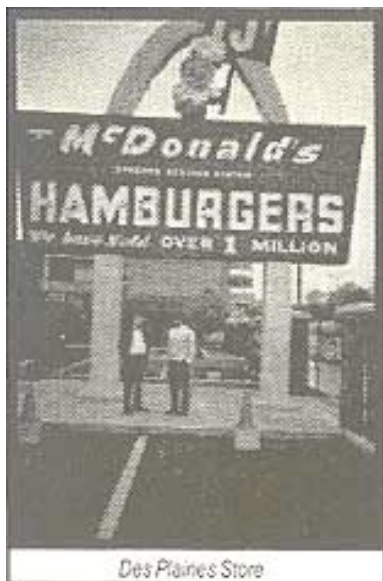


Million ... Billion ... Trillion



For many years, McDonald's restaurants have been using their signs to advertise the number of hamburgers that have been sold. The picture to the left shows a McDonald's sign from the early 1950s.

Notice that it says "Over 1 Million" hamburgers sold. The sign on the right is



a modern-day McDonald's sign. It says "Billions and Billions Served."

In this project, you will study data about the sale of McDonald's hamburgers in order to gain a clearer understanding of the concepts of million, billion, and trillion!

EXPLORING LARGE NUMBERS

1. Read pg. 4 in your Student Reference Book as a review of reading and writing numbers through the trillions.
2. Because numbers in the millions, billions, trillions and so large, most people have a hard time imagining what these numbers mean. But you can do some simple demonstrations that will make these numbers more clear. Use a calculator to complete the Millions, Billions, and Trillions activity on pg. 55 of your Math Journal.
3. Describe how your final results compare to your guess. How did this activity change or clarify your thinking?

LARGE NUMBERS IN THE REAL WORLD

Your Challenge

When will McDonald's sell its *trillionth* hamburger?

By following the steps below, you will examine the history of McDonald's hamburgers sales in order to predict the year in which McDonald's will sell its trillionth hamburger.

1. Visit the webpage below to get a general overview of McDonald’s history. Take special note of the items that mention the number of hamburgers sold.

<http://www.media.mcdonalds.com/secured/company/history/timeline/>

2. Now, use the information on the webpage to complete the first two boxes in the chart below. You will need to calculate the answers to the next two boxes. Remember to show all of your calculations on the NOTES pages of this packet.

In what year did the first McDonald’s restaurant open?	
In what year did McDonald’s sell its 100 millionth hamburger?	
Therefore, how long did it take McDonald’s to sell 100 million hamburgers?	
Using the data above, approximately how many hamburgers were sold PER DAY during these years?	

3. Continue your investigation by gathering and calculating the information below. Notice that some information is repeated.

In what year did the first McDonald's restaurant open?	
In what year did McDonald's sell its billionth hamburger?	
Therefore, how long did it take McDonald's to sell one billion hamburgers?	
Using the data above, approximately how many hamburgers were sold PER DAY during these years?	

4. Try one more! Are you amazed yet?

In what year did the first McDonald's restaurant open?	
In what year did McDonald's sell its 50 billionth hamburger?	
Therefore, how long did it take McDonald's to sell 50 billion hamburgers?	
Using the data above, approximately how many hamburgers were sold PER DAY during these years?	

Grade 5 Unit 2

McDonald’s has now sold approximately 150 billion hamburgers, and they sell approximately 5 million hamburgers EVERYDAY! Can you use the chart below to complete your challenge? Again – your purpose is to predict when the trillionth hamburger will be sold!

How many more hamburgers does McDonald’s needs to sell in order to reach one trillion?	
How many hamburgers does McDonald’s now sell PER DAY?	5,000,000
At this rate, about how long should it take McDonald’s to sell one trillion hamburgers?	
In what year will McDonald’s probably sell its trillionth hamburger?	



REFLECTION

- ☐ How has this project changed your understanding of large numbers? Did anything surprise you?
- ☐ In what careers would it be important to feel comfortable working with such large numbers? Are these jobs that you would enjoy?
- ☐ What was most difficult about this project for you? Why? Did you benefit from working through the difficulty?
- ☐ Who would be most likely to witness the selling of the trillionth McDonald's hamburger: you, your daughter, your granddaughter, your great-granddaughter, your great-great-granddaughter, your great-great-great-granddaughter? Explain how you determined your answer.
- ☐ In your opinion, will McDonald's ever sell one trillion hamburgers? Explain why or why not.
- ☐ What new questions has this project made you wonder about?

GOING BEYOND

What's beyond a trillion?

http://en.wikipedia.org/wiki/Names_of_large_numbers

If you think one trillion is a large number, check out this chart. Scroll down the first column to learn the words that are used to name numbers even larger than trillions. You'll even find out what's bigger than a googol... AND what's bigger than a googolplex! On the Reflection page, write about two new things you learn.

How many stars are there in the sky?

<http://ask.yahoo.com/ask/20010810.html>

Read this brief article about how astronomers estimate the number of stars in our galaxy and universe. Explain the astronomers' estimate. What interesting comparison do they make?

Student and Teacher Evaluation

	4	3	2	1
My final project is accurate, and shows that I have applied mathematical ideas or learned new mathematical ideas.	I did a great job! This is a good example of my best work.	I did a good job, with just a few areas to improve.	If I could do this again, there are several things I would change.	There are many ways that I could have done better on this.
COMMENT:				
I followed each step in the directions carefully.	I did a great job! This is a good example of my best work.	I did a good job, with just a few areas to improve.	If I could do this again, there are several things I would change.	There are many ways that I could have done better on this.
COMMENT:				
I used my creativity and imagination to create a final project that is unique and represents my own thoughts and ideas.	I did a great job! This is a good example of my best work.	I did a good job, with just a few areas to improve.	If I could do this again, there are several things I would change.	There are many ways that I could have done better on this.
COMMENT:				
I made effective use of class time. I was able to get myself started quickly, answer questions for myself, and stay on task.	I did a great job! This is a good example of my best work.	I did a good job, with just a few areas to improve.	If I could do this again, there are several things I would change.	There are many ways that I could have done better on this.
COMMENT:				
My presentation was clear and detailed. The students in the class learned new information about my topic.	My presentation was well done. Students learned about the topic.	My presentation was good, but there are one or two things I would improve.	Students learned a few new facts, but I could have been louder or more organized.	I needed to be more prepared for my presentation.
COMMENT:				