

Eating Right

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Overview

In this unit prepared for grades ten, eleven and twelve, we will explore the Food Guide Pyramid created by the United States Department of Agriculture. As an introduction to the objective of this unit “Eating Right,” we will examine macronutrients, micronutrients and phytochemicals. Students have been bombarded over the years by doctors, coaches, teachers and parents giving commands to “eat right”. This is meaningless to them; something like “good luck” when they are about to take an exam. By incorporating practical hands on approaches, the meaning of eating right will become reality for the students.

Activities prepared for this unit will empower the students to transfer knowledge gained to everyday food choices. By researching current dietary recommendations and comparing them to their own personal food choices, the term “eating right” will resonate in the minds of the students for their entire lifetime. After exploring the times of day to eat, the healthy foods to eat in the correct combinations and in the right amounts, there will be a research paper assigned. Specific topics will be available for students to choose from. Learning is reinforced when one critically evaluates, compares and writes their findings.

Becoming healthier is not about “not eating” it is about eating right, eating so you will live a long time. Each of us must eat our entire life and this unit is designed for the participants to take an active role in making that life as healthy as possible. The rewards are great; a longer life span, more energy, more strength, reduced body fat and you will look and feel younger. It is hoped that students remain inspired to continue putting into practice what they know, that students continue learning as more information is made available and that students remain aware of the correlation between food choices and their energy levels throughout their entire life.

Rationale

The reason for this unit comes from observing students choosing unhealthy drinks and foods. In particular, students are rarely seen without a bag of chips and a drink that usually contains caffeine and a lot of sugar. These students expend much mental energy figuring out a way to avoid gym class; they are too tired to

go. If a teacher requests a student to run an errand requiring them to go up two flights of steps, they do not jump at the chance to escape the classroom, they complain about going and return exhausted. Observation also shows that many students are carrying around extra pounds as they continuously eat. Some students even add a couple of spoonfuls of sugar to a glass of water.

As a teacher of Family and Consumer Science, I plan to use this unit with my upper level classes where the age of the students is at least sixteen. These students have matured to a degree and are able to resist peer pressure somewhat. This is important because the participants will not be walking the same path as their peers when it comes to food choices in the future. They will be looking to a promising future for themselves and their children as a result of putting what they have learned into practice and making it a lifestyle.

This unit supplements the already established curriculum goals for Food Technology II where two weeks of instruction time is set aside for the study of nutrition. It also satisfies several of the educational standards implemented by The Pittsburgh Board of Public Education. The first Family and Consumer Science standard that is so important is that all students demonstrate their knowledge of principles of consumer behavior as a foundation for managing available resources to provide for personal and family needs. The second standard taken from the Health, Safety and Physical Education discipline is also very important. It says that all students are able to recognize and demonstrate their ability to apply various dietary guidelines to meet nutritional needs at various stages of life. This unit addresses standards from other disciplines as well and they are listed in Appendix I.

Past procedures for teaching nutrition and healthy eating made use of the United States Department of Agriculture's Food Guide Pyramid. It was distributed in 1992 with the intention to help consumers make wise choices about their food intake. Was this helpful? Other countries had food guidelines that left their populations healthier, but in the past twelve years Americans have become less healthy. There has been evidence gathered that shows our Food Guide Pyramid actually causes weight gain, heart disease and diabetes (Bredenberg 27). The results are in from many studies and they show flaws that need to be corrected. The USDA is planning to release a new Food Guide Pyramid early in 2005. Special lobby groups like the American Dairy Association and the meat industry, kept the first pyramid from being published for fifteen years. Hopefully they will not delay this long overdue revision. The new pyramid will have adjustments telling us to consume dairy products in moderation as well as red meat and refined carbohydrates. New evidence reveals that all fats are not bad, and all carbohydrates are not good. Good carbohydrates include fruits, vegetables and whole grains because they contain disease fighting plant chemicals (phytochemicals), and they are effective in slowing digestion, reducing hunger

and lowering cholesterol (Bredenberg 29). Another possibility under consideration is water becoming the base of the pyramid. It will be interesting to see what the USDA publishes. But its appearance is timely with more than half of the adult population overweight and childhood obesity at an all time high. And yet, few Americans really follow the recommendations of the Food Guide Pyramid. We consume far too much food from the tip of the pyramid that should be partaken of sparingly. Hopefully we will take the recommendations of the new pyramid more seriously.

With better information to educate the public the hope is now they will make healthier food choices. People must take responsibility for their eating; not just for a short time, but for their lifetime. The procedures used in this unit will incorporate discovery with hands on activities to cause participants to declare this is true and real and think, "I had better take action". Hopefully, some life long changes will follow this awareness. One Pittsburgh company has been challenged and has voluntarily taken positive and assertive action. In response to the obesity epidemic, the Heinz Corporation has developed and posted on the web the company's world wide guidelines. In this document Heinz promises to include appropriate serving sizes in their advertisements, to show snack selections in the context of a balanced variety of foods, to portray active lifestyles, to avoid exclusive vending machine contracts with schools and to create clubs to avoid creating false expectations in children (Lindeman C 1-2). Other companies are following their example and you just hope it is not solely out of fear of being sued.

