

March 31, 2008

Dear Committee Members,

I would like to thank you for selecting me as one of this year's APS K-12 Minority Outreach Fellows. I found my term to be rewarding both personally and professionally. Throughout this fellowship, I was able to expand my organization and planning skills and I became more comfortable with talking to students at all grade levels about choosing Physiology (or science) in general as a career. In addition, I became more comfortable telling others of the pathway that lead me to this career, and I began to encourage others to follow similar paths.

My initial plan was to reach middle and high school-aged students; however, at the end of the program, I will have reached out to students ranging from elementary school through high school. I have successfully carried out PhUn Week at Banneker Elementary School in New Orleans, Louisiana. This school has been restructured since Hurricane Katrina and is one of the schools in New Orleans Recovery District. Plans have been made to visit another school in New Orleans, as well as my own middle school in Port Allen, Louisiana.

I believe that attending the Science Teachers Forum and interacting with the Research Teachers gave me a different outlook on teaching science in K-12 classrooms. I look forward to using skills that I have learned throughout the rest of my career. In addition, I plan to become more involved in recruiting and getting students interested in science. Overall, this fellowship has provided valuable professional development which helped to increase my confidence as a scientist, making it easier for me to be a role model.

Thanks again for this wonderful opportunity.

Sincerely,

A handwritten signature in cursive script that reads "Keisa Mathis".

Keisa Mathis

### Outreach visits planned for 2008-2009

Outreach Visits	Grade Level	Activities
Benjamin Banneker Elementary School Teacher Contact: Jeff Colassi November 3-5, 2008 (PhUn Week)	4 <sup>th</sup> grade (~50 students)	<ol style="list-style-type: none"> <li>1. Physiology Careers Presentation</li> <li>2. Exercise Activity</li> <li>3. Elvis Experiment (modified – Biggie Smalls Experiment)</li> <li>4. Food Pyramid Activity</li> </ol>
Shadow-a-Scientist (at LSUHSC) April 8-10, 2009	10-11 <sup>th</sup> grade (~6 students)	<ol style="list-style-type: none"> <li>1. Physiology Careers Presentation</li> <li>2. Scientific Method Discussion (including Beads Activity)</li> <li>3. Human Body Presentation</li> <li>4. Elvis Experiment (modified – Biggie Smalls Experiment)</li> <li>5. Alcohol and the Human Body Activity</li> <li>6. Poster Presentation</li> </ol>
Martin Luther King Jr. Charter School Teacher Contact: Justin Mack April 29-May 1, 2009	7 <sup>th</sup> grade (~25 students)	<ol style="list-style-type: none"> <li>1. Physiology Careers Presentation</li> <li>2. Human Body Presentation</li> <li>3. Exercise Activity</li> <li>4. Alcohol and the Human Body Activity</li> <li>5. Draw-a-Scientist</li> </ol>
Port Allen Middle School Teacher Contact: Edward Barnes May 4-5, 2009	6 <sup>th</sup> grade (~75 students)	<ol style="list-style-type: none"> <li>1. Physiology Careers Presentation</li> <li>2. Human Body Presentation</li> <li>3. Exercise Activity</li> <li>4. Elvis Experiment (modified – Biggie Smalls Experiment)</li> <li>5. Alcohol and the Human Body Activity</li> <li>6. Draw-a-Scientist</li> </ol>

## **ACTIVITIES**

### **Shadow-A-Scientist**

This activity allows students to visit the laboratory and medical school, and sort of get the idea of the day in the life of a research scientist. This activity serves as a career workshop involving discussions of opportunities available in the sciences during their undergraduate education and beyond, as well as discussions about their concerns and doubts of going into a science career. In this activity, students review/practice the scientific method by conducting internet searches, designing and performing experiments, and presenting the results of their experiments to a group of graduate students.

### **Physiology Careers Presentation**

This activity gives a brief introduction of what physiology is, and introduces physiology careers.

### **Exercise Activity**

This activity tests the effect of exercise on heart rate. (See Below)

### **Food Pyramid**

This activity teaches the importance of good nutrition. Activities such as the Milk Taste Test and Food Math encourage students to practice healthy living. These activities were taken directly from the United States Department of Agriculture My Pyramid website ([mypyramid.gov](http://mypyramid.gov)). (See Below)

### **Scientific Method Discussion**

This activity reviews the scientific method with the use of the Beads Activity taken from the Science Teacher Forum workbook.

### **Human Body Presentation**

This activity gives an overall review of the organ systems of the human body. Some anatomy and function is covered in these discussions.

### **Alcohol and the Human Body**

This activity investigates the effect of acute alcohol intoxication on the central nervous system using Fatal Vision Goggles. These goggles mimic low, moderate, and high blood alcohol levels. Students can determine how alcohol affects normal everyday activities (e.g., walking a straight line or completing timed tasks) while wearing the goggles. The activity also includes a discussion of the effects of alcohol on other organ systems.

### **Draw-A-Scientist**

This activity attempts to eliminate the somewhat negative perceptions of a scientist. The activity is taken from the Science Teacher Forum workbook.

Name \_\_\_\_\_

# Biggie Smalls Experiment

## Introduction/Objective

Bad nutrition and a lack of exercise can cause damage to blood vessels which will lead to narrow vessels. Students will determine what would happen to blood flow if vessels decreased in size.

