

# Million Dollar Question



Adapted from the Lesson Study by:  
Randall Emery, Betty Franchi, Sue Fritz, Jack Schiavone, and Dara Stillman  
Math 600: Spatial Proportional Reasoning and Proportionality in Middle Grades  
George Mason University, COMPLETE Math  
Fall 2014

## The Task

Your friend has sent you a text saying you can become a millionaire! He tells you that he won \$2 million in a contest. The money was sent to him in two suitcases, each containing \$1 million in one-dollar bills. He will give you one suitcase of money if you can go to the airport and pick up both suitcases. Is it possible that you could get the suitcases at the airport and get them home?

## Big Ideas

- Estimation of weight and/or volume
- Calculation of weight and/or volume
- Measurement

### Standards of Learning for Grades 3-4-5

- 3.9 The student will estimate and use US Customary and metric units to measure
- a) length b) liquid volume c) weight/mass d) area and perimeter.
- 4.6a The student will estimate and measure weight/mass.
- 5.8d The student will estimate and then measure to solve problems using US Customary and metric units.

### Standards of Learning for Grades 6-7-8

- 6.9 The student will make ballpark comparisons between measurements in US Customary System and metric system.
- 6.10 The student will describe and determine the volume of a rectangular prism.
- 7.4 The student will solve multistep practical problems, using proportional reasoning.
- 7.5b The student will solve practical problems involving the volume of rectangular prisms.
- 8.3a The student will solve practical problems involving rational numbers, percents, ratios, and proportions.
- 8.7a The student will investigate and solve practical problems involving volume of prisms.

### **Process Goals**

- Problem Solving and Reasoning – Students will apply volume, weight, and estimation skills and the relationships between them to determine if \$1,000,000 will fit in a suitcase and if it reasonable to carry a suitcase filled with that amount of money.
- Connections and Representations – Students will recognize and use mathematical connections to extend or generalize patterns. Students will use abstract or symbolic representation to record and their findings and solve the problem.
- Communication – Students will justify their findings and present their results to the class with precise mathematical language.

### **Related Task – Birthday Balloon Bash**

Mr. Al Gebra’s class wanted to surprise him on his birthday by filling his classroom with balloons. How many balloons did they need?

### **Related Task – Bucket of Trouble**

The ceiling of Betty’s kitchen has a leak. She hears 10 drips of water in 15 seconds. She puts a bucket under the leak and frantically calls the plumber. The plumber can’t be there for 5 hours. Will Betty need to empty the bucket? How much water will she waste?

# Million Dollar Question

## Lesson Plan



Adapted from the Lesson Study by:  
Randall Emery, Betty Franchi, Sue Fritz, Jack Schiavone, and Dara Stillman  
Math 600: Spatial Proportional Reasoning and Proportionality in Middle Grades  
George Mason University, COMPLETE Math  
Fall 2014

### The Task

Your friend has sent you a text saying you can become a millionaire! He tells you that he won \$2 million in a contest. The money was sent to him in two suitcases, each containing \$1 million in one-dollar bills. He will give you one suitcase of money if you can go to the airport and pick up both suitcases. Is it possible that you could get the suitcases at the airport and get them home?

#### Materials

- The task
- Suitcase
- Paper
- Rulers
- Scale
- Dollar bills
- Calculators
- One large presentation paper per group

#### Facilitating Task

- Class will be divided into groups of 3-4 students.
- Read the task together and answer clarifying questions.
- Groups will be given materials upon request.
- Give students individual think time and then work together in groups.
- Groups present findings during last 10-15 minutes of class.

#### Misconceptions

- The accumulated weight is negligible
- The accumulated volume is negligible
- The concept of weight being carried with one's hands

#### Suggested Prompts or Questions

- How much does one sheet of paper weigh? 20 sheets of paper?
- What is the volume of 10 one-dollar bills?
- How much does a ream of paper weigh? Can one person carry it?

## Million Dollar Question



Name \_\_\_\_\_

Date \_\_\_\_\_

Your friend has sent you a text saying you can become a millionaire! He tells you that he won \$2 million in a contest. The money was sent to him in two suitcases, each containing \$1 million in one-dollar bills. He will give you one suitcase of money if you can go to the airport and pick up both suitcases. Is it possible that you could get the suitcases at the airport and get them home?

Answer the question using pictures, words, tables, graphs, and/or symbols.