com/watch?v=0CPO34FhuIw&feature=youtu.be&fbclid=IwAR0h8PSGbYhfqqHzeKrPCTqqIlgBX9KNtXsJQcgx3IhHF1GcBGw3dcZIRQ>

In the video, it is clear that the goal is to involve the students and encouraging them to become engaged with the material. The original rap was planned to be performed over the instrumental of 'Lean Back' by Fat Joe, but it's difficult to notice due to one of the leaners beat boxing. This is the exact engagement the author was seeking from my class. Coincidentally, the student who was beat boxing was one of the individuals who listed hip-hop as their favorite genre of music.

It was also decided to include a name of a student in the rap to make it more relatable. At the 0:32 mark you hear, "When you see a negative, Quinn, you flip it and switch." It was clear that this caught him off guard and acquired his attention. Some other students exclaimed in excitement due to its spontaneous nature.

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It was decided the author portrayed the examples he was referring to on the board for the students to see. It would be Culturally Relevant enough with just the rap itself revolving around exponent properties, but the physical slide, below, appealed to the visual learners, as well. This

$$x^2 \cdot x^3 = x^{2+3} = x^5$$

**ADD THE EXPONENTS!**

---

$$\frac{x^4}{x^1} = x^{4-1} = x^3$$

**SUBTRACT THE EXPONENTS...  
TAKE THE BOTTOM FROM THE TOP!**

---

$$(4x^2 \cdot y^6)^3 = 4^{1 \cdot 3} \cdot x^{2 \cdot 3} \cdot y^{6 \cdot 3} = 4^3 \cdot x^6 \cdot y^{18} \quad \text{First}$$

$$(2^2 \cdot 3^3 \cdot y^9)^4 = 2^{2 \cdot 4} \cdot 3^{3 \cdot 4} \cdot y^{9 \cdot 4} = 2^8 \cdot 3^{12} \cdot y^{36} \quad \text{Second}$$

$$\left(\frac{2^4}{3^{-1}}\right)^7 = \frac{2^{4 \cdot 7}}{3^{-1 \cdot 7}} = \frac{2^{28}}{3^{-7}} \quad \text{Final}$$

---

$$(3^{-4}) = \frac{3^{-4}}{1} = \frac{1}{3^4} \quad \text{FLIP THE FRACTION AND SWITCH  
THE SIGN OF THE EXPONENT!}$$

---

$$10^0 = 1$$

**ANYTHING TO THE 0 IS 1!**

allowed his students the opportunity to witness each exponent property in action as he intrigued their individual interests of hip-hop music.

By analyzing personalized survey results distributed at the beginning of the year, the author was able to incorporate hip-hop music, the favorite genre of music amongst a majority of my students. Doing so, his learners were able to connect with the content being portrayed and create meaning as to what it means to them as an individual learner. Some of the students even

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took the time to learn the song and claim the lyrics helped them on their unit test regarding exponents and their rules.

### **Lesson 2: Realistic Word Problems through Informed Variation**

Another example of Culturally Relevant Pedagogy that can be used in both instruction and assessment is relating application word problems to student interests and hobbies. For instance, many students mentioned that they were involved with the school, whether they were referring to a sport, club or extracurricular activity – most were a part of a sports team or played an instrument. Using this information to my advantage, the author was able to integrate some of his learners' shared hobbies into his applications lesson and daily homework assignments.

The following snapshot portrays a real-world example I used in class. This example

**Gabe is able to play 8 songs on his drums without error. He wants to learn how to play a total of 20 songs perfectly by the end of the school year. If he is able to learn 2 songs per month, how many months will it take him to reach his goal?**



was inspired by one of his students, named Gabe, who plays the drums at his church's services. Aside from mentioning the instrument he was passionate about, he was hoping to obtain Gabe's attention, in particular, by using his actual first name. Students usually get a kick out of this because it gives them more reason as to how mathematics, especially algebra, can be applicable to their everyday lives. Even though most of his students did not necessarily play the drums, they were able to create meaning from this problem due to the

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fact that they did indeed play some sort of instrument and were expected to learn songs. As for the author's learners that did not play any instrument at all, they were still able to learn from the example and activate their problem-solving abilities being that the wording of this problem was modeled after others that they have seen. Therefore, in order to create the algebraic equation and solve it correctly, they had to have followed the skills he had previously taught them, regardless if they played an instrument or not. The completed example can be found in the Appendix.

Being that students are so diverse, the problems they encountered should be as well. In order to entice his students involved with athletics, the author created multiple problems that revolved around a variety of sports. The word problem below discusses basketball:

Jimmy wants to score 26 points during his basketball game. If he already has 14 points in the first half, and his coach told him to take shots worth 3 points each, how many shots would Jimmy need to make in order to reach his goal?

