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Healthy Choices Lead To Healthy Bodies! A Child's Guide to Good Nutrition and Exercise

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Overview

Here in America we may talk healthy, but we eat tasty. (Larimore et al. 2005, 131) The health of many average Americans and that of their children in particular has been in serious question for sometime. Authors like Legere suggest that obesity has reached epidemic proportions among our children. (Legere 2004, ix) In 2000, nearly twice as many kids were obese as compared to 1970. (Larimore et al. 2005, 5) The American Medical Association predicts that the increased costs of American medical problems resulting from obesity will cost billions of dollars in the years to come. (Legere 2004, ix) According to Emory University researchers, more than a quarter of the phenomenal growth in health care spending over the past fifteen years is attributable to obesity (Larimore et al. 2005, 13.)

Since the 1980's, many noted authors, such as Dr. Walter Willett, Michael Pollan, and Marion Nestle have tried to help address the various issues behind the declining health, lower rates of exercise and poor nutritional quality of our foods. Their work and that of others has aroused great discussion and debate in many circles as well as serving as a wake-up call to us all; however, none of it should come as a real surprise.

Every day that we open a newspaper, cruise the Internet, or turn on a news program we hear a variety of health news reports, some good and some bad. With mounting evidence from experts from a variety of fields and dietary organizations, we are finding that our food choices are seriously endangering our overall health. Our children in particular are in increasing danger from childhood obesity and related diseases. These diseases include but not limited to an increase in "Type-2" diabetes, high blood pressure, high cholesterol, and the precursors of hardening of the arteries. Worsening eating habits at home and in school lunchrooms, combined with the lack of exercise on the part of America's children is contributing to the problem. Obesity is clearly associated with decreased life expectancy. Simply put, an assassin is lying in wait to pounce on our kids. Eating nutritiously and judiciously along with moderate exercise is not just the domain of the more affluent or physically fit, but in reach of us all. We can help our children by educating them early in good nutritional habits and by demonstrating a variety of exercises, they can use. Without question, the number one barrier to physical activity in schools is the misconception that time spent in PE or recess will undermine academic learning (Larimore et al. 2005, 35.)

All over the United States, adults and children from all socio-economic groups often purchase inexpensive,

man-made "food products" rather than real "whole food" items. It simply is a matter of economics for most, without true consideration of the nutritional benefit in what they eat. Little nutritional content is often derived from eating these fabricated "food products." By teaching this unit to my students, they will become skilled at correctly selecting nutritiously healthy foods. They will be taught a variety of easy to do physical exercises that they can do to improve their overall fitness. They will also be able to share what they are learning with their family members. I hope that they will be able to address the unit concept that "Healthy Choices Lead To Healthy Bodies" at a more meaningful and personal level. In time, their choices can help to shape routines that will last a lifetime.

Rationale

I have taught in both Maryland and North Carolina for the past 15 years in a variety of settings. I have served both urban and suburban student populations of all racial backgrounds. I also have taught every age group from Kindergarten through graduation. This has given me unique insight into child development at a variety of different ages and stages. In that time, I have observed many disturbing things that prompted me to write this unit. I have watched students of all ages eat a variety of food products that are neither nutritious nor beneficial to their overall health. I have watched them gorge on mounds of chips and candy, drink gallons of soda pop, and devour bag-loads of "fast-foods". Another thing I have noticed is that the amount of physical activity and overall physical fitness of the children I teach has been declining. Physical education classes have often been shortened in length and recess periods have disappeared. Fellow educators from various school districts throughout the United States have echoed these same problems in the course of discussion on the subject. I wrote this unit to help my students establish healthy routines that will last throughout their lifetime.

The federal "National School Breakfast and Lunch Programs" provide a majority of funding for all free and reduced breakfasts and lunches served nationwide. The student's state of residence provides the remaining funds. Food service departments within each local educational agency (LEA) are assigned to develop local lunchroom menus. "Child Nutrition Services," part of the Charlotte-Mecklenburg School System (CMS) where I work, claims on its website that it provides healthy meals to more than 135,000 students and staff members in 167 schools each day. Each day CMS states 27,000 breakfasts and 75,000 lunches are served to both children and staff. This totals more than 18 million meals a year. Presently, forty-six percent of all CMS students are eligible for free or reduced breakfasts and lunch.

In my current position, I am the only elementary science lab teacher at Barringer Academic Center (BAC.) BAC is a medium-sized, urban school in Charlotte, North Carolina and it is classified as a "partial-magnet" school, serving approximately seven hundred and fifty students from Kindergarten through Grade 5. A vast majority, approximately 70%, of our student population receives government assistance in the form of free or reduced lunches at our school.

I will teach this unit to a diverse group of fourth graders. Our student community comes from different racial, educational, and socio-economic backgrounds. In our school, the student population is roughly (75%) African-American, (16%) European-American, (7%) Asian-American and (3%) Hispanic-American. One-third of the entire student population is coded as "Gifted and Talented" (GT). A majority of these GT students are from more affluent, socially mobile, and culturally diverse families. The remaining two-thirds of the BAC population are students from the surrounding neighborhoods of the "West Learning Community" (WLC). Many of the WLC

students are from more economically challenged and less diverse environments. However, each individual, no matter where they are from, brings an extremely different set of experiences with him or her, creating a wonderful and sometimes challenging classroom environment.

All students attending BAC are required to have science instruction, three times a week for 45 minutes per session. One of those three sessions is with me in the "science lab" and the other two are with their homeroom teacher. My lab session is also considered a resource class. The unit will be taught entirely in the lab. In the lab, students will engage in a variety of "hands-on" experiences related to food science and nutrition. Along with a diverse population at BAC, there is a staggering discrepancy in knowledge of basic scientific concepts. This compels me to teach by addressing various learning modalities. Scientific principles are approached using the scientific method in conjunction with hands-on experiments, models, visuals, and technology making it interesting to all.

Objectives

The objective of this unit is for my students to have a better understanding of the basic principles of good nutrition and exercise. They will explore the meaning of the unit's title. Students will learn what makes up the components of a good balanced diet. They will learn how the human body processes the foods it takes in. The parts and functions of the digestive system will be identified and explored. They will discover how the human body breaks food down into the necessary nutrients such as vitamins, minerals, lipids (fats), protein, and sugars it needs to maintain proper weight, body mass index, and metabolism. They will also compare and contrast the nutritional content of manufactured food products with real "whole" foods. Lastly, students will gain an understanding that physical activity does lead to better overall well-being. They will discover that simple exercises are within the reach of everyone and all it needs is as little as 30 minutes a day.