## Materials

1. Bottled water
2. Cups (measure off 250 mL)
3. 3 different sizes of straws (ex: normal drinking straws, cocktail straws, coffee stirrers with single chamber)
4. Timer or stopwatch

## Methods

1. Assign jobs to group members: (i.e., 3 drinkers, recorder, timer)
2. Pour water to same level in all cups
3. Time the drinkers to drink as much water as they can in 10 seconds
4. Rank the order of the straws/drinkers from highest to lowest amount drank
5. Record results
6. Repeat 1-2 more times

## Results

Who drank the most? Rank them in order with 1 being the straw/drinker who drank the most and 3 being the straw/drinker who drank the least.

1<sup>st</sup> Test:

2<sup>nd</sup> Test:

3<sup>rd</sup> Test:

**Discussion**

1. What happens to the amount of water that flows into the mouth as the size of the straw decreases?

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2. How is this related to blood vessels and blood flow?

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**Conclusion**

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**Advice to P.Diddy and his daughter**

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November 3, 2008

Dear students of Mr. Colassi's 4<sup>th</sup> grade science class,

I heard you were learning about exercise and nutrition with the help of the American Physiological Society and LSU. Maybe you can give me some advice based on what you have learned.

I have a friend that I know most of you will know. His name is Biggie Smalls but he is also known as the Notorious B.I.G. Biggie was one of my best friends until he passed away a few years ago. Throughout his life, Biggie was VERY overweight. He had a horrible diet, eating fast foods and other fatty meals on a regular basis. While he was alive he had major heart problems and high blood pressure because of his bad diet and lack of exercise.

My daughter is 10 years old and is a little overweight. She loves to eat McDonald's and Burger King and she spends most of her extra time watching television. She does not play outside with other kids in the neighborhood. I need advice on how I can convince my daughter that her life will be shortened if she does not change her ways. I do not want to lose her like I lost Biggie.

Thank you for your help!

Peace,

*P. Diddy*

Sean "P. Diddy" Combs  
Bad Boy Entertainment

# Milk Taste Test

HOW DOES MILK TASTE TO YOU?

Fat-Free Milk, 2% Milk, Whole Milk

HORRIBLE, ALRIGHT, or DELICIOUS

<b>Student's Name</b>	<b>A</b>	<b>B</b>	<b>C</b>
<b>Results</b>			

Name \_\_\_\_\_

# Food Math

P.Diddy's daughter is 10 years old. She is physically active sometimes. Each day, she needs to eat:

Grains	Vegetables	Fruit	Milk	Meat & Beans
6 ounces	2½ cups	1½ cups	3 cups	5 ounces

Help P. Diddy and his daughter decide what to eat today. Plan breakfast, lunch, dinner, and a snack. Be sure he gets all the food he needs from each group. (Food items may be selected more than once.)

## Grains (6 ounces)

- 1 slice whole-wheat toast\* (1 ounce)
- 5 whole-wheat crackers\* (1 ounce)
- 1 slice white bread (1 ounce)
- 1 slice whole-wheat bread\* (1 ounce)
- 1 cup whole-grain ready-to-eat breakfast cereal\* (1 ounce)
- ½ cup cooked brown rice\* (1 ounce)
- 1 cup cooked pasta (2 ounces)
- 1 hamburger bun (2 ounces)
- 3 cups lowfat popcorn\* (1 ounces)

## Vegetables (2½ cups)

- 6 baby carrots\* (½ cup)
- 1 large ear of corn (1 cup)
- 1 medium baked potato (1 cup)
- 1 cup cooked greens (1 cup)
- 1 large baked sweet potato (1 cup)
- 3 spears broccoli (1 cup)
- ½ cup tomato juice (½ cup)
- 1 cup chopped lettuce (½ cup)

## Fruits (1½ cups)

- 1 small apple or ½ large apple (1 cup)
- 1 large orange (1 cup)
- 1 snack-sized container of peaches (½ cup)
- 1 large plum (½ cup)
- 1 small box raisins (½ cup)
- 1 cup 100% orange juice (1 cup)
- 1 medium wedge cantaloupe (½ cup)
- 1 small wedge watermelon (1 cup)

## Milk (3 cups)

- lowfat or fat-free (½ cup)
- cottage cheese (¼ cup)
- 1 cup fat-free milk (1 cup)
- 1 snack-sized lowfat or fat-free yogurt (½ cup)
- 1 half-pint container 1% or 2% milk (1 cup)
- 2 ounces of lowfat or fat-free American cheese (1 cup)
- 1½ ounces of lowfat or fat-free cheddar cheese (1 cup)
- 1½ cups light ice cream (1 cup)

## Meat and Beans (5 ounces)

- 1 ounce of nuts (2 ounces)
- 1 cup split pea soup (2 ounces)
- 1 small chicken breast half (3 ounces)
- 1 small lean hamburger (3 ounces)
- 1 hard-boiled egg (1 ounce)
- 1 tablespoon peanut butter (1 ounce)
- ¼ cup of pinto beans (1 ounce)

# Menu for P. Diddy's daughter

	<b>Breakfast</b>	<b>Lunch</b>	<b>Dinner</b>	<b>Snack</b>
Menu				
Food Math	Grains _____ Vegetables _____ Fruit _____ Milk _____ Meat & Beans _____	Grains _____ Vegetables _____ Fruit _____ Milk _____ Meat & Beans _____	Grains _____ Vegetables _____ Fruit _____ Milk _____ Meat & Beans _____	Grains _____ Vegetables _____ Fruit _____ Milk _____ Meat & Beans _____

**Totals** Grains \_\_\_\_\_ Vegetables \_\_\_\_\_ Fruit \_\_\_\_\_ Milk \_\_\_\_\_ Meat & Beans \_\_\_\_\_