

# CREATE A TOWER GARDEN TEACHER'S PROJECT NOTES



**3** ENTREPRENEURSHIP  
EMPLOYABILITY  
EDUCATION

PROJECT-BASED LEARNING | LIFE SKILLS



basic education  
Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA



GRADE **5**



## TEACHER'S PROJECT NOTES | GRADE 5 | LIFE SKILLS

# CREATE A TOWER GARDEN

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Before you start, try to ensure that the whole school and local community get involved. Launch the project term in some way, particularly at school level: the principal could announce the project week at the first assembly of Term 3. A learner could also make this announcement at the school assembly. Grades involved in implementing the project or even other grades can put up posters to announce the “big event”. Flash mobs are also an exciting way of creating awareness of a great happening in the near future. Ensure that your School Management Team and your School Governing Body are on board by sending them invitations to your public event at the end of your project. As project manager your job is to start the process of instilling a new culture in your school - as a passionate teacher you are also the “culture builder” at your school!

It is very tempting to revert to “chalk-and-talk” teaching using the textbook as a resource. You do need to achieve what your CAPS document sets out, but in a different way. Do the project using the textbook as an information source *only when needed*. This is called **Just In Time Learning**. Below you will find the **Key Knowledge, Understanding and Success Skills** to help you manage an excellent project:

- **Challenging problem or question:** Why is this project critical? What is the problem in society and at school being addressed in this project? Keep talking about how this project will solve a local or global problem.
- **Sustained enquiry:** Are learners being “researchers”? Are they doing the research and getting deeper and deeper into the problem or are you doing all the talking? Look at the second circle overleaf to remind you of your role to manage activities and scaffold student learning. Learners must not be allowed to give up – you must “build a culture” of getting to the bottom of the problem and coach them when they lose their way. With time E<sup>3</sup> will be developing thinking tools to ensure that you are equipped with strategies to take the enquiry to a new level.

- **Authenticity:** Keep the project real by referring to learners' own lives – this is about them and their world.
- **Student Voice and Choice:** Although learners did not choose this project, make it such fun and real to the world they know that they own it. Their voices and opinions are what your deeper goal is – encourage their views and applaud each contribution!
- **Reflection:** To truly embed learning learners should be able to reflect on what they have learned and thought of better ways of doing things. The reflection activities in the worksheets are not just for fun. Encourage learners to spend time on them as this will deepen their learning.
- **Critique and Revision:** As you assess and evaluate their products (not them!) learners will see that there are better ways of solving problems.
- **Public Product:** At the end of the project what does the learner have to show or to brag about? Ensure that there is a Project Culmination Week in which each grade displays their products during a week selected by the management team because many parents and other stakeholders can attend.

Notice in the second circle *Project-based Teaching Practices* that your role as a teacher has changed: you are less of a teacher in the traditional sense of the word. Your lessons are more learner-centred. Instead of driving the activities, you now check CAPS-alignment and then manage and coach learners as they need it and then assess their efforts.

*Good luck, you are a ground-breaker! Make this project work and secure the future of your learners.*