My unit is designed to encompass a variety of learning activities, each ranging from 45-60 minutes in length. I have included books I want students to read as well as a list of "online" printable readings (see Student Websites) that will be printed off and assigned to build background knowledge prior to engaging in the "lab-style" learning activities that make up my unit. These additional reading components range from 10-15 minutes each. This means that at the conclusion of this unit, you should expect your students to have anywhere between 12-15 hours of direct and indirect contact time on this subject. This unit was written for fourth graders. However, it could very easily be adapted and utilized with any elementary child between the fourth and sixth grade.

Strategies

I will use a variety of strategies to convey content information to students. Because BAC has such a diverse population of learners, I need to teach every lab activity using a variety of methods that addresses the differing modalities of those learners while also taking into consideration the "scientific method." The presentation of the unit's content material may have students look at or create charts, review or complete diagrams, build or study models, integrate technology using our "Smart board," view related videos, read and

discuss material, and conduct experiments.

The Scientific Method

The scientific method needs to be employed in any hands-on "lab-style" learning activity that you teach in this unit. The scientific method, however, adapted to meet the objective of the activity is a primary way to foster higher level thinking and questioning amongst your students. This should become a matter of practice, in whatever its form to ensure that students are coming away at the conclusion of your lesson, and the unit as a whole, with correct information. (Science Buddies, 2008)

The scientific method starts when my students ask a question about something that they observe such as "How, What, When, Who, Which, Why, or Where?" Moreover, in order for the scientific method to answer the question it must be about something that you can measure, preferably with a number.

No one likes to be unprepared, least the teacher. Doing background research is a definite must. Each of my unit's activities has some reading activity that accompanies it. Reading activities can take a variety of forms such as journal articles, websites, newspaper articles, etc. The readings for this unit need to be done before lesson implementation. I always proofread the materials before assigning them to ensure I have cleared relevant vocabulary to allow proper comprehension. In addition, all reading needs to be followed up by some type of discussion to ensure that my children understood what was read.

A hypothesis is an educated guess about how things work. It can be stated in a variety of formats, however the preferred "If _____ [I/We] do this _____, then _____ [this] _____ will happen" model is best. My children will need to construct the hypothesis in a way that they can easily measure, and of course, their hypothesis should be constructed in a way to help them answer their original question.

My unit's experiments will test whether their hypothesis is true or false. It is important for their experiment to be a fair test. My students should conduct a fair test by making sure that they change only one factor at a time while keeping all other conditions the same. Many an experiment in food science has gone wrong due to more than one factor changing per experiment. My children will repeat their experiments several times. These repeats called "trials" are done to make sure that their first results were not just a random accident.

Once my students' experiments are complete, I will have them collect their measurements and analyze them to see if their hypothesis is true or false. Actual scientists often find that their hypothesis was false, and in such cases, they will construct a new hypothesis starting the entire process of the scientific method over again. Even if they find that their hypothesis was true, they may want to test it again in a new way.

My students will communicate their results in a variety of formats. They will be completing lab sheets, creating graphical organizers/charts/graphs, presenting information orally, and lastly creating a "Unit Project" display board.

Visuals, Diagrams and Models

In the study of the human body, it will be essential for me to incorporate the use of visuals, videos, diagrams, and models in the lessons laid out in this unit. The need to address a number of learning modalities is crucial in order for me to meet the needs of all learners in my classroom. Some of these can be found at a variety of websites that allow users to download and use them in educational settings. Others are for sale commercially online for use in classrooms. All of these can be used to reinforce the lesson activities.

Instructional Content Background

Walter C. Willet's "Healthy Eating Pyramid" vs. the USDA's "MyPyramid"

Walter C. Willit M.D., faculty member at the Harvard Medical School and author of "Eat, Drink, and Be Healthy" has developed what he calls the "Healthy Eating Pyramid." His pyramid comes into direct competition with the USDA's new campaign called "MyPyramid" which has replaced its original food guide pyramid. Willit claims his pyramid is based upon solid science, and offers better guidance for healthy eating than the advice from the USDA. (Willet et al. 2005, 21)

The former USDA pyramid gave consumers some idea of what they should eat daily by listing food groups and servings per day. The major flaw that plagued the USDA's original pyramid was that it was not updated or revised to address new nutritional research for almost 13 years. Ideas presented to the public were already coming under serious scrutiny and being openly challenged. (Willet et al. 2005, 12)

Originally, the USDA claimed all fats were bad. Willit and other researchers have since determined some fats are good for you, especially Omega 3 and 6-fatty acids. (Willet et al. 2005, 16) The USDA had claimed that all carbohydrates were good; however, we have since learned that some are, and some are not. This was the case when carbohydrates replaced fats as a food of choice. Over consumption in turn led us down the road to diabetes and heart disease, according to Willett. (Willet et al. 2005, 17) Protein was another area of concern with consumers believing that proteins were exchangeable. However, the choice of proteins present in terms of saturated fat content varies. Chicken and turkey for example, beat red meat as a meal choice; however, the old system did not deal with this. (Willet et al. 2005, 18) The USDA said dairy products are essential, however, it is calcium and not the fat in dairy products we need. Things such as whole milk are loaded with saturated fats, which definitely are not good for us. The USDA recommended Americans eat more potatoes. Willit points out that this is ok, for the very physically active. For the rest of us, we do not need the high level of starch consumption gained from them unless we are looking to add extra pounds. Lastly, Willet points out that the old pyramid never addressed alcohol consumption, vitamins, or gave guidance on weight or exercise. (Willet et al. 2005, 19)

When the USDA finally released its new "MyPyramid" program to the public in 2005, the dietary guidelines used in its creation were a vast improvement over the previous version. It finally stressed exercise and physical fitness; however, the "MyPyramid" diagram itself was nothing more than a rainbow band of colors vertically aligned inside a pyramid. (Willet et al. 2005, 20) It did not include any information about what to eat or how much to eat whatsoever. This left many more confused than before. Lastly, for those without web access, the new USDA information and guidelines were almost beyond their reach because you could only primarily access the information via the Internet. This lack of availability hurts those that needed its help the most, often the most disadvantaged in our society.

