

## TERM ONE REVISION WORKBOOK

DO NOT STICK INTO YOUR NS BOOKS. KEEP IT IN YOUR FLIP FILE.

ANSWER ALL ACTIVITIES ON THE WORKSHEETS

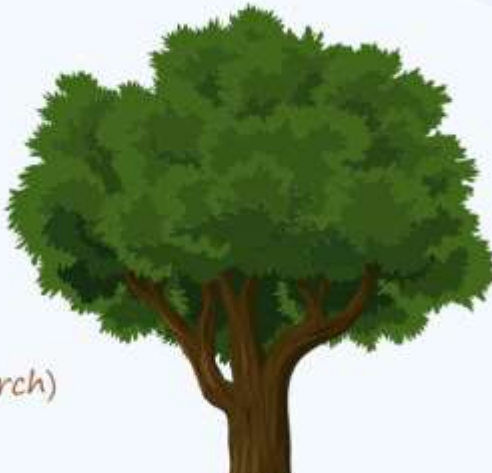
Instructions: Complete as much of the work as possible as it is all term one revision

Week one – four:

Plants and people

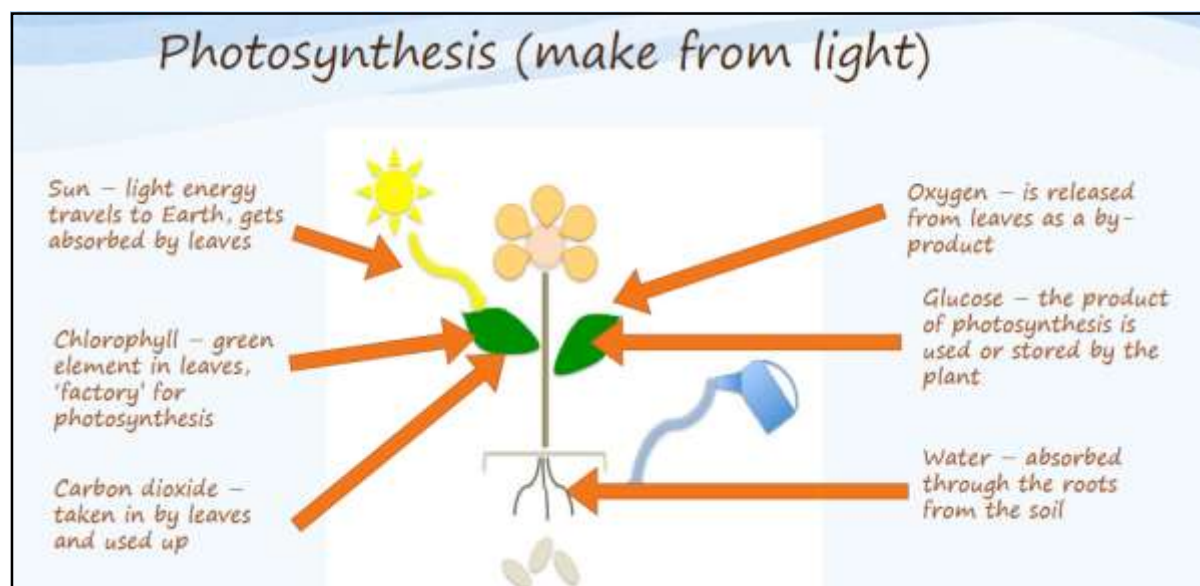
### Plants and People

- All energy comes from the Sun
- Only plants can use the light energy
- Chlorophyll in green leaves uses the light energy
- Chlorophyll makes glucose sugar
- Plants store glucose as carbohydrate (starch)
- Plants also produce oxygen



Photosynthesis:

Do you remember what Photosynthesis means?




