Lesson #1:

Topic: Feed Your Engine Proteins, Fats and Carbohydrates

Objective: Children learn that proteins, fats and carbohydrates are the foods that fuel our bodies.

Main Concepts:

Proteins, Fats and Carbohydrates (P, F, C).   Our bodies are like a car in that we need fuel to perform. The car needs only one type of fuel to run but our bodies need a combination of three types of fuels to help it perform at its best.

>   **Proteins- GROW foods.** Help our muscles and tissues grow and also help our brains think clearly.
>>   • Dairy protein foods: Milk, cheese, yogurt
>>   • Meat protein: Chicken, fish, beef, lamb, turkey, pork
>>   •Vegetable protein: beans, peas, lentils, nuts, seeds, soy, tofu
>   **Fats- BRAIN foods.** Help protein do their job and helps our brains function.
>>   • Beneficial fats are those that help our bodies
>>   • Avocado, nuts/seeds, butter, olive oil, dairy foods, fish
>>   • Harmful fats are those that can cause disease
>>   • Fried and deep fried foods
>>   • Hydrogenated oils
>   **Carbohydrates- GO foods.** Give us quick and lasting energy.
>>   • Whole grains found in breads, cereals, rice and pastas
>>   • Fruits and vegetables

Class Activity:

1. Car Activity: Four volunteers are asked to pretend they are in a car. As they are driving, they run out of gas. They need to choose the right fuel to put in their car and can choose from regular, diesel or unleaded. They are asked what happens if they choose the wrong fuel? (car breaks down and sputters). What happens if they choose the correct fuel? (car runs smoothly)

2. STAR activity sheet: Students give examples of high-quality foods and write them down under the correct heading. Headings included: Proteins-animal/vegetable, Protein-dairy, Carbohydrates-whole grain, carbohydrates-fruit/vegetables, fat.

Lesson #2:

Topic: Feed Your Engine High-quality Fuels

Objective: Students will be able to identify the difference between a nutrient rich High Quality food and a highly-processed, Lower-quality food.

Main Concepts:

High Quality versus Low Quality. Our bodies are similar to a car engine in that it needs the right, high-quality fuel to perform at its best. Without the right HQ fuel our bodies may feel tired, sluggish and may even find it hard to concentrate.

> **High-quality foods:** (HQ) foods are whole, minimally processed, closest to the source with few added ingredients.
> - This means a food looks like it did when it came from nature. Example: An apple
> - Minimally processed foods retain all, or most, of their original nutritional value. (vitamins, minerals and fiber)
> - We need the original nutrients found in foods because that's what feeds our cells.
> - When we feed our cells proper nutrients our bodies stay healthier because our immune system stays strong.
>
> **Low-quality foods:** (LQ) foods that are processed and far from the source.
> - This means a food has changed a lot from its original source.
> - Processed means changing a food from its original source, usually by taking something away
> - Highly processed foods will have a long list of ingredients
>
> **HQ to LQ:** An apple is an example of a whole close to the source food. It looks like it did when it was on the tree.
> - Apples can be processed into other foods such as apple sauce and apple juice. These foods are minimally processed, have a short list of ingredients and are still HQ foods.
> - Foods that come from apples that are highly processed with long list of ingredients include apple flavored granola bars and cereals….These foods are lower quality.

Class Activity:
1. **Matching activity (3rd Grade):** Draw a line from the lower-quality food to the higher-quality food choice (ie: French fries to baked potato)
2. **Shopping Activity** (4th and 5th Grades): Choose foods from a word bank and place them in the high quality food cart or low quality food cart.

Lesson #3:

Topic: Know What is in Your Fuel – Food Investigators

Objective: Students will learn to analyze the Nutrition Facts Label and Ingredient List on packaged foods to identify High-quality foods.

Main Concepts:

The Nutrition Facts Label and Ingredient List are tools you can use to find out what is in your food

> **Ingredient List:** lists all the ingredients the manufacturer put in the food.
> - Ingredients are listed from the greatest to the least amount by weight.
> - The fewer the ingredients the better. The more ingredients a food has the more processed it is.
> - You should be able to recognize the ingredients on the list.
>
> **Nutrition Facts Label:** lists the nutritional value of the food.
> - The serving size is given which is the suggested amount that should be eaten.
> - The grams (g) of Protein, Fat and Carbohydrates are listed.
> - Fiber is listed in grams (g). A higher-quality food should have a minimum of 3g of fiber.
> - Sugars are listed in (g)

Class Activity:

1. **Food Investigator Activity:** Students compared 2 wheat breads and 2 fruit spreads by looking at the Nutrition Facts Label and Ingredient List. After analyzing the 2 products they picked the higher-quality bread and fruit spread.

