

Educator Workbook

CAPS-aligned

Grade 6

Educating future
leaders through
fostering good
nutritional habits

Natural Sciences
and Technology



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Introduction

Foreword

The Pick n Pay Technical Educator Workbook for Grade 1-7 learners has been developed to cover some of the requirements in the Life Skills, Mathematics, Natural Sciences and Technology, Life Orientation and English Home Language curriculum that relate to nutrition. The grade-specific learner activities in the workbook are based on the CAPS curriculum that was introduced in 2012. The educator workbook will direct you with lesson plans based around the learner activities.

The learner activities can be used in the classroom to supplement what you are already doing as part of the CAPS curriculum. The focus of these learner activities is to educate learners about healthy living and making the right food choices. The lesson plans in the educator workbook help you to implement each lesson successfully.

Here is a quick overview of the CAPS-aligned content that you will find in this workbook:

Grade 6

Natural Sciences and Technology Term 1: Type 2 Diabetes

Natural Sciences and Technology Term 1: Heart disease

Background and Context

Pick n Pay School Club is celebrating its 16th year of providing much-needed educational material, which now reaches 105,875 teachers and 2.26 million learners across South Africa.

The Pick n Pay Technical learning programme is aligned to the CAPS curriculum, which adheres to the standards set by the Department of Education.

The material is designed to facilitate the learning process and culminates in the assessment of competency levels according to the standards set for each specific grade. The educator is supported by way of research and learning content that is presented clearly and is easy to implement in the classroom.

Acronyms

CAPS: Curriculum and Assessment Policy Statement

GET: General Education and Training

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Section B

Intermediate Phase

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Name of Learner Activities Learner Activity 1: Type 2 Diabetes Learner Activity 2: Heart disease		Time: 1.5 hours per lesson
Grade 6		Subject: Natural Sciences and Technology: Term 1
Curriculum Standards (CAPS): Intermediate Phase: Natural Sciences and Technology: Term 1. Nutrition: Balanced diet <ul style="list-style-type: none"> Some diseases are related to nutrition 		
Objectives		
The learners will: <ul style="list-style-type: none"> Read information about diabetes and nutrition Research and create an information text about Type 2 Diabetes, answering set questions Explore the relationship between heart disease and healthy eating Read information about the heart and create a mindmap from the information 		
Knowledge	Skills	Values
<p>Learner Activity 1: Type 2 Diabetes Problems of high sugar intake; process of sugar breakdown in the body; Type 2 Diabetes; obesity and Type 2 Diabetes; healthy eating; Word Diabetes Day.</p> <p>Learner Activity 2: Heart disease Heart statistics; cardiovascular disease and heart disease; terminology: obesity, saturated fat, trans fat, cholesterol, sodium; National Heart Awareness Week; looking after our heart; mind mapping.</p>	<p>Learner Activity 1: Type 2 Diabetes Read and discuss the problems of high sugar intake; outline further problems caused by high sugar intake; explain how young people can cut down on sugar; explain Type 2 Diabetes; plan to eat healthily to avoid Type 2 Diabetes; find out about World Diabetes Day.</p> <p>Learner Activity 2: Heart disease Discuss statistics of heart disease in South Africa; review heart terminology; read about and discuss obesity and heart disease; discuss saturated fat, trans fat, cholesterol and sodium; National Heart Awareness Week; learn about ways to look after our hearts; create mind maps from the information.</p>	<p>Learner Activity 1: Type 2 Diabetes It is important to find out about diseases that can be diet-related such as Type 2 Diabetes.</p> <p>Learner Activity 2: Heart disease We need to keep ourselves informed about diseases that can be diet-related such as heart disease; and make changes in our eating and lifestyle habits.</p>
Resources needed		
<p>Learner Activity 1: Type 2 Diabetes Worksheet resources; Natural Sciences workbooks; a ruler; an eraser; pens; khoki pens; The South African Food Guide: http://bit.ly/2TyUnsW; a visual of The South African Food Guide food groups; World Diabetes Day: http://bit.ly/2H5lo50; YouTube video 'Understanding Type 2 Diabetes': http://bit.ly/2H3vCUo; image of the pancreas found on the website 'Pancreas: Function, Location & Diseases': http://bit.ly/2HimM5l; teacher laptop with Internet access; copies of the worksheet.</p> <p>Learner Activity 2: Heart disease Worksheet resources; Natural Sciences workbooks; a ruler; an eraser; pens; crayons; teacher laptop with Internet access; Heart Awareness Month: http://bit.ly/2He3kGS; image of the heart such as the one found on 'Top 8 tips for looking after your heart': http://bit.ly/2H1YIJO to display it in the classroom; The South African Food Guide: http://bit.ly/2TyUnsW; a visual of The South African Food Guide food groups; A4 blank paper for the mind maps; YouTube video 'How to Make a Mind Map - The Basics': http://bit.ly/2H6nlis; copies of the worksheet.</p>		