There are statistics from government agencies and private corporations and there are many books available all with facts and theories concerning the obesity epidemic in America. One such source says that one thousand people a day will die this year due to complications caused by being overweight, obese or out of shape (Phillips 3). Students are not concerned about the death predictions because they are young and know they have a lot of living to do. And yet, eating poorly does have effects on their lives now. These are the facts needed to get their attention. Some information has already been mentioned by observation: low energy levels, poor self-esteem and confusion caused by conflicting information on how to eat properly. Less visible effects are high cholesterol, high blood pressure, cancer, heart disease, strokes and type-2 diabetes (Marcus 2).

Some of the biggest corporations we know have targeted their ads to children due to the changes in the American family. During the 1980's it became necessary for both parents to work outside of the home, advertisers sensed that parents felt guilty for spending less time with their children and would spend more money on them (Schlosser 42). The result was twenty-five years of preparing ads for children. Coca Cola was one company that offered exclusive vending rights contracts to increase school revenues. The company realized they

had saturated the adult market so they needed a way to increase sales to the younger generation. These contracts require the schools to meet quotas in sales or lose revenue from the company. These contracts appear to be helpful to all concerned, but in reality the company's profits are the bottom line. Young impressionable children get hooked on a company's products that the school endorsed without regard to health or nutrition because their bottom line was a new source of revenue.

Advertisements are the biggest source of conflicting information on eating properly. Advertising is a multibillion dollar business supported by large, paying corporations. Yes, corporations pay in dollars for advertisements that encourage and entice us to over eat the wrong foods. These foods do nothing to nourish our health, but do build up body-fat. The result is we pay also with confusion and frustration at our own expense. When is the last time you saw an advertisement for truly healthy foods such as fresh fruits and vegetables or whole grains? Your answer may have been – not ever or rarely. Many advertising dollars are spent on “empty calorie” foods such as those served at fast food restaurants and highly processed foods at grocery stores. In comparison, very few dollars are spent on foods that are nutrient rich and calorie compact. That is, foods that give you energy, build strength, make you look and feel younger and reduce body fat.

Many advertising dollars are also spent to promote special diets. (Keep in mind, diets rarely work. People concerned about their health must learn how to feed their body not how to starve it.) Some of the recent diets promoted in advertisements are the Adkins diet, the South Beach diet, the Dean Ornish diet and the Beverly Hills diet (Moneysmith 50). The “diet industry” is advertising that you can win the battle against obesity with food. They are trying to convince you that there is a way to fight food and win. The “diet industry” has lots of money to spend on advertising and their ads cause confusion. Just as soon as many Americans were taking to heart the advertising blitz that promoted low-fat diets as a cure for obesity, other ads declared low-fat diets caused obesity. What are we to believe? (Not much of what you hear or see.) It would be fair to say that advertisements are consistently inconsistent thus keeping people confused and searching for answers. This interferes with people doing for themselves what they innately know is good for them. Ask yourself, am I nourishing myself or am I starving myself?

If advertisers were not feeding us misinformation from manipulated facts, the number of overweight children and adults in America would not be skyrocketing. Obesity has officially been classified as a disease and the number of type-2 diabetes cases is increasing at an alarming rate especially among young people. Type-2 diabetes used to be an adult disease. Overweight Americans do have symptoms. They suffer with indigestion, headaches, afternoon energy slumps, and moodiness. If they continue over eating the wrong foods they will

shorten their life span. Are you eating for death? An example of a self-destructing menu is a hamburger, French fries and soda daily. Choose life; only eat the above menu occasionally.

What is wrong with the burger, fries and soda one asks? They are high in “empty calories”, they contain saturated and transunsaturated fatty acids, (commonly called trans fats) which contribute to several diseases including cancer. These foods contain few vitamins and minerals and the protein they provide is of poor quality (Whitney 184-5). They are high in processed carbohydrates (which may lead to type-2 diabetes), they are high in sugar and salt and they are potentially addictive (the combination of fat with salt and sugar has a powerful “neurochemical” effect on the brain similar to drugs like heroin and morphine (Phillips 8). This “feel good” rush one gets when eating this menu can lead to an addiction. These are the people who eat Fast Food on a daily basis causing a build up in body fat, poor health and obesity.

Another disturbing aspect of the Fast Food industry is that the food is not real, it is pseudo food. Fast Food smells and tastes like the real thing, but it is devoid of nutrients that we assume are in such foods. Modern scientists have created colors, flavors and aromas that simulate the real colors, flavors and aromas found in wholesome foods. You must avoid the Fast Food scene because the industry really only cares about their profits. Their advertisements market the message that Fast Foods, good times and happiness are inseparable! Young people must not buy into this deception. Take responsibility for your nutrition. Feed yourself and your family the right way. It takes only a little time to plan, prepare and enjoy delicious nutritious meals. And all involved will be very happy with their return on your small investment of time.