## Food from plants:

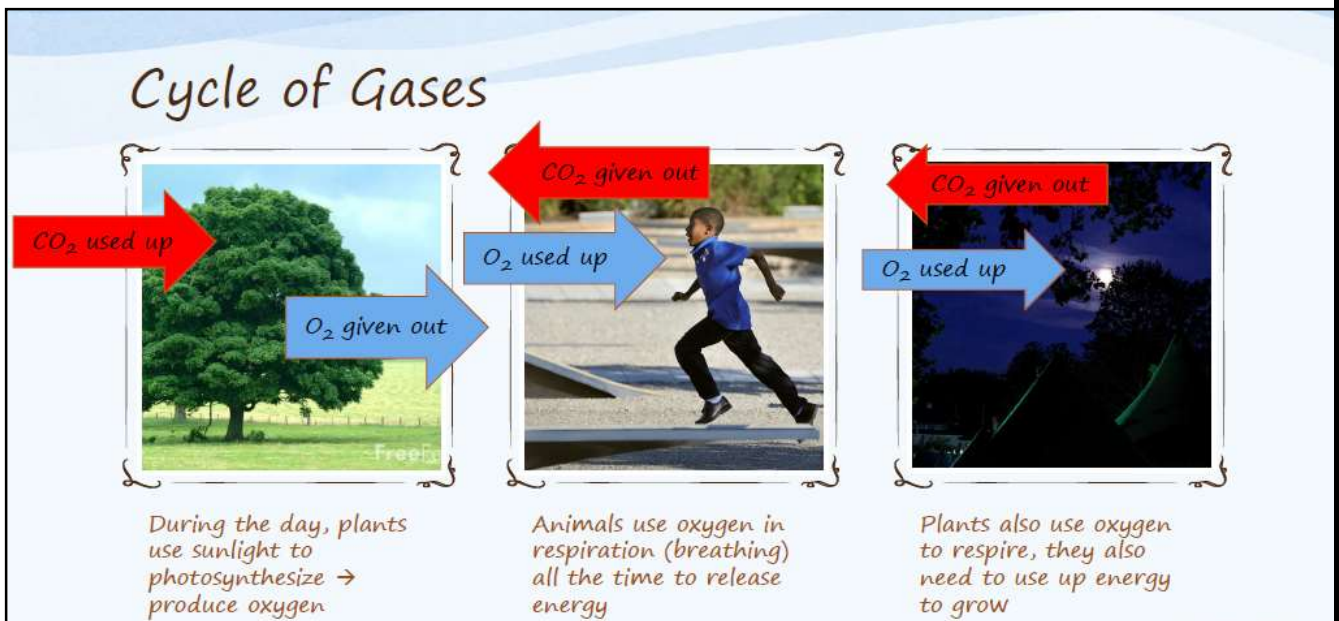
### Food from plants

- Plants convert energy to food
- People and animals eat plants to get energy
- Different plants store the energy differently
- All parts of plants can be eaten

Root	Stem	Leaf	Seed	Fruit	Flower
Potato	Celery	Cabbage	Rice	Apple	Cauliflower
Beetroot	Sugar cane	Lettuce	Mustard seeds	Pumpkin	Broccoli
Carrot	asparagus	parsley	Mielie	tomato	nasturtium



## Oxygen cycle:



## Plants and air:

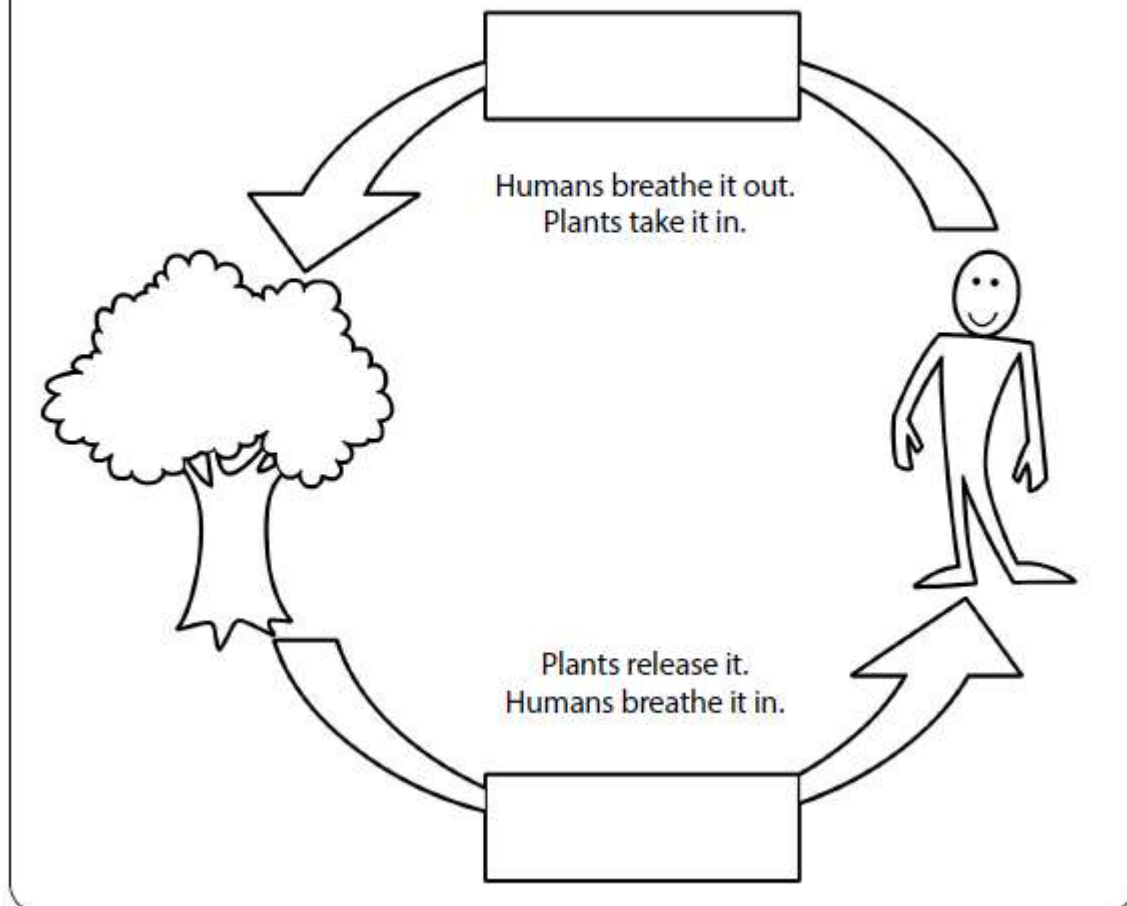
In the process of photosynthesis, the plant **takes in** Carbon dioxide and produces, or **releases** Oxygen. These gases flow into and out of special cells on the leaf surface called **stomata**.

