

# NUTRITION IN SCHOOLS

*A teachers guide*



## **Acknowledgements**

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## **About This Booklet**

This booklet is a resource for educators to utilise within the school environment, to assist them with ensuring that wholesome nutrition is carried out in schools. It is meant as a general guide towards planning healthy, nutritious meals and for understanding some of the basic complexities of nutrition that affect our school environments. Many aspects such as malnutrition, Attention Deficit Hyperactivity Disorder (ADHD), HIV AIDS can be supported/ improved by ensuring that adequate nutrition takes place. This booklet is an attempt to ensure that issues such as these and others can be addressed as effectively as possible within schools, and also highlights contextual issues relating to nutrition within schools.

This resource has been developed in support of the WESSA/ WWF-SA Eco-Schools Programme and its focus on Healthy Living. It is not to be considered a scientific booklet but has purposefully been made as an easy to read guide.

*This book was compiled by Caroline Conway-Physick who is a qualified Natural Nutritionist.*

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## Introduction

Nutrition or nourishment is often a misunderstood word and is readily manipulated by people to suit their needs. It is not the same as diet or dieting, nutrition is about food and healthy living, and looks at:

- which food types are healthy for you to consume and why,
- what types of food you should eat and why,
- when best to eat, and
- what is suited to your best functioning.

It does not deal directly with the loss of weight/ dieting but will by default deal with issues of obesity or malnutrition by simply eating correctly to ensure a healthy body and healthy mind.

**The idea of nutrition is to ensure that the body, mind and spirit are able to work in harmony so that the physical (your body) is able to support all the other functions that determine its wellbeing (mind & spirit) through proper nourishment.**

Many poor nutritional practices are being encouraged in school tuck shops and through feeding schemes in an effort to ensure that children coming to school are receiving cheap bulk food to sustain them through the day. The impact this type of nutrition has on learners and their health has far reaching negative implications. Nourishment is not about quantity but quality food! Although an apple may have a similar calorie count as a small biscuit, the imbalances in the food groups and nutrients supplied by the biscuit can result in health problems such as obesity, diabetes, attention disorders, hyperactivity and later in life cardiovascular problems or organ damage. Understanding the food we eat and the value it has to our bodies is very important if we are to treat our bodies as temples.

Along with understanding the importance of nutrition and nutritious foods comes the opposite. Everything in the universe works in harmony and balance and it would not be useful to talk about health if we did not mention certain aspects of ill health or disease that the body can incur due to poor nutrition. Disease or dis-ease is a state of stress that results in the body being required to act outside of its normal range of functioning in order to try support itself effectively due to discomfort or onslaught by infection which may have set in. Understanding how these processes work is very important if we are to support the body in its' daily activities in trying to work effectively and efficiently. That in essence is why we give so much time towards nutrition in this book, as it is the foundation of understanding to give support to the body, and ensure a healthy, productive life.

This booklet hopes to cover all these aspects and others to help you develop a policy of nutritious eating and living in schools and homes by looking at the types of foods available to us; preparation and cooking of food; tuck shops; garden development as well as action projects. Broad curriculum links will also be covered for educator support in the classroom.

## The Human Body

The body needs different types and amounts of foods on a daily basis in order to supply itself with all the nutrients it requires to function effectively and efficiently. These nutrients include the vitamins, minerals and micro-minerals that assist the body in communicating effectively within itself as the body works by sending chemical messages-internally, to ensure that it works correctly. These nutrients come from the different foods that we eat and can be broken down into five basic food categories or "food groups". The Human body is a complex organism that works by stimuli that result from our senses of hearing/ sound, feeling/ touch, taste, smell, and sight. Our body is constantly processing these stimuli and adjusting and reacting to them in order to ensure that we survive to the best of our ability. These chemical transactions take place in a fluid base - as our bodies comprise of approximately 70% water. Water is the foundation of life for our bodies. Without water any chemical messaging/ communication could not take place and we would die. Within this water base are numerous chemical compounds that are the messages that get passed from one point to the next and result in reactions occurring in our bodies. For example: when we

smell tasty food our mouths start to water and additional saliva is produced. In this saliva (which is water based) are chemical compounds that are essential to start the breakdown of the food we are about to eat. The chemical reactions that take place in our bodies also trigger neural reactions, which result in conscious and sub-conscious reactions taking place in our bodies. We are constantly being bombarded with messages from our environment that our body reacts to in order to ensure our optimum health and well-being. Our senses play a very important role in initiating these processes but keeping ourselves hydrated is even more essential if the messages coming to our bodies can be effectively responded to. We should drink a minimum of 1.5 litres of water per day. The average person urinates approximately one litre of fluids daily, which needs to be replaced if the body organs such as the kidneys are to work effectively in flushing toxins and impurities from our systems. Our water intake must not be confused with liquid intake which includes tea, coffee, fizzy (carbonated) drinks. which all dehydrate (diuretic) the body and also strip the vitamins and minerals from our bodies as well as inhibit the uptake of these essential nutrients. Water intake includes herbal teas such as rooibos, honey bush, mint, camomile (caffeine free tea's), and water (at room temperature). This is the only effective way to ensure that your body is correctly hydrated and can communicate within itself.

The Food Groups that hold the essential nutrients that help us grow, develop and heal ourselves require further investigation, and that is where we will begin.

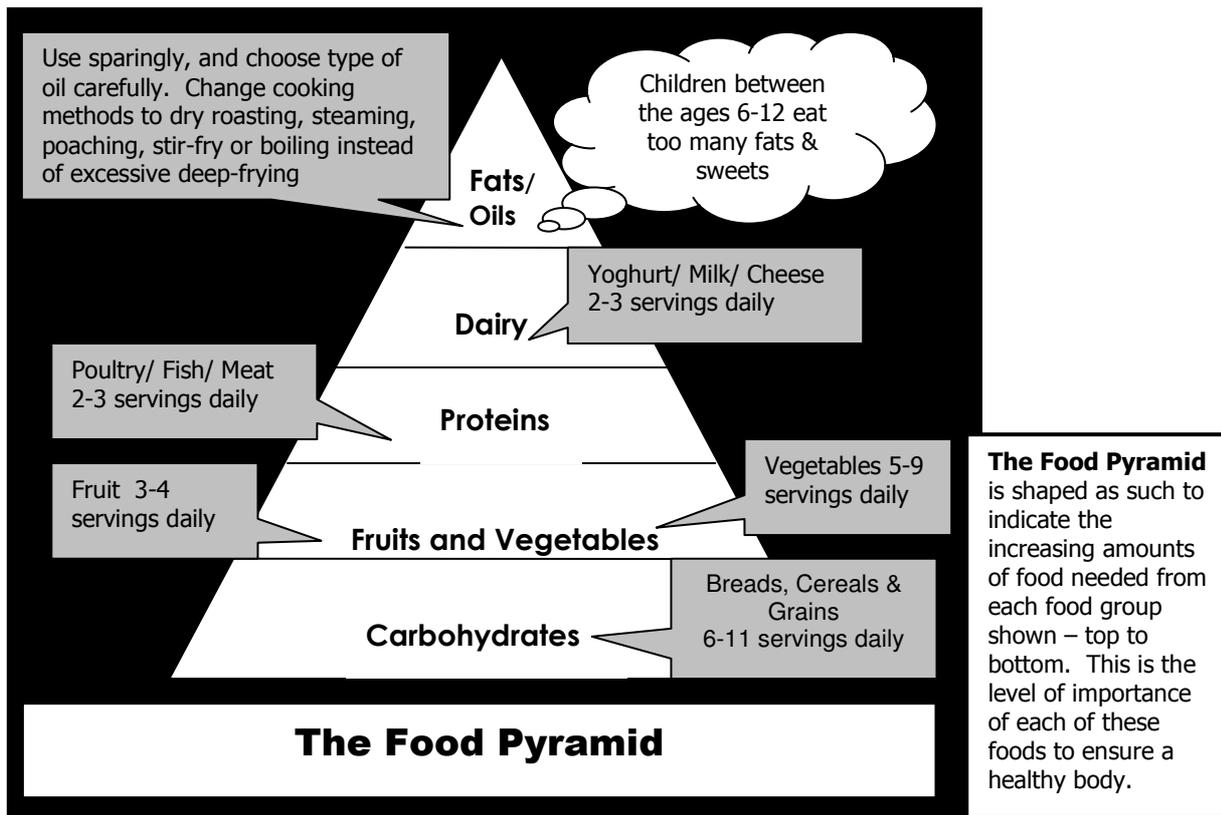
## **The Food Groups**

To start at the beginning of Nutrition, we must understand the basic structure it takes in order to feed our bodies effectively. The Food Groups are the building blocks of any healthy, nutritious meal plan. The Food Groups are divided up broadly into 5 sections that look at:

- ***Carbohydrates,***
- ***Proteins,***
- ***Dairy,***
- ***Fats/ Oils, and***
- ***Fruit & Vegetables.***

The amount of each of these that the body requires to operate effectively and efficiently varies, and is shown in the Food Pyramid below. Everyone is required to eat foods from all of the food groups each day to ensure that they stay strong and healthy. The amounts that should be eaten on average per person per food group are shown in the food pyramid as well (page 6).

Humans are omnivores, which means their dental structure and digestive tract is designed to eat both animal and plant material. This is very much in line with the primates (our closest relative) who are also omnivores. If you are a vegetarian (only eat plants/ vegetables or vegetable by-products), then it is very important to know how to choose your food carefully otherwise you could be missing out on essential vitamins and minerals from your diet which could make you sick. You need a higher intake of certain food groups as per the Food Pyramid but instead of eating meat products you would substitute complex carbohydrates to make up the requirement which necessary for you. There is very little that a vegetarian diet lacks from a health perspective except some vitamins/ minerals are in a lower dosage which needs to be watched, and due to this vegetarians should supplement their diets with vitamin and mineral tablets. There are many reasons why people become vegetarians – it can be for personal/ ethical/environmental or health related reasons. Whatever the choice, there is no reason that you should not become a vegetarian if that is your preference. As an omnivore ensuring that you eat the correct balance of animal to plant matter is where it becomes a bit tricky and takes a bit of knowledge of healthy eating. The 5 sections in the food groups are discussed in more detail to get a better understanding of what they are made up of. These have also been broken up into good and bad sources of each type, so when you choose what to eat you will know what is best to feed your body for it to support and heal itself.



