Phantom Lake Math Challenge
November 2018
Snack Time

The Phantom Lake Math Challenge is an open invitation to have fun solving problems at home with family. It's an opportunity for students to discover different ways to approach problems and a chance for students to share their math thinking and ideas with others. Anyone can participate. Choose the problem that fits your math ability/interest. These problems are generally in an order of increasing difficulty (A-H). Please submit your answer using the response form attached or available at http://phantomlakepta.org/Doc/Monthly%20Math%20Challenge/Math%20Challenge%20Response.pdf. You should turn in one form for each problem you solve. Feel free to showcase your creativity and design a poster or chart to show your work as well. Sometimes acting out problems and using objects can help students develop a deeper understanding of the problem. Please put the letter or title of your problem, your first and last name and your teacher's name on the form when you submit it. All solutions are due by the last school day of the month. Bring your completed form(s), charts, and posters to your teacher. Students who successfully complete the challenge with the correct answer and an explanation of their mathematical thinking will receive a certificate and their name listed in the PTA newsletter. Happy problem solving!

Problem A

You have been asked to bring a healthy snack mix to a class party. Your recipe calls for one bag of pretzels, one small can of peanuts, and ½ of a large box of raisins. This recipe serves 10 people. There are 30 people in your class. How much of each ingredient will you need to prepare enough snack mix for everyone?

Problem B

Muffins made with fruit and nuts can be a healthy snack. Suppose you decide to make muffins for everyone in your class. You want to decorate the top of each muffin with 4 raisins. How many muffins can you decorate with 24 raisins? If half of the muffins have nuts, how many have nuts?

Problem C

A salad bar offers 3 types of salad greens (romaine lettuce, red leaf lettuce, and spinach); 5 types of vegetables (carrots, celery, broccoli, cauliflower, and tomatoes); and 3 choices of dressing (oil and vinegar, blue cheese, and ranch). How many different salad combinations can you make using 2 kinds of greens, 3 vegetables and 1 dressing?

Problem D

The food pyramid suggests that children eat 2½ cups of vegetables every day. If you eat only ½ cup servings, how many ½ cups of vegetables do you need to eat in one day? How many cups of vegetables would you and a friend need to eat to reach your combined goal for one day? If your class eats a total of 50 ½ cup servings of vegetables in one day, how many cups does that equal?

Problem E

Each year, China produces about 74 million tons of fruit. The country is the world's top producer of apples and pears. Suppose that a Chinese farm has both apple and pear trees. Of every 19 rows of trees, 14 rows are apple trees. If the farm has 35 rows of pear trees, how many rows of apple trees does it have? If the farm has 152 rows of fruit trees, how many of these rows are apple trees? How many of these rows are pear trees?

Problem F

You want to make a refreshing punch drink for your class. The recipe you have requires 16 ounces of lemonade, a liter of lemon-lime soda, and a quart of pineapple sherbet. You need to make 1¼ times the yield for the recipe in order to have enough punch for everyone in your class. You can purchase lemonade in 6-ounce cans at a cost of $0.59 each. How many cans of lemonade will you need? How much will the lemonade cost for your punch? If you pay with a $20 bill, will you get any change? If yes, how much change will you get?

Problem G

Current dietary guidelines suggest that a balanced diet should contain an average of 20 percent calories from protein, 55 percent of calories from carbohydrates, and 25 percent of calories from fat. A gram of protein contains 4 calories, a gram of carbohydrate contains 4 calories, and a gram of fat contains 9 calories. Read the nutrition label on a box of your favorite cereal. Find the amount and percentage of protein, carbohydrates, and fats in one serving of the cereal. Calculate the number of calories from each. Is this cereal balanced according to the current guidelines?

Super Duper Challenge

To maintain a healthy body, it is important to eat a balanced diet that includes fruits, vegetables, grains, calcium-rich foods, and meats every day. Use the chart below to plan menu choices of vegetables and fruits for five days. You have to eat 3 different vegetables and 2 different fruits each day. Challenge: Add a list of 2 meat choices: chicken and fish. How many different menus combinations of 3 vegetable choices and 2 fruit choices and 1 meat choice can you find?

Vegetables		Fruits	
Artichokes	Peas	Apples	Oranges
Carrots	Squash	Bananas	Plums
Green beans			