Dr. Willet's "Healthy Eating Pyramid" on the other hand is based upon on current ongoing scientific research, subject to revision. It is more accurate and helpful to consumers; all the while, it tries to be unbiased. Willet's main aim is to inform and educate the public using the latest findings available. He admits that his pyramid is not set in stone; it is open to further findings and research so it can help all. (Willet et al. 2005, 21) In his regimen, we are reminded to watch our weight. He suggests that we need to examine our weight and its long-term effects on our over-all health. Eating fewer bad fats and more good fats, combined with eating fewer refined carbohydrates and more whole-grain carbohydrates are some ways for us to start. Choosing healthier

sources of protein opens options for eaters to consume fewer saturated fats. Eating plenty of fruits and vegetables boosts vitamin and mineral intake, all the while cutting down on refined sugars and high-fructose corn syrup. Fewer potatoes also reduce excess starch in our diets. For adults, Willet seems to direct us to use alcohol in moderation. A little bit can be beneficial, however a lot can lead to disease and damage to bodily function. (Willet et al. 2005, 22) Lastly, Willet advocates the use of a daily multi-vitamin. He admits that it will not make up for poor eating habits; however, it cannot hurt ones health either. (Willet et al. 2005, 24)

The "Children's Activity Pyramid"

The "Children's Activity Pyramid" was originally designed by Barbara Willenberg, however in 2006; the University of Missouri Extension published it as a new conceptual model to correspond the USDA's MyPyramid. The Activity Pyramid illustrates easy to engage in physical activity that children could relate to and engage in to support overall health and metabolism. The new physical activity pyramid was a tool intended to help youth; ages 6-11 amass the necessary amount and assortment of activities in each category. The Activity Pyramid also attempts to organize activities into categories that children can complete: 1) Everyday Activities; 2) Active Aerobics; 3) Flexibility and Strength; 4) Inactivity. The pyramid recommends amounts of each category given. The Activity Pyramid also depicts youth from communities of color as well as a child with physical disabilities. Girls and boys are engaged in pertinent but recognizable physical activities. The Activity Pyramid recognized nationally and internationally, promoted by numerous organizations including National Association for Sport and Physical Education. This project funding came in part by USDA's Food Stamp Program. (Science Direct 2007)

The Human Digestive System

Digestion is the breaking down of food into forms that our bodies can use. Our bodies use food as fuel to provide energy for work, play, and growth. The digestive system is responsible for changing the food eaten into energy for our bodies to use. Digestion is the breaking down of food into small molecules that will be absorbed into our bloodstream. The digestive process often begins for most of us when we feel hungry. Stomach growling occurs when the stomach receives signals from your brain to begin digestion but the stomach is empty. The movement of the muscles mixing the acids of the stomach in the hollow space of the stomach produces vibrations we hear as growling, or rumbling, or gurgling. The obvious solution to this problem is to eat, but this is not always practical. However, once food is ingested the digestive process really proceeds.

When you put food in your mouth and begin to chew. Your teeth help to break the food apart, saliva helps to soften the food, and your tongue helps to push the food into your throat when you are ready to swallow. When we swallow the food, it goes into a tube called the esophagus. The esophagus is a muscular tube that is connected to the stomach. The muscles that surround the esophagus help to squeeze and push the food into the stomach.

The stomach is an expandable sack that receives the food from the esophagus. Your stomach is located just below the heart. The stomach makes digestive juices, like acids and enzymes, which help to break our food down into a thick liquid or paste. This thick liquid or paste is called chyme. Your stomach is a muscular organ that is able to move in order to mix the food with digestive juices. Food usually remains in the stomach for about two hours. After leaving the stomach, the food enters the small intestine.

Your small intestine is a 20-25 foot tube that is coiled up in your abdomen. The center of your small intestine is right behind your belly button. Some of the most important aspects of digestion takes place in the small

intestine. As the thick liquid food paste travels through your small intestine the nutrients, such as vitamins, minerals, proteins, carbohydrates and fats, are absorbed by millions of tiny finger-like objects called "villi" and sent into your bloodstream where the nutrients can travel to all your body cells. The body does not digest all the food that we eat. The undigested food leaves the small intestine and then enters the large intestine.

The large intestine is about five feet long so it is shorter than the small intestine. The large intestine is however thicker or wider than the small intestine and that is why it is called the large intestine. The undigested food enters the large intestine as a liquid paste. In the large intestine, water is removed from the liquid paste turning what is left into solid waste. The solid waste collects in the rectum at the end of the large intestine. It will finally leave the body through an opening called the anus.

Healthy Body Weight

Family lifestyle and traditions play a much larger roll in the problem of obesity than heredity. (Larimore et al. 2005, 36) What does healthy body weight mean? As in figuring out what it means, there are some well-known markers for healthy weights. Different measures of healthy weights take into account gender, age, and height. Sources indicate that a healthy body weight takes into account ones "body mass index." (IamGeekFit, 2007)

What is weight?

If you were to ask the average person on the street "How much do you weigh?" you might get the response "Whatever the scale says." This definition however does not answer this fundamental question when it comes to the human body. A more precise definition of weight could be stated, as "an object's weight equals the force required to support it." (Batesville, 1999) For the purposes of this unit, weight will measured using a bathroom scale, either measuring pounds, or using a balance scale, using grams. Weight is measured in one of two ways around the world. In the United States, the pound (lb) is the main standard unit of measurement. A pound is made up of 16 ounces (oz) while in all other countries; the kilogram (kg) is the standard unit of measure. A kilogram is made up of 1,000 grams.

How do children maintain proper weight?

To maintain a proper weight based upon their age, children normally need a certain number of calories each day that their bodies use as energy for normal daily activities This ranges for boys from 2000 calories for a 7-10 year old, 2500 calories for an 11-14 year old, and 3000 calories for a 15-18 year old. For girls the ranges are from 2000 calories for a 7-10 year old, to 2200 calories for an 11-18 year old. These are only estimates and some children need more or less of an energy allowance for daily activities. (About.com, 2003)

Body Mass Index (BMI)

Body mass index (BMI) is a calculation that uses your age, gender, height, and weight to estimate how much body fat you have. BMI is measured in either percentages or numbers based upon age. BMI results are different for children and adults. Adult BMI is calculated in the same manner as a child; however, numbers and not a percentage are derived. A child's BMI can be calculated between the ages 2-20 and it is ranked into percentiles not numbers. These percentiles determine if a child is in one of four categories: "Under weight" less than the 5th percentile, "Healthy weight" greater than or equal to 5th but less than 85th percentiles, "Overweight" greater than or equal to 85th but less than 95th percentiles or lastly "Obese" being greater than or equal to the 95th percentile (Kids Health, 2008.)

Too much body fat is a problem because it can lead to variety if illnesses and other health problems. BMI, although not a faultless method for judging someone's weight, is often a fine way for student's parent to see how the child is growing at any age. However, it needs to be mentioned that a child that is muscular and has a higher weight and BMI may not be fat.