Going back to the “diet industry” for a minute, Americans have (unfortunately) bought into this industry that is out only to make a profit. We are a nation with 130 million overweight people. The relatively low cost of food in America, its easy accessibility and our sedentary lifestyle are all contributors to the big fat problem in America as is also our stress filled life style (Summerfield 1-3). More and more we have been exposed to the enormity of this problem. And we as a nation are becoming more weight conscious. The “make a million” diet industry is right there with a new diet or diet supplement to cure the nation’s overweight problem, and fill their pockets with our cash. If they produce results at all they are short term fixes as opposed to long term. Some of these diets and supplements that promise dramatic results are potentially dangerous to our health. A recent example is ephedrine which was identified in connection with several deaths before being removed from the market. Every diet mentioned above deprives ones body of particular nutrients needed for health and vitality. If a person has a lot of weight to lose, perhaps there is a place for a diet (under a doctors supervision) to begin the weight loss process. But in the long term we

must learn to “eat right.” Each person must learn how to feed their body, not how to deprive it of nutrients.

A new diet has come out about every year for the past thirty years. Is it not time to say enough is enough and learn to eat right? Diets are not the cure to the obesity epidemic. Even the Federal Trade Commission reported that 95% of the people who begin a weight loss program regain all or more than the weight they lost (Phillips 13). And because these dieters lack essential nutrients, they lack the energy needed to go to work and could not possibly participate in an exercise program. Scientists have linked inadequate nutrition of dieters to several disorders including immune system suppression, rapid skin aging, headaches, irritability, anxiety and depression. No diet is worth these problems. And the snowball effect of the successful “diet industry” is the booming health and mental health costs. This cost to society is estimated at \$100 billion yearly (Marcus 1).

Everybody needs to take responsibility for their food choices knowing the effects on their health. The following are some general guidelines to follow. They are common sense like eat a wide variety of foods and eat everything in moderation. Try new foods and unusual ones, you may find something you truly like and you will be doing your body a favor by not feeding it the same nutrients everyday from the same food sources. When eating a meal, do not continue eating once you feel satisfied. You do not need to clean up your plate to show the hostess you appreciate her cooking. Be aware of the body you are in and stop eating at the first signal of fullness. You will get up from the table without holding your overextended belly; you will feel better and be more likely to participate in physical activity. Moderation is an awesome word because it does not eliminate certain foods, so you can eat everything including desserts in moderation. You can have a slice of pie instead of the whole pie! Pay attention to how your body feels.

The next general rule to food consumption is to lower the amounts of sugar, salt and certain fats in your food. This requires cooking at home on a regular basis so you have control of these substances. Eat out less often but when you do make wise choices from the menu. Choose broiled, grilled or baked meat rather than deep fat fried. Order baked potato with the butter and sour cream on the side. Also ask for salad dressings on the side rather than letting them put it on your salad. Have water to drink rather than sweetened or caffeinated beverages. The fats you consume should be monounsaturated because they lower the LDL (low density lipoproteins) and raise the HDL (high density lipoproteins), which contributes positively to your health (Kowtaluk 66-67). Where do you get monounsaturated fats? Olive oil, olives, canola oil, peanuts, peanut butter and avocados are several sources. Use these oils to cook with and inquire at the restaurant what oils they used to their food preparations.

Another general rule to remember is to increase your physical exercise, and your consumption of water and fiber. A recent study showed that exercise contributed to stronger bones more than the consumption of calcium (Bredenberg 32). Physical exercise is needed for more than looking good (vanity), it increases your strength, endurance and stamina and it helps prevent heart disease, diabetes, osteoporosis and memory loss. And that is not all; physical exercise has a direct effect on weight control. It increases your metabolism during activity and for a short time afterwards thus burning more calories. On the average you need to drink eight cups of water a day and more when you perspire during exercise or hot weather. Water lubricates your joints, keeps your skin soft and your mind alert. Water filters out impurities and removes waste products as urine. Fiber is needed to help food move through the digestive system. Fiber is nondigestible plant material and we need a lot of it to maintain a healthy digestive tract. There are two kinds of fiber identified as soluble and insoluble. The soluble fiber dissolves in water and increases the thickness of the stomach contents. Insoluble fiber absorbs water like a sponge. It helps move food through the large intestine at a normal rate, which promotes regular bowel movements and lowers the risk of colon cancer.

Excess fat has become a crisis in America and it can no longer be ignored or patched with short term unhealthy fixes. Americans must stop eating for self-destruction. They must wake up to the fact that there is no pleasure in feeling sick and tired all of the time. Do you want your children destined to the same traps? Are you tired of searching forever for emotional issues which you can blame your bulging belly and widening waistline on? Change is needed. We must break away from our old ways. Education is about making changes for the betterment of oneself and our entire nation. Would it not be wonderful to hear a news release saying America has been transformed from the unhealthiest industrialized nation to the healthiest! Each child we teach, each student we inspire to commit to eating right brings us closer to a healthier nation.

Objectives

The students will understand the cause for the obesity epidemic in America namely, over eating the wrong foods and not getting enough exercise. This will be done by exploring nutrition, portion sizes, eating frequency, and food combinations. Students will participate with hands on experiences to illustrate important concepts in lectures and produce a piece of student research. Once the “knowing what to do” is learned and realizing that knowledge is power, the students will have the will power and strength to put into practice what they know. Thus the solution to the obesity epidemic in America is namely, eating the right foods in the correct combinations, in the right amounts and at the right times.