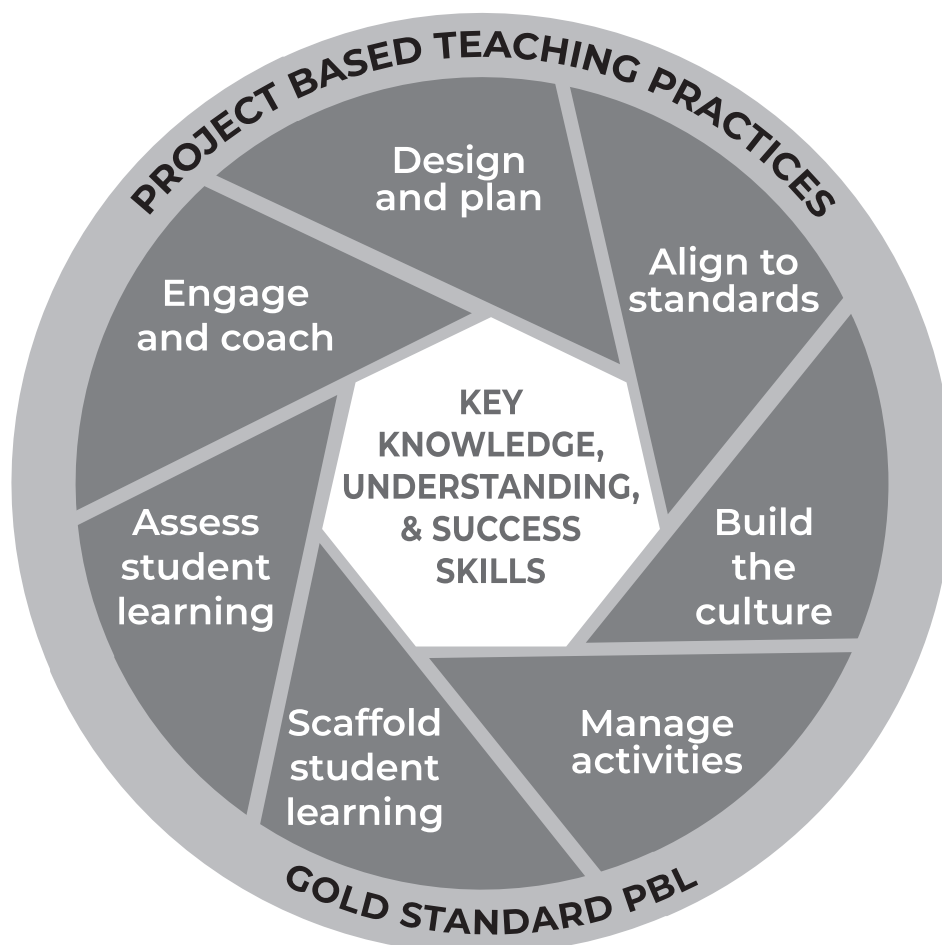
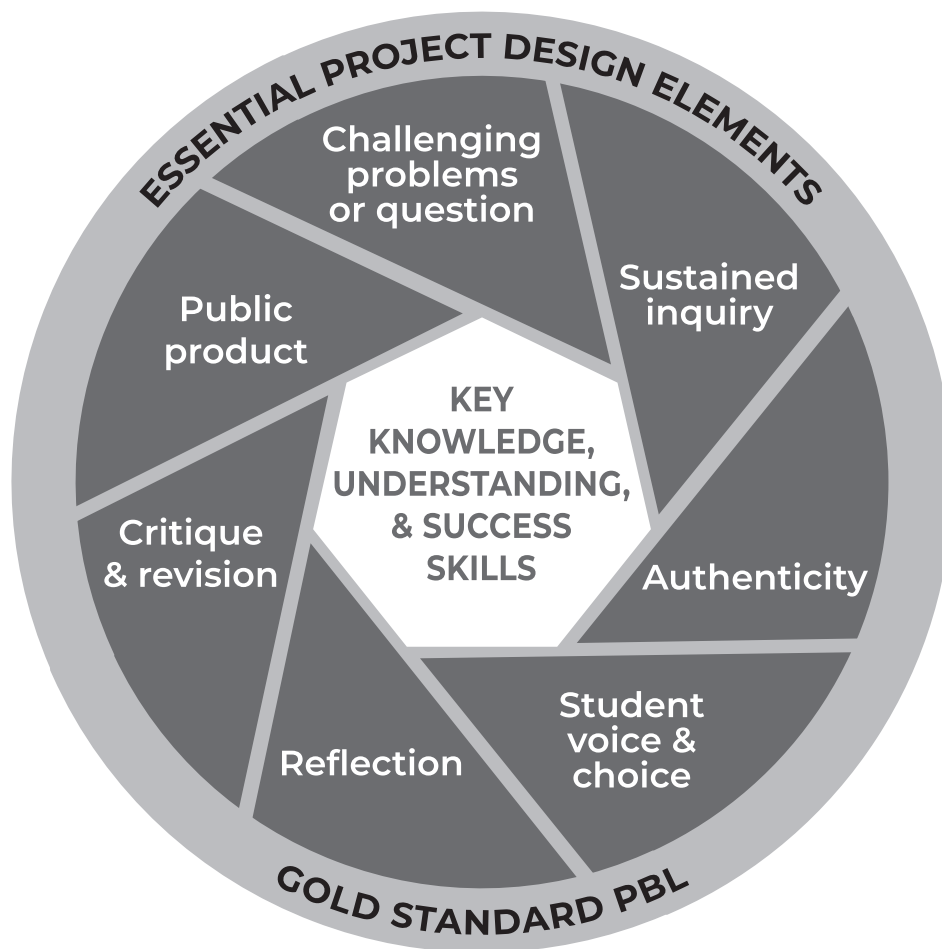
## PLEASE NOTE...

