Multicultural Multiplication
## Multicultural Multiplication

### Standards Alignment

<table>
<thead>
<tr>
<th>VV Common Core State Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCSS.ELA-Literacy.W.3.7 Conduct short research projects that build knowledge about a topic.</td>
</tr>
<tr>
<td>CCSS.ELA-Literacy.W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.</td>
</tr>
<tr>
<td>CCSS.ELA-Literacy.W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic.</td>
</tr>
<tr>
<td>CCSS.ELA-Literacy.W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</td>
</tr>
<tr>
<td>CCSS. 5.G.1.4 Exemplify migration within or immigration to the United States in order to identify push and pull factors (why people left/why people came).</td>
</tr>
<tr>
<td>CCSS. 5.G.1.2 Explain the positive and negative effects of human activity on the physical environment of the United States, past and present.</td>
</tr>
<tr>
<td>CCSS. 5.C&amp;G.1.1 Explain how ideas of various governments influenced the development of the United States government (Roman, Greek, Iroquois, European and British).</td>
</tr>
<tr>
<td>CCSS. 5.C.1.2 Exemplify how the interactions of various groups have resulted in borrowing and sharing of traditions and technology.</td>
</tr>
<tr>
<td>CCSS.Math.Content.5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.</td>
</tr>
<tr>
<td>CCSS.Math.Content.3.NBT.A.2 Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</td>
</tr>
<tr>
<td>CCSS.Math.Content.4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</td>
</tr>
</tbody>
</table>
3. Research and Information Fluency:
b. Locate, organize, analyze, evaluate, synthesize and ethically use information from a variety of sources and media.

Collaborate with Others
• Demonstrate ability to work effectively and respectfully with diverse teams.
• Assume shared responsibility for collaborative work, and value the individual contributions made by each team member.

Make Judgments and Decisions
• Interpret information and draw conclusions based on the best analysis.

Resources – print
Resources – web

YouTube
This video is of a student explaining the Egyptian method of multiplication.
http://www.youtube.com/watch?v=xTOHkuYwQYw

YouTube
This video is another great example of how to multiply double digits using the Egyptian method.
http://www.youtube.com/watch?v=yHVq0g6XWes

YouTube
This video explains multiplying two digit numbers using place value skills.
http://www.youtube.com/watch?v=qE7tC4zdS8

YouTube
This video explains multiplying two digit numbers by using an algorithm - the U.S. American way of multiplication.
http://www.youtube.com/watch?v=gorZUVV8hFM

YouTube
This video explains Japanese Multiplication, which includes using lines as a counting frame.
http://www.youtube.com/watch?v=85Vd0NpL32k

PreZentit
This tool can be used later in the lesson when students create presentations. One advantage of this tool is that they can work in teams on the same presentation at the same time.
http://prezentit.com/

K-5 Research Skills
This is an excellent resource for teaching and supporting research skills in the elementary grades.
http://www.edutopia.org/blog/elementary-research-mary-beth-hertz
Atlas

This tool allows students to create a high-quality online map in just a few seconds. Once finished, the students can embed the map on any webpage in any size or format. It also allows readers to add comments and photos onto the maps.

http://fmatlas.com/atlas2/jsp/login.jsp

Thinking Strategies Multiplication

This is a Google e-book explaining various multiplication strategies.

http://books.google.com/books/about/Thinking_Strategies.html?id=1JfOXKRFXE4C

Lesson

Multicultural Multiplication

Length Two to three 30-minute lessons
Grade 3, 4, 5
Region Africa
Materials Graphic organizer
checklist
pencils
computers with Internet access

Learning Targets

Students will:

• understand the cultural influences of mathematical thinking and strategies.

• demonstrate their knowledge through the completion of a multimedia presentation.
Activate Prior Knowledge
Pair up the students and then ask them to write down five ways to solve 7 x 4. Next, have a class discussion on the various tricks students used to work out the multiplication problem. The teacher records strategies and responses on an anchor chart or Smart Board.

For example: Well, if I know 7 x 2 is 14 (7 + 7), then I can just double 14 to get 28. This idea of “halving” one number and doubling the other is directly related to strategies used in other countries.