## Carbohydrates

These include plant-based foods, which usually have good fibre content and supply the greatest amount of energy for easy use by the body, such as:

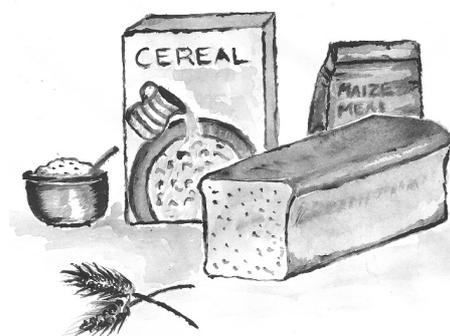
### Good 😊

Maize (Corn)  
Potato, Sweet Potato, Madumbi  
Beans, Lentils, Barley, Wheat, Oats, Millet, Sorghum, Casava  
Brown, Short Grain Brown & Wild Rice  
Bread – Brown, Whole wheat, home made (Organic)  
Pasta – whole wheat, vegetable

### Bad ☹️

Biscuits – sweet & savoury  
Pastries – sweet & savoury  
Chips (fresh and bagged)  
White Rice  
White Bread  
White sugar

Many types of grains exist that have good nutritional value but the more readily digested are oats, brown rice, millet, buckwheat, quinoa, barley, corn as these are not only less congesting (less mucus forming) on the digestive system compared to wheat but also have very good nutritional values. Grains generally have good carbohydrate content and are digested fairly slowly by the body, releasing energy to ensure that insulin production does not peak and then drop off suddenly. These types of foods are therefore very good for diabetics.



Knowing your own body and how it reacts to foods will give you a good indication whether or not you are sensitive to certain types of foods and therefore might have a food allergy from wheat or gluten which is found in a number of grains. Gluten is found in its highest concentration in wheat

and is the substance that helps bind flour and is what makes flour sticky/ tacky. When looking at the level of gluten found in carbohydrates, highest to lowest level can be found in this order:

↑ *Wheat, Madumbi, Oats, Barley, Rye, Corn, Potato, Brown Rice, Millet, Quinoa, Buckwheat* ↓

Often some things that are generally good for people can be bad for other individuals as they may suffer from allergies or illnesses such as Crohn’s disease, Irritable Bowel Syndrome, Coeliac disease, diabetes, and heart conditions requiring medication that does not permit them to eat certain food types that would otherwise be considered good for the average person. These people will then be required to keep away from eating certain food types altogether, for example.

<b>Illness/ Disease</b>	<b>Examples of Dietary/ Nutritional Needs</b>
Crohn’s Disease	Very poor digestive ability. Lose a lot of nutrients due to damaged stomach lining. Small meals of high nutritional value needed. Bland foods best. No oily, spicy foods.
Irritable Bowel Syndrome	Sensitivity to wheat, insoluble bran fibre, sugar, dried fruits, preservatives, alcohol. Have to eat a diet that is fairly bland, high in vegetables, moderate in fruit and low in animal proteins. Should eat small regular meals & drink lots of water. No oily, spicy foods should be eaten.
Diabetes (Type 2)	Should eat a diet that has a low Glycemic Index (GI). Must watch what types of fruit and vegetables are eaten. No sugary, highly refined foods should be eaten. Simple, bland foods are best. Lots of water to drink. Small regular meals essential.
Coeliac Disease	Potato is a good carbohydrate to eat. Difficulty in digesting gluten found in wheat, barley, oats. Should eat a diet high in raw vegetables, and fruit. Cannot digest foods effectively. No spicy, oily foods. Food in soup form is often best. Eats rice, millet, buckwheat best. Should not eat wheat products or bran fibre (insoluble)
Sensitivities (Allergies)	<p>People can be sensitive to many foods. If you come out in a rash/ welts or your breathing becomes impaired, or you start to swell anywhere on your body, discontinue eating the food and seek medical advice immediately. Examples of allergen foods:</p> <p>Peanuts, Seafood, Eggs, Wheat products, Peanut butter, Milk, Honey, Banana’s, Preservatives, Colourants and Flavourants e.g.: sodium benzoate, potassium sorbate, tartrazine, MSG. <i>Companies disguise their flavourants, colourants and preservatives by not naming them outright but instead hide them under an “E” number in the ingredients list. Go to your library and find out about the “E” numbers shown in the ingredients of products – some are good, some are very bad.</i></p>

## Fruits & Vegetables

This group of foods is the most nutritionally rich and easiest for your body to digest. It has a calming, soothing effect on the digestive tract and assist in ensuring that the colon stays healthy and has the correct pH. pH in the digestive tract is very important as this is how the acidity or alkalinity of the stomach is measured and has an



important impact on the type of good or bad intestinal flora that may survive within the digestive tract. An acidic digestive tract results in all the bad bacteria growing and causing infections and stomach disorders such as constipation, diarrhoea, urinary tract infections, candida and cystitis. Women are more prone to getting infections but everyone should ensure that they keep their digestive tracts in a healthy state. If we don't then we cannot breakdown and process the food we eat properly which means all the value that our food has, is lost to our bodies. Fruit and vegetables also ensure that we get sufficient soluble fibre in our diet that supports an alkaline digestive tract and promotes the good intestinal flora, and sufficient bulk in the colon to help for easy movement of digested matter. Without this we can be susceptible to colon cancer, constipation, tearing of the rectum and colon, porous gut syndrome and many other serious health risks.

By definition, a fruit is a plant part that has seeds. However the tables below have been collated according to what people generally consider to be a fruit or vegetable.

When it comes to fruit and vegetables none are bad for you but some should be eaten in moderation due to either a slightly higher concentration of sugar, fats, acidic levels or a lower nutrient value. Items that should be eaten in moderation include avocado pears, pears, green melon, strawberries and grapes. If you have a specific health concern, or are on certain heart medications there may also be some fruits or vegetables that could be considered unsuitable in your diet. Please consult your doctor about this.

Eating dark green and leafy vegetables as well as dark orange vegetables is good for us as they contain high levels of beta carotene, chlorophyll, anti-oxidants, vitamins and minerals which all protect the body from bad free radical damage which are caused by the wrong foods that we eat and the environment we live in. External pollutants in the air; water and soil have many negative impacts on our health. By eating correctly we can give our bodies the best possible chance to cleanse our bodies of these damaging molecules that we absorb and ingest on a daily basis. Vegetables that have a high nutritional value should be planted in vegetables gardens at home and at schools. Included in the list below is what each supply to our bodies from a nutritional perspective:

<b>Vegetables</b>	<b>Nutritional Value</b>	<b>Other</b>
Beans	Good Vit. B	High in Fibre; part of a complex carbohydrate
Broccoli	High Vit. A, C, B, Potassium, Calcium, phosphorus, Iron	Anti-Cancer
Butternut	High Vit. A, Fibre, High beta-carotene	
Beetroot	High Beta-carotene	Immune support
Carrots	Very High Vit. A, B,C, Potassium, Calcium, Iron	Supports skin health, Immune protection
Cabbage – Red & Green	High Vit. C, A, B magnesium, potassium, iron	Anti-Cancer
Cauliflower	High Potassium, Vit. C, B,	
Garlic	Mineral Sulphur	Protects against: High Blood Pressure, parasites, colds/ flu, gives Immune support, toxin elimination, blood clotting
Lettuce	Vit. A, B. Good fibre	Iceberg variety is the least nutritious. Blood cleansing
Leeks	High Fibre, High Potassium, Iron, Vit. B	
Legumes	Good Vit. B, Iron, Calcium, Potassium, Phosphorus	Includes Pea's & Beans. Good protein
Mielies (Corn)	High Vit. B, Vit. E,	Good fibre. Goodness found in the germ
Onions	Mineral Sulphur, High Calcium, Iron, Vit. B, C, E, A.	Similar to garlic in support of the body. Antiseptic effect

Pumpkin	Good Fibre, Vit. A	
Potato	High Potassium, Moderate Iron, Zinc, Magnesium, Manganese	Low Sodium & Calories
Peppers (mild & hot)	High Vit. C, A, B, bioflavonoids, Potassium	Cleanse the blood, help digestion, stimulate circulation. Hot peppers protect the heart
Radishes	Loads of water, most of the trace minerals	Spicier types clear Sinuses and mucus in airways (horse radish)
Spinach (all types)	High Iron, Vit. A, C, E Fibre,	Best eaten lightly cooked/ steamed
Sweet Potato	High Vit. A, Good Vit. B, C, Iron, Potassium	Good source of energy (carbohydrate)
Tomato	High Potassium, Vit. C, A	Acidic, not good for arthritis

All dark green vegetables have high levels of magnesium and chlorophyll, which has an energising/ revitalising effect. Chlorophyll also has a healing effect on mucus membranes and is good for the skin.

Although the grains, beans, and nuts have been placed with the vegetables they contain a high amount of carbohydrates within their structure due to the high level of plant sugars, which results in them being placed in both vegetable/ fruit and the carbohydrate sections.

Seeds and nuts can come from either a vegetable or fruit and are extremely good for the body. They contain some of the richest sources of nutrients such as good quality protein, fats, and high levels of essential minerals. Eat approximately 30 grams per day of nuts/ seeds. The best seeds and nuts to consider as a snack include:

*Almonds, Hazel, Brazil, Walnut, Macadamia, Pumpkin seed, Sunflower seed, Sesame seeds.*

Fruits also have a high nutritional value like vegetables and are a healthy snack between meals.