Time has not been allocated for each activity. Be creative. If you think that there is not enough class time to complete the activities, there are various options (and not all options are applicable to all school profiles.) Decide which option would work best for your school. Your pragmatism and creativity, together with a sound knowledge of what is feasible in your school will decide on the best plan. Some options could include: working after school, negotiating with the language teacher to take over certain activities which s/he can assess. The technology teacher can also assist as could the art teacher. This is a school effort and not just the responsibility of the teacher implementing the project.

### ***Suggestion:***

1. Create a large Gantt chart which you can post on your wall. Clearly mark the phases of the project in weeks and reflect on the progress of the project-based activity at the beginning or end of every week.
2. If you need seeds, contact Claire Reed at [info@reelgardening.co.za](mailto:info@reelgardening.co.za) or on 082 465 9198. Tell her that it is the Tower Garden Project of the DBE. Start planning this in Term 2





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## CREATE A TOWER GARDEN

### Burning Issue / Critical Question:

Create a tower garden to raise awareness of taking responsibility for your own healthy eating, saving water and for building entrepreneurial skills.

### Project summary:

- Learners go through a number of activities about nutrition and healthy eating
- They present their tower gardens and engage farms in surrounding areas to come and see gardens.

“ Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results. ”

*John Dewey*



### BEFORE THE PROJECT

Teachers should ask the class a few weeks ahead of the project to bring 2-litre bottles and other resources to school, e.g. large scissors and potting soil or rich, fertile soil. Ask learners to bring vegetable seeds. In preparation for the tower garden ask learners to help you cut the bottoms off each 2-litre bottle, and to plant the seeds in these off-cuts in order to give the seeds a few weeks to germinate. Ensure that each group labels their garden – they can even think up a creative name for their Tower Garden Business.

Some of the activities may not be viable for your school. Please be creative, should it be necessary, in substituting real foodstuff with photos or even hand-drawn pictures. Also note that all flashcards and posters or any extra material created throughout the project, should be saved up for the final display of the project to visitors and the rest of the school. Although no times have been allotted for each activity, all activities should be completed within 5 weeks. Build up excitement from Term 2.



## ACTIVITY 1

### Understand healthy eating

#### RESOURCES:

- Worksheets 1.1 and 1.2
- Story
- Textbook
- Writing paper
- Pens
- Plastic 2- litre bottles
- Vegetable seeds
- Scissors and/or paper knives
- You may need an assistant for bigger classes

#### CAPS LIFE SKILLS TERM 3:

“Healthy eating for children” and “Water as an important basic need”