Calories

A calorie is a unit of energy available in the food you digest. (Wishinsky & MacLeod 2008, 103) A calorie is a unit of measurement; however, it does not measure weight or length, and energy. It can be used by the human body as a fuel to accomplish a variety of necessary functions. (Kirschmann, et al. 2007, 209) A calorie is the amount of heat (energy) required to raise the temperature of 1 gram (g) of water 1 degree Celsius (°C). (Science Buddies, 2008)

The caloric content of any food item can be measured using an instrument called a calorimeter. According to the reputable science website "Science Buddies" the formula used to calculate calories in a calorimeter is as follows: ($Q_{water} = mc\Delta T$.) Q_{water} is the heat captured, in calories (cal); m is the mass of the water, in grams (g); c is the specific heat capacity of water, which is 1 cal/g°C (1 calorie per gram per degree Celsius); and ΔT is the change in temperature (the final temperature of the water minus the initial temperature of the water), in degrees Celsius (°C). (Science Buddies, 2008)

When something contains calories, it is a way of describing how much energy your body could get for those functions from eating or drinking it. Calories are not harmful in themselves. The human body needs calories for energy. However, eating too many calories and not "burning" enough of them off through physical activity is the main reason for weight gain. The body burns a certain amount of food, converting it into calories needed for energy; the body converts the excess energy into glycogen or fat, which is stored all over the body. (Kirschmann, et al. 2007, 209)

Carbohydrates and Sugars

People seem to love foods that are loaded with carbohydrates. Carbohydrates are the best source of immediate energy for all body function, especially the brain and central nervous system, and for muscle exertion. (Kirschmann, et al. 2007, 11) All forms of starch and sugar are also carbohydrates. Sugars may taste sweet; but there are many forms of sugars, and not all are alike. All sugars are derived from carbohydrates because when you consume carbohydrates they can be broken down in the body into sugars.

Glucose, also known as "blood sugar" is one of the simplest sugars. Glucose is also needed as a fuel supply for the human brain, which only functions using glucose and not other sugars. Eliminating all sugars from the diet is impossible and in glucose's case, it would be fatal, because the brain uses only glucose for its energy. Fructose, another simple sugar, found in fruit is also the sweetest of all sugars. Galactose is another simple sugar. It is released into the body during digestion, where it and fructose are converted to glucose by the liver. The simple sugars, such as glucose, are also known as monosaccharides.

A more complex double sugar such as cane sugar is also known as a disaccharide. (Netdoctor.co.uk, 2008) Lactose, found in milk, and maltose, found in sprouting plants and beer malt are other examples of disaccharides. Complex carbohydrates are broken down into their respective sugars are digested and absorbed at various points along the digestive tract.

The mouth's salivary glands excrete enzymes, which along with mechanical chewing begin the digestion of

starches to polysaccharides and maltose. (Kirschmann, et al. 2007, 6) As food moves into the stomach, acid and enzymes present in the stomach, digest the salivary enzymes, thus stopping the further digestion of starch. Maltose and sucrose are partially broken down at this point by the stomach acids present. (Kirschmann, et al. 2007, 6)

Food is then passed through onto the small intestine. The pancreas releases carbohydrase and other enzymes into the small intestine at the same time. This carbohydrase breaks down polysaccharides into maltose. Enzymes on the surface cells, that line the small intestinal wall, break down the polysaccharides into disaccharides and then into monosaccharides. As a last stop, monosaccharides are absorbed through the cells and then into the blood stream. The large intestine plays no role in absorption of carbohydrates.

Fats

Fats are also known as "lipids." Fats, or lipids, are calorie-rich nutrients in food that the body uses to build nerve tissue, most notably in the brain, as well as hormones. The body also uses fat as fuel because it is so calorie-rich. If lipids eaten are not burned as energy or used as building blocks, the body stores them in fat cells. (KidsHealth.org, 2008) The storage of these of these excess fat cells is determined by genes; however, the gender of the person also is a factor. Men have a tendency to store it in the "belly" or abdominal region, where as women have a tendency to store it in the region of the hips and buttocks. This is the body's way of planning for future use. By storing fat for future use, the body plans for times when food might be scarce. (KidsHealth.org, 2008) Fat is also referred to as adipose tissue. Adipose cells are lighter, but larger in volume than muscle cells, which is the reason why many people look upon excess adipose tissue as unsightly.

Fatty foods, such as hotdogs, hamburgers, and pizza can cause many serious and potentially life-threatening health risks. They are very calorie-rich and loaded with excess amounts of lipids. One cup of whole milk has as much artery-clogging saturated fat as one hot dog, five strips of bacon, a Snickers candy bar, or a fast-food hamburger. (Larimore et al. 2005, 140) Fat gives many foods their distinct taste and consistency. For many children, desserts and snacks such as nachos, candy bars, fast foods, doughnuts, pastries, and cookies are a significant source of fat. Kids also get fat from whole-milk products and high-fat meats, such as bacon, hot dogs, cheeseburgers, and non-lean red meat. Of course, fast food and take-out meals have a tendency to have more fat than home cooking; and in restaurants, fried dishes are the highest in fat content. Fat often "hides" in foods in the form of creamy, cheesy, or buttery sauces or dressings on our sandwiches and salads. Still, fat is an important part of a healthy diet when we eat the right kinds of fats, especially those from certain kinds of fish in the form of Omega 3 & 6 fatty acids in recommended amounts. When you go shopping at the supermarket, you need to be aware of the fat content on the "Nutritional Facts Label." "Fat-free" foods can contain no more than 0.5 grams of fat per serving; however, "Low-fat" foods may contain 3 grams of fat or less per serving. (KidsHealth.org, 2008)

Types of Fats

There are three main forms of lipids which are either unsaturated, saturated and trans fats. Saturated and unsaturated fats occur naturally; trans fats, however, are a manufactured creation. Unsaturated fats found in plant foods and fish are even beneficial to heart health. The best of the unsaturated fats are monounsaturated. Saturated fats are in meat and other animal products such as butter, shortening, lard, cheese, and milk. Eating too much saturated fat can raise blood cholesterol levels and increase the risk of heart disease. Trans fats are found in margarines, manufactured snack and baked goods, and some fried foods. Trans fats—another name for trans fatty acids-are created when vegetable oils are hydrogenated.