Plants take in Carbon dioxide and release Oxygen. Humans and animals **breathe in** Oxygen and **release** Carbon dioxide. So we help the plants survive and the plants help us to survive.

**Oxygen** is a very important gas to all animals and humans. We cannot live without it. Our blood transports the oxygen we breathe in, to all of the different parts of our bodies so that they can work properly. Without oxygen there is no life.

**Carbon dioxide** is the gas we breathe out. It is made in our bodies as a by-product of all of the body's processes.

ACTIVITY: RECORD THE NAME OF THE GASES IN THE DIAGRAM BELOW.



Plants and food:

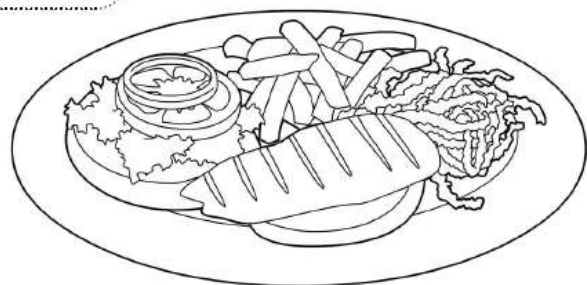
ACTIVITY: WHERE DOES FOOD COME FROM?

Find FOUR pictures of a meal or a plate of food. Paste them into your book.

Write down what food items make up the meal in each of the pictures you selected.

The food we eat either comes from plants or from animals that eat plants.

Plants are called **producers** because they produce or **make their own food**. They do this through a process called **photosynthesis**.



USE TABLE ON THE NEXT PAGE


Photosynthesis:



### Photosynthesis

The root word in “**photosynthesis**” is “**photo**” which means **light**. This makes it easier to remember that plants need light to make food. The light comes from the Sun.

Green plants use **sunlight** (energy), **water** (from the soil) and **carbon dioxide** (a gas in the air we breathe out).

Green plants have a chemical called **chlorophyll** in their leaves. The sunlight reacts with this chemical giving off all the energy that is needed for the process. In the process, the carbon dioxide and water mix together and change to make **glucose** (which is the plant’s food) and **oxygen**.

## Plants and food / iodine starch test:

### **Plants and food**

A plant's food, as we have discovered, is called **glucose**. Glucose is a simple sugar and gives the plant all the energy it needs. The plant doesn't use all of this food at once, but stores some of it for later. The glucose has to change for the plant to store it. It is changed and stored in a new form called **starch**.

We can test if a food has starch in it using an **indicator** called **iodine**. Iodine is called an indicator because it can "indicate" or tell us, if a food has starch in it or not. It does this by **changing colour** or **staying the same colour**.

If a food **has starch** in it, the iodine will change from a yellow-brown colour to a **blue-black colour**. If a food **doesn't have starch** in it, it stays a **yellow-brown colour**.

(WORKSHEETS ADAPTED FROM THE E CLASSROOM WORKSHEETS)

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ANSWER ALL ACTIVITIES ON THE WORKSHEETS

Food groups in the South African food guide:

Activity: matching pictures with the correct description

Food can be grouped according to the main nutrients the food contains and their functions in the body. The food groups are shown in the diagram of the South African Food Guide below.

A. Match the numbers to the correct description below.

- carbohydrates for energy
- protein for growth and repair
- vitamins and minerals for good health
- oils and fats for providing insulation and protection for nerves and organs
- dairy for healthy bones and teeth

B. Sort the list of foods shown in the word bank into five different food groups. Draw a table as shown below in your class workbooks. Some foods may fit into more than one group.