The standard for Health will be met by examining several dietary guidelines such as the USDA Food Guide Pyramid, the Dietary Reference Intakes (DRIs) such as Recommended Dietary Allowances (RDAs) and Adequate Intakes (AIs). The students will apply this knowledge to make sure their food consumption is what it should be to nourish their body. The Family and Consumer Science standard states that students will demonstrate their knowledge of the principles of consumer behavior as a foundation for managing available resources to provide for personal and family needs. This will be accomplished by the students using critical thinking to first make a list of healthy items allowed to be placed in their grocery cart, and then a list of the items not to be placed in your grocery cart. For the Communication standards addressed, the students will read and interpret material and write their findings. They will also make an oral presentation. Further details about the standards are listed in Appendix I.

Strategies

The objectives of this unit will be achieved in a variety of ways. The fundamentals of reading and discussing statistical information from several sources will lay the ground work or rationale for proceeding with the study of “eating right.” Lectures on nutrition will be enhanced with questions from participants so as to involve them personally. Hands on construction of an acceptable food list to use at the grocery store. Hands on dishing up of foods served will be weighed for portion evaluation. The comparison will open students’ eyes to recommended serving sizes. Students will study the Food Guide Pyramid from 1992, then using knowledge gained through lecture and reading, they will construct a new Food Guide Guideline anticipating the release of the new one due out in 2005. Students will research assigned or approved topics to enhance their personal knowledge and share it with their classmates.

Classroom Activities

This is a two week curriculum unit. The following are the first and fourth day’s lessons. Included in Appendix II is a syllabus that indicates the lessons for each day and activities to go with them. Also included are the student assignments and projected due dates. These lessons and or assignments can be adjusted to meet the needs of your curriculum and audience. The two lessons included are of utmost importance and if followed would make an impressive difference to the individual’s health.

Lesson One

You will need to take notes in your composition books today. Feel free at any time to raise your hand if you have a question. This is the first day of our two

week nutrition unit, which I have entitled “Eating Right”. Read your entire syllabus and pay close attention to make sure you complete assignments on time.

Your body is made up of many interconnected parts and systems. Your body requires fuel (food) to work. Each one of us must treat our unique body with respect giving it regular care and maintenance so it works efficiently. Today we are going to look at the main sources of fuel for our bodies. Have you ever heard of the six basic nutrients? They are carbohydrates, fats, proteins, vitamins, minerals and water. It is good to see you remember these from your past learning. We will have more to say about each of these nutrients on other days so I want you to use one page in your composition books for each nutrient and then when we revisit that nutrient you will have space to add information in the right place. This will make it easier you to study for the unit test and if your research is one of these topics you will have a good amount of information to start with. Yes, these are the nutrients we get out of the foods we eat. Our bodies need each of these nutrients to work efficiently. So, what do we eat to get carbohydrates? Foods like breads, cereals, pastas and rice are full of carbohydrates. But did you know that many fruits and vegetables are also good sources of carbohydrates. The bottom or foundation of the USDA Food Guide Pyramid is what we generally recognize as our sources of carbohydrates and they should be the body’s main source of energy.

Now we need to look at carbohydrates a little closer. They are classified into two groups one known as simple and the other complex. Simple carbohydrates are sugars; some are found naturally in foods others are refined. Some sugars you may have heard of are fructose (found in fruit), lactose (found in dairy products), and maltose (found in grain products). Sucrose is a refined sugar you know it as table sugar. Did you notice that all of the sugars ended in -ose? You do not want to eat very much sugar especially the refined sugars because they supply your body with only calories and no nutrients which can lead to excess weight gain. Complex carbohydrates are starches and dietary fiber. Both are found in foods such as dried beans, vegetables, lentils, whole grain products and rice. Besides energy, these foods also provide the body with protein, vitamins and minerals. We get no energy or other nutrients from dietary fiber. Dietary fiber is plant material that is nondigestible. There are two types of fiber. The first kind we will mention is insoluble fiber which does not dissolve in water. This type of fiber adds bulk to the food helping it to move through the large intestine at a normal rate thus preventing constipation. Having regular bowel movements lowers your risk for colon cancer. The other type of fiber is soluble, and it does dissolve in water. Soluble fiber increases the thickness of the stomach contents. The American Dietetic Association recommends adults consume 20 to 35 grams of dietary fiber daily (Kowtaluk 60). To get enough fiber consume a wide variety of plant foods such as chili with beans, pizza with vegetables and do not forget to

eat the skins on fruits and vegetables. Whole wheat products, oats and other whole grains are excellent sources of fiber also.