<b>Fruits</b>	<b>Nutritional Value</b>	<b>Other</b>
Apples	High fibre & Potassium, Vit C & A, B, Calcium, Iron, Magnesium	Colon cleanser
Apricots	High Vit. A, Potassium	
Avocado	High in Vit. B, Iron, Manganese, Magnesium	Good protein and fat content; High Calorie content
Banana's	High Potassium, Selenium, iron	Good for the heart, watch for constipation, indigestion
Berries (all except strawberries)	High Minerals, Vit. A, Potassium, Calcium, Good iron, High fibre	High Anti-Oxidant value
Dates	Good Vit. B, High Iron,	
Figs	High Minerals,	Assists intestinal function
Guava	High Vit. C, A, Fibre, Potassium	
Grapes	Colon Cleanser, High manganese, Vit. C, A.	High Fruit sugar (fructose)
Grapefruit	Vit. C, Potassium,	Help digestion, reduce appetite
Lemons/ Limes	Good Vit. C, Potassium	Stimulates gastric juices, detoxifier/ purifier for the liver
Mango's	Very high Vit. A, Good Vit. C, E.	
Nectarines	Good Vit. C, A	
Oranges	Good Vit. C, Potassium, Calcium	As with all citrus fruits – the goodness is in the white part
Olives	Good Vit. A, E, B, Essential	High oil; helps lower

	Fatty Acids, Zinc, Copper, Iron,	cholesterol; High in Minerals
Paw-paw/ Papaya	High Beta-carotene; Vit. C	Digestive Support;
Pineapple	High Manganese, Bromelain, Vit. A, C,	Helps with sinusitis, nasal congestion, anti-inflammatory
Peaches	Good Vit A, C, potassium, phosphorus	
Plums	Good Vit. A & potassium	Low Calories
Spanspek Melon (orange)	High Beta-carotene, Vit. C,	Good levels of minerals
Strawberries	Good fibre, Vit. C,	
Water Melon	High in beta-carotene, Vit. C, Potassium, Magnesium	Loaded with water and nutrients. Stimulates urination, kidney cleanser

Herbs also play an important role in our health and can add much value and taste to a meal. Many of them have health properties that have been well researched and documented. Here are 10 culinary herbs to grow and use:

<b>Herb</b>	<b>Use</b>	<b>Value</b>
Sage	Cooked/ Raw	Boosts insulin action – supports diabetics
Garlic	Cooked/ Raw	Lowers cholesterol, kills bacteria, viruses, protects against digestive problems
Rosemary	Cooked	Antioxidant, prevents cataracts, antibacterial, eases asthma
Thyme	Cooked/ Raw	Increases blood flow to the skin, antispasmodic, bronchitis
Parsley	Cooked/ Raw	Diuretic, bladder infections, kidney stones, breath freshener, assists against menstrual bloating
Ginger	Cooked/ Raw/ Drink	Anti-inflammatory, -flatulence, -bacterial, -nausea, settles the stomach, controls motion sickness, pain reliever
Mint	Raw/ Drink	Digestive aid, calms muscle spasms, relaxes airways, mental alertness, fights bacteria & viruses
Basil	Cooked, Raw	Stomach upsets, protects against cancer
Oregano	Cooked/ Raw	Soothes coughs, digestive aid, lowers blood pressure, antibacterial
Cinnamon	Baking/ Cooking/ Drink	Kills bacteria, helps regulate menstrual cycle, reduces stress & anxiety

**Indigenous plants** also have many traditional uses and values from both a nutritional and medicinal perspective. Many of these can be grown for personal use in your gardens at home and school. Their value is just as good as those grown in the wild so long as they are watered, composted and mulched properly. Organic growing of all foods is the healthiest and best method to use.

Some traditional plants that have a good nutritional value include plants such as **imifino** (wild spinach), **amabele** (millet), **amarula** (fruit and nut), *carpobrotus spp.* (flowers), **Matikulu** (fruit), **Masonja** (mopani worms and ground nuts), **amadumbe** (root tuber), **amagonsi** (root tuber), **iziNdlubu** (nut). There are also many plants that are currently used as traditional food sources that originated from other parts of Africa, South America and Europe but have been here for so long that they have become part of the staple diet of many – these include mielies, potatoes, sorghum, cassava, and rice.

## Proteins

This section consists of all types of meat and meat products and is obtained primarily from animals- Complete and incomplete proteins can also be found from certain plant materials such as beans, tofu, nuts, rice and lentils but normally requires a combination of two carbohydrates to make up a complete protein in



structure, for example, Brown rice and Beans or lentils will make a complete protein. This is especially important to know if you are a vegetarian so as to ensure you are obtaining the correct balance of nutrients, vitamins and minerals in your diet.

Animal based proteins can be obtained from eggs, chicken, duck, rabbit, ostrich, fish, beef from cows, mutton/ lamb from sheep and includes organ meat as well such as kidney, heart and liver.

Animal proteins require increased levels of hydrochloric acid to be produced in the stomach for digestion to take place effectively. This is why some people who have digestive disorders can battle with eating meats, especially fatty meats like lamb/ mutton. Our bodies find it easier to digest and breakdown white meat proteins such as ostrich, chicken, fish and rabbit compared to the red meats such as wild game meat (e.g.: Impala), beef, pork and sheep.

From a nutritional perspective, the animal proteins are the best forms of protein but which ones do we choose to put on our plates? The ones that have the highest utilisation and nutritional value to our bodies that can be found in South Africa include:

*Salmon, Sardines/ Pilchards, Mackerel, Tuna, Ostrich, Turkey, Chicken, Rabbit, Game*

Wherever possible though choose these protein options over others. Fresh foods are best but tin foods also good nutritional value these days.

## Dairy

Dairy products supply a good amount of calcium to the body but many people suffer with allergies from dairy products such as cheese and milk. Some dairy products are fermented or cultured and because of this partial state of breakdown often do not cause the same allergic reactions in the body, and can be eaten. Maas and Yoghurt are good examples of easily digested dairy products, which people with sensitive digestive systems should eat rather than ordinary cheeses. Dairy products that generally have the least allergic response and should rather be eaten than other options include:



*Cottage cheese, Mozzarella, Ricotta, Feta, Maas, Yoghurt, Butter*

Something to remember: *No other animal continues to drink milk after infancy. The digestive enzymes in humans also start to deplete as we get older and the enzyme that breaks down dairy products (Lactase) is often absent after infancy, which is one of the reasons why allergic reactions occur in so many people towards dairy products. Dark skinned people are particularly sensitive to the effects of dairy products and do better with fermented milk products. There are many other ways to ensure that you get sufficient calcium in your diet such as eating sardines, nuts and vegetables especially legumes, which have a good supply of calcium. Although plant based calcium is not always as easily absorbed by the body as animal based calcium, it is still important to choose carefully where and how you get sufficient calcium intake on a daily basis. Follow the food pyramid to ensure that you are taking in sufficient amounts of calcium in your diet.*

Dairy products should be chosen wisely, and eliminated/ minimised from peoples' diets that are lactose intolerant.

## Fats/ Oils

The difference between fats and oils when trying to classify them is whether or not they are in liquid form at room temperature. If they are then they are oils. Fats hold their form or consistency longer. Both are volatile and breakdown quite quickly when exposed to heat, sunlight



and air and should be kept in cool, dark places in the kitchen. Fats and oils should be kept refrigerated although this will often change some oils consistency like olive oil, which will start to solidify.

Refrigeration of foods is very important in trying to slow down the breakdown of the nutritional content. Once anything is picked, cut, uprooted or produced from natural foods it starts to die. This includes the vitamins, nutrients and minerals within the product. Refrigeration slows this process but does not stop it. This is why foods should be eaten as fresh as possible. Do not buy and store excessive amounts of food in your pantry as this is not, in the long run, serving the purpose that food should.

Without getting too complicated, as this is an area in nutrition that is greatly misunderstood and is quite technical, it is important to know that there are good and bad fats and oils. The body requires certain types of fats and oils in order to function properly. These different fats and oils help our body with the digestion and assimilation of foods that we eat and many other areas within our bodies. Without them we would suffer from chronic dis-ease problems such as coronary (heart) diseases, hormonal imbalances (menstruation/ menopause), brain function and central nervous system disorders (Multiple Sclerosis).

Fats and Oils can be either saturated or unsaturated generally, although there are a number of different types in each of these two categories. Unsaturated fats/ oils are best and the most readily utilised by the body for essential functions. When choosing which types are best to utilise, consider the following:

***Olive oil; Sunflower Oil; Flax Seed (Linseed) Oil; Salmon Oil; Nut Oil***

Fats and Oils originate from both plant and animal sources. The bold listed items above are from plant sources such as seeds and nuts and the non-bold listed items are from animal sources. There are many other types of oils as any nut/ seed can produce its own type of oil e.g.: almonds, avocado, brazil, peanuts, rape seed, soya, marula. Not all oils are suitable for human consumption such as rape seed oil and castor oil which is highly toxic when ingested.

You may be wondering where margarine fits into this whole picture. Margarine is produced from plant oil that has gone through a heating process to change its molecular structure to create margarine. Although the saturated fat content is far below butter, it has other issues that should be considered. When molecules go through a heating process they change shape or molecular form/ structure. The end result is not always safe or stable. Margarine is mostly stable but the molecules have changed from cis fats to trans fats. Trans fats have been linked to forming cancer cells (carcinogenic) in the body. Most margarine's nowadays are stating that they are virtually "trans fat free", but any amount of trans fats has the potential to do damage. As to whether or not to eat butter or margarine, the decision is yours to make:

Summary:

<b>Food</b>	<b>Source</b>	<b>Process</b>	<b>Concerns</b>	<b>Benefit</b>
Margarine	Plant origin	Heating process that changes molecular structure causing trans fat formation	Carcinogenic compounds	Some vitamins artificially added
Butter	Animal origin	Whipped from milk cream to form solid consistency	High saturated fats	High in natural Vit. E, A, calcium. Easily digested

Most people overindulge in butter because it tastes good and cut huge wedges of it to put on their sandwiches because they have left it in the fridge and its too difficult to spread. If eaten in moderate amounts and spread on items as if it were margarine then the amount of intake would be significantly reduced along with the health concerns. Leave a small amount out of the fridge each

day to use for that day. In this way it won't go rancid and you won't over indulge in saturated fats from your butter. Saturated fats have been linked to coronary (heart/ artery) problems. Ensure that you do not cook with butter and use it in moderation- My personal preference is eat in moderation, eat healthy natural foods that are closest to their original form in nature.

Not all oils should be used in the same way when cooking or preparing foods. Olive oil reaches its cooking temperature at a much lower temperature than Sunflower Oil and because of this it starts to de-nature (smoke) when cooked at a high heat. Olive oil is better used without heating as a salad dressing. If Olive Oil is to be used for cooking purposes then only cook at a low heat for a short cooking time. Sunflower and Canola oils are better for cooking purposes and can handle a higher heat but generally it is not good nutritionally to cook any food at a high temperature for any extended period of time as the vitamins and minerals start to break down at a rapid rate, losing all the value that it had.