### WORD BANK

*lentils apples bread mince pasta chicken green beans cabbage eggs ish  
peanut butter spinach butter tomatoes broccoli nuts carrots milk bananas  
meat strawberries cheese rice mealie meal dried beans  
maas breakfast cereal*

Starchy foods/ Carbs	Dairy	Vitamins and minerals	Proteins	Oils and fats


Week 5: Nutrition

Different food groups:

<b>Food in Groups</b>	<b>Group</b>	<b>Foods</b>	<b>Purpose</b>
<p>All food contains nutrients</p> <p>We need to eat food to get those nutrients into our bodies</p> <p>Different foods contain different nutrients</p> <p>Most important is a balance of different foods</p>	<b>Carbohydrates</b>	Pasta, rice, potatoes, bread	Source of energy
	<b>Proteins</b>	Meats, eggs, nuts, legumes	Growing and repairing tissue
	<b>Vitamins and minerals</b>	Fruits and vegetables	General health, immune system, teeth and bones
	<b>Fats and oils</b>	Junk food, avocado, nuts, fish	Protection around organs, insulation

A balanced diet:

### Balanced Diet

- To stay healthy we must eat a variety of foods
- Plenty of water and fibre must also be included
- Too much of one thing can cause problems
- Cost, personal choice, religion and environmental factors can all affect a persons diet

A pie chart illustrating the components of a balanced diet. The chart is divided into four segments: Carbohydrates (the largest segment, colored light green), Protein (colored orange), Vit & Min (colored light green), and Fat & Oil (colored light orange).

Food additives:

- Processed foods usually have chemicals added to them to make them:
  - Look better → colourants (E-numbers, tartrazine)
  - Taste better → flavourants (salt, MSG)
  - Last longer → preservatives (salt, sodium salts)
- These are not usually very good for you and can be very harmful
- Natural alternatives can be used

Dietary problems that can occur due to bad food choices:

Disease	Cause	Symptoms	Prevention
Tooth decay	Too much sugar	Holes in teeth, sore gums, loose teeth	Clean teeth well, cut back on sugar
Obesity	Too much sugar, fats and oils	Very overweight, becoming immobile, heart disease	Balanced diet, regular exercise, cut back on sugar, fats and oils
Diabetes	Possibly genetic, too much sugar	Weight loss, weeing lots, feeling faint	Control sugar intake, exercise
Rickets	Too little calcium	Soft bones, bent legs	Provide balanced diet, vitamin C and calcium
Kwashiorkor	Too much carb	Skinny limbs, swollen belly	Provide protein

Guidelines for healthy eating:

**Eating 3 mixed meals\* a day will give your body all the nutrients it needs to stay healthy.**  
\* Mixed meals: 2-3 food items from different food groups.

**Exercise vigorously for 30 minutes every day.**  
This helps to keep you at a healthy weight, makes your heart, bones and muscles strong, and relieves stress.

**Choose unrefined starches like whole grains and sweet potatoes for sustained energy and good digestion.**

**Have at least 5 portions of vegetables and fruit a day to help your body fight disease and infections.**



	<p><b>Adding legumes or pulses to a meal helps you to feel fuller for longer. These foods also help to protect you against many lifestyle diseases.</b></p>	
	<p><b>Three portions of dairy a day will help to keep your bones strong and your teeth healthy. Eating dairy also helps you to manage your weight and keep your blood pressure in check. A portion of dairy is:</b></p> <p>1 cup of milk (250 ml) 1 cup of <i>amasi</i> (200 ml) 2 small tubs of yoghurt (2x100 g)</p>	
	<p><b>A palm-sized portion of meat once a day helps you grow and keeps your muscles strong</b></p>	
	<p><b>Have 6–8 glasses of water every day so that your body can work at its best.</b></p>	
	<p><b>By not eating too much fat you can keep your weight in check. Vegetable fats are better for your heart and brain health than hard fats.</b></p>	

	<p><b>To prevent tooth decay, weight gain and diabetes, limit your sugar intake to less than 9 teaspoons a day. This includes sugar that hides in foods such as sweets, biscuits, sauces, cereals and soft drinks.</b></p>	
	<p><b>Do not use more than 1 teaspoon of salt a day to reduce your risk of high blood pressure and stroke.</b></p>	

The correct food portions for a healthy diet:

Starchy foods/ carbohydrates:

We should try to have starchy foods with every meal. Porridge made from fortified maize, sorghum or oats is a good idea for breakfast, choose wholewheat bread or sweet potato at lunch, and have rice or a baked potato at dinner.

