



## **Muslim Contributions to the Development of Modern Mathematics and American Culture**

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Briarwood Academy Elementary

This curriculum unit is recommended for:  
5<sup>th</sup> grade mathematics and social and emotional learning blocks

**Keywords:** Muslims, mathematics, Islam, art, patterns, geometry, culture

**Teaching Standards:** See [Appendix 1](#) for teaching standards addressed in this unit

**Synopsis:** This unit ties the contributions of Muslim and Islamic scholars to the modern mathematics classroom. The unit brings together cultural contributions, mathematics contributions, and art contributions together in a unit where the whole child is taught to interconnect multiple different disciplines. Each lesson in the unit focuses on a math standard from the North Carolina State Standards. While focusing on the math standards students are introduced to Muslim and Islamic culture and traditions. This will take place during the social and emotional learning block. Students will also use the math they are taught to create an individual Islamic art piece that focuses on the using mathematics to create art forms. Patterns, algebra, and geometry will be used to create Islamic style mosaics. This unit will work towards breaking stereotypes that students may have about Muslims and help bridge cultural understandings about a group often viewed as a threat.

*I plan to teach this unit during the coming year to 48 students in 5<sup>th</sup> grade math and social and emotional learning blocks.*

*I give permission for Charlotte Teachers Institute to publish my curriculum unit in print and online. I understand that I will be credited as the author of my work.*

## **Introduction:**

The intention of this curriculum unit is to bring awareness to the contributions of Muslims to the world and American society. Muslims make up 24% of the world population and Islam is the third largest religion in America. However, Muslim contributions to our society are largely underrepresented. By acknowledging the wonderful contributions of Muslims to American society and culture, it is possible to help the negative views that many westerners have of the Muslim people and culture.

In the wake of September 11<sup>th</sup>, 2001, Islamophobia has significantly spiked. This discrimination can be found in our schools, job markets, judicial system, and politics. The media continues to perpetuate the negative rhetoric that fuels Islamophobia. Due to a lack of understanding about the culture and religion, American's are often fearful of Muslims.

I feel that in order to help dismantle the negative views teachers must start with education of who Muslims are, what they believe in, and what the generous contributions they have given to humanity for thousands of years are. As a math teacher, I have been amazed at how Muslims helped to create our study of mathematics. They have had a hand in the creation of our number system, algebra, geometry, patterns, astronomy and much more. Without the contributions of Muslims, we would have lost the opportunity to learn the history or the development of mathematics because it was also Muslim intellectuals who traveled to gain knowledge from other societies and then write down the history that would have otherwise been lost to time.

I believe that their contributions are often overlooked and credit is given to other cultures. I want to create a math unit that dives deeper into the Islamic creation of common mathematical ideas versus just teaching the conceptual understanding and rote steps to solve problems. I want to then integrate literature to help develop understanding of the Muslim culture and how students can find connections to their own life. I will continue the unit by connecting the learning from both math and literacy in regards to Muslims by having students create a project using both math and cultural connections.

My goal is to develop cultural literacy and break down long standing serotypes. I believe this is important to help slow the spread of Islamophobia and create a safe space for cultural exploration. I also think this is important to help Muslim students feel more valued and safe at school and in the larger society.

This unit will take place over the second semester of the 2020-2021 school year. We will use the unit to focus on the development of algebra, algorithms, and geometry from Muslim scholars. We will apply the history to real math applications still used today. The unit will integrate literacy by focusing on the modern culture of Muslim-Americans. In order to achieve this, we will read books, poems, articles, and other media sources that positively explain the cultures within the Muslim community. Students will actively participates in creating a product using both math skills and the cultural knowledge gained during the unit.

## **School Demographics:**

Briarwood Academy is a public Elementary School serving Pre-K through fifth grade students. The school is located in the Central 1 zone of Charlotte Mecklenburg Schools. Briarwood is a title 1 school serving mainly minority students. Briarwood has a student population of 760 students.

The demographics of Briarwood are very diverse. 49% of the student population is Hispanic/Latino. 39% of the students are African American. Asians represent 6% of the student population and 3% of the students are Caucasian.

The school is Title 1, which means it has more than 40% of its student population is living below the poverty line. The school is 100% free and reduced lunch. 37% of the student population are Limited English Proficient and 12% have an Individualized Educational Plan.

Briarwood employees 39 regular classroom teachers, 10 success by design teachers, 3 special education teachers, 2 reading specialists, 2 counselors, support staff and 4 administrators. Briarwood is also a part of the Teacher-Leader Pathway program. This program, which is formally known as Success by Design, hires highly qualified teachers based on multi-year data trends. Teachers must be high performing according to student achievement on the End of Grade Assessment for North Carolina. There are currently 10 Teacher-Leader Pathway teachers at Briarwood. There is at least one teacher in every grade level that is part of the program. The administrators have designed it this way so that there is a highly qualified leader on each team to help increase student achievement. These teachers participate in leading school wide professional development, creating grade level agendas for data meetings, and help other teachers develop the skills needed to be effective educators.

Briarwood provides teachers with time daily to effectively plan and analyze data in order to provide high quality education. These meetings focus on North Carolina standards, objectives, and student outcomes. Over the last 4 years, briarwood has either exceeded or met growth according the North Carolina End of Grade Assessment results. These continued increased scores can be attributed to the Teacher-Leader Pathway program, strong leadership, clear expectations, and useable feedback.

Briarwood Academy believes all students can succeed. This philosophy help create data-driven lessons that cover the North Carolina state standards and provide rigorous content. We follow a workshop model of instruction when planning our lessons. Small groups are used to target specific learning needs and readdress misconceptions. This is more individualized and differentiated instruction to help increase growth and achievement. We are flexible in our small group instruction, teaching plans and strategies to best meet the needs of all students. All the data above was from the Briarwood Academy School Improvement Plan. (1)

## **Content Research:**

America is known as the melting pot of our world because we have so many cultures, languages, and religions in one place. However, this concept of blending cultures, religions, and ideas often does not go beyond abstraction. American education is no different. American education,

although wonderful in many ways, does a disservice to students by not teaching about non-American or non-European contributions. Other cultures have significantly contributed to the cultures, discoveries, inventions, and content disciplines that we teach and interact with every day.

Our classrooms are filled with students from all over the world. They are filled with all religions and languages. Most educators know and understand the importance of celebrating diversity. They incorporate lessons on non-Christian holidays, read books with students from other cultures, and create international festivals to highlight countries and cultures. All this is done to help create cultural competency among students and educate about our similarities and differences.

While this is very important and should not be taken away, there is a missing piece to the puzzle. We need to go above surface level culture and teach about the vast contributions to math, science, American and World history, art, and more that non-European societies contributed to our modern world.

