

Title: Titanic – A Mathematical Voyage

Overview

This lesson will provide students with an opportunity to practice/review basic math concepts against the backdrop of an important historical event using primary sources.

Objectives

Following a brief discussion/review of primary sources and their importance, students will work in heterogeneous dyads/triads to extract data from a period newspaper featuring the sinking of the RMS Titanic in order to complete a variety of math problems (mixed review). Students will also create their own Titanic-themed math problems using data contained within the newspaper and an online, interactive infographic.

Time Required

2-3 Class Periods (40 Minutes Each)

Recommended Grade Range

Grades 3-5

Subject / Sub-Subject

Library Science/Math/ELA

Standards

Common Core (Kid-Friendly Language)

3rd Grade

- I can find the answers to questions in an informational text by using a variety of strategies. RI.3.1
- I can follow appropriate rules for discussions, such as taking my turn. SL.3.1
- I can effectively participate in discussions. SL.3.1
- I can find the main ideas and supporting details of a read aloud text. SL.3.2
- I can locate information about a topic using text features and search tools. RI.3.5
- I can listen to a speaker and ask appropriate questions. SL.3.3
- I can gather information from print and digital sources. W.3.8
- I know multiplication facts and I can multiply two factors to get a product 3.OA.1
- I can determine when to multiply and divide in a word problem 3.OA.3
- I know multiplication and division facts. 3.OA.4
- I can use addition, subtraction, multiplication, and division to solve a two-step problem. 3.OA.8
- I can tell and write time to the nearest minute. I can add/subtract time intervals in word problems. 3.MD.1



Credits

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PREPARATION

Materials Used

- Laptops/desktops with internet connectivity (one per student team)
- Projection equipment
- PowerPoint software
- Smart board/dry erase board
- Access to the Library of Congress image of the April 16, 2012 front page of *The World* newspaper with the headline article describing events that transpired on the night that the Titanic hit an iceberg and sank in the Atlantic Ocean (4/14/12 - 4/15/12).
Library of Congress URL: <http://www.loc.gov/pictures/item/96508534/>
- Primary Source word cloud PowerPoint slide
- KWL graphic organizer with “Parking Lot” (one per student)
<https://www.teacherspayteachers.com/Browse/Search:kwl%20charts>
- Titanic Mixed Review Activity Sheet (one per student)
- Red & Green progress cups (one set per student team)
- Access to the online, interactive Titanic infographic
<http://en.ria.ru/infographics/20120405/172609825.html>.

Resources Used

MLA Citations:

"[Photograph of Front Page of The World 16 April 1912 Headlining the Sinking of the Titanic]." *[Photograph of Front Page of The World 16 April 1912 Headlining the Sinking of the Titanic]*. Lib. Of Cong. Web. 26 Apr. 2015. <<http://www.loc.gov/pictures/item/96508534/>>.

"The RMS Titanic / Sputnik International." *The RMS Titanic / Sputnik International*. Web. 2 May 2015. <<http://sputniknews.com/infographics/20120405/172609825.html>>.

Description of Procedure

The teacher will:

1. Set up classroom laptops (one per student team) and will have already accessed the Titanic article from the Library of Congress website before students enter the classroom.
2. Project a copy of the Titanic article on the classroom smart board or projection screen before students enter the classroom.
3. Place the students in heterogeneous dyads/triads.



4. Review, via classroom discussion, what primary sources are and why they are important. The teacher will also project/provide students with a word cloud containing a wide variety of primary source examples to facilitate student answer development and to encourage student participation/discussion.
<http://worditout.com/user/402785/settings/6e106da159eea956bfad983debf6fe36>
5. Introduce the lesson objective (i.e., Titanic Math) and ask the students to complete the “K” and “W” portions of a KWL chart to include the information that they already know about the sinking of Titanic (“K”) and the information that they want to know (“W”) about the sinking of the Titanic (Students will complete the “L” portion after the lesson as they reflect on what they have learned). Allow students to utilize the back of the KWL chart to record any “Parking Lot” questions that may arise as they read the newspaper article.
6. Direct student attention to the April 16, 2012 front page of *The World* newspaper with the headline article describing events that transpired on the night that the Titanic hit an iceberg and sank in the Atlantic Ocean (4/14/12 - 4/15/12).
Library of Congress URL: <http://www.loc.gov/pictures/item/96508534/>
7. Read the article aloud as students follow along to scaffold student understanding of the content and to support those students with fluency issues. Remind students to record any questions that they would like to have answered in the “parking lot” as the article is read.
8. Create a timeline of events on the white board/smart board with student assistance once the article has been read.
9. Pose the question, “Do you think your position in life (i.e., social status) affected your ability to survive the Titanic disaster?”
10. Guide students into noticing that the Titanic had three levels and one’s location on the ship was dependent upon one’s social/financial status.
11. Present students with the Titanic Math-Mixed Review activity sheet and allow them to complete with teammates.
12. Remind students to record any questions that they may formulate in their “parking lot”.
Parking lot questions are those questions that are “parked” due to time limitations and/or the need to gather additional information. Most of the time, students are able to find the answers to their own parking lot questions, as they continue with their research and the completion of their given assignment; however, those questions that remain unanswered are discussed and addressed by the class as a group at the end of the lesson. The “parking lot” helps maintain the momentum of the class, encourages student to become independent information seekers, and gives them a sense of pride when they find their own answers.
13. Use Red/Green progress tents/cups to assist students with any issues/questions that may arise as they search the article for facts/figures and complete their Titanic Math-Mixed Review activity sheet.
14. Remind students that part of the assignment requires that they construct two math-related problems using the data found in *The World* Newspaper article or from the interactive, online infographic <http://en.ria.ru/infographics/20120405/172609825.html>.
15. Navigate around the room checking for understanding and providing assistance where/when needed.
16. Review the answers to the activity sheet by working the problems out step-by-step on the smart board/dry erase board. Remember to utilize the “think-aloud” strategy as you work