**Portion size** depends on a person's energy needs. Teenagers and people who exercise a lot or do physical labour should generally have about 1½–2 cups of starchy foods on a plate. People who want to lose weight should best have only about ½–1 cup of starchy food on their plate.

## Fruit and vegetables:

We should try to eat at least 5 fist-sized portions of vegetables and fruit a day. We can have vegetables raw or cooked, for example cooked vegetables with dinner or a salad as part of lunch. Fresh or dried fruit is a healthy snack in a lunch box or to nibble on between meals.

Choosing vegetables and fruit that are in season is an affordable way to include them in the diet. We can also easily grow some vegetables in the garden or a container. If fruit is not readily available, choosing **seasonal** vegetables instead is a good idea.



### Dry beans, split peas, lentils and soya

These foods are generally well priced. Adding them to a meat dish can add nutritional value and so help to make our money go further. Split peas, beans and lentils all make hearty soups, beans are a popular choice with samp and baked beans can be added to a breakfast meal or eaten on toast. Because of their fibre and protein content, adding these **legumes** to a dish helps to keep us feeling fuller for longer.

## Dairy products:

Do you remember what is it called when you are allergic to dairy products?

Having 3–4 portions of milk or dairy every day gives us almost all the calcium we need. Teenagers especially should get enough dairy every day, because maximum bone development occurs during this time. A portion of this **food group** is:

- 1 cup of milk (250 ml)
- 1 cup of *amasi* (200 ml)
- 2 small tubs of yoghurt (2x 100 g)



Have some milk or *amasi* with your porridge or eat yoghurt with cereal or fruit at breakfast. A tub of yoghurt is a healthy on-the-go snack. A glass of milk or some chocolate milk after hard exercise is an excellent **recovery drink**. Many people also enjoy *amasi* with stiff porridge or as a tasty drink. Adding milk to soup or sauces gives a rich, creamy texture.



People who are **lactose intolerant** do not have to cut milk and dairy out of their diet. They can gradually build up their tolerance by having small amounts of milk at a time and having milk with other foods (e.g. adding milk to porridge). Fermented dairy products such as yoghurt and *amasi*, and full-cream milk rather than low-fat milk, are also generally better tolerated. Cheese contains almost no lactose. Many supermarkets sell lactose-free milk.

Fish, chicken, lean meats and eggs:

Meat can be eaten daily, but it can become expensive. To help your money go further, you can also choose other sources of protein, such as cheese, nuts, peanut butter or beans, on some days. When having meat, choose **lean** cuts and remember to trim any visible fat from meat and the skin from chicken. Eggs are a popular breakfast choice and a boiled egg is a healthy option for lunch. Tinned fish such as sardines, pilchards or tuna can be added to pasta or used as a tasty filling for sandwiches.



Water:

### Water

We should have 6–8 glasses (1.2–1.5 ℓ) of water every day. Freezing a bottle of water and adding it to a lunch box is a good way to make sure children stay well **hydrated** while at school. It is also important to make sure that children drink enough water during sport activities and on hot days, especially if they have to walk long distances to and from school.

Tap water is generally clean and safe. Water from a well, borehole or river should best be boiled and left to cool before use. Water can also be treated by adding 1 teaspoon of household bleach to 20 ℓ of water to kill any **germs**. Germs from water can cause **diarrhoea**, which can lead to severe **dehydration**.



Fats and oils, sugars and salt:

**Fats and oil**

We should try to not have more than 4–6 teaspoons of fat per day. This includes oil used for frying or cooking and spreads such as margarine or butter on sandwiches. Remember that there are many hidden fats in biscuits and processed meat.



**Sugar**

Current dietary guidelines advise that it is best to limit **free sugar** in our diet to no more than 6–9 teaspoons a day. This includes added sugar that hides in sweets, chocolates, biscuits, many sauces, ready meals and breakfast cereals. Add sugar to your food wisely and enjoy sugary foods and drinks only as occasional treats.

**Salt**

It is best to use only a little bit of salt when preparing food and to not add extra salt to our food at the table. Herbs and spices are good alternatives to bring out the flavour of food. Remember that soup powder, stock and processed meats contain lots of salt. We should try to limit our salt intake to about 1 teaspoon per day.

(ADAPTED FROM THE HEALTHY EATING GUIDE: TEACHERS GUIDE. GRADE 5 AND 6)

Activity:

Food diary.

Keep a food diary everyday recording everything you eat. Record it on a separate piece of paper, here is an example on the next page of how it a food diary can look like.

**7-Day Food Diary**

Week Starting \_\_\_\_\_

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Breakfast							
Snacks							
Lunch							
Snacks							
Dinner							
Snacks							
Physical Activity							
Fluid							

Activity: Food Labels



1. What information is given on the label?

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2. To which food group does drinking yoghurt belong?