Hydrogenation means that hydrogen atoms are bonded to the fat molecules so they remain solid at room temperature. Like eating too many saturated fats, trans fat can raise cholesterol and increase the risk of heart disease. Food manufacturers must list the amount of trans fats on food labels. In some jurisdictions, such as New York City, bans on trans fats have been put in place where they cannot be used in food preparation in restaurants. This major turn of events might mirror the return of more "traditional foods" to menus not loaded with plenty of modern trans fats.

Food Products vs. Whole Foods

The current movement toward "whole foods" can trace its roots back to the early 20th century and the efforts of Dr. John Harvey Kellogg and his brother Will Keith Kellogg. Their work to bring cereal, which has been around for over 20,000 years, to the modern breakfast table needs to be commended. By shear accident, they cooked wheat and left it sitting out. When it was discovered stale, they were too cheap to throw it away. The brothers decided to force the mixture through large rollers, thinking the dough would come out in long sheets. Instead, it broke off into small flakes. The brothers decided to toast these and, alas, the first modern cereal came about. Later, when they decided to experiment with other grains such as corn and rice, Corn Flakes and Rice Krispies were born. (Wishinsky & MacLeod 2008, 25) This was also the birth of what some now call "whole" or "natural" foods movement.

Ironically, most people are actually aware of the fundamentals of a healthy diet and the necessity of eating more vegetables and fruits while avoiding too much starch, sugar, and saturated fats. Yet having fruits and vegetables every day and breaking long-standing dietary habit seem to be the greatest challenges people face. (Seinfeld 2007, 9) Pollan, author of "In Defense of Food," seems to agree with Seinfeld's observation that the consumption of vegetables is the cornerstone of any diet. If you observe the cover of his latest best seller, he states "Eat Food. Not too much. Mostly plants." (Pollan 2008) This is a straightforward proposal, which comes to sum up the main idea of his book.

The modern science of "whole foods or natural foods" rests on the art of selecting foods that are naturally grown or raised, rather than "edible food like substances" as Pollan calls them. In his new book, In Defense of Food: An Eater's Manifesto, Pollan helps average American's make sense of all the nutritionist information in the media. He suggests some common sense concepts that most consumers can easily follow.

Pollan suggests that we do not eat anything your great-grandmother would not recognize as food. (Pollan 2008, 148) He suggests that an item like "tube yogurt" is something she would not even know what to do with, let alone know what is in it. This test can be applied to almost anything in a supermarket because it is so simple to follow. Pollan also suggests avoiding foods containing ingredients that are unfamiliar, unpronounceable, more than five in number, or that include high-fructose corn syrup. Foods that fall into these categories have a great possibility of being loaded with "food like substances" made in a laboratory. Many of these food products now carry "health claims" of some sort. Pollan is quick to suggest that we avoid these items from companies simply looking for FDA approval. Just because it says that certain nutrients are in it does not guarantee that it is good for you. Pollan recommends shopping the peripheries of the supermarket and staying out of the middle. The middle of the store is where he claims most "food like substances" reside. The local farmer's markets have many organically grown foods with better selections than most "chain" food stores. Pollan informs us that we need to eat plants and, of those, mostly ones with leaves. Eating dark green leaves are beneficial to overall health. They are nutritiously loaded with vitamins, minerals, Omega-3 fatty acids, and antioxidants.

Most humans, being omnivores, are essentially tied to what they eat. No matter what animal food you put in

your mouth, you are also a product of their eating habits, so it pays to eat free-range animals rather than corn-fed cattle and chicken. It is not normal in nature for a cow to feed on corn, however most beef produced today is raised on corn feed. When a good source of pasteurized "free-range" or grass-fed meat is located, it pays to buy in bulk. The same can be said about the plants we eat as well. The more diverse the human diet, the more variety that is grown or raised. Healthy organic farming methods ensure that soil is free of contamination by pesticides that are potentially harmful to the food supply. Most "non-organic" farms today grow fewer than half of the crops they did several generations ago.

The French, Greeks, Italians, Japanese, and Indians have a tendency to have better overall health, mainly because they eat a traditional diet. Traditional diets have a tendency to be more nutritious, lower in fats, and better for heart health. They often will pay more but eat less. Higher quality foods, which often cost more, are of superior quality to "edible food products." Time spent eating a sit down meal, wholly prepared in your kitchen, makes for a dining experience. Anything less than the kitchen or dining room table is not acceptable. Walt Larimore, like Pollan notes, "We have lost the habit of sitting down together, the whole family, and eating." (Larimore et al. 2005, 77) Eating alone is an opportunity to eat more than you should. Eating in the presence of others often acts a form of regulation for our caloric intake. We need to learn to stop eating when we are full, not when your plate is clean. Lastly, when need to eat slowly, chew more often, and savor the flavors. We will tend to eat less and feel more satisfied and full. Larimer seems to concur by suggesting, "If you have food on your plate when you are done, leave it. It is much better to go into the waste than onto your waist." This goes along with the idea that as humans we should dine, not graze like animals.

America is a country on the go. We do almost everything these days in our car. Pollan addresses this by saying, "Don't get your fuel from the same place your car does." (Pollan 2008, 192) Gas stations sell high calorie, highly processed snack foods loaded with high-fructose corn syrup. They should stick to selling gas. (Larimore et al. 2005, 162) "Cook and, if you can, plant a garden." (Pollan 2008, 197) Americans need to learn how to cook. The time and effort put into cooking ones meal from scratch is well worth it. The results obtained are often more nutritious meals, often containing less harmful fats than fast food. Planting a garden will result in fresh, vitamin and mineral packed herbs and plants that are more nutritious and cost saving. The benefit to ones health far outweighs the time and effort.

Another author who seems to support the idea of consuming more whole & natural foods is Henry Legere, M.D. He suggests in his book "Raising Healthy Eaters: 100 Tips for Parents" that children should eat a well balanced diet, one adequate in vitamins, one that incorporates nonmeat sources of protein, one rich in fiber and whole grain, one that avoids excess sugars, and one that contains vegetables. (Legere, 2004)

Vitamins

Vitamins are naturally occurring organic food substances. The body needs vitamins for normal growth, metabolism, and development. There are 13 essential vitamins your body needs for these processes. They are the vitamins A, C, D, E, K, and the B vitamins: biotin, folate, niacin, pantothenic acid, riboflavin, thiamine, vitamin B-6, and vitamin B-12. Most people can get all the vitamins they need from the foods they eat, however, the body can also manufacture it's own vitamins in the forms of D and K. (National Library of Medicine 2008) People who are vegetarians or vegans may need to take vitamin supplements to ensure their body receives proper dosages of each type of vitamin. Each of the essential vitamins has a specific job or function that it performs in the human body. If someone has very low levels of specific vitamins, they may develop a deficiency disease. This is especially true as a person ages or suffers from chronic illness. One must be careful however; high doses of certain vitamins can make you sick. (National Library of Medicine 2008)

Some vitamins may aid in the prevention of certain medical problems. The best way to obtain sufficient levels of vitamins in the body is to eat a balanced diet with a variety of foods from all food groups. Notably, the quality of the soil in which our foods are grown has a direct effect on their overall quality.

