

**An Educators Guide To:****What Does Science Say You Should Eat?****Guide by** Michael DiSpezio

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**Nowadays, we seem to be bombarded by all sorts of diets and nutritional plans. From South Beach to Beverly Hills, people are trying to select the healthiest diet plan. At Harvard University, a scientist has come up with recommendations based upon the world's longest and largest food study. Like the Atkins and Ornish diet, its suggestions are based upon decreasing sudden spikes in blood-sugar concentration. To achieve this goal, the consumption of foods rich in sugar, white flour and trans fats should be reduced.**

**Counting Carbs**

In this activity, you will analyze data that is presented in a matrix form. The data illustrates the glycemic index (GI) and the glycemic load (GL) for foods common in the American diet. It is arranged in a 3x3 grid that organizes the foods in low, medium and high categories for the two measured quantities. You will examine and interpret this data illustration to answer the questions below.

**Materials:**

A copy of the GI/GL matrix illustrated at the following URL\*

[http://www.mendosa.com/common\\_foods\\_bw.htm](http://www.mendosa.com/common_foods_bw.htm)

\*Instructors may wish to access this site and print out several copies of this chart for classroom use prior to the class meeting time. A more extensive compilation of glycemic numbers can be found at the URL referenced in this *Discover* magazine article: <http://diabetes.about.com/library/mendosagi/ngilists.htm>

**Steps:**

1. Obtain a copy of the Glycemic Index by Glycemic Load matrix that is available at the Rick Menodosa URL.
2. The glycemic index (GI) is a measure of how quickly a food will trigger a rise in blood sugar levels. Low numbers trigger slow rises. Higher numbers produce faster spikes. As you proceed in columns from left to right, what happens to the values of the glycemic index? (It increases) What are the chart's lowest and highest values for GI? (7 and 85)
3. The glycemic load (GL) is a value that measures the quantity of carbohydrates in a single serving. Higher numbers have greater amounts of carbs entering the blood per serving. As you descend in rows from top to bottom, what happens to the glycemic load? (It increases) What are the chart's lowest and highest values for GL? (0 and 27)
4. From this chart, identify the four foods with the lowest GI. (nopal, Chana dal, peanuts, pearled barley)

5. Identify four foods with the highest GI. (Baked Russet potatoes, cornflakes, shredded wheat, Cheerios)
6. From this chart, identify the four foods with the lowest GL. (nopal, pinto beans, peanuts, strawberries)
7. Identify six foods with the highest GL. (sweet potatoes, baked russet potatoes, couscous, white rice, linguine and macaroni)
8. Which food in the following pairs will produce the greatest spike in blood sugar in a single serving? (pears, orange juice) (spaghetti, apple juice) (watermelon, strawberries) (shredded wheat, all-bran cereal)

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## Questions

1. Based on the article's dietary recommendations, which two foods should be used most sparingly? (Baked Russett potatoes and cornflakes)
2. Compare and contrast the glycemic effects on blood by all-bran cereal and cornflakes. (All-bran will not produce as rapid a sugar spike and its overall release of sugar into the blood will be lower)
3. Of the three foods assigned to the central cell of the matrix, which one might be the wise choice when it comes to counting carbs? Why? (New potatoes. It has the lowest GL and GI of the three foods)

## Math Connection

The glycemic load (GL) is calculated by multiplying the glycemic index (GI) as expressed by a percent by the number of carbohydrate grams available in a serving of the food. For example, a carrot (GI = 131) contains 5 grams of carbohydrate. It's glycemic load is  $(131/100)(5) = 6.55$ . Knowing this, how much higher is the glycemic load of specialty pasta (GI= 65) with a carbohydrate content of 50 grams than a watermelon slice (GI=72) with a carbohydrate content of 6 grams. (A specialty pasta portion has a GL that is about 28 units greater than a slice of watermelon)

## Pyramid Builders

Use print and online resources to research the food pyramid developed by the U.S. agriculture department. Compare and contrast this figure with the illustration shown on page 46. From a variety of art materials, construct these two pyramids and record the differences in recommended diets.

## Pizza Puzzler

Check out the pizza pie on page 48. Notice how it is divided into eight slices of

equal size. Now, imagine an uncut pie. With only three cuts, how can you produce eight equal-sized slices similar to the ones shown here? HINT: Don't worry about the mess. (Cut the pie in half. Then, stack one half atop the other. Cut these semi-circles in half. Stack the four pieces and cut them in half. It's messy, but it works!

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