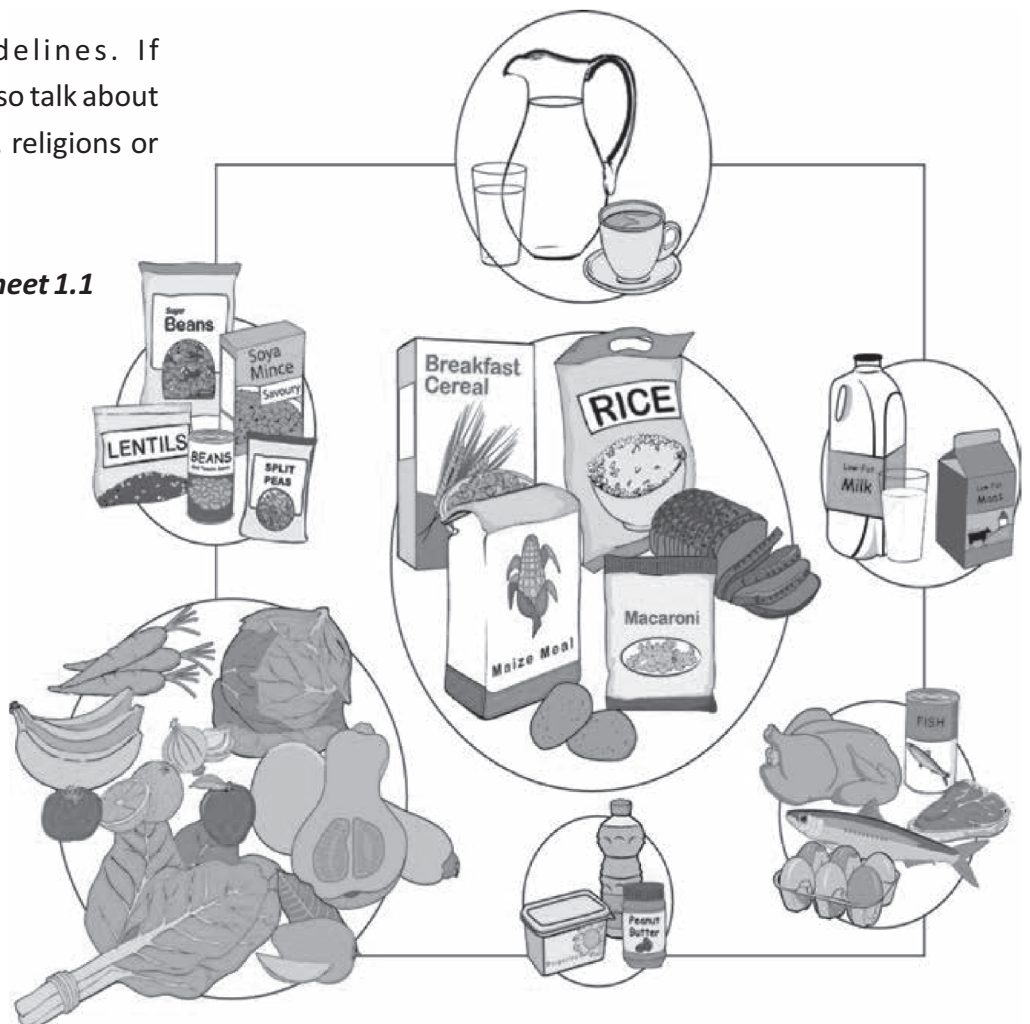


### STEP-BY-STEP DESCRIPTION OF LESSON

1. Before the lesson starts, introduce the topic: healthy eating for children. Touch on **South African Food-based Dietary Guidelines** (see next page). Ask questions like: What is healthy eating? Write key words on the board. In some urban areas there might be parents who are either vegetarian or vegan. Start conversations around vegetarianism and veganism and how these people balance their diets.

Below are some guidelines. If applicable, teachers can also talk about fasting in certain cultures, religions or merely as a dieting trend.

**Learners complete Worksheet 1.1**





## Revised general food-based dietary guidelines for South Africans

- Enjoy a variety of foods.
- Be active!
- Make starchy foods part of most meals.
- Eat plenty of vegetables and fruit every day.
- Eat dry beans, split peas, lentils and soya regularly.
- Have milk, maas or yoghurt every day.
- Fish, chicken, lean meat or eggs can be eaten daily.
- Drink lots of clean, safe water.
- Use fats sparingly. Choose vegetable oils, rather than hard fats.
- Use sugar and foods and drinks high in sugar sparingly.
- Use salt and food high in salt sparingly.

VEGETARIAN	PESCETARIAN (pesce is latin for fish)	VEGAN
Eats no meat, but does enjoy animal products like milk, eggs, honey.	Eats no land-dwelling animals, but eats fish, lobsters, mussels, etc.	Eats absolutely no meat and no animal products. No eggs, milk, cheese, or even honey.
Eats all fruits and vegetables.	Eats all fruits and vegetables.	Eats all fruits and vegetables.
Protein sources are eggs, cheese, lentils, beans, nuts and seeds.	Protein sources are fish and shellfish, eggs, cheese, lentils, beans, nuts and seeds.	Protein sources are derived from nuts, seeds, beans and legumes like lentils.

2. Divide the class into groups of **6-8 learners** per group.
3. In groups, the learners should read the illustrated instructions on how to build a tower garden in their Learner's Project Notes. (Please note that reading of instructions satisfies CAPS outcome of reading within Life Skills.) See the additional notes at the end of this booklet for different ideas on using recycled material if you are not able to make tower gardens.
4. Ask each group to explain how they will undertake the process before they start building. They give ideas for plant selection and why these plants were chosen. The location of the garden is also analysed.

### **Learners complete worksheet 1.2.**

5. Hand out bottles, scissors and other resources and ask the class to start the **PLANNING** of their project. Each group's representative quickly explains how they will be going ahead with the project.

**Please touch on safety rules** for working with scissors and paper knives. If necessary, the teacher should demonstrate how to create holes in the plastic bottles.