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3. How should you store drinking yoghurt? Explain your answer.

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4. What is the calcium content of this drinking yoghurt?

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5. Does drinking yoghurt contain sugar? Why do you say so?

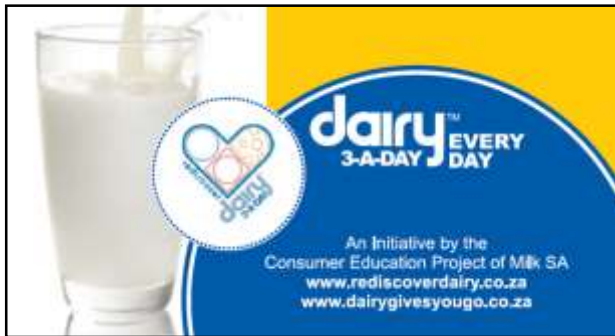
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6. Do you think drinking yoghurt can form part of a healthy diet?  
Give a reason for your answer.

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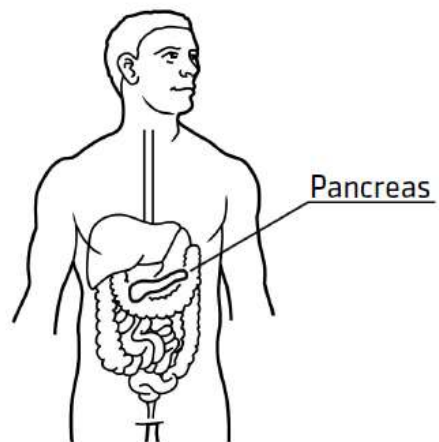


Good nutritional habits:

Diseases that can be caused by eating incorrectly:

Type two diabetes:

Did you know that diabetes is a big problem in the world, and especially in South Africa? And, did you know that an unhealthy diet is one of the causes of being overweight, and this can lead to diseases such as diabetes and heart disease? Having too much sugar is not good for our health and there are many foods that we eat and drink that have a very high sugar content, such as fizzy drinks, cakes, biscuits, sweets and chocolate. The problem is that weight gain caused by sugar and other unhealthy food makes a person's chance of getting Type 2 Diabetes much greater. To say it in another way, most people who get Diabetes Type 2 are overweight.



### **Are you wondering what Type 2 Diabetes is?**

Diabetes is a problem with your body that causes blood sugar (glucose) levels to rise higher than normal. If you have diabetes your body's pancreas does not make enough insulin and this causes the sugar in the blood to rise. The sugar cannot reach the muscles so they do not get enough energy and this means a person with diabetes can feel very tired all the time. If the blood sugar content is too high for too long it causes damage to the body in many ways. For example, it can damage the kidneys, nerves and eyes as well as double the risk of heart disease and stroke. It is bad news, right! Do you know anyone with Type 2 Diabetes?

### **What is the solution?**

Well, there is a way to avoid Type 2 Diabetes! Do your best to keep to a healthy body weight and participate in as much daily exercise as possible. Eat more vegetables, fruit, dried beans and peas, wholewheat cereals, wholegrain bread, brown rice and cut down on your intake of sugar and sugary foods as well as fatty or oily foods. Foods such as fizzy drinks, cakes, sweets, biscuits, donuts, pies and pastries should be seen as treats and not eaten every day. Exercise for at least 30 minutes every day - this includes walking, being active at break and stretching. A healthy approach to life will keep your blood sugar down.

Activity: Type 2 diabetes (you can use the internet to research for answers)

- a) What are the problems caused by high sugar intake?
- b) How can young people cut down on sugar?
- c) What exactly is Type 2 Diabetes and how does it damage the body?
- d) How can you personally start eating healthily to avoid Type 2 Diabetes?
- e) What causes Type 2 Diabetes? Draw a pie chart that shows the causes.
- f) Find out about World Diabetes Day.

Information adapted from:

Grade 6 Educator workbook: Natural Sciences and Technology

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School Club

Heart disease:



### **What is heart disease?**

The term "heart disease" is often called "cardiovascular disease". Cardiovascular disease generally refers to conditions that involve narrowed or blocked blood vessels that can lead to a heart attack, chest pain or stroke. Lifestyle changes such as a healthy diet and more exercise can make a huge difference in improving your heart health.

