

Ahimsa Center- K-12 Teacher Institute

Title of Lesson: The Distance Formula and Marching Nonviolently for Social Change		
Lesson By: Susan Chang		
Grade Level/ Subject Areas: 9 th -12 th /Mathematics	Class Size: 20-40	Time/Duration of Lesson: 1 day
Guiding Questions: <ul style="list-style-type: none">• How can the distance formula be learned using real world data of nonviolent marches for justice and Independence?• Why are violent marches so powerful in social change?		
Lesson Abstract: (50-75 words) Gandhi and King led supporters on long marches to demonstrate nonviolent civil disobedience. Teach these marches side by side with the distance formula and proportional reasoning to help students create a context within which the math concepts become more tangible and accessible.		
Lesson Content: <p>Throughout history people have been inspired to take to the streets. Whether the purpose it to protest or to celebrate or to dominate or to grieve, people of different cultures around the world march. Marching happens in both violent and nonviolent wars. The army marches with its own weapon. In the case of a conventional war, the army marches with artillery and kills. In the case of nonviolent warfare, the army marches to reveal inequities of the system and protest against it without raising a fist or cowering. Marching is a form of nonviolent disobedience that follows many failed attempts at compromises and legislative change. Frustrated by the injustice of the status quo, people march to release that toxic energy and turn it into economic and social pressure on the streets. This form of organized nonviolence keeps in check the oppressors’ organized violence (Fischer, 97).</p> <p>Since marching is part of every cultural experience, it’s natural to make a connection to a relevant math concept. The distance formula is once such math concept. Ratios, scale factor and proportions are other concepts that can be taught using marches. The distance formula is often times quite difficult for students to learn because of the complexity of symbols and variables, and because of its minor relevance to practical life. When teaching the distance formula, use Suggested Teaching Activities #1 and 2 as guided practice problems, and discuss the background of these three marches.</p> <p>Take the lesson further by discussing the map’s scale factor and compare the distances with actual distances the students would know to bring meaning to the numbers. By making more connections between math, an abstract and difficult concept, to the interests and prior knowledge of the students, we create meaningful experiences with the math content, thus furthering the students’ understanding.</p> <p>One the first marches led by Gandhi was in South Africa in 1913. The events that led</p>		

up to the march were a series of taxes and legislation that further lessened the status of South African Indians. One piece of legislation imposed an immigration ban on Indians and restricted the movement of Indians within South Africa. There was a tax on former indentured servants to maintain their freedom. Another piece of legislation stated that only Christian marriages were valid (Fischer, 44). Gandhi implored with the local government, namely General Smuts, to undo these oppressive tactics. Several times Smuts refused to meet with Gandhi and several times he rescinded his promises to change things. Left with very little alternatives, Gandhi decided to lead his supporters on a march that started in Newcastle, through Transvaal, into Natal; the proposed route would violate the immigration ban by venturing into areas off-limits to Indians.

On November 6, 1913, at age 44, Gandhi led over 2,000 people on the march, covering 20 miles a day, for eight days (Fischer, 45). During this march, Gandhi was arrested 3 times; some of his close friends were also arrested several times. On June 19, 1914, Gandhi and Smuts reached an agreement: the tax on the indentured servants was lifted, South African born Indians could move freely about the country, and Hindu, Parsi and Muslim marriages were once again valid (Fischer, 47). To personalize this experience for the students, have them complete Suggested Activity #1. Compare the number of marchers to the number of students on campus, and compare the 20 mile march per day to the round-trip distance of the school to another city landmark within ten miles. Ask students how long they think it would take to walk 20 miles if they were to walk a mile every 15-20 minutes. Also discuss the three issues Gandhi and the South African Indians repealed. How many legally married couples would the students know if only Christian marriages were valid? How many of the students would be affected if non-citizens were only allowed to move within the city limits and could not venture out? What are the ramifications for a former slave to continue paying taxes just to secure his freedom? Students will personalize the South African Indian struggle with their own.