Charlotte Mecklenburg Schools are extremely diverse. We have a variety of countries, languages, and religions represented across our 115 schools. According to the Public School Review 7% of the student body population in Charlotte Mecklenburg Schools is Asian, 24% is Hispanic, 38% is black, and 28% is white. (2) There are over 200 languages spoken by Charlotte Mecklenburg Schools students. According to the 2013-2014 diversity report from Charlotte Mecklenburg Schools the top three languages spoken by Charlotte Mecklenburg School students were Spanish, Vietnamese, and Arabic (which also includes Lebanese, Egyptian, and Syrian dialects). (3) By the 2018-2019 report, a short 4 years later, the number of students who speak Arabic languages at home grew almost 45%. (4)

As America and our school district continue to grow and become more diverse, we must begin evaluating the effectiveness of our education system on our diverse student population. Edd Taylor, professor at Northwestern School of Education and Social Policy, states that “it’s very difficult to separate issues of culture and learning because practices within a culture affect understanding.” (5) Taylor continues by making the point that we must start by educating our teachers on the cultures of their students. Once our teachers and professors understand how a culture affects learning, they can then begin planning a truly inclusive curriculum.

Diverse cultural contributions have been neglected in the field of mathematics in particular. Math is often viewed as a one size fits all subject. However, this is not the case. Different cultures and religions have different number systems, strategies, conceptual understanding and formulas to solve similar problems. This brings me to my focus question on cultures, religions, and mathematics. How has Islamicate culture contributed to math and how can educators make math a multi-cultural subject to better reach all students?

In education, we often refer to what is called the achievement gap between cultures. In order to help bridge that gap we need to implement more diverse teaching strategies and help students find connections to their culture and the culture of others. We need to focus on explicitly teaching students about the contributions that people other than Europeans made to the

advancement of our society and go deeper than a sentence or two in a large text or curriculum. When students are able to see themselves in what they are working on it helps to make the learning more interesting and relatable. On the other hand, when students see the positive contributions that other groups of people offer to society, it helps break down stereotypes and misunderstanding about people who are different from them. I do not want to give the impression that teaching about holidays, food, dress, etc. from different cultures is not important. It is important to teach these cultural differences but we must do that in sync with the many contributions that other cultures provide to the educational, scientific, and technology advancements over the history of human kind.

Like most subject areas, math has been largely whitewashed. There have been many cultural contributions to the field of mathematics that have been left out of the American education system and textbooks. The Arabic/Islamic culture in particular has not been given credit for their major mathematical contributions to the study and discovery of the discipline. In America, we are often told that our mathematical system is based on the discoveries made by Greeks and Europeans. However, “many of the ideas which were previously thought to have been brilliant new conceptions due to European mathematicians of the sixteenth and eighteenth centuries are now known to have been developed by Arabic/Islamic mathematicians around four centuries earlier.” (6)

When we begin to acknowledge the non-white contributions to our culture and learning systems, we also begin to truly breakdown stereotypes and prejudice. Learning about multicultural contributions also helps students form deeper connections to the content areas and begin bridging the gap in achievement. Choosing not to acknowledge the many contributions by people that are non-European does not allow students from different races, religions, and backgrounds to see themselves in the educational system. Students are not able to form true connections to the content and thrive the same as a student who sees themselves in positive ways in every subject, book, movie, etc.

Islamophobia is a major issue in the United States. After the September 11, 2001, attacks on American the fear and dislike of Muslims grew exponentially. According to a 2010 Gallop Poll, over half of Americans do not respect Muslims. The poll states that this lack of respect is due to “differences in culture and religion.” (7) Although Muslims are often met with “fear that leads to increased discrimination and personal assault against” them the fear of so many Americans is unfounded. (8) The American people are fearful of additional terrorist attacks and this fear is fueled by the way the media portrays Muslims and a lack of true understanding of the culture. Instead of trying to learn and understand, we shut down and choose to believe the many stereotypes created by news stations looking for ratings.

As educators, we like to believe that our classrooms are without bias but that is not the case. Islamophobia flows into the American classrooms just as it does in the greater society. (9) In fact many Muslim students feel uncomfortable and unaccepted in the school setting. Most educators are from Christian backgrounds and know very little about Islam and the Muslim culture. Due to Islamophobia and a lack of understanding, the Muslim religion and traditions are left out of the conversations and inclusion practices in the classroom. Students of Islamic faith feel more

unaccepted when their religion and culture is largely ignored in the classroom. If we want to work towards fixing this problem in American society, we have to start in the classroom. This is where we can teach students compassion, understanding, differences, and similarities before major biases are developed. This is where we can honestly work toward creating a society that is a beautiful mixture of all cultures that are treated equally and respected equally. One reason for bias and prejudice is a lack of understanding and misinformation. If educators focus on teaching beyond the state standards, we can educate our classrooms to make them thinkers that are more critical. This critical thinking goes beyond solving problems and analyzing readings. This critical thinking involves larger ideas of society, culture and beliefs and how to better understand people and ideas outside our individual circles. When students are actually able to take the critical thinking skills developed in our classrooms and apply them to the real world is when true education occurs.

There are many different approaches to begin teaching about cultural and religious understandings. Instead of always focusing on the differences between western culture and Muslim culture, we should focus on the contributions and similarities as well to help breakdown and disassemble the negative views that are currently held. Brene Brown talks about this approach when developing a culture of belonging, inclusiveness, and diverse perspectives in the workforce. However, it can easily be used in a classroom as well. She states, “Only when diverse perspectives are included, respected and valued can we start to get a full picture of the world.” (10) She continues by saying that “daring leaders fight for the inclusion of all people, opinions, and perspectives because that makes us all better and stronger. That means having the courage to acknowledge our own privilege, and staying open to learning about our biases and blind spots...daring leadership strategies that promote this sense of belonging include recognizing achievement; validating contribution; developing a system that includes power with, power to and power within; and knowing your value.” (11) When educators use a strategy of teaching that respects and values other cultures and races contributions to our society we begin developing belonging that will flow from the classroom to the greater society and begin initiating the real change.

This outlook on education serves more than one purpose. Not only are we educating our students on culture, contributions, and dismantling biases but we are providing our students the opportunity to develop 21<sup>st</sup> century skills and empowering them all at the same time. According to Just Associates, there are three types of power that are developed when we provide education that not only teaches content but also dives deeper into social problems and conflicts. The powers that can come from this way of educating students will continue to benefit them throughout their adult life and help them become leaders in school, work and our communities. The value of this concept is laid out below in the three powers that are developed when we use this approach.