Flax Seed or Linseed Oil is not for cooking but for medicating purposes and supplies essential fatty acids (EFA's) that the body utilises for various functions as discussed above. Salmon Oil is the same and both of these oils are usually found in gelatine tablet form or in refrigerated bottles at Pharmacy's which people purchase to supplement their diets. Worldwide, most people do not obtain sufficient amounts of EFA's from their diet and need to supplement with additional intake, on a daily basis. On average if you eat 350g of fish from the food list given above (in the protein category, pg 11) per week you should be obtaining sufficient EFA's in your diet.

Butter and margarine should not be used for cooking purposes due to the high level of saturated fats found in butter and because margarine has already gone through a heating process. An additional heating process will deteriorate its state even further. Both are not healthy options for cooking. Rather use one of the oils suggested above for your cooking needs – canola or sunflower.

### **Meals for Children**

Poor nutrition — which is not only under eating/ nourishment but includes eating too much fat, sugar and sodium and not eating enough fruits and vegetables — affects a students' performance in school. Poor nutrition affects a child's energy levels, ability to concentrate, and ability to learn. Poor nutrition also leads to increased illness and absenteeism. Ensuring that children are obtaining the correct balance of food groups to support their growth, learning and personal development by following the food groups and using the food pyramid as a guide, will ensure that learners develop physically and mentally to the capacity they are meant to be at.

**A minimum of one third of children's daily diets should include fruits and vegetables, with a total serving being eaten of 7-10 total combined servings/ day of fruit and vegetables!**

1. What counts as a Fruit or Vegetable serving? All fresh produce except avocados, coconuts, and olives. Unlike other types of produce, these three items contain a lot of fat. Eat them in moderation rather than as staple food, but they still have valuable nutrients for the body to use.
2. All fresh, canned, frozen or dried fruits and vegetables provided that no extra fat or sugar has been added and the sodium (salt) content does not exceed 380 milligrams / serving. Salt intake per day should not exceed 2000mg/day, but minimise as much as possible.
3. All juices (fruit or vegetable) that are 100% juice with no added sugar/ preservatives, colourants or flavourants. Just 100% pure juice.
4. Ensure that there is always fresh, clean drinking water for children at all stages at school that is easily accessible. Keeping hydrated is very important.

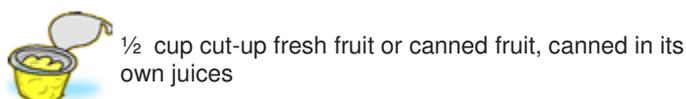
Here are some general guidelines about what counts as a single serving:



1 medium-sized piece of fruit (e.g. banana, apple, orange, 1 handful of strawberries)



1 cup raw, leafy vegetables (e.g. lettuce, spinach) or salad



1/2 cup cut-up fresh fruit or canned fruit, canned in its own juices



1/2 cup cooked/ raw or frozen vegetables



3/4 cup (6 fluid ounces) 100% fruit juice or milk



3/4 cup (6 fluid ounces) 100% vegetable juice (e.g.: carrot juice)



1/4 cup dried fruit (e.g. raisin, dried apricots, prunes)



1/2 cup cooked/ raw or canned beans, peas or lentils

**Remember** – *variety is the spice of life, so don't try get in all of your fruit and vegetable intake by drinking a litre of fruit juice and thinking that will add up to what you need. You need a variety of fruit and vegetables to ensure that you get all the minerals and vitamins as well as fibre that your body needs daily to function properly.*

### **The Healthy Snack**

Fruit, Nuts, Seeds, vegetables are your easiest snack foods for children that have the highest nutritional value. If they are left around within easy reach and are already washed and prepared for eating many children will automatically grab something to nibble on when the urge takes them. If you have loads of junk food lying around that is easier and quicker to grab and eat then they will again automatically go for these options. The flavour enhancers in many of these latter types of foods makes them almost addictive to children as children are most susceptible to sensory overload as their systems are far more receptive to tastes and colours than adults. This is often why many children suffer from attention deficit hyperactivity disorders (ADHD or ADD) due to the types of foods that they are eating. It has been found that many colourants, preservatives, flavourants and sugar cause concentration issues in children due to the level of hyperactivity that they create. This is also due to the often extremely high levels of sugars that can be found in these products as well. By feeding junk food to children, whose digestive systems are far more sensitive to these toxins, we are literally flipping open the lid of a “jack-in-the-box” until that child has worn itself and the toxins out of its system. These sensitive digestive systems should only be given wholesome, pure foods that are preservative, flavourant and colourant free and by limiting/ removing these other options from their diets. Children are then able to settle down in class and concentrate, thereby ensuring that at the end of the day the child has maximised its time at school. Many children suffer with concentration issues and often leave school confused and insecure because they have been chastised by their teachers and punished for bad behaviour. Remember – not all bad behaviour is controllable by children and there may be a deeper issue at hand that needs dealing with.

If you have a Tuck Shop at school then go and see what is on display or being handed out. Packet chips and hot dogs are not nutritious! Speak to your principal about looking for healthy alternatives and call the school governing body together with parents and make a concerted effort to get them to understand that what the tuck shop is selling is only damaging learners by not helping them to become better, healthier individuals. All sweets, ice creams, fizzy drinks, cakes and chips should be removed and replaced with some of the following options, given below. It's also a great time to get creative and get the parents involved to support this initiative. Maybe consider having a cake/ sweet sale only once a month as a treat so that learners do not feel they are being deprived.

### **Tuck Shop Suggestions:**

- Freshly made sandwiches on whole wheat, rye, potato, oat, seed or brown bread
- Variety of home-made health muffins – berry, nuts, banana, bran/ raisin, carrot/ date etc.
- Seed Bars
- Tropical seed/ nut packs or bars
- Dried Fruit

Seasonal Fruits (washed and fresh)  
Small ready-made salads (egg, tuna, chicken, greek)  
Ready made meals - baked potato with salad, roasted corn on the cob.  
Yoghurt Dates or raisins  
Peanut & Raisin snack packs  
Mini fruit yoghurts  
Fruit rolls (unsugared preferable)  
Fresh chips  
Date & Coconut balls  
Home-made low sugar biscuits/ fruit chews  
Ready cooked meals – soups, stews, grilled chicken pieces etc. (home-made)  
Liquifruit, just juice, Pure Joy, Appletiser are some options for drinks – 100% pure juice.  
Bottled Water

These are just some of the many ideas and options that can be considered for a tuck shop. Children are very impressionable at an early age and the standards that are set for them early on in life affect their decision making later on. This includes their own health/ eating habits and that of their families when the time comes. Ensure that the main culprits (“junk food”) are kept out of the purchases for the tuck shop which includes pastries, sugary items, colourants, flavourants, preservatives, (often found in highly refined foods) so read the labels before you buy.

### **Preparation & Cooking**

When considering what to eat or cook keep to a few basic principles and that should ensure that what you are eating has greatest value.

- Don't salt your food whilst cooking only afterwards and only a very little amount if necessary – taste it first before adding. Try not to salt your food at all as many people cook with stock or sauces that are already high in salt (sodium chloride). Excessive salt accumulation has been linked to many chronic health conditions related to the heart and many other areas of the body.
- Eat foods as close in form as to what they would have been like when just harvested. Stay away from highly processed, packaged foods' as these often are high in flavourants, colourants, preservatives, salt or sugar in trying to ensure a long shelf life. A long shelf life should send off alarm bells in your head as the amount of things that have gone into the product or what it has been put through to stay “fresh” has dubious origins.

Preparation of food and storage also has an important role to play and should be carefully looked at to ensure that natural breakdown of food does not happen unnecessarily.

1. Store dry foods in an air-tight container and place in a cool, dark spot in the kitchen
2. Meats should be kept frozen until use and do not re-freeze meats if you change your mind about eating it. Rather cook it and allow it to cool sufficiently enough to then go into a container and then into the fridge or freezer.
3. Cooked meats should not be kept for longer than a couple of days in the fridge. After which time they must be thrown away (dispose of them safely).
4. Fresh foods do not have a long shelf life, so buy a little regularly so that you do not waste your money or alternately cook and freeze foods for later use. Only keep foods for a week at a time in the freezer once you have cooked meals for later use.
5. Do not eat raw meat but ensure that it has been cooked through, especially pork and chicken.
6. Do not over cook or eat burnt food. Burned food is carcinogenic (cancer causing).
7. If you allow the oil in a pan to smoke you have then changed the molecular structure of that oil and it is now unhealthy to use! Different oils will get to cooking temperature at different degrees. Olive oil will reach cooking heat lower than sunflower oil.

8. Always expose food to as little light, air and heat (outside of the cooking process) as possible as these three factors are the greatest reason why food starts to break down, and they also encourage bacterial & fungal growth, which makes people sick.
9. Make sure you read the labels on everything – know what you are putting into your body.
10. Ensure that counters are kept hygienic at all times and all pots and utensils are washed in hot, soapy water and then rinsed off properly.
11. Make sure you wash your hands thoroughly before preparation of food
12. Wash all vegetables and fruits thoroughly to remove any pesticide/ fungicide residues.

When cooking your food ensure that:

1. It is not cooked for too long and on not too high a temperature. If you are cooking food for an extended length of time then do so at 120° to 160° degrees. Try never to cook food at 180° degrees for much longer than an hour at the most as the heating process starts to break down the nutrients found within the food.
2. If you are boiling vegetables make sure they do not go soft and limp. Stop the cooking process once you can only just stick in the tip of a sharp knife. They should be still firm and the cooking water should not be heavily coloured with their colour.
3. Use your boiling vegetable water for your gravy stock as well which will help ensure that not all of your nutrients have been thrown away.
4. Choose to rather steam, bake, dry roast (no oil roasting) or stir fry your food rather than deep fat frying, oil roasting or boiling (boiling is fine so long as it is not done for too long or at too high a temperature).
5. Remember the other points explained in the fats and oils section about the types of oils/ fats to be used and how to use them.
6. Do not cook with lard, butter or margarine!
7. It is not necessary to cook all your vegetables – try them raw too, they are much healthier for you this way.
8. Stews, stir-fry or casseroles are a very good way of cooking as all of the nutrients are kept within the pot.