The author did not have a student named Jimmy at the time, but he did choose basketball because there was an upcoming basketball game at his school. Aside from the fact that this particular problem aligned with state standards, he also thought this might potentially help advertise for the team.

This application problem influences each individual student. Though it may only appeal to the athletes in the class due to a sport being mentioned, the mathematical concepts involved reach every learner.

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By forming word problems to connect with his students' diversities in interests and cultural upbringings all the while ensuring that each learner is grappling with the content, the author was achieving a level of informed variation in his instruction in response to their differences.

### Lesson 3: Holding Students to High Expectations Regardless of Diversities

After reviewing the survey results, a large majority of the author's students – boys and girls - also enjoyed shopping. He saw this as an open door and immediately began to ponder as to how he could utilize this information. Many opportunities that arise regarding Cultural Relevant Pedagogy include the use of word problems. With word problems, the teacher has endless options as to what small stories they are able to create, so it's very easy to produce a blurb based upon their students' interests that has the ability to charm them.

Being that his students have read all of the scenarios he had been creating as well as examples from online resources, the author decided to personalize the content to spice things up and allow the learners to make it their own. As a warm-up activity the day after teaching applications of algebraic equations, he instructed the freshmen to create a word problem of their own, which abided by their personal interests and tastes. This warm-up activity can be found below.

Warm-Up  
Monday, September 7th

Your test is THIS FRIDAY!!!

Create and solve your own algebraic word problem using the template below.

(Your first name) **went to** (your favorite store) **and spent** \$(largest amount of money). (He/She) **bought one** (first object) **for** \$(second largest amount of money) **and a few** (second object)s **for** \$(smallest amount of money) **each. How many** (second object)s **was** (your first name) **able to buy?**



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The author explained to his students that this is a general template that he used when creating his word problems. This activity allowed them to produce a situation that they would find themselves in while also being forced to reflect on their mathematical knowledge in order to create and solve a two-step algebraic equation. Some students chose clothing stores such as Macy's and Old Navy while others decided to base their application problem around sports shops including Dick's Sporting Goods. The author even had a student who selected to make a scenario involving Walmart. They admitted that they could not decide on what they would want to buy, so they picked Walmart because "they sell everything." This variation of ideas was exactly what he was aiming for. His learners thoroughly enjoyed the activity since they were able to create their own real-world situation and successfully apply the content they were learning to their everyday lives. One of his students, Ashley, was incredibly proud of her personal creation, admitting that math has always been a struggle for her throughout her schooling career. Her completed warm-up can be found in the Appendix.

To show that he was interested in their work and prove to them that equations could indeed be derived from their situations and solved, the author called on a handful of volunteers to read their problem aloud. They then discussed the problem as a class and walked through step-by-step to find how many (second object)s they were able to buy.

Regardless of the existing diversity of problems due to the class population being of the same nature, each student was held to the same high expectations. It is said that once a student is able to create a solvable problem, then they hold a true understanding of the material.

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### **My Turn**

I chose to write about Culturally Relevant Pedagogy after experiencing a very challenging first year of teaching within the a large urban city school district in upstate New York. I had little support in regard to planning my curriculum and was utilizing every single piece of material handed to me through the Common Core modules I was handed by the district office. For a first year teacher, producing what to teach and how to teach it is a difficult task. My students at the time did not enjoy the content being taught, as well as the way it was being taught, and I knew I had to make a change. Thus, I used the Common Core modules as a crutch while I began to create my own material that was intentionally directed toward my students' interests and personalities, hoping they would become more engaged due to my Cultural Relevant Pedagogy.

My 7<sup>th</sup> graders gradually became noticeably more interested in learning as I continued to put out behavioral fires. I tried everything from personalized word problems to administering online games; anything that would inspire them to solve a multi-step algebraic equation. It is when I moved to an urban school in upstate SC that I was truly able to break out of my shell and execute productive Cultural Relevant Pedagogy. After reframing the pacing guide with a team of Algebra 1 teachers before my new school year even started, I knew what I was going to teach, and I had the opportunity to determine exactly how I was going to teach it.

This is when I truly sought after making my classroom experiences culturally relevant as often as I was able. I attempted the ideas mentioned previously in this thesis curriculum project, and the results were outstanding. My high school students actually seemed interested in the content and did not mind completing a worksheet after grappling with the material for 45 minutes while I taught them a lesson tailored to their personal lives. Every school year is its own

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challenge being that each one brings new learners with new hobbies, interests and cultural upbringings. Molding my material to new students' enjoyments every year in order to maintain true Cultural Relevant Pedagogy is definitely tedious, but the end results make the hard work worth it.