“*Power with*” entails “finding common ground among different interest in order to build collective strength. Based on mutual support, solidarity, collaboration, and recognition and respect for differences, power with multiplies individual talents, knowledge, and resources to make a larger impact.” (12)

“*Power to*” is “based on the belief that each individual has the power to make a difference, which can be multiplied by new skills, knowledge, awareness, and confidence.” (13)

“*Power within*” is “grounded in an ethical value base that fosters a vision of human rights and responsibilities and an ability to recognize individual differences while respecting others.” (14)

One way to achieve this is through a combination of literacy and math practices that dive deeper into the foundation of culture, customs and contributions. We must explicitly teach our students how to be critical thinkers and “identify, question, and explore social problems while engaging in authentic...practices.” (15) We can do this by providing literature, information, and history and then providing a safe context for students to explore and discuss in order for them to make the necessary connections and understandings. “UNESCO affirmed that teaching about religions and cultures contributes to understanding, reducing intolerance, and discrimination.” (16) Newstreet, Sarker, and Shearer explain that, “Teachers must choose to present the materials in a balanced, objective, professional way, including study of the history and culture of Muslims to help disprove negative stereotypes.” (17)

In order to help students become prepared for our global society we must teach them global citizenship. In order to be a global citizen people must know about, understand, and value other cultures and their contributions to the global society. Dressel states that “it is the learning community within schools-teachers, parents, and students-that is most often responsible for perpetuating racism, and they do so by not talking about things.” (18) As adults, we often feel uncomfortable about discussing cultural differences and racial biases with our students. This can be due to a number of different reasons but our lack of comfort cannot stop the need for honest educational experiences of our students. Therefore, if educators are struggling with how to provide an environment that talks about bias and misconceptions they need to provide themselves with the knowledge to better understand the issues themselves.

In order to break stereotypes we need to directly teach about culture, religion and contributions to the greater society. One way to accomplish this is teaching students about the Muslim contributions to mathematics. The contributions of Muslims have often been left out when talking about the history of mathematics and the concentration has been on that of the Greek and European developments of the subject. “Until quite recently, it was common in historiography to look at Islamic science in general and mathematics in particular, as not much more than a pipeline for the transmission of Greek science from the ancient world to Renaissance Europe.” (19) However, more recently scholars have found more and more information that the Muslims also contributed greatly to the development of mathematics and preserved much of the history to be used across the world.

From 701 AD to around 1258 AD, the Umayyad and Abbasid Caliphates created a culture focused on art, science and mathematics. This period is known as the Islamic Golden Ages and it produced many of the mathematical foundations we still use today. During the reign of the

caliph al-Mamun (813-833), the “House of Wisdom” was founded in Baghdad. (20) “The House of Wisdom” was an advanced research institute that not only created new ideas and concepts but also took the learnings from scholars all over the world and translated them into Arabic to hold in a library. This research institute was important for the Muslims and the larger world. Many of the translations held here allowed additional concepts to develop from them. Some of the work from “The House of Wisdom” was the only copy to be written down because previously it was written on dust boards or passed by word of mouth.

During this period of history many discoveries were made that are left out of our modern understanding of scientific and mathematical discoveries. One scholar who is of significant importance is Muhammed ibn Musa al-Khwarizimi. He wrote *Hisab al-Jabr w'al-Mugabalah* (“The Book of Calculation of Restoration and Reduction”). (21) Al-Jabr has developed into the word algebra and is based on al -Khwarizimi’s discovery of keeping equations balanced. This algebraic discovery is used in our daily math instruction from elementary school all the way up to doctorate level mathematics. Another term associated with al-Khwarizimi’s work is the word algorithm. This word derived al-Khwarizimi’s name and refers to the set of rules needed to solve mathematical problems. The development of algebra let too many other discoveries in the field of mathematics.

Another contribution of Muslims to our modern-day mathematical system is the notational system. We know this system as our number digits 0-9. Although originally developed by Indians, Muslim intellectuals implemented it into society and further developed the concept of zero. “The House of Wisdom” provided the translations of works from around the world. This knowledge along with other cultural developments in Baghdad allowed for the “full adoption and elaboration of this notational system.” (22)

The development of the numerical system in combination with al-Khwarizimi’s algebra, allowed for the development of practical problem solving. The Muslims used the mathematical discoveries to solve problems involving “land measurement, inheritance, accounting, and trade.” (23) This allowed math to go beyond just scholars and trickle down to the greater population. Once an idea is part of the larger society is when it begins integrating into the cultures and systems. This more common use of the mathematical concepts began to change the way math was done and viewed.

Another wonderful contribution from al-Khwarizimi was the introduction of fractions. This was a new development and was not completely formulated or integrated but it laid the foundation for continued development of partial products and the concept as part of a whole.

Another scholar from “The House of Wisdom” that helped develop mathematics is Abu al-Hasan Ahmad ibn Ibrahim al-Uqlidisi. Al-Uqlidisi took the teaching of his predecessors and began taking the knowledge to pen and paper. He did not trust dust boards because it was information that was easily erased and not accurately passed down by word of mouth. With this new application of recording, the symbolic use of numbers was enhanced.

These developments from the Muslim world have been vital in the development of mathematics and on our society. Teaching students about the contributions can help dismantle



some of the ideologies created by the news and a small population of people after September 11<sup>th</sup>. Teaching about the development of math and how we still use it today allows for an introduction into the culture of Muslims. From the foundation of algebra, algorithms, and equations to the concepts of patterns, geometry, and direction, Muslims (and non-Muslims within Islamic intellectual environments) contributed many wonderful things that are integrated into our current society. Americans—Muslim and non-Muslim alike—are unfamiliar with the history of many of these discoveries. In order to help stop Islamophobia we need to develop a curriculum that dives deep into the contributions and culture of Muslims.

This is so vital to teach in our educational system because it helps to answer the question of how the Muslim world came to be thought of as it is in European and American thinking. Edward Said tries to answer some of these questions in *Orientalism*. He believes that “we have a preconceived notion of what kind of people live there, what they believe, how they act, even though we may never have been there or indeed even met anyone from there.”(24) This idea that non-Muslim Americans have created about the Muslim people is that of a fantasy. The Muslims are seen as either terrorist, magical, or fantasy figures. However, Muslims and people from the Middle East and Africa are rarely viewed as scholars, scientists or mathematicians. This view that Americans have does not come by nature but rather by our media, that changes the tone and reality of an entire group of people. This portrayal of Muslims is found in all forms of media ranging from Disney movies, to books and songs, to mainstream news outlets. We are given one image that helps form our individual biases and misunderstandings of an entire culture.

The way in which Arabs and Muslims are portrayed in the American media, film and pop culture is like that of no other race or ethnicity. This American way of understanding the Muslims allows for hateful generalized and racist statements. Statements that would never be tolerated for any other group and it perpetuates the negative and demonized idea of the Muslim people. It is our duty as educators to show our students a different side of the story. It is our job to begin changing the narrative. It is our job to truly educate the American youth. Not just with the Eurocentric history but with the true and honest history of our nation and world. Antonio Gramsci said it best when he stated, “History leaves us with traces but no inventory. The task is to compile an inventory of the traces that history has left us.”(25) Understand my history in terms of other people’s history. Transform from a unitary identity to an identity that includes the other without suppressing the differences.

## **Lesson Plans**

The following lesson plans should be taught over the course of the 5<sup>th</sup> grade operations and algebraic thinking unit. These plans specifically focus on the standard 5.OA.3: Analyzing Patterns and Relationship. However, the plans also incorporate many other standards and cross-curricular instruction. The unit is a unit that focuses on the whole curriculum and therefore should be taught throughout the day and across subject areas. For example, each lesson plan provides lessons for the social and emotional learning block, literacy block, social studies block, and math block. These lessons also allow for student creativity and the production of individual and unique pieces of art. This unit provides students with the opportunity to dive deep into a fascinating unit of study and help break the misconceptions of a beautiful culture.