### Recipes

Here is a fun, health filled recipe to do at school:

### **Raisin Banana Muffins**

Makes 24 muffins

#### **Ingredients:**

- 3 very ripe, medium bananas, peeled & mashed
- 1 egg, beaten
- 1/3 cup vegetable oil
- 1 ½ cups all-purpose flour
- 1/2 cup treacle sugar
- 6 tablespoons cocoa powder
- 1 teaspoon baking soda
- 1/2 teaspoon salt
- 1/4 teaspoon baking powder
- 1/2 cup raisins

Preparation Time



Cooking Time



Mix together egg, oil, sugar, mashed bananas. In another bowl mix together the remaining dry ingredients. Add the banana mixture into the dry ingredients and add the raisins. Mix well.

Grease the muffin tray, and fill each muffin tray ¾ full. Place in the oven at 180° degrees for 20 - 25 minutes.

These have loads of potassium, iron and other vitamins and minerals to help your body as well as being full of energy to keep you going through the day!

### **Other nutritious meal options include:**

#### **3 Fruit Smoothie**

- 1 Apple – peeled (then eat the peels!) or 1 plum/ peach (don't peel)
- 1 Banana – skin removed

Preparation Time



½ Medium papaya/ paw-paw or half a small pineapple  
3 Tblsp plain yoghurt

Cut all fruit into 2cm square pieces, or scoop off the skin and place them all together into a blender. Blend until smooth. Add your 3 tablespoons of plain yoghurt and blend all together. Pour into a chilled glass and drink up!

☺: You've now had your three fruit for the day and a good serving of calcium for your teeth and bones with lots of fibre to make your tummy work properly. (Serving for one.)

### **Butternut & Herb Soup**

1 Large Butternut (or small Pumpkin) – peeled and pips removed  
1 large onion – cut up  
1 handful of fresh herbs (washed/de-stalked)  
1 Tsp masala curry powder  
1 Chicken stock cube  
1 Tsp of garlic (crushed)  
1 Tsp ginger (crushed)

Preparation Time



Cooking Time



Cut up the butternut and onion. Fry onion in large pot with a little olive or sunflower oil until slightly soft. Add garlic, ginger and masala powder and stir. Fry for another minute then add in all the chopped butternut and one litre of water with the stock cube. Boil until butternut is soft. Just before this point add in the chopped herbs. Switch off the heat once butternut is soft and allow to cool slightly. Blend until mixture is smooth or to your consistency.

### **Home-made Hamburgers**

500gr lean Mince (beef or ostrich/ turkey for healthier options)  
1 medium onion (chopped – not too chunky!)  
5 Sprigs of Parsley (freshly picked, washed, de-stalked and chopped)  
Sunflower oil/ Olive oil  
A Shake of Salt & Pepper

Mix parsley, onion & mince together well. Add in the salt and pepper and mix well again. Clump mince into tennis ball sizes then pat down flat to approximately 1 cm thick. Pour oil into pan enough to cover bottom. Fry burger patty turning over periodically for about 6-8 minutes each, or until done (depends on how thick you have made them). Serve on a fresh whole-wheat roll with slices of tomato, lettuce and raw onion rings, or serve alongside your oven-roasted vegetables (see next recipe)!

☺ Good source of protein, B vitamins, iron and other minerals. Your body will be helped in its muscle building capacity, oxygen uptake, blood cell production and healing ability. Good for your heart, but don't overdo your red meat intake.

### **Oven Roasted Vegetables**

In a casserole dish or roasting pan with tinfoil to cover, cut up a chunky medley of the following vegetables:

*Butternut (not necessary to peel), onion, carrots, marrow, green beans, brussel sprouts, broccoli, beetroot, green or red peppers, mushrooms, and very small pieces of potato (washed & unpeeled)*

Fill the roasting pan and drizzle vegetables with a little olive oil, salt, pepper and a mixture of freshly chopped herbs such as sage, thyme, basil, parsley. Mix up together well and settle vegetables back down into the dish.

Cover roasting pan with tin foil and roast in the oven for 40-45 minutes on 180 degrees Celsius. Test 5 minutes before end of time, and remove tin foil for the last few minutes.

☺ Vegetables give you soluble fibre, essential for cleansing of the colon. They are a natural blood cleanser and immune system supporter/ booster, with loads of important vitamins and minerals. They are healing and energy giving and will leave you feeling light after your meal. Eat as much as you want of these, but try to have at least half of your plate covered with vegetables!

### **Feeding Schemes**

Many feeding schemes have been set up throughout South Africa as the need grows to support children that are battling to support themselves. With the spread of the HIV Aids pandemic many children are finding that they are alone trying to fend for themselves in child-headed households. In response to this, provincial governmental departments and independent schools have set up feeding schemes to assist children in being able to obtain at least one filling meal a day. Not only is this essential if the child is to concentrate through the day but also in assisting these children in being able to function, support and care for themselves. The impact that HIV Aids is having on children is documented but the isolation felt by these children and the devastation that it is doing to the social structure of communities cannot be quantified or stressed loudly enough. The role of the School and Educator has never been so critical and fundamental in its role as it is now for children to get the support and nutritional care that they require. This is why the efforts of what we do now are so important to ensure that the impacts felt tomorrow are positive and good, despite it all. The main concern evident at schools is that feeding large numbers of children takes time and money of which schools are already sorely burdened. The development of food/ health gardening at schools has therefore come into focus and in programmes such as Eco-Schools (an environmental education programme) they have been made into a learning tool. The garden then becomes part of lessons that the teacher needs to teach according to the syllabus (National Curriculum Statement). It does not matter if is mathematics, life orientation, natural science, social science, technology or language there is a common environmental thread that can be taught out of or by using nature or the environment and vegetable gardening has never had so much meaning as it does now! Making meaning from these gardens also means that it is vitally important for schools to utilise these gardens as best as possible, not only in the classroom but in feeding hungry learners. Much of what is being fed to children at these schools does not constitute nutritionally sound meals but rather bulk feeding – getting the children from one meal to the next. Dealing with nutritional requirements for a growing child does not come into play, but it needs to. The types of meals that we prepare and the vegetables that we grow have a huge impact on the good that we try to do for our children.

A menu plan has been developed below of items that can easily be grown at schools to supplement the feeding scheme, and that will improve on the nutritional value of food that children are receiving at school. This is an animal protein free plan, which still has plant protein and high fibre, vitamins and minerals and at the same time ensures good vegetable/ fruit intake. Planning nutritious meals for children takes time and thought. Here are some cheap, healthy meal ideas for a lunch-time meal plan for the week:

<b>Day of the Week</b>	Monday Options	Tuesday Options	Wednesday Options	Thursday Options	Friday Options
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<b>Main Intake</b>  <b>Carbohydrate &amp; Vegetable combination</b>  (An animal protein can be added if desired)	Putu & Cabbage	Brown Rice & lentils or beans	Boiled/ Baked potato	Curried Potato, Tomato, Beans, Carrots & onion stew	Putu, Tomato/ Onion mix & Cabbage
	Tomato/ Onion mix	Tomato/ Onion mix	Spinach & Onion mix	Roasted Corn	Spinach
	Boiled Carrots	Boiled, & Mashed Pumpkin	Boiled or Dry Roasted Butternut	Boiled Green Beans	
<b>Liquid Intake</b>	Water/ Maas	Water	Water/ Maas	Water/ Maas	Water/ Amahewu
<b>Fruit Intake</b>	Apple	Banana	Orange	Apple	Banana

\* You can add a protein such as roasted/ grilled chicken to any of these daily options above.

### **Developing a Food Garden**

There are numerous books available which will assist you with this. Look at the Share-Net range of resource materials, for further assistance. See the section on Support Services for additional guidance with this, and choose the resources that will cover the following topics in particular:

*Health Gardening*

*Permaculture*

*Recycling & Composting*

*Companion plants*

*“ Learning to Grow” Series*

When planting your vegetable garden choose vegetables from the list shown above:

- Read about the nutritional value that they each have, and why you want to plant these.
- Plant a variety so that you have lots to choose from to make the meals interesting.
- Plant your variety at staggered intervals so that when one lot of vegetables is coming to an end you have a new batch ready for picking. Follow the planting instructions on the pack.
- Learn how to grow through permaculture principles so that planting vegetables costs you as little as possible and is environmentally friendly – waste nothing. Your unwanted ends should go to the compost heap.
- Plant according to the seasons to ensure that your crops are a success.
- Remember that different crops also have different nutritional needs.
- When planting know that some plants grow better next to certain other types and not well at all with other plants – companion plants will help ensure success with your plants.
- Use herbs and certain indigenous plants to keep the pests at bay by planting them amongst your vegetables such as marigolds, mint, garlic/ chives
- Cook stews with a wide variety of vegetables to ensure that the children are getting the greatest nutritional value from the meal that is being prepared.
- Don't overcook the meal – let the vegetables be a little soft and use the water for gravy (all the nutrients and minerals are lost in the water that you boil the food in!)
- As a carbohydrate give brown rice, putu, or potatoes rather than white rice which has little nutritional value.

- If you have fruit trees or fresh carrots available – wash them and offer them to the children as an extra snack along with their meal.

Alternatively, visit your local library that will also have loads of valuable information that you can use at little to no cost. (*Go to the **Support Services** section on page 20 in this booklet to find further resource materials that will assist you with the development of your food/ health garden*)

### Nutritional Health & Curriculum Links

Nutritional Links can be clearly found in the National Curriculum Statements in a number of learning outcomes and assessment standards within learning areas. Examples are shown below in the table:



Learning Area	Learning Outcome	Assessment Standard	Focus
Life Orientation	Health Promotion Grade R (LO 1)	Explains the importance of drinking only clean water & eating fresh food	Water & Food
	Health Promotion Grade 7 (LO 1)	Proposes ways to improve the nutritional value of own diet	
Languages	Writing (LO 1, 3, 4)	Writes to communicate information; Writes for social purposes; Reads for information; Uses reference books & develops vocabulary	Consumption and waste
Mathematics	Data Handling Grade 1 & 2 (LO 3, 4, 5)	Reasons for grouping collections; estimates, measures, compares; Recognises symmetry & dimensional objects;	Agriculture



FOCUS	Situating Story	Classroom Activities	Eco-Schools Actions	Community/Home link
Water & Food	*Cookery Book *Nutrition in Schools	5 Food Groups. Baking Muffins.	*Action Project/ *Community Outreach	Washing foods and hands before preparation and eating
Consumption and waste	*Indigenous Knowledge – amaHewu. *Nutrition in Schools booklet	Composes a recipe; writes about the health aspects of food; States facts about fruits & vegetables	Health Audit	*Writes a story about the life of a fruit/ vegetable from start to end. *Gives an oral report *Recycling/ composting *Starts a recycling depot/ *Petitions local authority.
Agriculture	*Variety of Fruits/ Vegetables grown *Nutrition in Schools	Group & name shapes of fruit/ veg. Count quantities Cut into various dimensional forms Does measurements	*School feeding *Food Garden *Tuck Shop	Health school lunches

These suggestions/ ideas have been structured in a similar way to those schools who create lesson plans with a strong environmental learning and action role, as is the case with schools who are part of the Eco-Schools programme. There are many creative ways to make greater meaning of the learning that takes place in the classroom.