Lesson #4:

Topic: Start Your Engines: High-quality Breakfast

Objective: Students learn that high-quality breakfasts help them think and perform at their best, what constitutes a higher-quality breakfast and how to improve common breakfast.

Main Concepts:

Breakfast is the most important meal of the day.
- Breakfast feeds the brain and helps you perform better in school.
- Breakfast gives you energy.
- Eating a HQ breakfast in the morning can improve your mood.

What makes a High-quality Breakfast?
- Include HQ Proteins, Fats and Carbohydrates.
- HQ Proteins include ham, sausage and beans.
- HQ Fats include butter, peanut butter, almond butter, cheese and avocado.
- HQ Carbohydrates include whole grain breads or cereals and fresh fruits and vegetables.
- Breakfast cereals should be low in added sugars and high in fiber.

Class Activity:
1. **Sugar Activity:** One student was asked to scoop out 16 g of sugar and 32 g of sugar to demonstrate how much sugar is in certain breakfast cereals.
2. **Cereal Activity:** Students compared 2 cereals and determined which one was a higher-quality breakfast choice by comparing the labels.
3. **Higher Quality Breakfast Activity:** 4 lower-quality breakfasts were given and students had to identify why each breakfast was lower quality and change it into a higher-quality breakfast.

Growing GREAT
INSPIRING HEALTHY EATING

Lesson #5:

Topic: Heed Your Warning Lights

Objective: Students will identify signs of feeling satisfied rather than full and will understand the importance of listening to their bodies; students will understand what a food allergy or sensitivity is and what the food alternatives are.

Main Concepts:

Bodies' Signals
- Your body gives you signals when you're famished, hungry, satisfied and have eaten too much.
- Eat when you're hungry. Don't wait until you're famished because then you may eat too fast and overeat.
- Stop eating when you are satisfied. Don't wait until you are so full you feel ill.
- Pay attention when you are eating. Avoid doing other activities while eating such as watching TV.

Food Allergies
- Food allergies occur when your immune system gets confused and creates antibodies against certain foods which cause the allergic reaction.
- Common food allergies include: dairy/lactose (milk products), gluten/celiac disease (wheat, oats, spelt and rye products), corn, soy, eggs, peanuts and tree nuts.
- Signs and Symptoms of food allergies may include: difficulty breathing, rashes, stuffy nose, headache, nausea/vomiting, diarrhea and bloating.

Class Activity:

1. **Hunger Scale:** Using words from a word bank you place words describing how you may feel at different points on the hunger scale. 1-Famished, 2-Hungry, 3-Satisfied, 4- ill/exploding.

Foods in the Animal and Vegetable Protein Group

All products made from meat, poultry, fish, dry beans or peas, eggs, nuts and seeds are considered animal or vegetable proteins. Here are some examples of common animal and vegetable proteins:

Meats
Beef
Bison
Ham
Lamb
Pork
Rabbit
Veal
Venison

Poultry
Chicken
Duck
Goose
Turkey

Eggs
Chicken eggs
Duck eggs

Dry Beans
Black beans
Black-eyed peas
Chickpeas
Fava beans
Kidney beans
Lentils
Pinto beans
Soy beans
Split peas
Tofu
White beans

Nuts and Seeds
Almonds
Cashews
Hazelnuts
Mixed nuts
Peanuts
Pecans
Pistachios
Pumpkin seeds
Sesame seeds
Sunflower seeds
Walnuts

Fish
Catfish
Cod
Flounder
Halibut
Herring
Mackerel
Salmon
Sea Bass
Snapper
Swordfish
Trout
Tuna
Clams
Crab
Crawfish
Lobster
Mussels
Octopus
Oysters
Scallops
Squid
Shrimp

Foods in the Dairy Protein Group

All fluid milk products and many foods made from milk (cow, goat, or sheep) are in this group. Here are some examples of common dairy proteins:

Milk
All Fluid Milk:
> Fat free (skim)
> Low fat (1%)
> Reduced fat (2%)
> Whole

Lactose reduced
Lactose free

Cheese
Cheddar
Mozzarella
Parmesan
Swiss
Ricotta
Cottage cheese

Milk-based Desserts
Puddings
Frozen yogurt
Ice cream

Yogurt
Fat free
Low fat
Reduced fat
Whole milk

Foods in the Grains Group - Carbohydrates

Foods made from wheat, rice, oats, cornmeal, barley or other cereal grain is considered a grain product. Bread, pasta, oatmeal, breakfast cereals, tortillas and grits are also considered grain products.

Grains are divided into 2 subgroups, **whole grains and refined grains**.