Each lesson will be written in a 3-part plan. The first part will focus on the culture of Muslim Americans allowing students to learn about a religion and culture that they are probably unfamiliar with. This portion of the plan will take place during the social and emotional learning blocks. This part of the lesson will also incorporate literacy standards, as the students will be reading, analyzing, comparing and investigating different text. Social studies standards will also be incorporated during this learning block.

The second part of the lesson will focus on the Muslim style of art. Particularly zeroing in on the beautiful art created using geometry and patterns. We will also spend time learning about the Calligraphy created by the Muslim populations. During the lessons on art, students will be taught about the connections between the art, culture, and religion. They will also learn about the unique differences between Muslim art and the art of other parts of the world. Students will have the opportunity to not only learn about the history of Muslim art but they will also create their own masterpieces using geometry, patterns and calligraphy. Again, this part of the unit ties in both literacy and social studies standards allowing students to learn about another culture while continuing to dive into the history. Students will also compare and contrast art from around the world and analyze the structure and formation of Islamic art pieces.

The third and final part of the unit plans focuses on math. This part of the plan will use fifth grade standards to teach the math but also provide the students with a connection to the history of the creation of the math itself. Students will learn how to analyze patterns and relationships while looking at Islamic art and then take that understanding and transfer it to the patterns of numbers. This part of the unit will provide many opportunities for students to grow as mathematicians, historians, students, and cultural leaders. Often, math is seen as a subject that is simply a set of rules and provides little connection to the greater world. This unit will provide the connection to the world while at the same time breaking misconceptions about a wonderful group of people.

Learning about culture and religion can be a subject area that is difficult to navigate in our society. Especially when we are discussing a culture that has been particularly stereotyped and discriminated against. Islamophobia exists within our students just as it does our adult population. Therefore, before beginning any of the lessons, teachers need to make sure that we have developed a strong and safe classroom community. It is imperative that students feel safe discussing the content and are open to learning. It is also equally important that students discuss the content in a respectful way. There should be open discussion about stereotyping and misconceptions but the conversations need to be held in a respectful and monitored setting. Teachers need to address incorrect statements and stereotypes in real time. Teachers also need to make the point that no one culture is better or more worthy than another. Please refer to the teacher resources page for resources to help guide difficult classroom conversations in a positive and respectful manner.

## Lesson 1

Time: 2 days

Guiding Questions: \*What is culture? \*How does religion affect our culture? \*How does history view some cultures versus others? \*Who is represented in history and why? \*Why are some peoples or cultures important to share but others are not as important? \*What is our role as learners to make sure we dive deeper to gain more knowledge and a better understanding? \*Is art created from culture or is culture created from art? \*Who contributed to modern math, science and art and how? \*What cultures are represented in the creation of math, art, and science and why?

### 1a. American Muslims: Facts vs. Fiction

1. Provide students with a KWL chart. Pose the following question and allow students 3-5 minutes to brain storm what they know and what they want to know about Muslims.
2. Vocabulary – Provide students with vocabulary that they will encounter during the video and unit
3. [Video](#) – students will need to take notes during the video. After the video have, the students fill out the L part of the KWL chart with the information that they learned from the video about Muslims.
4. Discussion Forum – Provide students with the opportunity to discuss the video and their thoughts. Use the discussion questions to help facilitate the discussion.
5. Essay – Students will complete an essay on a personal experience of when they may have been stereotyped in order to personally connect to the content.

### 1b. Introduction to Muslim Art

1. Use this [link](#) to show students various forms of Muslim art.
2. Vocabulary – provide students with vocabulary to help describe and explain the art. Discuss words such as symmetry, patterns, infinity, repetition, shapes.
3. Discuss the math connections and cultural connections to the art. Focus on the geometry and patterns but also focus on why the art was created the way it was. Explain the meaning of infinity and eternity. You could also discuss the patterns Muslims follow in their daily life such as 5 prayers, fasting, and pilgrimage.
4. [Video](#) – Ted Talk: The Complex Geometry of Islamic Design
5. Think, Pair and Share – Students will pair up and discuss the various art pieces they saw in the slideshow and video and discuss what they like, what they learned, what they found interesting

### 1c. Algebra: Analyze Patterns and Relationships

1. Use this [slideshare](#) to introduce students to Muslim mathematicians and scholars. Focus on the fact that algebra is named after a Muslim mathematician but this this piece of known information is often left out of math history. This slideshare is a great resource but I recommend turning off the sound and explaining the slides yourself.

2. Introduce students to the new topic of number patterns. Review what concepts they have already learned. This way you can build upon this prior knowledge as the lesson progresses.
  - a. In 4<sup>th</sup> grade, Patterns and relationships were introduced. Students had to complete a number pattern that followed one rule. Use 4<sup>th</sup> grade material to review.

\*Make sure that throughout the lesson the teacher makes connections between the culture, art and math. The three lesson parts go together and in order for the students to get the full understanding of the lessons and break the stereotypes the lessons need to work together.

## *Lesson 2*

Time – 2-3 days

Guiding Questions: \*What is Islam? \*What connections can you make with your religion and the religion of Islam? \*How do the five Pillars affect a Muslim’s life? \*How does learning about another religion and culture make us better citizens?

### 2a. Islam as a religion

1. Play the [video](#) and have students take notes in the note catcher. Pause the video at important points to discuss.
2. Vocabulary – Provide students will vocabulary from the video that describes Islam
3. 5 Pillars discussion – Use the Socratic seminar discussion format have an academic conversation based off what was learned from the video and use this [reading](#) to conduct the seminar.
4. Venn diagram – use a Venn diagram to compare and contrast Islam and Christianity

### 2b. Islamic Art Creations

1. Vocabulary – review the vocabulary from the previous lessons and add additional vocabulary to this lesson
2. Islamic art template – students will be provided with Islamic art templates and will use markers, crayons, colored pencils to create the art. Make sure to focus on the symmetry and repeating patterns that occur in the art works.
3. Color Patterns – Using a piece of simple pattern art, students will work to find the pattern and corresponding numbers. You can then use this pattern to find the “rules” for each color/shape. This is the introduction into the math lesson of the day.

### 2c. Analyzing Patterns lesson 1

- In fifth grade, students will need to be able to find the rules to two different number patterns.
- 1. Complete the activity Zyaire and Erich Want to Buy a Bike
  - a. Students will need to work together in partnerships to answer the following questions and complete the activity
    - i. What do you know?
    - ii. What do you need to find out?