## **Lesson Plans**

*This is an example of a unit of work that covers five different learning areas around the central theme of Nutrition that can be worked up or down the grades according to your needs and is based on the National Curriculum Statement (NCS).*

# **Health and Nutrition for Children**

*These lesson plans support an introduction for young learners to an Eco-Schools focus Healthy Living, Nature and Biodiversity & Local and Global Issues.*

## ***Grade 6***

**This lesson plan includes:**

**Activity One:** In this **LIFE ORIENTATION** LESSON, learners are given a number of foods eaten daily by people and they review their ingredients – health issues are then discussed with further research being undertaken.

**Activity Two:** This **ECONOMIC & MANAGEMENT SCIENCES** lesson involves learners using what they have learned from Activity One to develop an advertising campaign through a competition on how to encourage children to eat healthily. They will then make posters for display around the classroom/ school.

**Activity Three:** In a **SOCIAL SCIENCE - HISTORY** lesson issues relating to foods eaten in the past are discussed compared to how people eat today. Learners look at what has changed and what effect this has had on people today. An article for general reading is supplied for the learners to reference information.

**Activity Four:** This is a **MATHEMATICS** activity whereby learners are required to cost out a recipe that is given to them by the teacher before visiting their local supermarket. Each item is identified per Food Group and questions answered.

**Activity Five:** A **NATURAL SCIENCES** activity where learners grow a single bean seed in a dish. Once it has grown the structure of the plant is discussed with questions being asked relevant to health, nutrition and the categorisation of plant parts.

<b>Activity</b>	<b>Learning Area covered in this activity</b>	<b>Learning Outcomes covered in this activity</b>	<b>Assessment Standards Covered in this activity</b>
<b>Activity 1:</b> Learners are given a number of foods eaten daily by people and look at their ingredients – health issues are then discussed with further research being undertaken.	Life Orientation	<b>Learning Outcome 1:</b> <u>Health Promotion:</u> The learner will be able to make informed decisions regarding personal, community and environmental health.	Interprets food labels & critically discusses health effects of listed ingredients
<b>Activity 2:</b> Learners using what they have learned from activity one to develop an advertising campaign through a competition on how to encourage children to eat healthily. They will then make posters for display around the classroom/ school.	Economic & Management Sciences	<b>Learning Outcome 4:</b> <u>Entrepreneurial Knowledge &amp; Skills:</u> The learner will be able to demonstrate entrepreneurial knowledge, skills and attitudes	Identifies a variety of possible business opportunities in the community  Designs an advertising campaign to promote a product that could/ will generate a profit.
<b>Activity 3:</b> Issues relating to foods eaten in the past are discussed compared to how people eat today. What has changed and what effect has this had on people today. An article for general reading is supplied for the learners to reference information.	Social Sciences	<b>Learning Outcome 1:</b> <u>Historical Enquiry:</u> The learner will be able to use enquiry skills to investigate the past and present.	Understanding the impact of science and technology: Suggests ways to improve technological products or processes and to minimise negative effects on the environment
<b>Activity 4.</b> Learners are required to cost out a recipe that is given to them by visiting their local supermarket. Each item is identified per Food Group and questions answered L/O 1 & 5	Mathematics	<b>Learning Outcome 1:</b> <u>Numbers, Operations &amp; Relationships:</u> The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems  <b>Learning Outcome 5:</b> <u>Data Handling:</u> The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions	Performs mental calculations involving addition, subtraction & multiplication  Uses simple data collection sheets & simple questionnaires in order to collect data to answer questions posed.

		and make predictions, and to interpret and determine chance variation	
<p><b>Activity 5.</b> Learners grow a single bean seed in a dish. Once it has grown the structure of the plant is assessed with questions being answered relevant to health, nutrition and the categorisation of plant parts.</p>	Natural Sciences	<p><b>Learning Outcome 1:</b> <u>Scientific Investigation:</u> The learner will be able to act confidently on curiosity about natural phenomena, and to investigate relationships and solve problems in scientific, technological &amp; environmental contexts</p> <p><b>Learning Outcome 2:</b> <u>Constructing Science Knowledge:</u> The learner will know and be able to interpret and apply scientific, technological and environmental knowledge</p>	<p>Conducts investigations &amp; collects data: conducts simple tests or surveys &amp; records observations or responses.</p> <p>Categorises information: Categorises objects and organisms by two variables</p>

**ACTIVITY ONE:** *In this LIFE ORIENTATION LESSON, learners are given a number of foods eaten daily by people and look at their ingredients – health issues are then discussed with further research being undertaken on the food products*

**By considering the ingredient content of foods eaten by people, learners are able to start to assess the nutritional value and potential health concerns that can develop from these ingredients)**

#### What to do:

- Visit the library and take out a number of books that talk about preservatives – ask the librarian to direct you to the food and health section, E numbers (you will find E numbers in the ingredients of all food products and displayed on the packaging), and books about health concerns. If possible, look up on the Internet about health concerns surrounding the food items listed below and their preservatives, colourants, and flavourants.
- Make copies of these for the children as resources to be used in the classroom
- Utilise this booklet for additional advice and direction on health issues/ concerns
- Bring in a number of items from your kitchen at home such as a loaf of bread, container of yoghurt, jam in a tin, margarine, peanut butter, a chocolate, biscuits and a bag of pasta.
- Hand these out to the learners who have already been divided up into smaller working groups in the classroom.
- In their groups, the children must discuss the different foods we eat, the food groups and the food pyramid. Then develop the discussions onto unhealthy foods and food choices. *(teacher, you should develop a series of questions for the learners),*
- With the assistance of all the resource materials you have supplied, give the set questions to the learners to now research the information from the resource materials supplied to find the answers.

#### Questions

1. Of the foods given – group them into their different food groups and list them
2. Which of the foods would you group as healthy and which as non-healthy? State why.
3. How many of the foods have preservatives in them. List the different types of preservatives

4. What is an “E Number”?
5. Do any of your foods have E Numbers listed? If so, then look up what they are in the literature supplied. What does that E Number represent and what effects could it have on you?
6. On the internet (if available) look up the negative effects of preservatives and list them.
7. What are colourants used for?
8. Which of the ingredients shown in your foods are flavourants? List them. (*MSG*)
9. Which food supplied has no preservatives in it and why? (*Pasta*)
10. If you had to choose one food group that could not have anything added to it, in its natural state, to make it unhealthy – which food group would it be? (*Fruit & Vegetables*)
11. What is your favourite, healthy snack?
12. Why is it important to understand what is in the food that we are eating? Discuss and write a short paragraph.
13. Has our food always contained added/ extra ingredients other than that which was found naturally within the food? Discuss in your group and write down your answer.

**Criteria to assess learners during this – Life Orientation lesson**

Criteria	Exceeded requirements of the Learning Outcome	Satisfied requirements of the Learning Outcome	Partially satisfied requirements of the Learning Outcome	Not satisfied requirements of the Learning Outcome
The learner was able to interpret food labels				
The learner was able to & critically discuss health effects of listed ingredients				
Learner was able to use enquiry skills to investigate the past and present				

**ACTIVITY TWO:** In this **ECONOMIC & MANAGEMENT SCIENCES** lesson learners use what they have learned from activity one to develop an advertising campaign through a competition on how to encourage children to eat healthily. They will then make posters for display around the classroom/school

**What to do:**

- In the same groups from activity one, give each group an A1 piece of paper which the group must use to create a poster to be used as an advertising campaign encouraging children to eat healthily.
- Magazines can be cut up and used as well as hand drawings/ writing.
- Use these posters to create and include a competition around health issues, which the children should work on and develop as a group. Prizes could then be considered for 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> places.
- These posters can then be displayed around the classroom and introduced at assembly to the rest of the school.
- Obtain additional resources that the learners can use in the creation of their competition posters (glue, scissors, magazines, pencil crayons, glitter etc.) After this activity has taken place discussions should be held in the classroom around how businesses can impact on the choices consumers have for healthy foods and food choices.
- Learners are then also asked to discuss in what way they could start up a business based on healthy eating principles (similar to those of eating places such as “*Juicy Lucy*”), that would potentially be a success. How could they develop their own brand of food chains?
- Small business ventures that are currently running in the local community are also discussed.

**Criteria to assess learners during this Economic & Management Science lesson**

Criteria	Exceeded requirements of the Learning Outcome	Satisfied requirements of the Learning Outcome	Partially satisfied requirements of the Learning Outcome	Not satisfied requirements of the Learning Outcome
The learner identifies a variety of possible business opportunities in the community				
The learner was able to demonstrate entrepreneurial knowledge, skills and attitudes				
The learner designs an advertising campaign to promote a product that could/ will generate a profit.				

**ACTIVITY THREE:** In this **SOCIAL SCIENCE - HISTORY** lesson issues relating to foods eaten in the past are discussed compared to how people eat today. Learners look at what has changed and what effect this has had on people today. An article for general reading is supplied for the learners to reference information.