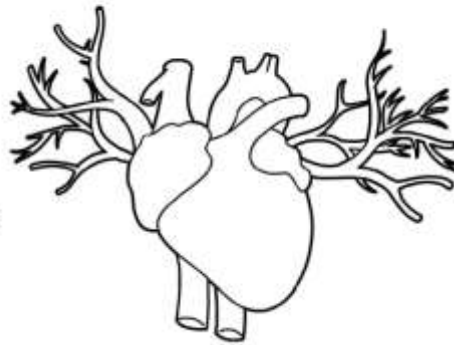
### **Obesity and heart disease**

Obesity is very common and goes beyond being simply overweight. The extra fat cells produce inflammation and affect various hormones, which increases your chance of getting chronic medical conditions such as diabetes and heart disease. To lose weight the healthy way takes time, but it involves a commitment to a healthier way of eating and a far more active lifestyle. The South African Food Guide teaches us how we should eat more vegetables, fruit, dried beans and peas, wholewheat cereals and breads while cutting down on high energy, high fat foods such as sugary drinks, sweets, chocolates, pies, pastries, donuts and cake.

### **Saturated fats and trans fats**

We need to know about these fats because excessive quantities of them are bad for the heart. Limiting our intake of these fats is very important.

The body uses saturated fatty acids to function, but we eat, and drink more than our bodies need. We need to limit them! Some of the foods that are rich in saturated fat include: butter, cream, ice cream, fat on meat, chicken skin, fat on pork, sausage, salami, polony, boerewors, fatty mutton and lamb.



Trans fats can make food taste good and so you find them in many processed foods such as hard block margarines, pastry, pies, biscuits, slap chips, and donuts. We need to take care that we do not eat too much of these foods so we can limit our trans fat intake.

Saturated fats and trans fats raise blood cholesterol levels. When buying food, read the nutrition labels and look for the healthy heart sign on the packaging.

### **Sodium and the heart**

This is another problem! Sodium – often simply referred to as salt – is a mineral found in nearly everything you eat and drink. Eating too much salt and salty foods such as cold meats, gravy, soup powder, crisps and biltong causes the body to keep or retain too much water, and this can lead to high blood pressure. The World Health Organisation suggests having no more than 2000mg of sodium a day - to put this into perspective, just one teaspoon of salt contains about 2300mg of sodium. When buying food look at the nutrition label to see how much sodium it has in it.



### **Looking after your heart**

What can we do to look after our hearts? We really need to! Your heart will like it if you do the following:

- Exercise every day: You need to exercise your heart by making it work harder for at least 30 minutes a day. Spend less time sitting still. Take a break while watching TV, playing computer games or doing your homework. Get up from your seat and move around
- Eat less fatty food: Too much fatty food will block up the arteries with fat and your heart will have to work harder and harder just to do its regular job of pumping blood round your body
- Eat more vegetables, fruits, wholegrains and legumes as these foods have lots of healthy vitamins, minerals and fibre to keep your heart healthy
- Drink lots of water every day rather than fizzy cooldrinks
- Make good choices as you grow older. You can choose not to smoke and not to drink too much alcohol. These all affect your heart negatively
- Whenever you can, buy more fresh produce rather than processed foods and read labels to learn about what you are putting in your body

Information adapted from: Grade 6 Educator workbook: Natural Sciences and Technology



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Week 6 – 8

Food processing:



### Need for processing

<u>WHY?</u>	→	<u>HOW?</u>
• Make it edible	→	• Preparation, cooking
• Look better	→	• Colourants, presentation
• Taste better	→	• Flavourants, herbs, spices, sugar, salt
• Transport/storage	→	• Packaging, freezing
• Last longer (preserve)	→	• Freeze, dry, brine, pickle, jam, salt
• Improve nutrient value	→	• Ferment

### Everyday processing

- We process food every day when we cook and eat
- Some processing causes a loss in nutritional value
- Different cultures have unique ways of processing foods
- Families can have traditional recipes for processing food
- Food processing follows a series of steps or recipe to achieve the same result

Needs for processing food:



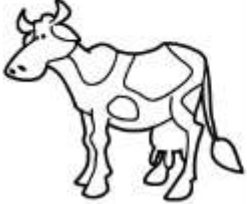




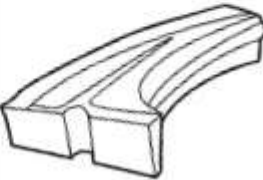
Food processing is the way in which raw food products are changed into final food products.

Most food processing takes place in factories.

Many of the foods we eat today cannot be eaten in their raw form – we need to process the food to make it edible.

Activity:

Match the pictures of the raw food items to their processed products. Write the name of the raw item and next to it the name of the finished product.

Raw	name	Processed	name
			
			
			
			

Why is food processed:

Food processing has many benefits:

- To make it ready-to-eat, therefore, saving time (preparing, cooking).
- To make it last longer (preserving, fermenting).
- To improve nutritional value – some foods would be indigestible if they were not cooked; cooking also kills bacteria.
- To make it easier for producers to transport food.