Whole Grains: contain the entire kernel, the bran, germ, and endosperm. Examples include:

Whole wheat flour
Bulgar (cracked wheat)
Oatmeal
Whole cornmeal
Brown rice

Refined Grains: have been milled, a process that removes the bran and germ. This process removes the dietary fiber, iron and B vitamins but gives grains a finer texture and longer shelf life. Examples include:

White flour
Degermed cornmeal
White bread
White rice

Most refined grains are enriched, meaning that several B vitamins (thiamin, riboflavin, niacin, folic acid) and iron are added back into the grains after processing. Fiber is not re-added. Some food products are made from mixtures of whole grains and refined grains.

Some examples of grain products are:

Whole Grains	Refined Grains
Brown rice	Cornbread
Buckwheat	Corn tortillas
Bulgar (cracked wheat)	Couscous
Millet	Crackers
Oatmeal	Flour tortillas
Popcorn	Grits
Whole grain barley	Pasta
Whole grain cornmeal	Pitas
Whole rye	Pretzels
Whole wheat bread	White bread
Whole wheat pasta	White rice
Quinoa	

Foods in the Fruit Group - Carbohydrates

Any fruit or 100% fruit juice is considered part of the fruit group. Here some examples of common fruits:

Apples
Apricots
Avocado
Bananas
Grapefruit
Grapes
Kiwi
Lemons
Limes
Mangoes

Nectarines
Oranges
Peaches
Pears
Papaya
Pineapple
Plums
Prunes
Raisins
Tangerines

Melons

Cantaloupe
Honeydew
Watermelon

Berries

Strawberries
Blueberries
Rasberries
Cherries

Foods in the Vegetable Group - Carbohydrates

Any vegetable or 100% vegetable juice is considered part of the vegetable group.

Vegetables are organized in five subgroups, based on their nutrient content. Here some examples of common vegetables:

Dark Green Vegetables
Bok choy
Broccoli
Collard greens
Kale
Lettuce
Mesculin
Mustard
Spinach
Watercress

Orange Vegetables
Carrots
Squash
Pumpkin
Sweet potatoes

Dry Beans and Peas
Black beans
Black-eyed peas
Garbanzo beans
Lentils
Lima beans
Soy beans
Split Peas
Tofu

Starchy Vegetables
Corn
Green peas
Potatoes

Other Vegetables
Artichokes
Asparagus
Bean sprouts
Beets
Brussels sprouts
Cabbage
Celery
Cucumbers
Eggplant
Green beans
Peppers (green and red)
Mushrooms
Okra
Onions
Parsnips
Tomatoes
Zucchini

Some Facts on Fats

You need fat! Many people are deficient in beneficial fats. With our modern idea of low fat "health foods," we are starving ourselves of good fats. Despite the plethora of fat-free products over the past 15 years, obesity has tripled in many Western countries, diabetes is now a world-wide epidemic and heart disease and cancer are killing more people than ever. Essential fats are just that: Essential. Good fats prevent pain, maintain metabolism and sex hormones, promote youthful skin, memory and good mood as well as prevent depression, irritability, heart attacks, strokes, obesity and diabetes. Studies show good fats even help burn fat.

Strange as it may seem, eating beneficial fats not only promotes health but they help burn off excess body fat. Studies have shown when subjects switch from a low fat diet to one rich in medium chain fats, such as from butter and coconut, they lose weight. The kind of fat in butter and coconut oil boosts metabolism and reduces the body's ability to store fat. The same holds true for omega 3 fats. These oils stimulate metabolism.

Common Fat Deficiency Signs and Conditions

Memory loss	Eczema	Blood sugar and mood swings
Attention and learning problems	Hair loss	Diabetes
Depression	Weakness and fatigue	High blood pressure
Irritability and anger	Allergies	High triglycerides
Dry scaly skin, dandruff	Arthritis	PMS
Dry, cracked heels	Slow metabolism, weight gain	Excess weight gain

Beneficial Fats:

85% of Americans are deficient in beneficial omega 3 fats. These essential oils help us make hormones, prevent heart attacks and cancer, nourish the brain, help us burn unwanted fat and keep the skin healthy. Other good fats are important as they help us fight cancer, keep our skin soft and keep us satisfied after eating. Good fats lubricate the joints and keep us from experiencing pain.

