

### **Activity 3: Food and exercise determine your energy level and health**

**Purpose:** To bring awareness to the fact that food and exercise can impact one's energy level and overall health. For one week, students will keep track and reflect on their food intake, exercise, and energy level.

**Key concepts:** Micronutrients, vitamins, minerals, phytochemicals, macronutrients, carbohydrates, protein, fat

**Materials:** Pictures of food (fruits, vegetables, nuts, seeds, hamburgers, milkshakes, etc.), recycled paper, pencil, colored pencils, crayons, and markers

#### **Common Core Standards:**

##### **English Language Arts Standards:**

##### **Reading: Informational Text:**

##### **Key Ideas and Details:**

CCSS.ELA-Literacy.RI.3.3 (third) Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

CCSS.ELA-Literacy.RI.4.3 (fourth) Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

CCSS.ELA-Literacy.RI.5.3 (Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

##### **Integration of Knowledge and Ideas:**

CCSS.ELA-Literacy.RI.4.8 (fourth) Explain how an author uses reasons and evidence to support particular points in a text.

CCSS.ELA-Literacy.RI.5.8 (fifth) Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

##### **Speaking & Listening:**

##### **Comprehension and Collaboration:**

CCSS.ELA-Literacy.SL.3.1a (third), 4.1a (fourth), and 5.1a (fifth) Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.

## **Mathematics Standards:**

### **Measurement and Data:**

- Represent and interpret data (third, fourth, and fifth).

## **Next Generation Science Standards (NGSS):**

### **NGSS Science and Engineering Practices:**

#### ***Analyzing and interpreting data:***

- ***Represent data in tables and/or various graphical displays (bar graphs, pictographs, and/or pie charts) to reveal patterns that indicate relationships.***
- ***Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.***

#### ***Constructing Explanations and Designing Solutions:***

- ***Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.***
- ***Identify the evidence that supports particular points in an explanation.***

### **Procedure:** (Have a discussion with your students)

- Ask students if they've ever noticed how they feel after eating a vegetable- such as green beans, or fruit- such as mangoes.
- Then ask how they feel after eating a cheeseburger with a milkshake. Basically, what we eat affects our energy level and health.
- Vegetables and fruits (producers) have an energizing effect when consumed. Knowing what you know about food webs, why do you think this is so? Because vegetables and fruits are producers, i.e., they produce food (sugar) from the sun, thus they have a higher source of energy. This is an interesting way to look at food!
- Conversely, meat and dairy can have a neutral or low energy effect. Why do you think this is so? Where are cattle located on a food web? Yes, further from the sun. When cows consume grass, the energy stored in the grass goes to the cow and some is lost. When humans consume cows, they receive less of the stored energy from the grass. Thus, meat has a lower amount of stored energy from the sun.
- So, foods like (vegetables, fruits, nuts, and seeds) which undergo the process of photosynthesis, have a higher source of energy because they are directly (literally) dependent on the sun (look at food web).
- Why is this so? Vegetables and fruits contain micronutrients. Micronutrients are vitamins, minerals, and phytochemicals which are essential for one's health, energy level, and disease prevention. All vegetables and fruits contain these magnificent micronutrients.

- It is important to eat a variety of vegetables and fruits in order to attain all essential vitamins, minerals, and phytochemicals. Choosing vegetables and fruits (daily) from *all* of the colors in the rainbow will meet your daily requirement of micronutrients.
- Meat, poultry, fish, dairy, eggs, beans, nuts, and seeds contain macronutrients. Macronutrients provide carbohydrates, protein, and fat to our diet. Lean poultry, fish, egg whites, beans, nuts, and seeds are better choices since they are lower in saturated (animal) fats.
- Processed foods such as chips, cookies, doughnuts, crackers, cakes, candy, and even granola bars are often high in saturated (palm oil) and trans fats, sugar, salt, and preservatives. Better choices for snacks are vegetables, fruits, nuts, and seeds.
- Smoothies provide a great opportunity to add fruit and vegetables that children would normally not eat into a yummy, frothy concoction.
- According to Dr. Joel Furhman, “Humans, like other primates, are designed to consume a diet predominating in natural plant foods with their symphony of essential phytochemicals. Fresh fruits, vegetables, beans, raw nuts and seeds should form the foundation of normal nutrition. Food preferences and tastes are formed early in life and children learn to eat the diets eaten by their parents.”
- Exercise is also critical for one’s energy level and overall health. Children need daily physical activity in order to maintain a healthy body weight and overall health.

Exercise can be fun! Play an outdoor activity with your class M-F and do something fun with your family on the weekends (hike, walk, swim, run, skate, even yard work is exercise).

- Students can track how they feel after eating certain foods and engaging in exercise (use **Activity 3 Nutrition and Exercise Log**). An arrow pointing upward signifies high energy, downward signifies low energy, and a straight line signifies no effect (neutral). Students can also use the log to **reflect** on whether they notice a *pattern* in their eating and exercise habits. This can potentially bring awareness to make positive changes in one’s diet and amount of exercise.

- Students can also create a rainbow mobile using vegetables and fruits which represent each color. For example:

**Red:** Red peppers, tomatoes, red potatoes, beets, strawberries, raspberries, cherries, red apples, watermelon

**Orange:** Carrots, yams, orange bell peppers, oranges, cantaloupe, apricots, mango, papaya, tangerine

**Yellow:** Corn, sweet potatoes, squash, onions, garlic, lemons, pineapple, bananas, yellow peppers

**Green:** Lettuce, broccoli, zucchini, asparagus, spinach, kale, green chard, peas, celery, kiwi, lime

**Blue:** Blueberries

**Purple:** Purple potatoes, purple cabbage, grapes, plum, blackberries

**References:**

<http://www.drfuhrman.com/children/default.aspx>

### **Rating Activity 3**

**Teachers:**

**Teachers rating Activity 3 for effectiveness in helping students learn \_\_\_\_\_**

1 not helpful!   2 a little bit helpful   3 helpful   4 very helpful   5 Wow!

**Teachers rating Activity 3 for level of enjoyment \_\_\_\_\_**

1 not fun!   2 a little bit fun   3 fun   4 very fun   5 Wow!

**Students:**

**Students rating Activity 3 for helping you learn \_\_\_\_\_**

1 not helpful!   2 a little bit helpful   3 helpful   4 very helpful   5 Wow!

**Students rating Activity 3 for level of enjoyment \_\_\_\_\_**

1 not fun!   2 a little bit fun   3 fun   4 very fun   5 Wow!