- iii. How can the table help you?
- 2. Pattern Problems
  - a. Students will work in math workshop time rotating through stations
    - i. Station 1 – Growing [Sumandas](#) (students will work in pairs to solve the performance task)
    - ii. Station 2 – EnVision Stem Activities (your district will need to have an EnVision account for this activity. If you do not have an account you can use any stem activities that have a pattern focus.)
    - iii. Station 3 – Small group with teacher (Use data to drive your small group stations. Focus on the most commonly missed questions from morning work, assessments, EOG's, independent assignments)
    - iv. Station 4 – Independent work (this is the station that you will take as a grade. Students will work through the problems focusing on the current standard.)

### *Lesson 3*

Time: 2-3 days

Guiding Questions: How do holidays help develop culture? How are seasons used in developing holidays? What are traditions in Ramadan that are shared with other holidays? What traditions are unique to Ramadan? What countries/regions influenced Muslim culture the most? How does the Vedic Square help you understand patterns? How does the Vedic Square help you understand Islamic art?

#### 3a. Holiday: What is Ramadan?

1. Read the book *Under the Ramadan Moon*
  - a. Discuss the guiding questions and create a predictions chart about what students think Ramadan is.
2. [Video](#) on Ramadan
  - a. Create a new chart to compare and contrast Ramadan with other holidays that students may celebrate.
3. One Pager
  - a. Students will complete a one-pager activity to represent what they know and learned about Ramadan

#### 3b. Vedic Squares

1. Introduce students to the concept of the Vedic square. Explain the history and uses by the Muslims. The Vedic Square was created by the Indians but was used by the Muslims to create art and patterns. Many Muslim patterns and tile work used the Vedic square to produce the repeated shapes.
2. Allow students to work in groups to see if they can find the patterns in the Vedic square. Provide each group with copies of the Vedic Square and allow students the opportunity to

explore and investigate. Encourage them to work together to find patterns and make shapes from the Vedic square using patterns.

3. Explain how the Vedic squares work with multiplication
4. Show students the connection between the [Vedic squares and Islamic art](#).

### 3c. Patterns with numbers lesson 2

1. Review yesterday's lesson
  - a. Use the "How many Pages" activity to help review yesterday's lesson.
  - b. Find the rule given 2 patterns mini lesson (use your curriculum resources to plan this lesson)
  - c. Pattern Problems
    - i. Station 1 – [Sidewalk Patterns](#)
    - ii. Station 2 – EOG Styled Questions (you can set these questions up in a number of different ways. I would suggest using some activities such as a gallery walk, secret envelope, have students play games such as connect four, or tic, tac, toe when they get an answer correct)
    - iii. Station 3 – Small group with teacher
    - iv. Station 4 – Independent work

## *Lesson 4*

Time 2-3

Guiding Questions: How is Muslim culture different around the world? How does geography affect culture? How does religion affect culture? Why is dress different around the world? How has geography affected the way Muslims are viewed around the world?

### 4a: Muslims Around the World

1. Read 3 books on Muslims from around the globe. (This [site](#) has a fantastic list of Middle Eastern and African books.)
2. PowerPoint on Muslims from around the world. (Create a PowerPoint that highlights the dress, language, food, and music of Muslims from around the world. Focus on the countries or regions from the three books you chose but also incorporate other countries and regions as well.)
3. Concept map of Muslims from around the world – create a concept map as a class about Muslims from around the world. (Students can fill the concept map with pictures, words, etc. that describe the culture.)
4. [Two Voice Poem](#) – students will take what they learned and create individual Two Voice Poems from the perspective of Muslims from around the world

### 4b: Vedic Square Art

1. Students will take the knowledge from the previous lessons and create their own Vedic Square art. Focusing particularly on the patterns and symmetry. Use this [resource](#) to

guide your art instruction. You can have students connect the numbers to create additional patterns to use as art as well. Use this [resource](#) to help you create the number connections to the patterns.

#### 4c: Patterns

1. Students will continue working on developing patterns and tables using 1 or two rules (continue the previous lessons. Continue focusing on the patterns within the numbers)
2. Introduce students to the concept of taking the patterns created in the table and creating ordered pairs. They will then learn how to plot the ordered pairs onto a graph. Help students develop the connections between the pattern in the table and the visual pattern created from the graph. Make sure to remind students about the importance of the X-axis and Y-axis and the importance of labeling the axis.
3. Continue the learning on days 2 and 3 by taking ordered pairs that are already plotted on a grid and transferring that information by putting the ordered pairs into a table. Once the table has been created make sure students can find the pattern that the numbers follow.
4. Stations
  1. [Farmer Brown Performance Task](#)
  2. EOG styled questions (continue the same activities using EOG styled questions from lesson 3)
  3. Small group with teacher
  4. Independent assignment

#### Lesson 5

Time: 2-3 Days

Guiding Questions: Why are the stories of Muslim Americans silenced? When learning about the exploration of The Americas why are Muslim's not mentioned? How has the media affected the view of Muslims in America? How are Muslims represented in popular media, movies, books, etc.? How can we work together to change the view of Muslims in America?

#### 5a. Muslims in America

1. [Video](#) on the history of Muslims in America. In addition, a [shorter video](#) talks about the more modern history of Muslims in America.
2. Famous American Muslims – Make sure that there are representations in news, media, sports, authors, scientist, doctors, etc. Also, make sure that you are using both male and female people. Use the list provided to pick a few people you want to discuss and allow students to research others and present what they learned.
3. Read *Coming to America: A Muslim's Family Story*
4. Read *My Name is Bilal*

#### 5b. Calligraphy - What's in a name?

1. Watch [video](#) on calligraphy and its history

2. Teach students how to write their name in calligraphy. Follow the [step by step](#) guide.

#### 5c. Review of Patterns

1. Reteach misconceptions based on previous data from lessons 1-4. Spend time preparing for the end of unit assessment.
2. Play a jeopardy game to review patterns. Add questions from the SEL lessons and art lessons to continue showing students the connections between the math and culture.

#### End of unit assessment **Assessment**

Students will be assessed in each of the focus areas of the lesson. They will receive a formal grade for mathematics based off the end of unit test. They will also receive a social studies grade and literacy grade.