**What to do:**

- Keeping the learners in their groups, supply each group with a couple of copies of the Article ‘You will never go hungry’ Allow them to read through it and then ask questions relating to the article about nutritional dietary changes from past to present and consider the health implications thereof.
- Ask each learner to summarise the key issues of the story in a paragraph.
- Discuss ways that learners can assist in improving their own dietary approaches/ needs

**Criteria to assess learners during this Social Science - History lessons**

Criteria	Exceeded requirements of the Learning Outcome	Satisfied requirements of the Learning Outcome	Partially satisfied requirements of the Learning Outcome	Not satisfied requirements of the Learning Outcome
The learner will be able to use enquiry skills to investigate the past and present.				
The learner was able to suggest ways to improve current dietary habits through learning from the past				

**'You will never go hungry'**

**By Laura Melville**

**Local pensioner Gladys Ndwandwa knows how to make a meal out of plants some people call weeds. She spoke to LAURA MELVILLE.**

Gladys Ndwandwa's kitchen is cool and quiet. On her fridge and walls are posters of the healing benefits of various herbs and, in her cupboards, used ice-cream containers spill seeds as they wait for the season they'll be needed. Pumpkin seeds, amaranthus seeds, seeds for all dishes and ailments.

Ndwandwa is an informal advocate for the use of traditional herbs and plants, and the Padca volunteer would like to see more households growing these plants to combat poor nutrition, especially among the elderly whose pensions can't keep pace with rising food prices.

"My grandson was in here the other day and I had to tell him not to worry my seeds," she says in her Dambuza kitchen.

It is history repeating itself. Ndwandwa's grandmother, Thabita Mngoma, was well used to chasing grandchildren out of her own collection of seeds in nearby Malimyame, Edendale.

"She'd get cross when we'd take the black morojo (mfino) seeds and stick them all over our faces. They'd stick to you the whole day. She'd say, 'those are precious seeds. If you are clever,' she'd tell us, 'you will never go hungry because God has provided so much'."

It wasn't just her seeds that were under invasion. Ndwandwa remembers her grandmother's attempts to keep her grandchildren out of the grapes.

"She hung a sack under the vines but there would always be small holes where we'd tried to poke through to see what was happening. So she cleared the soil underneath and raked it so she could spot footprints. 'That's your foot,' she would tell the culprit."

Ndwandwa assimilated her grandmother's lore, in part because she was the last-born child and stayed with her gran a lot. In the garden at 5 am, Mngoma would elaborate on the healing properties of dandelion, black jack, periwinkle and other plants. One of Ndwandwa's personal favourites is comfrey, used as a poultice, the subject of an entire book she read before retiring from working as a senior psychiatric nurse at Fort Napier Hospital.

"I said at the time that if only we could print extracts and drop them out of a helicopter for everyone to read, such are its uses." Arthritis, bruising, chapped skin and fractures are some of the ailments comfrey can alleviate.

The names of the various plants trip off Ndwandwa's tongue, along with their uses: bulbinella for an antiseptic, aloe vera for high blood pressure, an infusion of black jack to wash sore eyes.

"All these plants are still being grown," she says. "Even if you see a modern house, if there is a little bit of space, you will see pumpkin shoots."

Not all pumpkins produce shoots that are edible. The Flat White Boer doesn't, nor does butternut. The African pumpkin (mpampini) does, and the entire plant has many uses. Boiling the seeds and drinking the water expels worms in a child. Boiling the chopped, washed shoots and adding mealie-meal, makes a dish that can be consumed at any time.

"In the rural areas, there is no breakfast, lunch and supper. People wake early to work in the fields and a young girl will remain behind to cook the mfino and pap, and bring it to the fields. Another favourite is pumpkin flesh or melon, boiled up, sometimes adding sugar, and mixed with mealie-meal. In the evening, the meal will depend on the season. Now, it is early December, so there won't be beans, unless

you planted green beans in September. But you would have dried sugar beans to add to mealie-meal to make isijabane, or you could make a curry with potato, onion and shaladi.”

Shaladi is another name for onion chives. It has tubular leaves and purple flowers. It is also a natural antispetic and can be eaten with different dishes.

“There are different mfinos and different ways to cook them. Mfino and steamed bread, with sliced tomato, makes a good lunch. You boil a little bit of water on the stove and put in the mfino — it must be dried well. Turn it quickly, adding onion and spring onion. Mix together a dough of milk, salt, yeast and flour and, after it has proved, place it in an enamel bowl within a pot of boiling water. Cover it with a lid and let it steam. Cut the steamed bread and serve with the mfino and sliced tomato.”

Ndwandwa is adamant about not using plastic, which, she says, leaks out toxins into the food. This has been the debate of many conversations at church on Saturdays, when, as Seventh Day Adventists, the congregation spends the whole day at church, talking and preparing lunch, and exchanging knowledge.

Ndwandwa’s primary duty, however, is the production of the communion wine, which she presses from grapes, a duty her grandmother, the wife of a Methodist minister, is remembered for.

Thabita Mngoma used a cranked metal flour-sifter from the war to press her grapes. Ndwandwa, who was born in 1940, also used it “but eventually I bought a juice extractor. If you can’t get grapes, you can use raisons.”

Today, the pensioner waits for late grapes to be advertised cheaply as she no longer grows grapes. Other cures are also bought, such as black lentils. Boiled to form a watery soup, lentils neutralise an acidic stomach. The dish of boiled melon flesh, isijingi, is also good for this.

“The other day I picked some peaches from my tree and took them to my aunt and she told me, ‘you remind me of my mother’.”

Ndwandwa’s aunt, Virginia, was born in 1910; she, too, regards traditional cures highly. A breakdown in passing this knowledge on is one of the trends Ndwandwa deplores in modern life and it is a topic she recently touched on while speaking on the “sandwich generation” during a lunch-time radio chat show on November 27, where she was invited to take part in a debate along with Padca social work manager Jo-Anne Stevens-O’Connor.

“In the traditional household, you had gogo [grandmother] and mkhulu [grandfather], mom and dad, and the uncles and aunts all living together. Everyone would be fed from one pot. But now a girl will move out to stay with her boyfriend in a flat in town. She would be employed and there is no one to look after the baby. The gogo knows all the old remedies, she knows to put a baby on her back to put pressure on the naval, to dispel gas. The girl is missing out on gogo’s support, her mother’s advice and the stimulation her nephews and nieces can give to the baby by playing with him.

“Children also need to eat together because they are fussy eaters. My granny would put out a tray of different foods — mealies and pumpkin and other vegetables — and ring the bell to call us. Afterwards, we’d have grape juice.”

Today, Ndwandwa’s neighbours know to come knocking at her door for seeds. Outside her back door is a riot of mfino, dandelion and black jack, all of which are allowed to run to seed.

“Some people call these weeds,” she says as we move through them.

*Published: 11 January 2007*



**Criteria to assess learners during this Mathematics lesson**

Criteria	Exceeded requirements of the Learning Outcome	Satisfied requirements of the Learning Outcome	Partially satisfied requirements of the Learning Outcome	Not satisfied requirements of the Learning Outcome
The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems				
The learner performed mental calculations involving addition, subtraction & multiplication				
The learner used a simple data collection sheet &/ or simple questionnaires in order to collect data to answer questions posed				
The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation				

**ACTIVITY FIVE:** A **NATURAL SCIENCES** activity where learners grow a single bean seed in a dish. Once it has grown the structure of the plant is considered with questions being answered relevant to health, nutrition and the categorisation of plant parts.

**What to do:**

- In preparation for the lesson, get the learners to grow their own bean seeds in the classroom. (Start growing the seed two weeks prior to the lesson) Get sufficient bean seeds so that each child will obtain one, and buy a bag or two of cotton wool;
- Place sufficient saucers on the window-sill in the classroom (e.g.: one per group) so that every bean will be able to be placed on a saucer. (The saucer must receive sunlight for most of the day – not necessarily direct sunlight.).
- Place a layer of cotton wool on the base of each saucer and wet it thoroughly. Then place on top of the cotton wool the bean seeds;
- Ensure that the cotton wool is kept moist, not wet, at all times. Delegate this responsibility to each group (each child should be responsible)
- Once the seeds have germinated and have produced their first set of leaves, conduct a lesson on the parts of a plant.
- Discuss in the class the value of vegetables from a nutritional viewpoint and discuss the types of consumers (herbivore/ vegetarian, omnivore, carnivore) in terms of dietary habits.

**Criteria to assess learners during this Natural Sciences lesson**

Criteria	Exceeded requirements of the Learning Outcome	Satisfied requirements of the Learning Outcome	Partially satisfied requirements of the Learning Outcome	Not satisfied requirements of the Learning Outcome	Exceeded requirements of the Learning Outcome
The learner will be able to act confidently on curiosity about natural phenomena, and to investigate relationships and solve problems in scientific, technological & environmental contexts					
The learner was able to conduct an investigation & collects data: conducts simple tests or surveys & records observations or responses.					
Was the learner able to interpret and apply scientific, technological and environmental knowledge					
The learner was able to categorise information and objects by two variables					

## **Support Services**

### **Resource Materials**

There are many resource materials available through the Wildlife and Environment Society of South Africa's Share-Net office. These resources are affordable and the costs include postage. Some of the more relevant resource materials in support of this booklet include:

<b>Resources</b>
My Nursery – How to set up a community nursery
Health Gardening – A guide to growing food for life
Learning to Grow series (Books 1, 2 and 3)
The Landcare Permaculture Booklet
The Environmental Health Magazine (6 packs)
Learning support materials for rural health & sanitation
Household Environmental Management
The AIDS Healers
Lesson Planning for a Healthy Environment
Soil conservation through Indigenous Knowledge
Knowing and Growing Muthi Plants
The Greening Booklet all about Trees
Greening SA Schools – Teacher support pack
Indigenous Knowledge pack
How To Series (8packs)

*To contact Share-Net to order resources or to find out prices please contact [sharenet@wessa.co.za](mailto:sharenet@wessa.co.za) or call 033-3303931*

### **Government Departments**

These are some of the government departments that could assist with advice or support in agriculture, tourism, marketing opportunities, forestry and environmental affairs. They will be found within each province and these departments will be able to assist you with contact numbers closest to where you are based.

- **Department of Agriculture and Environmental Affairs (DAEA)** 033-347 1820
- **Department of Environmental Affairs & Tourism (DEAT)** 012-310 3528
- **Department of Water Affairs and Forestry (DWAF)** 021-950 7271
- **Working for Water programme** 021-441 2700
- **Department of Tourism, Env. & Economic Affairs (DTEEA)** 051-400 4825
- **Durban Botanical Gardens** 031-309 1170
- **Cedara Agricultural Departments** 033-355 9100

### **Non-Government. Departments**

- **Food & Trees for Africa** [jpark@trees.org.za](mailto:jpark@trees.org.za) 011-803 9750  
Food & Trees for Africa (FTFA) is the national food gardening and greening public benefit organisation working with underserved communities and schools to develop, manage and promote greening, sustainable natural resource management and food gardening. FTFA's programmes contribute to improved health and nutrition, enhanced environments, skills development and a better quality of life. See [www.trees.co.za](http://www.trees.co.za) for more information.