When it comes to providing energy, protein offers as many calories per gram as carbohydrates, so in that sense they are equal. But protein has many different roles to accomplish in the body other than providing energy. Protein helps the body grow and it repairs worn-out or damaged cells. Your skin, hair, muscles and bones are made of protein. You need to eat enough protein to keep your body in good repair. Also protein is needed in fighting disease because parts of the immune system are proteins. Proteins can do their job only if you consume enough carbohydrates and fats for your energy needs. Good sources of protein are meat, fish, poultry, eggs, dry beans, peanuts, soybeans, whole grains and some vegetables. It is harmful to your body to eat too much protein. Excess protein is broken down and stored as fat, but this causes stress on the kidneys as the body works hard to break down the extra protein and remove the byproducts. Proteins are called amino acids, and your body needs 22 different ones. All but nine are manufactured by the body itself. The nine remaining are called essential because you must consume food that has them in it. Good sources for them are the complete proteins in the above list namely the meat, fish, eggs and soybeans. All of the proteins come from animals except the soybeans. The other proteins are called incomplete and they come from plant sources. Vegetarians must eat a variety of vegetables and enough calories for them to get all of the essential proteins their body needs.

Fats are important nutrients. They supply the body with energy. In fact, a gram of fat supplies twice the energy as a gram of carbohydrate or protein. Fats are called fatty acids and they perform several important functions. Fats are needed for healthy skin, for normal cell growth and they carry vitamins A, D, E, and K to wherever the body needs them. Also, stored fats provide a reserve energy supply and they act as a cushion to protect your heart, liver and other vital organs. Fats add flavor to foods and since they move slowly through the digestive tract, they make you feel full longer. So you can see fats do a lot for us and should not be avoided. What you need to know is that some fats are better for you than others, and that all fats should be eaten in moderation. Another precaution is to make sure your diet contains plenty of fiber from complex carbohydrates because fiber helps the body eliminate fats. Sources of fats are butter, sour cream, margarine, vegetable oils, salad dressings, fried foods, baked goods, chocolate, meat, nuts, whole milk, egg yolks, cheeses, ice cream, avocados, olives, olive oil and the list goes on. Why some people have the idea that all fats are bad is their lack of understanding of cholesterol levels. Cholesterol is not a fat as it does not provide any energy. It is a substance present in all body cells that is essential for many body processes. It contributes to the digestion of fat and the skin's production of vitamin D. Adults manufacture all the cholesterol they need but children must consume foods with cholesterol in them. Cholesterol circulates

through the blood in chemical packages called lipoproteins. There are two types of lipoproteins often referred to as good and bad cholesterol. LDL stands for low-density lipoproteins. This chemical takes cholesterol stored in the liver to wherever it is needed in the body. Too much LDL in the blood causes cholesterol to build up in the artery walls increasing the risk of heart disease or stroke. That is why LDL is called “bad cholesterol”. HDL stands for high-density lipoproteins. This chemical picks up excess cholesterol and takes it back to the liver for storage thus keeping it from causing harm. That is why HDL is called “good cholesterol”.

Now let us return to the subject of fats. There are three basic kinds of fatty acids and each has a different effect on cholesterol levels. Most saturated fatty acids are solid at room temperature. They tend to raise the levels of LDL in the blood stream. We consume saturated fats when we eat meat, poultry skin, dairy products, coconut oil, palm oil and palm kernel oil. Unsaturated fats are liquid at room temperature. These include polyunsaturated fatty acids, monounsaturated fatty acid and transunsaturated fatty acids. Polyunsaturated fatty acids seem to lower cholesterol levels. Vegetable oils such as corn oil, soybean oil, and safflower oil are high in polyunsaturated fatty acids. Monounsaturated fatty acids appear to lower LDL and raise HDL levels. Foods high in monounsaturated fatty acids are olives, olive oil, avocados, peanuts, peanut oil and canola oil. Transunsaturated fatty acids commonly called trans fats are extremely unhealthy. Foods containing them should be avoided. Trans fats were liquid oils until they went through the hydrogenation process that added missing hydrogen atoms to unsaturated fatty acids. The result is a firmer texture. Transunsaturated fatty acids increase cholesterol production. Any food label that lists ingredients that are hydrogenated or partially hydrogenated should be avoided.

Vitamins and minerals along with the less familiar phytochemicals are needed by the body in tiny amounts so they are called micronutrients as compared to proteins, carbohydrates and fats being classified as macronutrients because we need to consume them in large amounts. Micronutrients are in the macronutrients we eat. Vitamins are needed to keep your body tissue healthy and many internal systems working properly. Vitamins also help carbohydrates, fats and proteins do their work. Antioxidants are a class of vitamins that helps to protect the body’s cells and the immune system from harmful chemicals in the air, certain foods and tobacco smoke. Other studies suggest that they protect the body against heart disease and cancer but that has not been proven. Vitamins are classified by the way they dissolve. Water soluble vitamins dissolve in water and fat soluble vitamins dissolve in fat. Water soluble vitamins include vitamin C and the B vitamins. You cannot consume too much of these vitamins because excess is eliminated in your urine. Therefore you need a daily supply of these vitamins. Fat soluble vitamins are absorbed and transported by the fat in your body. These

include vitamins A, D, E and K. They can be stored in your fat tissue for use when needed in the future. Minerals are inorganic substances that your body needs tiny amounts of. Major minerals include calcium, phosphorus and magnesium. Electrolytes are major minerals that work together to maintain the body's fluid balance. These are potassium, sodium and chloride. Trace minerals you need even smaller amounts of. They include iron, copper, zinc, iodine and selenium. Phytochemicals come from plants and they have disease fighting properties. Currently researchers are still identifying and classifying these substances. Some phytochemicals are antioxidants. Beta carotene is an example you have probably heard of. Beta carotene gives fruits and vegetables their yellow-orange and deep green colors. Scientists think it prevents certain kinds of cancers. The body uses beta carotene to produce vitamin A.