1. Literacy and Social Studies Assessment
  - a. Write a 5-paragraph letter from the perspective of a Muslim child to a non-Muslim child. Explain myths, culture, holiday, religion, etc. Make sure to use examples from the text and videos that we have watched in class.
  - b. Create a symmetrical art piece using the Vedic Square. Remember that symmetrical means a mirrored image. This include shapes, line, and colors.
  - c. End of Unit Assessment for math – 10 questions.
    - i. 6 multiple choice
    - ii. 3 gridded answers
    - iii. 1 open response



Include:  
 -3 paragraph typed  
 essay  
 -bibliography (at  
 least 3 resources)  
 -rough draft  
 -outline

### Five Paragraph Essay Rubric

Teacher Name: \_\_\_\_\_  
 Student Name: \_\_\_\_\_

CATEGORY	4	3	2	1
<b>Introduction (Organization)</b> 5-8 sentences	The introduction is inviting, states the main topic and previews the structure of the paper.	The introduction clearly states the main topic and previews the structure of the paper, but is not particularly inviting to the reader.	The introduction states the main topic, but does not adequately preview the structure of the paper nor is it particularly inviting to the reader.	There is no clear introduction of the main topic or structure of the paper.
<b>Body Paragraphs (Organization)</b> 5-8 sentences, 3 paragraphs	Paragraphs and details are placed in a logical order and the way they are presented effectively keeps the interest of the reader.	Paragraphs and details are placed in a logical order, but the way in which they are presented, introduced, sometimes makes the writing less interesting.	Either some paragraphs or details are not in a logical or expected order, this distracts the reader.	Paragraphs are not in order. Many details are not in a logical or expected order. There is little sense that the writing is organized.
<b>Conclusion (Organization)</b>	The conclusion is strong and leaves the reader with a feeling that they understand what the writer is 'getting at.'	The conclusion is recognizable and ties up almost all the loose ends.	The conclusion is recognizable, but does not tie up several loose ends.	There is no clear conclusion, the paper just ends.
<b>Sentence Structure</b> Use transitions between ideas	All sentences are well-constructed with varied structures.	Most sentences are well-constructed with varied structure.	Most sentences are well-constructed but have a similar structure.	Sentences lack structure and appear incomplete or rambling.
<b>Support for Topic (Content)</b> Include at least one citation per body paragraph	Relevant, telling, quality details give the reader important information that goes beyond the obvious or predictable.	Supporting details and information are relevant, but one key issue or portion of the storyline is unsupported.	Supporting details and information are relevant, but several key issues or portions of the storyline are unsupported.	Supporting details and information are typically unclear or not related to the topic.
<b>Bibliography</b> 3+ resources <1 print source (book, news, etc)	Writer includes 3 resources properly formatted to MLA with author for all resources.	3 resources are mostly formatted to MLA with an author for all resources.	At least 2 resources are formatted to MLA. Student may not have an author for all resources.	Sources are not properly formatted and/or do not include an author.
<b>Grammar &amp; Spelling (Conventions)</b>	Writer makes no errors in grammar or spelling that distract the reader from the content.	Writer makes 1-2 errors in grammar or spelling that distract the reader from the content.	Writer makes 3-4 errors in grammar or spelling that distract the reader from the content.	Writer makes 5+ errors in grammar or spelling that distract the reader from the content.

TOTAL = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_ = \_\_\_\_

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## **Appendix 1**

### **Teaching Standards**

#### **North Carolina State Standards for Literature**

**RI.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

**RI.5.3** Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

**RI.5.4** Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area

**RI.5.5** Compare and contrast the overall structure of events, ideas, concepts, or information in two or more texts

**RI.5.6** Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

**RI.5.7** Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question or to solve a problem efficiently.

**RI.5.9** Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably

#### **North Carolina State Standards for Mathematics**

**NC.5.OA.3** Generate two numerical patterns using two given rules.

**NC.5.NBT.5** Demonstrate fluency with the multiplication of two whole numbers up to a three-digit number by a two-digit number using the standard algorithm.

**NC.5.NBT.6** Find quotients with remainders when dividing whole numbers with up to four-digit dividends and two-digit divisors using rectangular arrays, area models, repeated subtraction, partial quotients, and/or the relationship between multiplication and division. Use models to make connections and develop the algorithm.

**NC.5.NBT.7** Compute and solve real-world problems with multi-digit whole numbers and decimal numbers.

**NC.5.MD.2** Represent and interpret data.

**NC.5.G.1** Graph points in the first quadrant of a coordinate plane, and identify and interpret the x and y coordinates to solve problems.

## Appendix 2

K-W-L Chart		
Topic: _____		
What I Know	What I Want to Know	What I Learned

whysospecial.com

### Vocabulary List for Muslim Facts Vs. Fiction

Stereotypes	Terrorist	Oppressed
Quran	Diverse	Ethnic
Condemn	Perception	Hypocrisy
Extremist	Islam	Arab

### Video Discussion Questions:

- What are some stereotypes of Muslims that you have heard? After the video, are they true or untrue?
- What surprised you from the video or what did you find interesting?
- How does what you learned about Muslims compare to your life and customs?
- Why do you think Muslims are discriminated against?
- When a group feels they never belong and are discriminated against, how does it affect them and their response?
- Are there connections between Islam and other religions?

## When Was a Time You Were Stereotyped? Essay Directions and Rubric

Directions: People of all races, religions, and backgrounds are stereotyped. A stereotype is when a group of people are viewed in general ways. An example of a common stereotype about animals is that all dogs bite. Sometimes the stereotypes are not true and can often be negative. Can you name a time that you were stereotyped? Describe the situation in detail. How did it make you feel? Was the stereotype true? How did the stereotype affect you and your view of yourself? What was your response to the person?

### Personal Narrative - Six Traits Rubric

	<b>Ideas</b>	<b>Voice</b>	<b>Word Choice</b>	<b>Conventions</b>
<b>100%</b>	<b>5</b> The narrative shows an unforgettable experience. The details make the story truly memorable.	<b>5</b> The writer's voice creates an unforgettable experience for the reader.	<b>5</b> The writer's exceptional word choice captures the experience.	<b>5</b> Punctuation and grammar are correct. The writing is free from spelling errors.
<b>90%</b>	<b>4</b> The writer shows an interesting experience. Details help create the interest.	<b>4</b> The writer's personal voice creates interest in the story. Dialogue is used.	<b>4</b> Specific nouns, strong verbs, and well-chosen modifiers create vivid pictures and express clear feelings.	<b>4</b> The narrative has a few minor errors in punctuation, spelling, or grammar.
<b>80%</b>	<b>3</b> The writer tells about an interesting experience. More details are needed.	<b>3</b> The writer's voice creates interest in the story. More dialogue is needed.	<b>3</b> Specific nouns, strong verbs are used. Modifiers are needed to create a clearer picture.	<b>3</b> The writing has several errors in punctuation, spelling, or grammar.
<b>70%</b>	<b>2</b> The writer needs to focus on one experience. Some details do not relate to the story.	<b>2</b> A voice can usually be heard. More dialogue is needed.	<b>2</b> Strong nouns, verbs and modifiers are needed to create a clear picture.	<b>2</b> Some errors confuse the reader.
<b>60%</b>	<b>1</b> The writer needs to focus on one experience. Details are needed.	<b>1</b> The voice is weak. Dialogue is needed.	<b>1</b> General and overused words do not create a clear picture.	<b>1</b> Many errors make the writing confusing and hard to read.