Section B

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Teacher preparation before starting

1. Look through the worksheets and the lesson plan and familiarise yourself with content for the two lessons.
2. Collect the resources needed before the lesson.
3. Print sufficient worksheet activities.
4. Look through the following articles on Type 2 Diabetes for the learners' information text activity, and if the learners don't have Internet access, print them for the research task.
 - a) What are the problems caused by high sugar intake?
 - b) How can young people cut down on sugar?
'11 reasons why too much sugar is bad for you': <http://bit.ly/2H56IJb>
 - c) What exactly is Type 2 Diabetes and how does it damage the body?
'Type 2 Diabetes: What is it?': <http://bit.ly/2H7Vz4Y>
'Diabetes': <http://bit.ly/2H5AnwG>
'How Type 2 Diabetes can damage your body': <http://bit.ly/2H6TBID>
 - d) How can you personally start eating healthily to avoid Type 2 Diabetes?
'South African Food Guide': <http://bit.ly/2TyUnsW>
 - e) What causes Type2 Diabetes? Draw a pie chart that shows the causes.
'Type 2 Diabetes causes': <http://bit.ly/2H3rZ0n>
 - f) Find out about World Diabetes Day.
'World Diabetes Day': <http://bit.ly/2H5lo50>
5. Prepare to review important vocabulary with the learners such as: obesity, chronic disease, processed food, blood sugar, insulin.

Teaching the Learner Activities

Learner Activity 1: Type 2 Diabetes

The goal of this lesson is to get the learners to find out about diseases that can be diet-related such as Type 2 Diabetes and to make changes in their own eating habits.

- a) Introduce the lesson to the whole class. Start off by talking about sugar. Can they list some foods which have a high sugar content? Do they know how eating too much sugar is not healthy and that it can lead to weight gain? Find out if they know what happens to sugar when it enters the body (Display your image of the pancreas in the body). This brings us to the topic of Type 2 Diabetes. Show the class the YouTube video: 'Understanding Type 2 Diabetes': <http://bit.ly/2H3vCUo> so that they get an understanding of the process.
- b) Then talk about World Diabetes Day. This takes place on 14 November. The theme for 2018 and 2019 is The Family and Diabetes. Diabetes is a chronic condition, which can be managed with the right treatment plan. It results in the body failing to properly use and store glucose. Glucose is the fuel that feeds your body cells Type 2 Diabetes contributing factors are being overweight and not getting enough exercise. Our more inactive lifestyles, and unhealthy diets, including high sugar intake are problematic to our health. We need to make sure that we get enough exercise and keep the sugar in our diet low. The World Health Organisation estimates by 2035, almost 600 million people in the world will have diabetes. Type 2 Diabetes is becoming a big problem in South Africa. Find out more: <http://bit.ly/2H5lo50>
- c) Introduce the terminology relating to this lesson: obesity, chronic disease, processed food, blood sugar, insulin, and explain the meanings of the words.
- d) You could also mention The South African Food Guide which is a healthy eating plan for South Africa found at: <http://bit.ly/2TyUnsW>. Try to have a copy of their visual guide to the food groups on your laptop to show the class.