Last, introduce the Egyptian method of multiplication by showing the following video:
• Example of Egyptian Multiplication¹

Ask Compelling Questions
• How does the Egyptian method of multiplying work?
• Do other countries use the standard method of multiplication similar to the one used in the United States? If not, what do they use and why?
• How do you think culture influences mathematics around the world? Prove your thinking.

Investigate/Analyze
Conduct a mini-lesson on good research skills².

During this stage, students conduct Internet and library-based research in small groups on multiplication strategies found around the world. Use the following videos to start their research:
• Egyptian method of multiplication³
• Multiplying double digits⁴ (Egyptian method)
• Multiplying two-digit numbers⁵ (place value)

1 http://www.youtube.com/watch?v=xTOHkuYwQYw
2 http://www.edutopia.org/blog/elementary-research-mary-beth-hertz
3 http://www.youtube.com/watch?v=xTOHkuYwQYw
4 http://www.youtube.com/watch?v=yHVq0g6XWes
5 http://www.youtube.com/watch?v=qE7tC4zdzS8
• **Multiplying two-digit number**\(^6\) (algorithm)
• **Japanese Multiplication**\(^7\)

Each group will use cooperative group strategies by assigning each group member a different role:
• Recorder: Writes down the information in the graphic organizer.
• Searcher: Uses the computer and text resources to search for information.
• Timekeeper: Encourages the group to stay on task as well as announces when time is halfway through and when time is nearly up. Assists writer in transferring information into his/her own words during the create stage.
• Leader: Makes sure that every voice is heard and ensures that everyone stays focused on the learning task by referring to the key questions. He/she also helps conduct research.

Students record their findings in the *graphic organizer*.

**Synthesize/Create**
Students create a slideshow using [PrenZentit]\(^8\) to demonstrating their research, knowledge and learning about multiplication methods from around the world.

Students utilize the graphic organizer that they completed during their research to compare the U.S. algorithm method to other world multiplicative models.

**Share**
Each student in the group prepares to present one aspect of the project.

Student groups present their findings to the class.

___

6 [http://www.youtube.com/watch?v=gorZUVV8hFM](http://www.youtube.com/watch?v=gorZUVV8hFM)
7 [http://www.youtube.com/watch?v=85Vd0NpL32k](http://www.youtube.com/watch?v=85Vd0NpL32k)
8 [http://prezentit.com/](http://prezentit.com/)
As groups present, other students use a Venn Diagram worksheet to record new ideas from the countries they did not research.

**Reflect/Revise**
Class debate: Have the class vote for the multiplication models that they found to be most useful.

Break students into groups to discuss how culture may have influenced mathematical operations and why they think these processes are different.

Teacher scores each new important point on a Smart Board chart or on anchor chart paper.

Students reflect on what they have learned, what they would change next time based on that learning, and how they might revise their products. The reflection can also include the following questions:
- What will you remember about this project?
- How would you suggest improving it next time around?
- What would you tell next year’s students to ensure that they are successful with their projects?

Encourage students to identify new inquiry questions for further investigations.

**Assessment**
Students are assessed on all their work throughout the unit using the following assessment presentation rubric.

**Extension Activity**
Students will use the Atlas Mapping Tool\(^9\) to create a map that shows how their five countries solve double-digit multiplication.

At each location on their virtual world map, have the students provide examples of how these countries solve multiplication equations.

# Multicultural Multiplication

Names: ____________________________________________________________

<table>
<thead>
<tr>
<th>Egypt</th>
<th>U.S.</th>
<th>Country 3:</th>
<th>Country 4:</th>
<th>Country 5:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Multicultural Multiplication Assessment Rubric

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Possible Points</th>
<th>Awarded Points</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group graphic organizer is completely filled out correctly with examples of multiplication from around the world.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation includes information, history and examples about how multiplication equations are solved in Egypt.</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation includes information, history and examples about how multiplication equations are solved in the United States.</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation includes information, history and examples about how multiplication equations are solved in three other countries of choice.</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation compares one country with the U.S. in terms of multiplication teaching.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information is included in a creative, detailed presentation on PreZentit with many presentation features utilized. Each person has a part in the presentation.</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credits/sources shown.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Make Learning Global.

http://www.vifprogram.com

facebook.com/VIFInternationalEducation

@vifprogram