## Appendix 3

### Vocabulary

Fasting	Ramadan	5 Pillars of Islam
Hijab	Allah	Prophet
Qur'an	Mecca	Mosque
Imam		

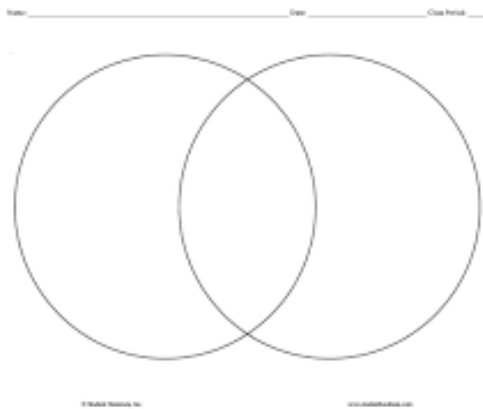
### Socratic Seminar Directions

#### Socratic Seminar

##### Ground Rules

1. Speak so that all can hear you.
2. Listen closely.
3. Speak without raising hands.
4. Refer to the text.
5. Talk to each other.
6. Ask for clarification. Don't stay confused.
7. Invite & allow others to speak.
8. Consider all viewpoints & ideas. Discuss ideas rather than each other's opinions.
9. Stick to the point under discussion; make notes about ideas you want to bring up later.
9. Know that you are responsible for the quality of the seminar.

### Venn Diagram



### Zyaire and Erich Want to Buy a Bike

- Zyaire and Erich are saving their money to buy new bikes. Zyaire wants to get a blue street cruiser that costs \$197. Erich wants to buy a green BMX bike that costs \$247. They are both completing chores around the house to earn money for their bikes. Zyaire has \$10 in her savings account from her birthday and she earns \$8 a week for her chores. Erich has \$5 in his bank account and he earns \$11 a week for his chores. How long will it take Zyaire to earn enough money for her bike? How long will it take Erich to earn enough money for his bike? Who will have enough money first?
- Use the table to help you solve the problem

<b>Week</b>	<b>Zyaire</b>	<b>Erich</b>
Start	\$10	\$5
Week 1		
Week 2		
Week 3		
Week 4		

## Appendix 4

### Making Predictions



**Making Predictions:**  
Good readers stop to infer what might happen next in the story.

I think...

Now I think...

Now I think...

Now I think...

### Compare and contrast Chart

#### Compare Two Holidays

Names \_\_\_\_\_ Date: \_\_\_\_\_

Around the world, communities celebrate many different holidays to honor their histories, beliefs, and cultures. Choose two holidays, and compare and contrast them in the chart below.

	Holiday 1	Holiday 2
<b>WHY</b> do people celebrate this holiday?		
<b>WHEN</b> does this holiday take place?		
<b>WHO</b> celebrates this holiday?		
<b>WHERE</b> is this holiday celebrated - in one country or many countries?		
<b>HOW</b> do people celebrate? Describe a popular tradition.		
<b>WHAT</b> are some important symbols of this holiday?		
<b>SHARE</b> one more interesting fact about the holiday.		

Scholastic.com: Winter Holidays Activities

One Pager – Students will fill a whole page with ideas that focus on Muslims and Ramadan specifically. These one pagers should follow the criteria listed below. They should be colorful, neat, and draw the reader’s attention. One Pagers are a great way for students to put their ideas, understandings, and learning on one page.

[https://www.alvordschools.org/site/handlers/filedownload.ashx?moduleinstanceid=18523&dataid=30429&FileName=One\\_Pager\\_Overview.pdf](https://www.alvordschools.org/site/handlers/filedownload.ashx?moduleinstanceid=18523&dataid=30429&FileName=One_Pager_Overview.pdf)

Name: \_\_\_\_\_

### One-Pager Criteria

**Requirements**

1. All work must be done on one side of the paper.
2. Your first and last name must be clearly displayed.
3. Design a border that reflects the unit of learning or theme (it can include words, pictures, quotes, or symbols).
4. Write your reactions or connections to the text or unit of study.
5. Draw at least one visual image that strongly relates to the unit.
6. Draw a word cluster around one of your images to symbolize the subject.
7. Write a poem about the unit of study, a character, or the theme.
8. Support your work with a personal statement. Begin your statement with, "I believe..."
9. Create at least 3 questions, and then answer them with support from the text, your notes, or unit of study.
10. Be colorful and neat! Nothing should be left in plain pencil.

How Many Pages

Day	Pages
1	15
2	
3	
4	



During summer vacation, Mohammad read 45 pages each day. His sister Maryam read 15 pages each day. Complete the tables to show how many pages each of them read after 7 days. What relationship do you notice between the terms in each pattern?

5	
6	
7	

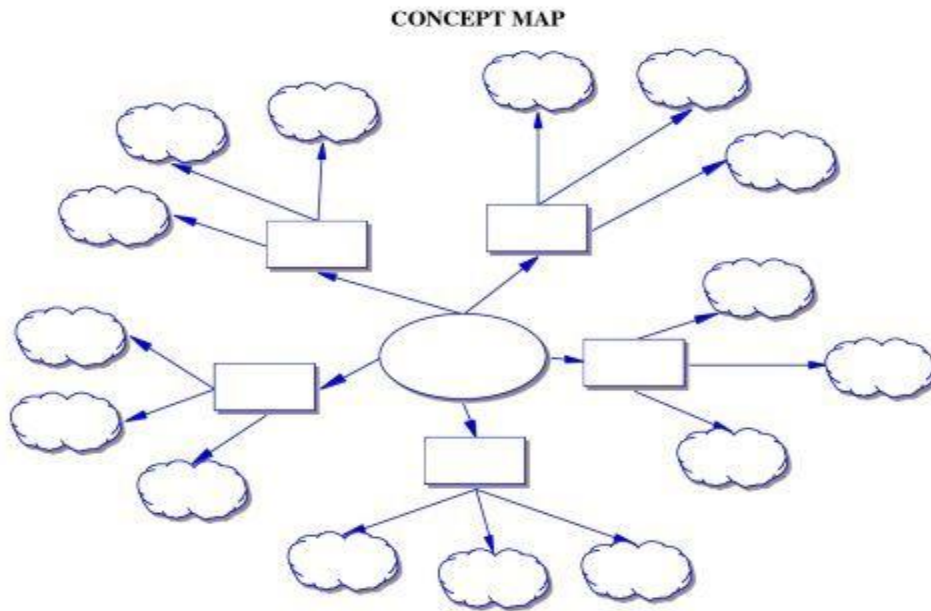
Mohammad's Book

Day	Pages
1	45
2	
3	
4	
5	
6	
7	

Maryam's Book

## Appendix 5

### Concept Map



### Two Voice Poem Template

Country 1:	Both	Country

## Appendix 6

### List of Famous Muslim Americans

Ilhan Omar	Rashida Tlaib	Malcom X	Dave Chappelle
DJ Khaled	Ice Cube	Muhammad Ali	Shaquille O'Neal
Dr. Oz	Malala Yousafzai	Lupe Fiasco	French Montana