Water is the sixth basic nutrient. It is not hard to forget that it is a nutrient because we take it for granted. More than 70% of your body mass is water. Water helps break foods down into nutrients, water carries nutrients to the cells that need them. In the cells water is part of the chemical reactions that break the nutrients down into usable forms. Food is not much use to the body without water. Water lubricates your joints, keeps your skin soft and your mind alert. Water filters out impurities and gets rid of waste products. Water also keeps the body temperature normal. The recommended amount of water to drink daily is eight cups. During strenuous physical activity or during hot weather when you perspire a lot, more water intake is needed. Eight cups may sound like a lot but beverages like milk, fruit juices and soups can be part of the eight cups.

Second Lesson

“Eating Right” takes too much time. Have you heard this? Do you believe this? Everyone shares the same amount of minutes in a day (1,440) and we have to decide how to invest that time to make the most of it. Many of us spend time rather than invest time. When you invest time you produce a return that is even greater than what you put in. When you spend time you are wasting time. Investing time in “eating right” will pay you dividends in terms of improving your health and energy level which will enrich your quality of life.

First we must eat the right foods. That means food that will supply you with high quality essential nutrients. These foods are nutrient rich and calorie compact. This is the opposite of empty calorie foods or the wrong foods to eat. The right foods are good sources of the six basic nutrients: carbohydrates, fats, proteins, vitamins, minerals and water. In practical terms; in order for your muscles to maintain strength, your mind to think clearly, your body to metabolize fats efficiently and for you to enjoy good health and be full of energy – you must feed your body the right foods.

What are some of the items you put in your grocery cart? (Write them on the board as spoken.) Let us look at each of these and decide if we should be eating them. Are they nutrient rich and calorie compact? Now we will compile a list of foods we should end up with in our grocery cart. After writing their examples on the board pass out a sample grocery guide.

The cells in our bodies are constantly degenerating and regenerating. It is essential they have enough nutrients available. If your body lacks nutrients day after day for a long period of time your cells become unhealthy and so do you. Some symptoms of this are low energy, depression, insomnia, aches and pains and constant cravings.

By “eating right” you can feed the recreation process and actually become a healthier person. High quality protein should be included in every meal. These foods would be chicken and turkey breast, lean beef, swordfish, salmon, tuna, shrimp, buffalo, eggs, cottage cheese and lean ground beef. All of these high quality proteins mentioned are complete proteins. These proteins (amino acids) are the building blocks for muscles, hormones, enzymes, and antibodies. High quality protein also supports your metabolism and stabilizes your energy levels. It is important that you eat a variety of foods high in protein. The right protein is not derived from one source. You need to get protein from many sources.

Carbohydrates should also be included in every meal. Some quality carbohydrates are brown rice, oatmeal, yams, pasta, barley, apples, oranges, whole grain breads and pitas. Carbohydrates are the foremost source of immediate energy. Carbohydrates also release insulin which is a hormone needed to help amino acids enter cells. In this way carbohydrates and proteins work together and should be included in every meal. Candy bars and refined sugars and refined starches are not on our shopping list because they cause insulin levels to go very high. When insulin levels spike, your body begins to store fat, your blood sugar and energy level suddenly drops and your mind tells your body to eat again when it is not time. This promotes an unhealthy and repetitive cycle (Phillips 44). Carbohydrates in the form of natural sugars found in fruit (fructose) contain nutrients also and are fine to eat in moderation. Again variety is so important. Eat a wide variety of carbohydrates.

Continuing with our topic of eating the right foods, you cannot live without some fats! One of the biggest flaws in the USDA Food Guide Pyramid is the idea it promoted that all fats are bad. This started the marketing of low-fat and non-fat products which are everywhere, even on the menu of Fast Food Eateries. Your body needs certain fats in order for your DNA to regenerate new cell membranes, antibodies, hormones and enzymes. The fats that are essential are omega-6 and omega-3. These are found in canola oil, olive oil, safflower oil, salmon, tuna, halibut, and in dark-green leafy vegetables. You need to eat these

foods to get the essential fats your body needs. These fats are monounsaturated and polyunsaturated. Saturated fats should be eaten sparingly. Transunsaturated fatty acids (trans fats) are very bad for your health causing diseases like cancer, diabetes and heart disease. They should not be eaten at all. Where do you find trans fats? In processed foods such as crackers, potato chips, cookies, margarine, and Fast Food French fries and burgers. These foods should be avoided as much as possible.

The right foods contain vitamins, minerals and phytochemicals. These micronutrients are consumed when you eat the macronutrients carbohydrates, proteins and fats. This is not to say they are unimportant because they are very important. Vitamins and minerals contribute to good health in many ways from muscle growth to regulating metabolism. Vitamins are organic compounds which we get from plants and animals. Vitamins act as catalysts in several chemical reactions within the body. They help with protein synthesis, nutrient digestion and absorption. They literally help in hundreds of processes. You can not live without vitamins. Monday we mentioned how vitamins were classified by the way they dissolve. Who can tell me the fat soluble vitamins? A, D, E, K. And who knows the water soluble ones? C and B vitamins. Minerals are inorganic elements like iron, calcium, iodine, potassium, and phosphorus. Tiny amounts of these elements are necessary for our bodies to work right. If one is missing, you have a problem. For instance, if iodine is missing; you have a goiter. Your iron is low; you are anemic. Minerals are essential.

