

I SURVIVED: TITANIC

PROBABILITY



LESSON OVERVIEW

Grade Levels: 3-5

In this lesson students will discuss *I Survived: The Sinking of The Titanic, 1912* by Lauren Tarshis. Students will learn about the passenger classes on The Titanic and their differing probability for survival. Students will work math problems related to probability.

STANDARDS

CCSS.ELA-LITERACY.SL.3-5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3-5 topics and texts, building on others' ideas and expressing their own clearly.
CCSS.MATH.CONTENT.4.NF.C.5	Express a fraction with a denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
CCSS.MATH.CONTENT.4.NF.C.6	Use decimal notation for fractions with denominators 10 or 100.
CCSS.MATH.CONTENT.5.NF.B.3	Interpret a fraction as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

OBJECTIVES

- Students will discuss *I Survived: The Sinking of The Titanic, 1912* by Lauren Tarshis.
- Students will learn about the passenger classes on The Titanic and their differing probability for survival.
- Students will work math problems related to probability.

MATERIALS

- Titanic passenger cards
- Titanic Probability worksheets
- Titanic statistics handout

PROCEDURE

- STEP 1:** As a class, discuss *I Survived: The Sinking of The Titanic, 1912* by Lauren Tarshis. What do the students already know about The Titanic from other reading or movies they have seen? What type of people do they think were on The Titanic? Do they think that children were on board? Do they think there were more paying passengers or crew members?
- STEP 2:** Using a projector or the whiteboard, display the chart showing the numbers of each passenger type. Discuss with the students—do the real numbers match their assumptions from the prior discussion?
- STEP 3:** Have each student randomly choose one of The Titanic passenger cards and record who he/she pulled from the deck. Return cards and reshuffle the deck between students.
- STEP 4:** Using the data from the displayed chart, have the student work the math problem of determining what percentage of his/her randomly drawn passenger type made up the total number of passengers.
- STEP 5:** The Titanic is a memorable disaster because of the astounding loss of life. Have a discussion with the students about how many of the 2201 people on board they think were rescued. Do they think some kinds of people had a better chance of survival than others? Men or women? Adults or children? Paying passengers or crew members? First, second or third class passengers? Do they think the passenger type they just randomly chose would have been a survivor? Why or why not?
- STEP 6:** Using a projector or the whiteboard, display the chart showing the numbers of each passenger type that survived. Discuss with the students—do the real numbers match their assumptions from the prior discussion?
- STEP 7:** Using the data from the displayed chart, have the student work the math problem of determining the probability of survival as a percentage for his/her randomly drawn passenger type.
- STEP 8:** OPTIONAL: As a class, research the sinking of The Titanic further. For example, how The Titanic disaster impacted safety regulations so that further disasters of this type could be avoided, research individual survivors and their lives after The Titanic, other maritime disasters, etc.

GUIDING INFORMATION

Passenger Type	Number of passengers
Woman, First Class Passenger	144
Man, First Class Passenger	175
Child, First Class Passenger	6
Woman, Second Class Passenger	93
Man, Second Class Passenger	168
Child, Second Class Passenger	24
Woman, Third Class Passenger	165
Man, Third Class Passenger	462
Child, Third Class Passenger	79
Woman, Crew	23
Man, Crew	862
TOTAL	2201

Passenger Type	Number of passengers	Survived
Woman, First Class Passenger	144	140
Man, First Class Passenger	175	57
Child, First Class Passenger	6	6
Woman, Second Class Passenger	93	80
Man, Second Class Passenger	168	14
Child, Second Class Passenger	24	24
Woman, Third Class Passenger	165	76
Man, Third Class Passenger	462	75
Child, Third Class Passenger	79	27
Woman, Crew	23	20
Man, Crew	862	192

<http://www.historyonthenet.com/titanic/passengers.htm>

<http://www.titanicstory.com/stats.htm>

<http://www.titanicandco.com/survivors.html>

<http://www.ultimatetitanic.com/facts-statistics/#.WJo6Fm8rLIU>

TITANIC PROBABILITY WORKSHEET

You had a good chance of surviving the sinking of The Titanic...if you were a certain passenger type.

What passenger card did you draw?

How many passengers of that type were on The Titanic?

There were 2201 total people on The Titanic.

What percentage of the total passenger number was your passenger type?

How many of your passenger type survived?

What was your probability of survival (as a percentage?)