However, in some cases, you may also need to take a daily multivitamin for optimal health because many of today's processed foods have lost their vitamin richness. Vitamin supplements can be either natural or synthetically created in a lab. The need for vitamin supplements is especially important as a person ages or suffers from chronic illness. One must be careful, however; high doses of certain vitamins can make you sick. (National Library of Medicine 2008) Vitamins can be categorized in two ways. They are either "water-soluble or fat-soluble." Soluble means, "to be able to be dissolved in another." Your body easily absorbs a "water-soluble" vitamin. Unlike a "fat-soluble" vitamin, they do not have to be absorbed using bile acids, fluids used to digest fats. Your body does not store large amounts of water-soluble vitamins. Your kidneys do not remove water-soluble vitamins. They come out in your urine. (Family Doctor, 2008)

Minerals

Minerals are nutrients that exist in the body and in food in organic or inorganic combinations. Approximately seventeen minerals are necessary or essential to human nutrition. All tissues and internal fluids of the human body contain minerals. All bodily systems utilize minerals. The human body is composed of approximately 80% water. Minerals help to maintain the delicate water balance in our bodies. Minerals, just like vitamins act as a catalyst for many biological reactions within the human body. Minerals coexist with vitamins, and their work is interrelated. Most minerals are not absorbed into the human body as easily as vitamins are. Mineral deficiencies can result in illness, much in the same way as vitamins. The need for a well-balanced diet is no less important for minerals as it was in the case of vitamins. Common minerals found in the body are Aluminum, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chloride, Chromium, Cobalt, Copper, Fluoride, Iodine, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silicon, Sodium, Strontium, Sulfur, Tin, Vanadium, and Zinc.

Classroom Activities

Classroom Activity # 1: "The New Healthy Eating Pyramid"

Objective: Students will examine "Dr. Walter Willett's "New Healthy Eating Pyramid." The teacher will lead the class in a discussion of each pyramid component. Students will then be introduced to the USDA's new food pyramid entitled "MyPyramid." The teacher will have students compare and contrast both charts. Students will identify the similarities, differences, strengths, and weaknesses of each. Students will be provided with a blank copy of both new pyramids and be asked to categorize foods according to their food groups. They will be asked how much of each category they should eat; they will share their results with the class. The teacher will direct the students to look over and read the USDA MyPyramid website for further information (see Student Resources.)

Classroom Activity # 2: "The Children's Activity Pyramid"

Objective: Students will use the "Children's Activity Pyramid" to generate a list of physical activities and exercises they can complete in the classroom, at recess, or at home. The teacher, along with the physical

education teacher, will devise a list of 20-30 simple exercises that students can engage in on their own time, with minimal supervision. The teacher will instruct the students in each of the exercise that were developed. The students will get copies of each exercise. Websites have been provided with excellent links to this activity (See Teacher Resources.)

Classroom Activity # 3: "You Are What You Eat - Food Products vs. Whole Foods"

Objective: Students will learn how to differentiate "real whole-foods" from an "edible food like substances" using various test criteria set forth by Michael Pollan's book "In-defense of Food. An Eater's Manifesto." To compete this activity the teacher will need to have each of his or her students bring in 2-3 food items each, all must be non-perishable with parental permission. This gives the teacher flexibility in planning. Items should be in cans, boxes, and bags. Food items brought in should come from a variety of sources and should not be all "snack foods." The teacher will bring in "perishable items" for this lesson. Assemble all food items for day of instruction. Use chart paper to list Pollan's tips in a format all children can see. Have the children classify the items based upon the tips on the chart paper.

Classroom Activity # 4: "The Digestive System"

Objective: Students will explore the human digestive system by use an anatomically correct model, diagram, or "Smart board" interactive to identify each of the system's parts and its proper function in the digestion and metabolism of food. Students will use the anatomically correct model, diagram, or "Smart board" interactive to follow food's path from the mouth to the anus. Students will view a short "web-movie" on human digestion. Two formats and links have been provided. One is simpler animated and narrated version. The second is a brilliantly, computer-generated interactive that allows the students to drag and drop all the parts of the digestive system into place, only to be followed up by a CGI high quality movie that follows food through the body following an "inside" view that could only be provided by laparoscopes. (See Teacher Resources.)

Classroom Activity # 5: "Healthy Weight and Body Mass Index"

Objective: Students will calculate their weight and their body mass index (BMI). Note, do to the sensitive nature of body image, personal weight, and BMI; this activity needs to be completed in two parts. Before the activity, the teacher will set up "Personal Weight & BMI Station" in the classroom away from most students. In that station, the student will need a scale that measures weight and height (see your school nurse for this), a computer with Internet access, and a measuring tape. During the whole-class session, the teacher will make clear what weight and BMI are and identify how each one are calculated using a height/weight scale, ones age, measuring tape, and an online BMI Calculator. Teacher can use him or herself as a demonstration model or make one up. During individual center time, students will take their personal body measurements (height, weight, age) and use a children's online "BMI Calculator" to determine their personal BMI. The teacher can assist in calculation as needed. One strategy that may be applied at this stage is to invite the school nurse in to discuss individual BMI with each student. (See Teacher Resources.)

Classroom Activity # 6: "Calorie Counting"

Objective: The class will use a homemade calorimeter to determine the caloric content of various samples of fruits, vegetables, or other foodstuffs. In this lesson, students will start by looking at a variety of food labels and the information contained within. Students will discuss what a calorie is and how it is calculated. This lesson is a great demonstration lesson in which students act as "teacher assistances" while the experiment is going on. Due to the nature of the experiment, prior administrative approval is strongly advised. You will be

generating heat and smoke and that in turn may interfere with the fire system in your building. The use of goggles is needed. Proper ventilation such as a portable hood is highly recommended, if not available outside set up might be best. The availability of a fire extinguisher is strongly suggested.