Complete the worksheet

- a) At this point you will have covered, in the discussion, most of what is on the worksheet reading. Handout the worksheets and let the class read and discuss the information in groups.
- b) The learners then write their information text on Type 2 Diabetes, ensuring that they answer the questions provided. You can do this individually, in pairs or in groups – as you wish. If the class has Internet access, you can let them research the suggested websites. If not, you could print copies of the different website articles for them to use. These are listed in the 'Teacher preparation before starting' section above.

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- c) The learners complete their information text and hand it in to you.
- d) Use the following rubric to mark the learner's information text. Let them present their articles to the rest of the class or to other groups if possible.

Title	Excellent 3 marks	Satisfactory 2 marks	Does not meet the requirements 1 mark or less
Subheadings for the different paragraphs	Clearly presented every time	Most subheadings shown	Unclear
A beginning, a middle, and a conclusion	A clear introduction, a middle section, and a good conclusion	A beginning, a middle, and a conclusion	Information presented with no particular structure
Images, charts or diagrams added where necessary	At least 2 excellent images, charts or diagrams	1 suitable image, chart or diagram	No images, charts or diagrams
Qu 1: What are the problems caused by high sugar intake?	At least 3 good answers on a pie chart	2 answers on a pie chart	1 or 2 answers with no pie chart
Qu 2: How can young people cut down on sugar?	At least 3 good suggestions	2 suggestions	1 suggestion
Qu 3: What exactly is Type 2 Diabetes and how does it damage the body?	An excellent explanation of diabetes with good information on how it affects the body	Satisfactory explanation with information on its effect on the body	Explanations both unclear
Qu 4: How can you personally start eating healthily to avoid Type 2 Diabetes?	At least four good ideas mentioning food groups and The South African Food Guide	3 ideas mentioning food groups and The South African Food Guide	2 ideas
Qu 5: What causes Type 2 Diabetes? Draw a pie chart that shows the causes.	At least 4 good answers on a pie chart - obesity, lack of exercise, smoking, unhealthy diet, genes, stress	3 answers on a pie chart	1 or 2 answers – no pie chart
Find out about World Diabetes Day	At least 3 interesting points as well as the date	2 points as well as the date	1 answer
Neatly presented	Excellent presentation	Satisfactory presentation	Poor presentation

Learner Activity 2: Heart disease

The goal of this lesson is to get the learners to find out about diseases that can be diet-related such as heart disease and to make changes in their own eating and lifestyle habits.

- a) Introduce the lesson as a whole-class lesson. Find out how much the learners know about the heart. Ask the learners the following questions: Do we have to worry about our hearts? Don't they just look after themselves? Tell the learners about National Heart Awareness Week which takes place in September. Heart disease in South Africa is increasing. National Heart Awareness Week emphasises the importance of living a healthy lifestyle to prevent the onset of heart disease. More than 120 people in South Africa suffer from a heart attack every day. Tobacco smoking and the use of excessive salt in our diets are dangerous to the heart. The best way to look after your heart is to ensure well-balanced eating and exercising. Read more about Heart Awareness Month: <http://bit.ly/2He3kGS>
- b) Find a good heart image such as the one on the website 'Top 8 tips for looking after your heart': <http://bit.ly/2H1YJJO> and display it in the classroom.

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- c) Revise some of the terminology with the learners: cardiovascular, obesity, nutrition labels, heart failure, packaging.
- d) You could also mention The South African Food Guide which is a healthy eating plan for South Africa found at: <http://bit.ly/2TyUnsW>. Try to have a copy of their guide to the food groups on your laptop to show the class.
- e) Ask the learners if they are aware of some of these elements and their effects on the heart: Saturated fat, trans fat, cholesterol, sodium.

Complete the worksheet

- a) Hand out the worksheets.
- b) At this point you will have covered, in the discussion, most of what is on the worksheet reading. Go through the worksheet and let the class read and discuss the information in groups.
- c) After the learners have read and discussed the information in the worksheet, they create a mind map with the information. Let them do this on an A4 blank piece of paper. Show the class a video 'How to Make a Mind Map - The Basics': <http://bit.ly/2H6nlis>. Revise the terminology such as branches, keywords, images, connections etc. Help the learners work out the main points of the article for the main branches, and the subheadings for each branch. Encourage the use of colour and simple images.
- d) When the class has completed their mind maps, ask the learners to find a partner and relate to them what they have learned about heart disease by using the keywords and branches as prompts. Display the mind maps on the wall in the classroom.