I have also had the challenging opportunity to teach during the global pandemic referred to as COVID-19. My school district is currently on an attendance plan in which teachers are in school Monday through Thursday, and there are two attendance groups that alternate between in-person learning and eLearning: one attends in person school Mondays and Wednesdays as the others attend Tuesdays and Thursdays. Everybody, including teachers, works from home on Fridays. I offer this situation to say that Cultural Relevant Pedagogy can still be practiced even through virtual learning. My content has not changed at all as I record daily videos of my lessons that include all the same examples and information, such as above, that they would have if we were in person 5 days every week.

We have been using a platform that allows us to upload our daily assignments. I allow my learners to either complete their assignments within this platform or on the actual pen and paper worksheet. If they choose the worksheet option, after completing their work, they attach a PDF in Google Classroom where I can later assess their work. Even a small detail like providing my students the opportunity to decide whether they prefer to work virtually or on pen-and-paper is a form of Cultural Relevant Pedagogy being that it adheres to their individual learners preferences. I make every decision within my classroom with my students' best interests in mind.

### **Conclusion**

This curriculum project presented three examples of how to integrate CRP into the algebra classroom. There are infinite ways to relate the curriculum to student economic status,

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pastimes, home lives and interests. Content that refers to subjects that the learners are familiar with allows them to create their own meaning in educating themselves and determine why exactly it's important to understand and retain. Cultural Relevant Pedagogy is a convenient and convincing way to model that every individual uses mathematics in his or her day-to-day lives.

It is the author's hope that other educators are able to implement these lessons and other CRP into their algebra classrooms. The three above examples can be adopted by any educator and tailored to fit into different types of classes. There is not one singular correct way to utilize CRP, as it may exist within planning, instruction, assessment or all three.

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### References

Bryner, J. (2007). Most Students Bored at School. In *Live Science*. Retrieved from

<https://www.livescience.com/1308-students-bored-school.html>

Cowie, B., Otrell-Cass, K., Glynn, T., Kara, H., Anderson, M., Doyle, J., ... Te Kiri, C. (n.d.).

Culturally responsive pedagogy and assessment in primary science classrooms:

Whakamana tamariki. Retrieved from

<https://www.slideshare.net/HumanidadesUCSF/9268-cowie-summaryreport>

Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice*. Teachers College Press.

Mark, S. L., & Id-Deen, L. (2020). Examining Pre-service Mathematics and Science Teachers' Plans to Implement Culturally Relevant Pedagogy. *Educational Action Research*, 1-19.

Tate, W. (1995). Returning to the Root: A Culturally Relevant Approach to Mathematics Pedagogy. *Theory Into Practice*, 34(3), 166-173.

Appendix

Completed Student Survey

**Algebra 1 Student Survey**

Hello! My name is Mr. Monday, and I am beyond stoked to be your Algebra 1 teacher this year. This is my fourth year teaching; my third year teaching high school as I taught one year of middle school math. My wife, Alyssa, and I like to hike with our two dogs, Hazel and Java, as well as play Scrabble! I enjoy listening to jazz and alternative music in my spare time. I also play tennis quite often. Tell me a little bit about yourself!

Your Name: Zach B \_\_\_\_\_ Nickname? Zeebs \_\_\_\_\_

Your favorite subject in school: History \_\_\_\_\_ Why? It's  
interesting to know where we came from and how.

Do you enjoy math? Yes \_\_\_\_\_ Why/why not? I  
like to solve Problems.

What type of music do you enjoy listening to? Pop \_\_\_\_\_

Do you play any sports or instruments? Yes, Soccer and tennis \_\_\_\_\_

What do you enjoy doing on the weekends with free time? I like  
to shoot my bow and make money.

Waffles or pancakes? Pancakes \_\_\_\_\_

## Completed Example of Real-World Word Problem

Gabe is able to play 8 songs on his drums without error. He wants to learn how to play a total of 20 songs perfectly by the end of the school year. If he is able to learn 2 songs per month, how many months will it take him to reach his goal? let  $x$  = # of months



$$\begin{array}{r}
 2x + \cancel{8} = 20 \\
 \underline{-8} \quad \underline{-8} \\
 2x = 12 \\
 \underline{2} \quad \underline{2} \\
 \boxed{x = 6}
 \end{array}$$

## Student Work Sample of Warm-Up

Ashley went to Target and spent \$30. She bought 1 plant for \$18 and a few shirts for \$4 each. How many shirts was Ashley able to buy?

Let  $x$  = # of shirts

$$\begin{array}{r}
 4x + \cancel{18} = 30 \\
 \underline{-18} \quad \underline{-18} \\
 4x = 12 \\
 \underline{4} \quad \underline{4} \\
 \boxed{x = 3}
 \end{array}$$

Ashley bought 3 shirts!