Another definitive march led by Gandhi was the Salt March in 1930 that eventually brought down the British rule in India. In the months leading up to the Salt March tensions were rising amongst the Indians to accelerate independence. Many resorted to violence. Gandhi and other leaders met with British officials but they were no closer to independence. Gandhi spent six weeks thinking of a way to use civil disobedience to fight the British. He decided to resist fight the British salt tax, which hurt the poor much more than the rich on two levels. One level was that the peasants must consume more salt than the rich because they labored under the sun all day long. The other level was that a year's salt tax consumed three day's income for a poor person (Fischer, 96). The Salt March had two objectives: 1) to show resistance to the British and 2) to offer an alternative to the violence exhibited by the independence fighters (Fischer, 96).

On March 12, 1930, 61-year-old Gandhi set out on foot with 78 ashramites to march from Sabamarti to the sea at Dandi. They walked 12-15 miles a day for 24 days, arriving on the beach in Dandi on April 6, where Gandhi symbolically picked up a handful of salt. British law prohibited anyone to own salt that was not purchased from the government's salt monopoly; Gandhi's gesture was in nonviolent defiance to the British law. Following Gandhi's example, Indians started to produce their own salt for personal use and to sell on the black market. Gandhi and many others were arrested for their blatant defiance of the salt tax. The success of the Salt March did two things: 1) gave Indians the conviction that they can ride themselves of foreign rule, and 2) made the British aware that they were crushing India (Fischer, 102). The discussion on the Salt March with students should focus on the 241-mile trek; relate the

distance between the major cities in the vicinity of the school. Also discuss how much money three days of work would be according to the state's minimum wage.

Adopting many nonviolence principles and tactics from Gandhi, King also led marches that resulted in the Civil Rights Act of 1964 and the Voting Rights Act of 1965. In the summer of 1964 the Birmingham Campaign was in direct resistance of the oppression by the local government, namely Bill Connor (Carson, 173). The summer activities in Birmingham culminated in the March on Washington for Jobs and Freedom, where people from all over the country gathered at Lincoln Memorial to show their power in numbers (Carson, 222). Two hundred thousand people heard the famous "I have a Dream" speech in the nation's capital on August 28, 1963, given by an inspirational 34-year-old King. This event brought the civil rights struggle into mainstream media, and accelerated the Civil Rights Bill to the top of Congressional calendar (Carson, 220). Though this is not a march that is grand in distance, it is very grand in the population in attendance. Have the students focus on the number of people at this march and what it compares to in their life. The following year, on July 2, the Civil Rights Act of 1964 was signed by President Johnson (Carson, 239). Lead the students in a discussion about what the signing of the Civil Rights Act means to their lives today.

Changes started to take place slowly after the Civil Right Act. However, voting rights were still constantly violated by the states using loopholes and unfair criteria. People who attempted to register to vote were either intimidated or given illegal literacy tests by the local government and law enforcement (Carson, 276). King and his supporters decided to march to bring to light the voting issues and request that the voting rights and registration be determined by the federal government instead of the state. On March 21, 1965, 50,000 people marched with King from Selma to Montgomery, Alabama, a distance of 54 miles, arriving four days later. The march was successful, resulting in the Voting Rights Act of 1965.

When students learn about King's and Gandhi's marches side-by-side with distance and measurement, it brings relevance to the otherwise abstract math concepts. It also starts the discussion about nonviolence and social change with students in a math class, where there usually aren't many opportunities to have this conversation.

California State Content Standards:

17.0* Students prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.

Materials Needed:

- 2 maps of India, one showing the march from Newcastle to Natal and the other Sabamarti to Dandi; both have coordinate plane drawn over them
- 1 map of march from Selma to Montgomery; coordinate plane drawn over.

Suggested Teaching Activities:

1. On a map of India, show the start and end points of Gandhi's Great March from Newcastle to Natal. Over the map, draw the coordinate plane. Discuss the history of the march. Tell students that each tick on the graph was an x amount of miles. Ask the

students how many miles was Gandhi's march? Give distance formula.

2. Continue with guided practice and independent practice. Give students a map of Gandhi's Salt March and a map of King's march from Selma to Montgomery with coordinate plane. Discuss the history behind these marches. Have students use distance formula to find how many miles between the start and finish.
3. Reflection question for the students on the importance of marches. Why choose to march when there are other methods to get attention for your cause? What would be something they would march for?

Bibliography:

Carson, Clayborne (ed.). *The Autobiography of Martin Luther King, Jr.* New York: Grand Central Publishing, 1998.

Fischer, Louis. *Gandhi: His Life and Message for the World.* London: Penguin, 1954.