The last of the right foods to consume is water. Our bodies are more than 70 percent water and we can not thrive without it. On Monday we mentioned seven things water does for us. You can review your notes and tell me as I write them on the board. So you can see why water is so important. We lose water every minute of the day by breathing. And when we perspire, we lose water rapidly. Our bodies also eliminate waste products through the water in our urine. So you can see we lose a lot of water. To keep our bodies replenished on a normal day we need to drink eight cups of water. If you drink caffeinated or alcoholic beverages, which act as diuretics, you need to drink even more water. Do not wait until you are thirsty to drink water. Drink it on a regular basis. Becoming even a little dehydrated causes you to feel tired and weak and unable to think. Do not wait until you get a headache to drink some water. Get in the habit of drinking water regularly. This finishes our discussion on the right foods to eat. Do you have any questions?

Secondly, we need to eat the right amounts of the right foods mentioned above. Portion sizes vary with your age and size. A four year olds' portions need to be small as compared to teenagers' portions. Adults usually need to cut back the portion sizes they were used to as teens and then the elderly tend to need larger portions once again to maintain their body mass. When we are talking

portion size, we can usually find it on the information label of the food we are eating. Generally speaking for an adult, vegetables are usually a cup and meat is three or four ounces. Now you can measure the volume of some foods or you could weigh the mass on a food scales. Often time the exact measures are not necessary and they do require time. But today we are going to do it for your knowledge and for fun. There are some paper plates for you to use to dish up the foods I have prepared for you. Take the amount that you normally eat. Put only one item on a plate so you will need several plates. There is macaroni, mixed nuts, potato chips, cereal, canned fruit and ice cream. Dish up your food and place your plates on the counter without eating anything yet. Now that everyone is finished, we will look at the serving size for each food. A serving of macaroni is three ounces cooked. What does yours weigh? Take turns at the scales. Who dished up the most? How many servings did you plan to eat? Make an entry for each participant on the chalk board. This routine will be used with each of the foods until all have been weighed. Did you realize before hand that your portion sizes were too large? More is not always better! Were you enlightened by this exercise? This is good for you to see at a young age so you can be aware. If you would like to lose a few pounds you could eat single portions instead of double. Fast Food Eateries have dished up double and triple portions for so long we hardly know what a single portion looks like. And the same is true of restaurants. Sometimes when they serve my entrée, I ask for a take home box before I start to eat. Yes, I could clean up my plate, but I would leave feeling stuffed and that is not a good feeling nor is it good for my health. So I put perhaps half of my meal in a take home box before I start to eat. The food I take home is another meal for tomorrow. If you eat the right foods in the right amounts, you should leave the table not hungry or stuffed. Your appetite and your cravings are satisfied. Pay attention to how your body feels.

The third thing you need to know to “eat right” is the right food combinations to eat. If I am reading your mind, the answer is; it does matter! Every time you eat you should have a portion of protein and a portion of carbohydrates. And have vegetables at two meals a day. You may be wondering why the protein and carbohydrates at every meal. Carbohydrates help protein (amino acids), enter into the cells. This combo also stabilizes blood sugar and insulin thus reducing the risk for type-2 diabetes. So eating the right foods in the right combination and in the right amounts calms your cravings and is healthy for you mentally and physically.

The last aspect to eating right is how often to eat. The right times to eat can and does vary from family to family. But let us take a look at perhaps the ideal way. Maybe you have grown thus far with the idea of eating three meals a day. Most of us have. How many of you have a diabetic grandparent or you know someone with diabetes? How many meals do they eat? (Six small meals) The reason for this is to keep their blood sugar and insulin stable. Some research

suggests that is the way everyone should eat. There are other benefits also. A study at Georgia State University found people eating three meals a day had more body fat than people who ate six meals a day (Phillips 42). The reasoning is that eating frequent meals increases fat loss while helping you maintain your muscle. Muscle makes your body more metabolically active so you burn more calories even when you are sleeping. Frequent meals provide you with a steady supply of energy. You have less hunger and cravings if you eat the right foods in the right combinations and portions and you eat six times a day. This would be ideal. Now this might not be something you can try at home, but when you have your own place you could try these principles. What you can do now is avoid the wrong foods, stay away from refined sugary snacks, pay attention to your serving sizes, and eat protein and carbohydrates at every meal. We will look at some suggestions for healthy snacks next week because you are in control of what you buy for snacks.

Annotated Bibliography

Bredenberg, Jeff (ed.), Medical Breakthroughs 2004: The Year's Most Important Health Developments. New York: The Reader's Digest Association, Inc. 1-245.

This book brings current information on many diseases to average readers. Although ninety topics are addressed, the layout makes finding information easy. Many of the new treatments are in experimental phases. This book was very interesting reading.