the problem out for the class. If time is not an issue, have the students work the problems out for the class at the smart board/dry erase board using the think-aloud strategy or explaining the steps that they followed.

17. Allow each team to submit/present one of the problems that they created using the Library of Congress newspaper article and/or the online, interactive Titanic infographic. Work the problems out together as a class on the smart board/dry erase board using the strategies previously described.
18. Allow the students to share any unanswered parking lot questions with the class and discuss.
19. Allow students to reflect on their learning by completing the “L” portion of their KWL charts and sharing with the class.
20. Pose questions to the class to extend learning/express new ideas, for example:
 - Did your status in life affect your survival rate during the Titanic disaster?
 - Where were the lifeboats located on Titanic and did their location have any bearing on the survival rate of passengers?
 - In the interactive infographic, we learned that first and second class passengers had access to elevators, but third class passengers did not – Do you think this was significant? Explain.
 - How would you re-design Titanic to increase passenger survivability?)
21. Collect student work for grading.

Extensions

Students could use information within the newspaper articles to discuss or compare/contrast the communication technology used during the Titanic disaster/era (i.e., Marconi wireless) to the forms of technology that would have been used if the disaster had happened today. Students could also create a technology evolution timeline chronicling the major technological advancements in the field of communication since Titanic.

Students could use information taken from primary sources related to the Costa Concordia disaster of 2012 (e.g., newspaper articles, videos, survivor accounts) to compare/contrast with information taken from primary sources related to the sinking of the Titanic which took place 100 years prior to the sinking of the Costa Concordia.

Students could research the design of Titanic’s lifeboats and/or life jackets to brainstorm and develop a new and improved design.

Students could create a new design for Titanic which would increase passenger survivability rates.

Evaluation

Students will be assessed based on their participation during the lesson (informally via student observation), their ability to work cooperatively with teammates (informally via student observation), and their completion of the Titanic Math activities (formally).



Name: _____

Room: _____

The Titanic Disaster - A Primary Source Mathematical Exploration

Directions: Use the information found on the front page of *The World* newspaper from April 16, 1912 which headlines the sinking of the R.M.S. Titanic in the Atlantic Ocean. Use the following link to access the newspaper: <http://www.loc.gov/pictures/item/96508534/>.

 Problem #1

The map shows that Titanic hit an iceberg at 10:25 p.m. on Sunday, April 14, 1912. If Titanic sank the following morning (April 15th) at 2:20 a.m. as the newspaper states, how long did it take for the vessel to sink?

 Problem #2

According to *The World* newspaper article, there were 325 first class passengers on Titanic. If 128 of those passengers were women and 15 were children, how many men were believed to be in the first class section of Titanic?

 Problem #3

Use the information contained within the article to calculate the number of men believed to be in the second class section of the Titanic?

 Problem #4

The article states that the 710 passengers in the steerage section of Titanic was divided almost equally among men and women. If this were true, how many of the passengers in the steerage class were men?

 Problem #5

What was the total number of male passengers contained in all three sections of Titanic?



Problem #6

What was the total number of female passengers contained in all three sections of Titanic?

 Problem #7

What was the total number of children believed to be on the ship?

 Problem #8

According to the article, all 20 of Titanic's lifeboats were accounted for. If the lifeboats contained a total of 675 survivors and the passengers were equally divided into the lifeboats, how many survivors did each boat contain?

 Problem #9

Using the information found in the ship's manifest, calculate the total number of passengers and crew aboard Titanic when she set sail.

 Problem #10

If Titanic sank at 2:20 a.m. on April 15th and the ship Carpathia did not reach survivors until 10:00 p.m. on that same day, how long did survivors have to wait for help?

Titanic Challenge:

Access the following interactive infographic using the link found below. Take time to explore the infographic and then, working with your teammates, develop two new Titanic-related math word problems.

<http://en.ria.ru/infographics/20120405/172609825.html>.



Primary Source Word Cloud PowerPoint Slide:

Primary Sources

memoirs interviews
ephemera eye-witness
video diaries journal
first-hand accounts census
letters speeches field notes
audio
artifacts hearings
photographs

WordItOut