- **Rainman Landcare Foundation** [auerbach@iafrica.com](mailto:auerbach@iafrica.com) 031-783 4412  
Courses are offered for farmers, agricultural advisers and landcare specialists. Our standard courses cover the four major technical innovations which we have researched successfully on Bachs Fen Ecological research Farm: increasing rainfall infiltration using swales (dead-level bunds) reducing evaporation and soil erosion using mulches increasing soil water retention and improving nutrient cycling using compost managing storm water run off and purifying and storing this water using wetlands.

- **Outreach Greening** **eysell@sanbi.org** **021-843 5000**  
 “The South African National Biodiversity Institute (SANBI) established indigenous gardens at schools in the areas near the Pretoria, Walter Sisulu, Lowveld, Free State and Kirstenbosch National Botanical Gardens, and in the Eastern Cape. These gardens focus on the use of indigenous water-wise plants. The aim is to use the indigenous garden for teaching and learning. Many of the plants selected are used for their cultural value and medicinal use.”
- **Garden-based Programmes** **mathaba@sanbi.org** **012-843 5000**  
 “The South African National Biodiversity Institute (SANBI) established indigenous gardens at schools in the areas near the Pretoria, Walter Sisulu, Lowveld, Free State and Kirstenbosch National Botanical Gardens, and in the Eastern Cape. These gardens focus on the use of indigenous water-wise plants. The aim is to use the indigenous garden for teaching and learning. Many of the plants selected are used for their cultural value and medicinal use.”
- **PELUM** **salomon@ukzn.ac.za** **033-260 6275/ or 8**  
 Known as the Participatory Ecological Landuse Management Association, PELUM deals with issues such as the rights of small-scale farmers, issues on Biotechnology, GMO’s and industrial farming etc.
- **CINDI (Children in Distress)** **info@cindi.org.za** **033-345 7994**  
 The Children in Distress (CINDI) Network was founded in Pietermaritzburg in 1996 and brings together over 100 organisations concerned with the impact of HIV and AIDS on children in KZN. Our mission is to foster a spirit of Ubuntu among Members, encourage collaboration, enhance mastery of Members, co-ordinate research, and unlock resource opportunities. Members of the public are welcome to contact CINDI on 033 345 7994 for referrals to Member organisations that provide services to vulnerable children. For information and resource materials visit their website: [www.cindi.org.za](http://www.cindi.org.za)

## **Glossary of Terms**

### Glycemic Index

A ranking system for carbohydrates based on their effect on blood glucose levels in the first two hours. It compares carbohydrates gram for gram in individual foods, providing a numerical, evidence-based index of postprandial (post-meal) glycemia

### HIV AIDS

According to the USA definition, one has AIDS if he/she is infected with HIV and present with one of the following:

A CD4+ T-cell count below 200 cells/μl (or a CD4+ T-cell percentage of total lymphocytes of less than 14%).

or he/she has one of the following defining illnesses:

- Candidiasis of bronchi, trachea, or lungs
- Candidiasis esophageal
- Cervical cancer (invasive)
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal for longer than 1 month
- Cytomegalovirus disease (other than liver, spleen or lymph nodes)
- Encephalopathy (HIV-related)
- Herpes simplex: chronic ulcer(s) (for more than 1 month); or bronchitis, pneumonitis, or esophagitis
- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal (for more than 1 month)

- Kaposi's sarcoma
- Lymphoma Burkitt's, immunoblastic or primary brain ?
- Mycobacterium avium complex
- Mycobacterium, other species, disseminated or extrapulmonary
- Pneumocystis carinii pneumonia
- Pneumonia (recurrent)
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (recurrent)
- Toxoplasmosis of the brain
- Tuberculosis
- Wasting syndrome due to HIV

### Digestive system

Also called the **digestive tract**, **alimentary canal**, or **gut**, is the system of organs within multicellular animals that takes in food, digests it to extract energy and nutrients, and expels the remaining waste. The major functions of the GI tract are digestion and excretion. This system starts from the mouth and ends at the rectum.

### Vegetarian/ Vegetarianism

**Vegetarianism** is the practice of not consuming meat, with or without the use of other animal derivatives, such as dairy products or eggs. Some vegetarians choose to also refrain from wearing clothing involving the death of animals, such as leather, silk and fur. Veganism, sometimes called "strict vegetarianism", excludes all animal products from diet and attire, whether or not this involves the actual death of an animal (dairy, eggs, honey, wool and down feathers). Vegetarians have varied motivations including religious, financial, ethical, environmental, and health concerns

### pH

**pH** is a measure of the acidity and the basicity/alkalinity of a solution in terms of activity of hydrogen ( $H^+$ ).

### Candida/ Candidiasis

**Candidiasis**, commonly called **yeast infection** or **thrush**, is a fungal infection of any of the *Candida* species, of which *Candida albicans* is the most common.

### Cystitis

**Cystitis** is inflammation of the urinary bladder. The condition more often affects women, but can affect either sex and all age groups

### Urinary Tract Infection (UTI)

A **urinary tract infection (UTI)** is a bacterial infection that affects any part of the urinary tract. Although urine contains a variety of fluids, salts, and waste products, it usually does not have bacteria in it. When bacteria get into the bladder or kidney and multiply in the urine, they cause a UTI. The most common type of UTI is a bladder infection which is also often called cystitis

### Indigenous plants

A plant occurring naturally in an area and not introduced by people.

### Crohn's Disease

**Crohn's disease** (also known as **regional enteritis**) is a chronic, episodic, inflammatory condition of the gastrointestinal tract characterized by transmural inflammation (affecting the entire wall of the involved bowel) and skip lesions (areas of inflammation with areas of normal lining in between). Crohn's disease is a type of inflammatory bowel disease (IBD) and can affect any part of the gastrointestinal tract from mouth to anus; as a result, the symptoms of Crohn's disease can vary between affected individuals

### Diverticulitis

**Diverticulitis** is a common disease of the bowel, in particular the large intestine. Diverticulitis develops from diverticulosis, which involves the formation of pouches (diverticula) on the outside of the colon. Diverticulitis results if one of these diverticula becomes inflamed.

### Diabetes

**Diabetes mellitus type 2** (formerly called diabetes mellitus type II, non-insulin-dependent diabetes (NIDDM), obesity related diabetes, or adult-onset diabetes) is a metabolic disorder that is primarily characterised by insulin resistance, relative insulin deficiency, and hyperglycemia. It is presently incurable. It is rapidly increasing in the developed world, and there is some evidence that this pattern will be followed in much of the rest of the world in coming years

### Coeliac Disease

**Coeliac disease** or **celiac disease** is an autoimmune disorder of the small bowel that occurs in genetically predisposed individuals in all age groups after early infancy

### Irritable Bowel Syndrome

In gastroenterology, **irritable bowel syndrome (IBS)** or **spastic colon** is a functional bowel disorder characterised by abdominal pain and changes in bowel habits which are not associated with any abnormalities seen on routine clinical testing. It is fairly common and makes up 20–50% of visits to gastroenterologists. Lower abdominal pain, and bloating associated with alteration of bowel habits and abdominal discomfort relieved with defecation are the most frequent symptoms

### Allergies

A **food allergy** is an immunologic response to a food protein. The most common food allergies in adults are shellfish, peanuts, tree nuts, sesame seeds, fish, and eggs, and the most common food allergies present in children are milk, eggs, and peanuts.

At this time, there is no cure for food allergies. Treatment consists of avoidance diets, where the allergic person avoids any and all forms of the food that they are allergic to

### Food Intolerance

**Food intolerance** or **food sensitivity** is a negative reaction to a food that is not related to the immune system or to food poisoning. It is caused by the absence of specific chemicals or enzymes needed to digest a food substance.

Symptoms of food intolerance vary greatly, and can be mistaken for the symptoms of an allergy. It is also sometimes difficult to determine the offending food because the immune system does not react with an intolerance. A deficiency in digestive enzymes can cause some types of food intolerances. Lactose intolerance is a result of the body not producing enough lactase used to break down the lactose in milk. Gluten intolerance results in damage to villi in the small intestine, which makes it difficult for the body to absorb water and nutrients from foods.

Symptoms of food intolerance include gas, intermittent diarrhea, constipation, irritable bowel syndrome, skin rashes, migraine headaches, and an unproductive cough.

### Saturated fats

**Saturated fat** is fat that consists of triglycerides containing only saturated fatty acids. Foods that contain a high proportion of saturated fat are butter, ghee, suet, tallow, lard, coconut oil, cottonseed oil, and palm kernel oil, dairy products (especially cream and cheese), meat, and some prepared foods. Saturated fatty acids raise total and low-density lipoprotein (LDL) cholesterol. Diets high in saturated fat are correlated with an increased incidence of atherosclerosis and coronary heart disease according to a number of studies

### Unsaturated Fats

An **unsaturated fat** is a fat or fatty acid in which there are one or more double bonds in the fatty acid chain. Although polyunsaturated fats are protective against cardiac arrhythmias a study of post-menopausal women with a relatively low fat intake showed that polyunsaturated fat was positively associated with progression of coronary atherosclerosis, whereas monounsaturated fat was not. Foods containing unsaturated fats include avocado, nuts, and vegetable oils such as soybean, canola, and olive oils. Meat products contain both saturated and unsaturated fats. Although unsaturated fats are healthier than saturated fats, the Food and Drug Administration (FDA) recommendation states that the amount of unsaturated fat consumed should not exceed 30% of one's daily caloric intake (or 67 grams given a 2000 calorie diet).

Foods containing monounsaturated fats lower LDL cholesterol. Good sources of monounsaturated fats include: Avocados , Canola oil , Cereal , Flaxseed oil , Grapeseed oil , Nut oil , Oatmeal , Olive oil , Popcorn , Sesame oil , Sunflower oil , Whole grain wheat.

### **References**

- Wikipaedia – free encyclopaedia

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