Kowtaluk, Helen and Alice Orphanos Kopan, Food for Today. 8th edition. New York: McGraw Hill Glencoe, 2004. 1-184.

A high school textbook offering information on nutrition and food preparation. The information is presented in a straight forward manner and is easy to read.

Lindeman, Teresa F., "Food for Thought". Pittsburgh Post-Gazette: March 5, 2004. C-1 and C-2.

Lindeman reports on the American problem of obesity, pointing the finger at Fast Foods and Convenience Foods. Law suits are mentioned along with a government proposal aimed at protecting manufacturers and restaurants from frivolous lawsuits involving their products. It is a timely article.

Marcus, Lauren and Amanda Baron, "Childhood Obesity: The Effects on Physical and Mental Health". About Our Kids. NYU Child Study Center. May 28, 2004. 1-4.

<http://www.aboutourkids.org>

This article explained what obesity was and why obesity was on the rise. The headings in the article were questions and the authors answered each question.

Moneysmith, Marie, "The South Beach Secret". Let's Live. April 2004. 50-53.

Moneysmith gives a brief explanation of the three phase South Beach diet, with the insulin connection being the secret and the reason for the diets success.

Phillips, Bill, Eating for Life. Colorado: High Point Media, LLC, 2003. 1 – 77.

This book is easy to read. It gives a brief history of the fast food industry and factual information on how America has become an overweight nation. Then the author discredits weight loss diets and purports an eating plan to use for a lifetime. Another 200 pages are used for recipes and menus.

Schlosser, Eric, Fast Food Nation: The Dark side of the All-American meal. New York: Houghton Mifflin Company, 2002. 1–288.

Schlosser gives a detailed history of the fast food industry. He puts to rest many myths about the business. The facts were well documented and alarming. This book should be read by teenagers as well as adults so the younger generation can make more informed eating decisions.

Summerfield, Liane M., “Childhood Obesity”. ERIC Digest. Dec. 1990. 1-5.
<http://www.eric facility.net>

This article defines obesity in children and adolescence; then explores several causes for obesity and several treatments.

Whitney, Eleanor Noss and Sharon Rady Rolfes, Understanding Nutrition. 9th edition. Stamford, CT, USA: Wadsworth Thompson learning, 2002. 184-187 and 386-463.

This is a textbook for perhaps college age students. It is very complete and detailed and what can not be found in this 20 chapter 700 page text on nutrition is surely in the 100 pages of appendices.

Appendix I

Pittsburgh Board of Public Education -- Educational Standards

Communication Standards

- CO 3 All students respond orally and in writing to information and ideas gained by reading narrative and informational texts and use the information and ideas to make decisions and solve problems.
- CO 6 All students exchange information orally, including understanding and giving spoken instructions asking and answering questions appropriately, and promoting effective group communications.
- CO 7 All students listen to and understand complex oral messages and identifies the purpose, structure, and use.

Family and Consumer Science Standards

- FCS 1 All students demonstrate their knowledge of principles of consumer behavior as a foundation for managing available resources to provide for personal and family needs.

Health/Safety and Physical Education Standards

- HPE 2 All students to be able to recognize and demonstrate their ability to apply various dietary guidelines to meet nutritional needs at various stages of life.

Mathematics Standards

- MA 2 All students compute, measure and estimate to solve theoretical and practical problems, using appropriate tools, including modern technology such as calculators and computers.

Science and Technology Standards

- ST 1 All students explain how scientific principles of chemical, physical and biological phenomena have developed and relate them to real-world situations.
- ST 3 All students use and master materials, tools and processes of major technologies, which are applied in economic and civic life.

Appendix II

Syllabus for Two Week Nutrition Unit

“Eating Right”

Monday – Lecture on the Six Basic Nutrients.

-- Assignment – Read pages 53 to 79 in text book -- Food for Today.

Tuesday – Discussion of the United States Department of Agriculture’s Food Guide Pyramid. Strong points contrasted with Weak points.

-- Assignment – Construct your design of the new food guide guideline. Use pictures from magazines or draw foods to be placed in groups. Write a one page paper explaining your design and placement of foods. DUE THURSDAY.

Wednesday – Classroom activities centered around the sampling of prepared foods.

Be thinking about a Nutrition topic you would like to research. The paper will need to be at least two typed pages in length and have a minimum of three bibliography references. You will present your research orally and you will need to have slides to use with power point or posters made for illustration. Friday topics will be given for you to choose one or if you already know what you want to research ask for approval today after class. DUE NEXT FRIDAY.

Thursday – Turn in Food Guide Guideline Project and Paper.

Lecture on: The Right Foods to Eat.

The Right Combination of Foods to Eat.

The Right Amounts of Foods to Eat.

The Right Times to Eat.

Friday – Discussion of the role the Fast Food Industry, The Advertising Industry and the Diet Industry have played in the obesity epidemic in America.

--All Research Topics Must be Chosen.

Monday – Lecture on Digestion of Food and Type 2 Diabetes.

Tuesday and Wednesday – Class will meet in library to do individually on research.

Thursday and Friday – Oral presentations of research. (Ten minute Maximum). Research Papers to be turned after presentation.