Mount Fuji



Sometimes you come across crazy, phenomenal ideas in life. I was reading a book by a man named John Allen Paulos called *Innumeracy* where he asked a question I found amazing:

How long would it take to haul away a mountain by dump truck?

I tried to guess the answer to this interesting question, but I had a problem. What mountain was he referring to? And this was just the start! All of a sudden I had a lot of other questions that I needed answers to. So to help you out, I’ve given you the mountain to talk about. Let’s assume that we are referring to Mount Fuji. So I’ll ask again:

***Central Question:***

How long would it take to haul away Mount Fuji by dump truck?

So what do you think? Just predict based on what you know, don’t worry about numbers. Think to yourself for a few minutes and then share with your group. Talk about these questions with your group:

1. How long do you think it would take?
2. Which unit would be needed? Days, months, years? Decades?

Hard isn’t it? There is really no way to make an accurate guess without more information. So let’s get some. But you must do something first. This is a big question. You thought about part of this in the opening discussion, but not the whole question. So think about the following for a couple of minutes and talk with your group:

1. Is there one correct answer to this question or more than one?
2. Is it possible to find the exact answer? Why do you think that?
3. What kinds of numbers might you encounter in your work?
4. What kinds of units might we be talking about during our work?

In order to answer the Central Question there are some important things to think about.

1. Talk with your group about the questions that might be important to think about or that you might have to answer to get an answer to the Central Question.

***Product 1:*** Decide with your group on five questions that you think *must* be answered in order to get to an answer to the Central Question. Write them on the Poster Paper and explain to the class why you think they have to be answered.

Now that you’ve talked about some questions and some ideas with your classmates, it is time to explore some resources on your own. Below you will find several web sources that may help you think about and possibly answer the Central Question. Review the resources before you begin calculating!!

Mount Fuji Information:

<http://education.nationalgeographic.com/education/media/mount-fuji/?ar_a=1>

<http://www.volcanodiscovery.com/fuji.html>

Mount Fuji Topographic Map: See your teacher.

Kids Truck Video: <https://www.youtube.com/watch?v=omCDE64AveU>

Largest Dump Truck in the World: <https://www.youtube.com/watch?v=f2tFH74HHJ0>

Dump Truck Size Example:

<http://www.ritchiespecs.com/specification?category=Articulated+Dump+Truck&make=CATERPILLAR&model=740&modelid=91910>

Now that you’ve looked through the sources, it’s important to point out key information.

***Product 2:*** Write an essay that summarizes what your readings had to say about Mount Fuji and dump trucks, including specific numbers. Be sure to tell where you got each piece of information (cite your sources). If there are conflicting sources, make sure you identify the pieces of data, tell which one you chose to believe, and justify your choice. If you feel like you should make an assumption of some sort, identify it and explain.

Okay, it’s time to try to find an answer! Gather all of your data (numbers, units, labels, etc.), decide how to display your numbers, and do any calculations you need.

Here are some questions that might be helpful:

1. What is the approximate shape of Mount Fuji?
2. How large a dump truck should you use? Does it matter?
3. How many trucks should we use? One? Ten? More?
4. How long does it take to fill a dump truck? What is a reasonable estimate?
5. Can we fill more than one truck at a time? How many would it be reasonable to assume?
6. How often can the trucks return?

***Product 3:*** After you’ve found an answer, put your calculations together in a neat format on paper. Be specific and detailed about your assumptions and how they helped or hindered your calculations. Provide a detailed explanation of your calculations, both what you did and why you did it. Your explanation should be clear and in complete sentences. It should also be written for a classmate that was absent during your work time, so that he or she can easily understand what you did and why you did it.

Be prepared to discuss your results with the group.