Sources of Beneficial Omega-3 Fats

Grass fed cheese, butter and yogurt	Range fed chicken	Walnuts
Fatty fish: wild salmon, cod, mackerel, herring, sardines, anchovies, trout	Flax seeds/flax oil	Oats/oatmeal
	Pumpkin seeds	Dark green leafy vegetables
	Grass fed beef	Hemp seeds/hemp oil
	Omega-3-rich eggs	

Benefits From Eating a Diet Rich in Omega 3 Fats

Reduced hyperactivity in children	Reduced risk of diabetes	Reduced cancer risk
Reduced violence in children	Improved mood	Reduction in cravings
Improved learning in children	Elimination of depression	Increased metabolism and fat burning
Improvement in asthma	Reduced risk of heart disease	
	Reduction in pain	
	Relief from arthritis	

Source: Linda Prout, MS, Lifeshift.biz

Other sources of Good Fats

almonds, almond butter	sunflower seeds	coconut oil
hazelnuts	macadamia nuts	Olive oil
cashews, cashew butter	avocado	
Brazil nuts	sesame seeds	

Fats: The Harmful

Partially Hydrogenated Vegetable oils

Poor quality fats age your body. They cause easy weight gain, sour your mood, cause skin problems, increase the DNA changes of cancer and promote clots in arteries. Hydrogenated vegetable oils are the worst of the bad. For each 2% increase in partially hydrogenated vegetable oils eaten, risk of a heart attack goes up by 93%, according to Harvard's Nurses Health Study of 80,000 women. Hydrogenated vegetable oils are associated with cancer, weight gain, diabetes, and heart disease. By some estimates, 80% of the food on supermarket shelves contain it. Check your labels! In addition to hydrogenated fats, vegetable oils can be harmful when they become oxidized such as when used in cooking, left on your cupboard shelf or exposed to light.

Sources of Harmful Fats

The National Academy of Sciences says __no amount of partially hydrogenated fat is safe.__ They are found in over 40,000 products including:

Margarine	Cookies	Frozen Foods (pizzas, dinners)
Shortening	Breads	
Chips	Sauces	Instant soups
Fast food (anything fried)- all those nuggets!	Dressings	Cake, muffin, frosting and biscuit mixes
	Fish Sticks	
Crackers	Sports Bars	

Omega-6: Over-Consumed Oils

We need some omega-6 oils but with the advent of bottled vegetable oils we now eat too much. The ideal ratio of omega-6:3 oils is between 5:1 and 1:1. The typical Westernized diet is 10:1 or even 30:1. Signs of too much omega-6 fat include aging skin, weight gain, inflammation/pain, arthritis, PMS, headaches, strokes, high blood pressure and mood disorders. Most cultures should reduce intake of omega 6 fats from corn, safflower, sunflower, peanut, and cottonseed oils as well as beef and dairy from grain or soy-fed cows.

Source: Linda Prout, MS, Lifeshift.biz

Fresh Foods for Each Season

Spring

Vegetables
- artichokes
- arugula
- asparagus
- (late in season) beets
- broccoli
- brussels sprouts
- cabbages
- carrots
- cauliflowers
- celery
- root collards (spring greens)
- fava (broad) beans
- garlic
- Jerusalem artichokes
- kale
- leeks
- onions
- oriental greens
- parsnips
- new potatoes
- (late in season) pumpkins
- rutabagas
- squash
- tomatillos
- turnips

Fruit
- apples
- kumquats
- rhubarb

Summer

Vegetables
- asparagus
- beets
- bush beans
- cabbages
- carrots
- cauliflowers
- celery
- chard
- chili peppers
- eggplants
- fava (broad) beans
- fennel
- garlic
- artichokes
- green sprouting kohlrabi
- leeks
- mooli
- okra
- oriental greens
- peas
- pole beans
- radishes
- shallots
- spinach
- sweet corn
- sweet peppers
- sweet potatoes
- tomatillos
- tomatoes
- turnips
- watercress
- zucchinis

Fruit
- blackberries
- black and red currants
- blueberries
- cherries
- figs
- gooseberries
- loganberries
- melons
- peaches
- plums
- raspberries

Fresh Foods for Each Season

Fall

Vegetables
- arugula
- beets
- broccoli
- cabbage
- carrots
- cauliflower
- celeriac
- celery
- chard
- chicory
- cucumbers
- eggplants
- fennel
- garlic
- green sprouting kohlrabi
- Jerusalem artichokes
- leeks
- lettuce
- mooli
- parsnips
- potatoes
- onions
- oriental greens
- pumpkins
- radishes
- rutabagas
- spinach
- squash
- sweet corn
- sweet peppers
- sweet potatoes
- tomatoes
- tomatillos
- turnips
- watercress
- zucchinis

Winter

Vegetables
- arugula
- beets
- Belgian endive
- broccoli
- Brussels sprouts
- cabbages
- carrots
- celeriac
- chard
- chestnuts
- endive
- garlic
- green sprouting kale
- Jerusalem artichokes
- kohlrabi
- leeks
- mooli
- onions
- oriental greens
- parsnips
- potatoes
- pumpkins
- rutabagas
- spinach
- sprouts
- squash
- turnips

Fruit
- apples
- citrus
- guava
- kumquats
- pears
- pomegranates
- apples
- blackberries
- cranberries
- dates
- guavas
- pears
- plums