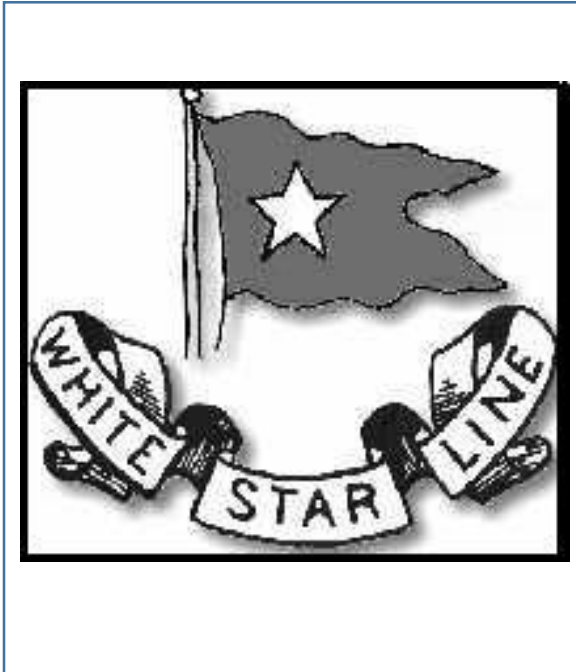
TITANIC PROBABILITY ANSWER KEY

Passenger Type	Number of passengers	Percentage of total passengers
Woman, First Class Passenger	144	7%
Man, First Class Passenger	175	8%
Child, First Class Passenger	6	1%
Woman, Second Class Passenger	93	4%
Man, Second Class Passenger	168	8%
Child, Second Class Passenger	24	1%
Woman, Third Class Passenger	165	7%
Man, Third Class Passenger	462	21%
Child, Third Class Passenger	79	4%
Woman, Crew	23	1%
Man, Crew	862	39%
TOTAL	2201	

Passenger Type	Number of passengers	Survived	Probability of survival
Woman, First Class Passenger	144	140	97%
Man, First Class Passenger	175	57	33%
Child, First Class Passenger	6	6	100%
Woman, Second Class Passenger	93	80	86%
Man, Second Class Passenger	168	14	8%
Child, Second Class Passenger	24	24	100%
Woman, Third Class Passenger	165	76	46%
Man, Third Class Passenger	462	75	16%
Child, Third Class Passenger	79	27	34%
Woman, Crew	23	20	87%
Man, Crew	862	192	22%

TITANIC PASSENGER PLAYING CARDS

Back of each off the cards



Woman, First Class Passenger



<https://www.encyclopedia-titanica.org/helen-churchill-candee-photograph.html>

Man, First Class Passenger



<https://www.encyclopedia-titanica.org/titanic-victim/emil-brandeis.html>

Child, First Class Passenger



<http://www.ultimatetitanic.com/the-survivors/#.WKHRm28rLIU>

TITANIC PASSENGER PLAYING CARDS

Woman, Second Class Passenger



<https://www.encyclopedia-titanica.org/titanic-survivor-clear-cameron.html>

Man, Second Class Passenger



<https://www.encyclopedia-titanica.org/titanic-victim/edgar-samuel-andrew.html>

Child, Second Class Passenger



<https://www.encyclopedia-titanica.org/nina-harper-nana-photograph.html>

Woman, Third Class Passenger



<https://www.encyclopedia-titanica.org/titanic-victim/da-augusta-margareta-andersson.html>

TITANIC PASSENGER PLAYING CARDS

Man, Third Class Passenger



<https://www.encyclopedia-titanica.org/minko-angelov-vulchev.html>

Child, Third Class Passenger



<https://www.encyclopedia-titanica.org/lillian-asplund-aged-5-years.html>

Woman, Crew



<https://www.encyclopedia-titanica.org/titanic-victim/catherine-jane-wallis.html>

Man, Crew



<https://www.encyclopedia-titanica.org/fox.html>

RUBRIC

	Target (3)	Meets (2)	Partially Meets (1)	Does Not Meet (0)
USE OF MANIPULATIVES	Student always listens and follows directions only using manipulatives as instructed.	Student typically listens and follows directions, using manipulatives as instructed most of the time.	Student sometimes listens and follows directions, using manipulatives appropriately when reminded.	Student rarely listens and often plays with the manipulatives instead of using them as instructed.
WORKING PROBABILITY PROBLEMS	Explanation/solution shows complete understanding of the mathematical concepts used to solve the problem(s).	Explanation/solution shows substantial understanding of the mathematical concepts used to solve the problem(s).	Explanation/solution shows some understanding of the mathematical concepts needed to solve the problem(s).	Explanation/solution shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.
COLLABORATION	Works well with others and discusses ideas in a fair, respectful, encouraging way and is considerate of the feelings of others.	Works okay with others and discusses ideas in a fair, respectful way, but may not have been encouraging. Considers the feelings of others.	Works with others, but did not contribute a fair share of work OR was discouraging and did not consider the feelings of everyone.	Did not work well with others and/or discusses ideas in an unfair, disrespectful way.
REQUIREMENTS	Meets all of the requirements for the project.	Meets most of the requirements for the project.	Meets some of the requirements for the project.	Does not meet the requirements for the project.
DEMONSTRATION OF KNOWLEDGE OF CONTENT IN DISCUSSIONS AND ACTIVITIES	Does a great job showing an understanding of the content covered in class.	Does an okay job with showing an understanding of the content covered in class.	Tries but has a difficult time showing an understanding of the content covered in class.	Does not show an understanding of the content covered in class.
Total				/15