During processing, many foods may lose some of their nutrients.

Three methods of processing food:

Preparing, combining and cooking are three ways of processing food.

**Preparing** – involves processes such as shelling (nuts), peeling (vegetables), slicing (meat), chopping.

**Combining** – is the mixing together of two or more ingredients such as in mayonnaise, where eggs, oil and vinegar are combined and then beaten.

**Cooking** – involves heat. It includes methods such as boiling, baking, steaming, roasting, toasting and frying.

Food does not last long before going rotten. It goes stale or it spoils as mould and bacteria start to grow on it and break it down.

Treating food to make it last longer is called preserving:

**Ways of preserving:**

- Heating (cooking) kills bacteria.
- Freezing, pickling, drying or salting stops bacteria from growing on the food.

Activity:

Look at the following pictures and identify which way of preserving is being used.



Pickles in a jar



frozen vegetables



dried fruit pieces



biltong

Pickles in a jar \_\_\_\_\_

Frozen vegetables \_\_\_\_\_

Dried fruit pieces \_\_\_\_\_

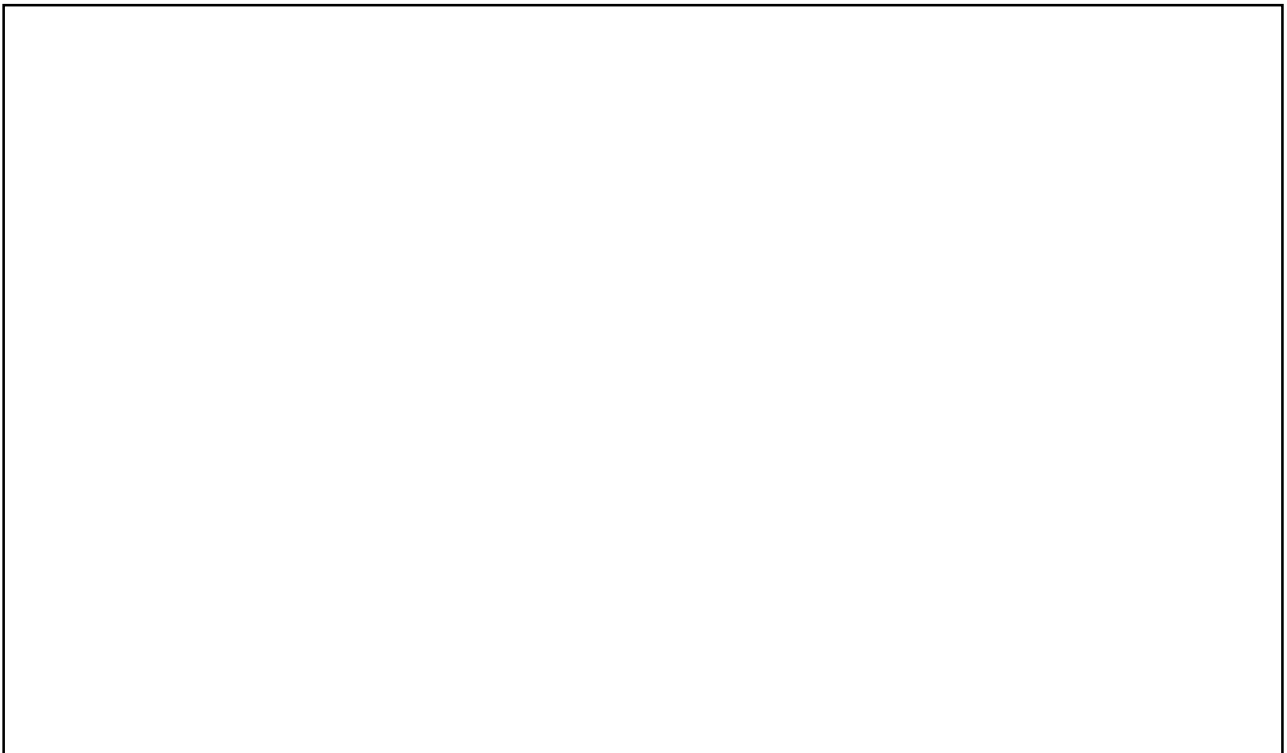
Biltong \_\_\_\_\_

**Other methods used today:**

- Sun drying
- Fermenting dairy into cheese
- Pickling vegetables (onions, gherkins)
- Salting
- Pasteurisation (heating milk to make it last longer)
- Cooking, roasting, toasting and freezing

Activity:

1. Research how sugar cane is made and draw a flow diagram below explaining each step:



(ALL WORKSHEETS TAKEN FROM AND ADAPTED FROM E CLASSROOM 2015)