The complexity of the mathematics, construction, and analysis of results after burning make this lesson very appropriate for "gifted and talented" students. If you are leading the experiment, you will work through the complex mathematics with the class via an overhead, white board or the like. This activity is most appropriate at the upper elementary and middle school level. The "Burning Calories: How Much Energy is Stored in Different Types of Food?" link provided gives very detailed directions to successfully completing this lab experiment. (See Teacher Resources.) Examples of foods burned are given, however consider any food allergies of your children first. The worksheets provided in the sample lab can be used as a basis of a "class chart" your class can journal about after you have burned different items. This activity was originally developed by the University of Southern California's Biology Department in 2004.

Classroom Activity # 7: "Sugar, Sugar Everywhere"

Objective: Students will use a simple "Benedict's solution" to identify the simple sugar in various food samples. Benedict's solution is used to test for simple sugars, such as glucose. It is a clear blue solution of sodium and copper salts. In the presence of simple sugars, the blue solution changes color to green, yellow, and brick red, depending on the amount of sugar. Note: an adult must supervise this experiment. What you'll need: 1 bottle of Benedict's solution, assorted small pieces of food (cookies, crackers, bread, fruit), several glass test tubes, 1 heat source (burner, gas or electric), and tongs. What to do: Place a piece of food in each test tube and then pour 30 - 40 ml of Benedict's solution over the food. Heat the test tubes one at a time over the burner, using the tongs to hold the test tubes. What will happen: Benedict's solution is blue. The presence of sugar will turn the solution to orange. Are there some foods you thought were sugar-free that have sugar? This experiment will lead your children into discovering that many food items have sugar in them. "Benedict's solution" can be attained through the web link provided (see Teacher Resources.)

Classroom Activity # 8: "Fat Attack!"

Objective: Students will extract oils from nuts or seeds, as well as creating "butter" by coalescing fat from various types of cream and milk. Students will be introduced to fats and oils. They will learn which are better overall in one's diet. The links provided have simple experiments that can be replicated in any classroom. To extract fats from nuts, simply have them put any type nuts between sheets of paper towel, brown school paper towels work best. They will proceed to utilize a rolling pin to crush the nuts or seeds between the paper towels thus releasing the nut or seed oil. Experiments in making butter should use a variety of milk products (crème, skim, ½ and ½, whole milk, etc) to let the children see how much actual milk fats will coalesce into solid butter from each. Butter making activity websites are listed (see Teacher Activities.)

Classroom Activity # 9: "Vitamins"

Objective: Students will compare and contrast the vitamin "c" content of various juices based upon brand labels and prices. Students will define what a vitamin is. They will identify specific vitamins in their foods and beverages based upon base knowledge of food labeling, etc.

Background Information: Do different varieties of the same fruit have the same level of vitamin C? What about different brands of orange juice or fresh juice compared to juice from frozen concentrate? Does the way a fruit is stored (or) how long it is stored change the level of vitamin C? Background Info: Most birds and animals

make their own vitamin C. Nevertheless, a few species, like people and guinea pigs, must get it from their food. Good sources of vitamin C are citrus fruits like oranges and grapefruit, strawberries, green peppers, broccoli and potatoes. Vitamin C is required for the body to make and maintain collagen, a protein. Collagen forms the base for all connective tissue in the body. If you do not have enough vitamin C in your diet, you might get the disease scurvy. Symptoms include loss of appetite, bleeding gums, loose teeth, swollen ankles, and tiny hemorrhages (bleeding spots) in the skin.

Procedures:

These are procedures to test for vitamin C content. (With this method, you can compare relative vitamin C content and rank juice beverages from highest to lowest, but you will not be able to get exact concentrations.) You will need some 2% iodine solution (find it at your local pharmacy) to prepare the vitamin C indicator solution described in the following: Step 1. Mix 1 tablespoon of cornstarch into enough water to make paste. Step 2. To this paste, add 250 milliliters of water and boil for 5 minutes. Step 3. Add 10 drops of the starch solution to 75 milliliters of water (use an eyedropper). Step 4. Add enough iodine to produce a dark purple-blue color. Now your indicator solution is ready. Step 5. Put 5 milliliters of indicator solution (about 1 teaspoon) in a 15-milliliter test tube (one for each sample). Step 6. To the test tube, use a clean eyedropper to add 10 drops of juice from the fruit or beverage (for solids, pulp them in a blender and strain the juice). Re-clean the eyedropper for each sample. Step 7. Hold the test tube against a white background. Line up the tubes from lightest to darkest purple. The lighter the final solution, the higher is its vitamin C content. That is because vitamin C causes the purple indicator solution to lose its color.

Classroom Activity # 10: "Minerals"

Objective: Students will learn what a mineral is. They will relate it to their previous studies using a variety of natural samples. Students will use magnets to "extract" the iron from a variety if breakfast cereals in order to determine which has the highest concentration of iron per daily serving size. "Total" will be the best of all brands. The iron in ready-to-eat breakfast cereals is in the form called elemental, not in combination with any other chemical compound. The outsides of cereal flakes were sprayed with a layer of iron particles. You can separate the iron with a strong magnet. Iron is essential in a healthy diet to build blood. Iron is easiest to absorb from meat, fish, and poultry.

Procedure:

You will need a sensitive scale for this procedure. A bathroom scale will not cut it!

1. Crush 1/2 cup of cereal in a baggie, until the flakes are half their original size. Pour into a bowl.
2. Add 1 cup of hot water and mix with a wooden spoon.
3. Get a strong, 3-inch bar magnet that is not grey or black (so the iron filings will show up). Do not use a horseshoe magnet.
4. Put the magnet into the cereal mix and stir gently in a circle for a fixed amount of time, say 5 minutes. Try not to bump the bottom or sides of the bowl.
5. Take out the magnet. Remove the iron filings that it pulled from the cereal, and weigh them on a laboratory scale.

Unit Assessment

"Healthy Eating Advertisements & BAC Television Presentations"

Objective: Students will work in small groups to create a display board for one of the unit's main topics, compose a "3-minute" oral presentation on that topic, and act as "anchors" for the school's BAC TV Morning News Program. Display boards will be shown on the TV program and then be displayed in the media center after broadcast. At the completion of all broadcasts, parents will be invited to the school to view a DVD of all the TV spots, see the boards in person , and partake in a food tasting party in which the students have created a dish of their choosing based upon healthy eating recipes located in teacher reading list materials.

Teacher Resources

Teacher Reading List

Cobb, Vicki. 1994. Science Experiments You Can Eat: Revised and Updated. New York: Harper Collins Publishers. Great hands-on experiments that can be replicated by children at either home or school.

Kirschmann, John. 2006. Nutrition Almanac. New York: McGraw-Hill. This is a great hands-on guide to good eating.