## List of Materials for Classroom Use

1. Wolfe, Michael, and Daniel Tutt. American Muslims: Facts vs. Fiction. Unity Productions Foundation, 2015.  
<https://www.youtube.com/watch?v=eFsn49QxwI0&feature=youtu.be>. This is a great film to show students the facts vs. the fiction in regards to American Muslims. It helps to debunk some of the negative stereotypes that may be help about Muslims in America.
2. <https://tilemaker.teachalmasdar.com/>  
This is a website where students can create Islamic tile work on their computer or iPad. This would be a fantastic resource if you do not want to use paper versions of the artwork. It would also allow you to incorporate 21-century skills.
3. <https://www.qm.org.qa/en/pattern-canvas>  
Another website where students can create Islamic tile work using computer software.
4. Whitman, Sylvia, and Sue Williams. Under the Ramadan Moon. New York, NY: AV2 by Weigl, 2013.  
This book is used as a read aloud to introduce students to the holiday Ramadan.
5. Zimmerman, Alycia. "Books and Activities to Teach About Islam." Scholastic, November 13, 2018. <https://www.scholastic.com/teachers/blog-posts/alycia-zimmerman/2017/Books-and-Activities-to-Teach-About-Islam/>.  
List of books to use in the classroom to teach about Islam and Muslims.
6. Colours of Us. "20 Children's Books Set in the Middle East & Northern Africa." Colours of Us, May 20, 2018. <https://coloursofus.com/20-childrens-books-set-in-the-middle-east-northern-africa/>.  
Great list of books that represent Muslims from all over the world. The titles are broken down by region and country.
7. Przybylek, Stephanie. "Calligraphy in Islamic Art: Definition, Styles & Uses." Study.com, 2018. <https://study.com/academy/lesson/calligraphy-in-islamic-art-definition-styles-uses.html>.  
Great video and lessons on Islamic Calligraphy.
8. Alvarez, Natalie, Melissa, Cindy Ingram, and Breanna. "Islamic Art for Kids: Calligraphy Art Project Inspired by the Islamic Tughra." Art Class Curator, June 20, 2020. <https://artclasscurator.com/islamic-art-for-kids/>.  
Directions and resource for students to create their own name in calligraphy

## Teacher Resources

1. Elias, Maurice J. "4 Approaches to Building Positive Community in Any Classroom." Edutopia. George Lucas Educational Foundation, August 8, 2016. <https://www.edutopia.org/blog/4-approaches-building-positive-community-any-classroom-maurice-elias>.  
Ways to help build a classroom community. This is a great starting place to learn how to build a safe and effective classroom community. When we are talking about sensitive topics the classroom community is very important to help develop respectful conversations.
2. Museum of Art, Philadelphia. "Common Core Math and Islamic Art." Philadelphia: Philadelphia Museum of Art, n.d. [https://www.philamuseum.org/doc\\_downloads/education/lessonPlans/Common%20Core%20Math%20And%20Islamic%20Art.pdf](https://www.philamuseum.org/doc_downloads/education/lessonPlans/Common%20Core%20Math%20And%20Islamic%20Art.pdf)  
Lesson plans on the connection of Islamic art and math. These lesson plans are directly related to the common core standards and a good guide for teachers.
3. mason , luke. "Islamic Mathematics ." The Story of Mathematics - A History of Mathematical Thought from Ancient Times to the Modern Day, February 20, 2020. <https://www.storyofmathematics.com/islamic.html>.  
Introduction into the creation of mathematics. This resource is great to learn about the history of mathematics that we often don't know about. I will provide you with the contributions of multiple societies and cultures to math.
4. Nasir, Na'ilah Suad, Victoria M Hand, and Edd Taylor. "Culture and Mathematics in School: Boundaries Between 'Cultural' and 'Domain' Knowledge in the Mathematics Classroom and Beyond." Research Gate, February 2008. [https://www.researchgate.net/publication/236843279\\_Culture\\_and\\_Mathematics\\_in\\_School\\_Boundaries\\_Between\\_Cultural\\_and\\_Domain\\_Knowledge\\_in\\_the\\_Mathematics\\_Classroom\\_and\\_Beyond](https://www.researchgate.net/publication/236843279_Culture_and_Mathematics_in_School_Boundaries_Between_Cultural_and_Domain_Knowledge_in_the_Mathematics_Classroom_and_Beyond).  
Article on the importance of tying cultural connections to the math classroom, This article does a great job at exploring the importance of cultural connections to the math class. If we want to bridge the gap with our students of color we need to address their culture in the classroom and make learning more relevant.
5. Katie, Erin, Heather, Alejandra, Michelle Baldwin, Noelle, and Socratic Seminars – My Block 3 Journey says: "5 Steps to a Successful Socratic Seminar." Minds in Bloom, January 10, 2017. <https://minds-in-bloom.com/5-steps-to-successful-socratic-seminar-29/>.  
How to conduct a Socratic seminar. It give you step by step instructions on how to use Socratic Seminars in the classroom.
6. "American Muslims in the United States." Teaching Tolerance. Accessed October 23, 2020. <https://www.tolerance.org/magazine/publications/what-is-the-truth-about-american-muslims/american-muslims-in-the-united>.

7. “Islam In America | History Detectives.” PBS. Public Broadcasting Service. Accessed October 23, 2020. <https://www.pbs.org/opb/historydetectives/feature/islam-in-america/>

### **Student Resources**

1. “Islam - World Religions for Kids.” Google Sites. Accessed October 23, 2020. <https://sites.google.com/site/worldreligionsforkids/islam>.  
Website explaining Islam and other major religions of the world. Great starting point to help students learn about other cultures and religions.
2. Ted Talk: The Complex Geometry of Islamic Design. Ted Talk , 2015. <https://youtu.be/pg1NpMmPv48>.

## Notes

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2. <https://www.publicschoolreview.com/north-carolina/charlotte-mecklenburg-schools-school-district/3702970-school-district>.
3. “Diversity in CMS.” Charlotte-Mecklenburg Schools. Accessed October 23, 2020. <https://www.cms.k12.nc.us/cmsdepartments/diversity/Pages/Diversity.aspx>.
4. Helms, Ann Doss. “CMS Families Speak More than 200 Languages at Home. Here Are the Top 10.” charlotteobserver. Charlotte Observer, January 16, 2019.
5. Beck, Jennifer. “Making the Connection between Culture and Mathematics.” Making the Connection between Culture and Mathematics Northwestern University | School of Education & Social Policy. Accessed October 23, 2020. <https://www.sesp.northwestern.edu/news-center/inquiry/2009-spring/making-the-connection.html>.
6. Germain-McCarthy, Yvelyne, and Katharine Owens. Mathematics and Multi-Ethnic Students: Exemplary Practices. New York, NY: Routledge, Taylor & Francis Group, 2017.
7. Analysis by the Gallup Center for Muslim Studies. “In U.S., Religious Prejudice Stronger Against Muslims.” Gallup.com. Gallup, January 5, 2020. <https://news.gallup.com/poll/125312/religious-prejudice-stronger-against-muslims.aspx>.
8. Newstreet, Carmen, Amie Sarker, and Ragina Shearer. “Teaching Empathy: Exploring Multiple Perspectives to Address Islamophobia Through Children's Literature.” The Reading Teacher 72, no. 5 (2018): 559–68. <https://doi.org/10.1002/trtr.1764>.
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