Assessment

Refer to the Resource Section for the Assessment Rubric.

Teacher reflection

Is there anything you would do differently if you taught this unit again?

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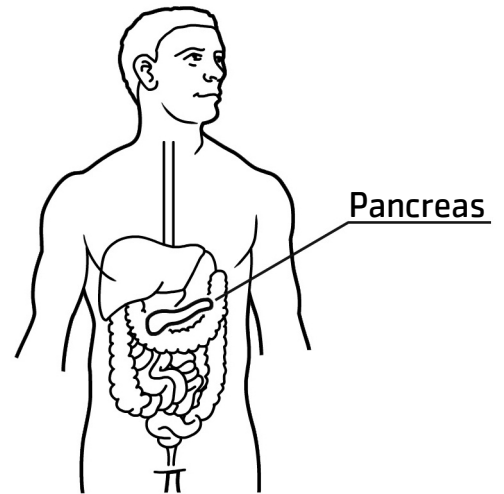
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Type 2 Diabetes

Name:..... Date:.....

1. Read this information in a group and discuss it.

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.



Learner Activity 1

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.

2. Write information text about Type 2 Diabetes.

Conduct Internet research on diabetes and write an information text about it. An information text consists of a factual text about the topic that is being researched. It answers what, when, how and why questions. It is made up of the following parts:

- A main title
- Subheadings for the different paragraphs
- A beginning, a middle and an ending
- Images, charts or diagrams added where necessary

Make sure you answer these questions in your research

- 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.

3. After you have written your information text, hand it in to your teacher and present it orally to your class.

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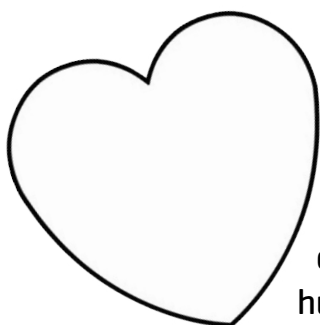
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Heart disease

Name:..... Date:.....

1. Read and discuss this information in your groups.

Heart disease in South Africa is increasing. More than 120 South Africans suffer from a heart attack every day.



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.

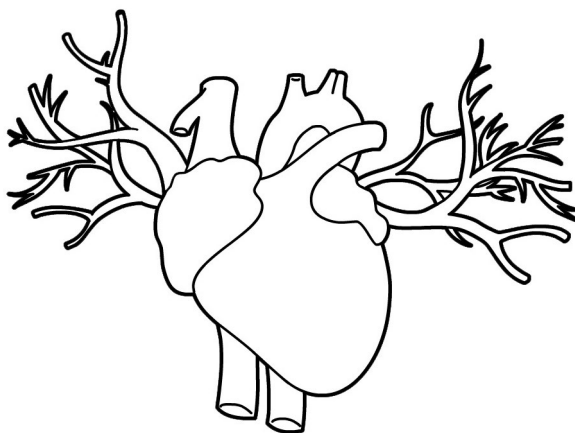
Obesity and heart disease

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

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Celebrate National Heart Awareness week in September

National Heart Awareness Week emphasises the importance of living a healthy lifestyle to prevent the onset of heart disease. The best way to look after your heart is to ensure well-balanced eating and exercising.

2. After reading and discussing the information provided in this worksheet, create a mind map with the information you have acquired. The headings and sub-headings will guide you in creating your mind map.

Learner Activity 2

Mind map

Section C

Resource Section

Assessment Rubric:

Assessment	
Rating code	Description of competence
7	Outstanding achievement
6	Meritorious achievement
5	Substantial achievement
4	Adequate achievement
3	Moderate achievement
2	Elementary achievement
1	Not achieved

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