Leedy, Loreen. 2007. The Edible Pyramid: Good Eating Every Day. New York: Holiday House, Inc. This book has been revised to incorporate the United States Department of Agriculture's newly redesigned food pyramid, along with the latest research on nutrition.

Larimore, Walt et al. 2005. Super Sized Kids: How To Rescue Your Child From The Obesity Threat. New York: Time Warner Book Group. Essential tips for keeping America's kids healthy. Awesome tips anyone can use.

Legere, Henry. 2004. Raising Healthy Eaters: 100 Tips for Parents. Cambridge: Lifelong Books. A parent friendly guide to healthy eating and children includes recipes.

Nestle, Marion. 2002. Food Politics: How the Food Industry Influences Nutrition and Health. London: University of London Press. Great look into the food industry and its marketing strategies.

Pollan, Michael. 2008. In Defense Of Food: An Eater's Manifesto. New York: The Penguin Press. A fantastic exploration of the eating habits of the typical American. The benefits of eating natural whole foods, limiting intake and eating more plants is espoused.

Seinfeld, Jessica. 2007. Deceptively Delicious: Simple Secrets to Get Your Kids Eating Good Food. New York: Harper Collins. Jessica Seinfeld's book is practical, easy-to-read, and a godsend for any parent that wants their kids to be healthy for a long time to come

Willett, Walter C. 2001. Eat, Drink, and Be Healthy: The Harvard Medical School Guide To Healthy Eating. New York: Simon & Schuster, Inc. Great reference for looking healthy eating and food preparation includes recipes.

Wishinsky, Frieda et al. 2008. Everything But The Kitchen Sink: Weird Stuff You Did not Know About Food. New York: Scholastic, Inc. Great reference for looking healthy eating and food preparation includes recipes.

Teacher Websites

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Kenneth Lafferty Hess Family Charitable Foundation, "Burning Calories: How Much Energy is Stored in Different Types of Food?" May 9, 2007.http://www.sciencebuddies.org/science-fair-projects/project_ideas/Chem_p017.shtml (accessed July 5, 2008). Awesome site for science fair ideas and so much more.

Medtropolis, "The Virtual Body." January 1, 2008.http://www.medtropolis.com/VBody.asp (accessed July 12, 2008). Virtual human body that is on-line.

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1998. http://homepage.eircom.net/~seaghan/play/games.htm (accessed July 08, 2008). Awesome playground site with many ideas.

University Of Southern California, Biology Department, Drs. Shugarman, Baker, and Petruska. "BISC 150: The Nature of Human Health and Disease." August 18, 2004.http://bioweb.usc.edu/courses/2004-fall/bisc150.html (accessed July 05, 2008). Great calorimeter lab. Many other informative articles about digestion.

U.S. National Library of Medicine, "MedlinePlus: Vitamins." March 12, 2008.http://www.nlm.nih.gov/medlineplus/vitamins.html (accessed July 10, 2008).

Student Resources

Student Reading List

Cobb, Vicki. 1994. Science Experiments You Can Eat: Revised and Updated. New York: Harper Collins Publishers. Great base information and hands-on experiments that the children can replicate at either home or school.

Wishinsky, Frieda et al. 2008. Everything But The Kitchen Sink: Weird Stuff You Did not Know About Food. New York: Scholastic, Inc. Great background facts and information. Great reference for looking healthy eating and food preparation includes recipes.

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Gavin, MD, Mary. "Figuring out Food Labels." April 1,

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United States Department of Agriculture, "MyPyramid.gov : Steps To A Healthier You." April 2005. http://www.mypyramid.gov/ (accessed June 3, 2008). USDA Site for MyPyramid.gov campaign.

Appendix 1

North Carolina's Grade 4 Healthy Living Content Standards

COMPETENCY GOAL 1: The learner will develop knowledge and skills to enhance mental and emotional well-being. Objective: 1.05 Conclude that people have different body shapes, sizes, and other personal characteristics that make them unique.

COMPETENCY GOAL 2: The learner will develop knowledge and skills to enhance personal and consumer health. Objective: 2.01 Identify problems associated with and measures to control common childhood diseases or conditions such as asthma, allergies, diabetes, and epilepsy.

COMPETENCY GOAL 3: The learner will develop healthy and effective interpersonal communication and relationship skills. Objective: 3.02 Demonstrate empathy for individuals affected by disease or disability.

COMPETENCY GOAL 4: The learner will apply knowledge and behavior self-management skills to areas of nutrition and physical activity for healthy growth, development, and maintenance. Objectives: 4.01 Identify the major components of the digestive system and summarize the digestion process. 4.03 Utilize the basic information on food labels to make decisions about the nutritional value of various foods. 4.04 Demonstrate the ability to plan healthy meals and snacks that emphasize the principles of My Pyramid. 4.05 Summarize the concept and the benefits of eating in moderation. 4.06 Distinguish between healthy and unhealthy eating patterns. 4.07 Evaluate the benefits of drinking plenty of water, especially before and after physical activity. 4.08 Provide examples of how the media and advertisers use persuasive techniques to influence food-purchasing decisions. 4.09 Summarize the major components and functions of the cardiovascular system. 4.10 Analyze the relationship between physical activity and nutrition and the cardiovascular system.

Appendix 2

National Health Education Standards: Achieving Excellence

HEALTH EDUCATION STANDARD 5 - Students will demonstrate the ability to use decision-making skills to enhance health.

Rationale

Decision-making skills are needed in order to Identify, implement, and sustain health-enhancing behaviors. This standard includes the essential steps that are needed to make healthy decisions as prescribed in the performance indicators. When applied to health issues, the decision-making process enables individuals to collaborate with

others to improve quality of life.

Performance Indicators

5.5.1 Identify healthy related situations that might require thoughtful decision.

5.5.2 Analyze when assistance is needed when making a health-related decision.

5.5.3 List healthy options to health related issues or problems.

5.5.4 Predict the potential outcomes of each option when making a health related decision.

5.5.5 Choose a healthy option when making a decision.

5.5.6 Describe the outcomes of a health related decision.

HEALTH EDUCATION STANDARD 6 - Students will Demonstrate the ability to use goal-setting skills to enhance health.

Rationale

Goal-setting skills are essential to help students Identify, adopt, and maintain healthy behaviors. This standard includes the critical steps needed to achieve both short-term and long-term health goals. These skills make it possible for individuals to have aspirations and plans for the future.

Performance Indicators

6.5.2 Identify resources to assist in achieving a personal health goal.