6. Give the go-ahead to start cutting and stacking the items. They will be able to complete the building in the next lesson. Please bag each group's project and let them staple a name list to the bag.
7. While they are working remind them to check up on the seeds that are germinating and talk casually about what they need to do to ensure that their seeds grow. This is called “defocused learning”.





## ACTIVITY 2

### Building a tower garden | Planting vegetable seeds

#### RESOURCES:

- Natural Science teacher to discuss soil types and importance of compost and water for healthy plants
- Illustrated instruction page, story, textbook
- Writing paper, pens
- Plastic 2- litre bottles
- Vegetable seeds
- Scissors and/or paper knives
- Good soil
- Trellis with which to tie or secure tower against the wall
- Cable ties or wire
- Videos on eating disorders, poor nutrition, how dirty water spreads illnesses, Dry Bath video
- Worksheet 2

#### CAPS LIFE SKILLS TERM 3:

“Healthy eating for children” and “Water as an important basic need”



#### STEP-BY-STEP DESCRIPTION OF LESSON

1. Learners complete their tower gardens. By now the seeds will have germinated.
2. The Natural Science teacher can be present to explain what will be needed in terms of soil and compost, also filtered water, to grow and create healthy vegetables.
3. Ask the class to discuss in their groups where they think (on the school grounds) a tower garden would be able to grow successfully. What do vegetable plants need to proliferate? (Sunshine, water close to the gardens, close to a wall for protection, etc.)
4. After identifying the ideal spot for placement of their gardens, they fetch their 2- litre bottle bottoms (off-cuts from the building process) in which their seeds will have germinated. They complete their tower gardens and place these in a warm place in class or tie with cable ties in a suitable part of the school grounds.
5. For homework, remind the class to bring along real fruits and vegetables and other healthy foods types to the next lesson. If the socioeconomic situation doesn't allow for real food items, ask for pictures or drawings to complete the exhibition.
6. If there is time left after the lesson, show some videos or have conversations about eating disorders (see next page).

## WHAT IS AN EATING DISORDER?

Eating disorders are real illnesses that lead people to overeat, starve themselves, or adopt other unhealthy behaviour surrounding food and body weight. The three well-known disorders are binge eating, anorexia nervosa, and bulimia. These disorders can lead to serious health problems if not treated.

BINGE EATING	ANOREXIA NERVOSA	BULIMIA
Extreme overeating – people feel out of control and eat faster, and more, than their bodies can hold.	Starving oneself for the fear of gaining weight – eating too little food, but also excessive use of dieting pills, laxatives and compulsive exercising.	A cycle of bingeing and purging for the fear of gaining weight. Bulimics eat large amounts of food very quickly and then compensate by throwing up.
Symptoms are guilt and shame. Binge eaters hide their bingeing from close family members and withdraw themselves from friends.	Symptoms are rapid weight loss, an obsession with food, calorie counting and very restrictive dieting. Although, dangerously thin, they still view themselves as fat.	Bulimia is often not only a sign of obsession with weight, but also a need to control negative feelings. They often suffer from depression or anxiety.
Binge eating often leads to unhealthy weight gain, but also emotional distress. Type 2 Diabetes is often diagnosed in binge eaters.	Anorexia is dangerous and can be life-threatening. Physical symptoms include brittle hair, anaemia, thinning bones, heart damage and organ failure which can lead to death.	Bulimia can have devastating effects on the body. Physical effects include worn tooth enamel, chronic sore throat, constipation, dehydration and heart problems due to loss of electrolytes.
Treating binge eating takes a combination of therapy, nutrition education, family counselling and antidepressants if necessary.	Treating anorexia starts by restoring healthy weight (with a short hospital stay if needed) and treating psychological issues with therapy or family therapy to prevent a relapse. Antidepressants and other medication is often necessary.	Bulimia is also treated with a combination of therapies. Nutrition education, therapy and antidepressants can break the cycle.

Learners complete Worksheet 2.



## ACTIVITY 3

### Healthy eating exhibition

#### RESOURCES:

- Actual food items or pictures of healthy food choices
- Writing paper
- Flash cards
- Pens
- Exhibition Table labelled “Healthy Eating”
- Textbook
- Worksheets 3.1, 3.2 and 3.3
- Videos on eating disorders, poor nutrition, how dirty water spreads illnesses, Dry Bath video

#### CAPS LIFE SKILLS TERM 3:

“Healthy eating for children” and “Water as an important basic need”



## STEP-BY-STEP DESCRIPTION OF LESSON

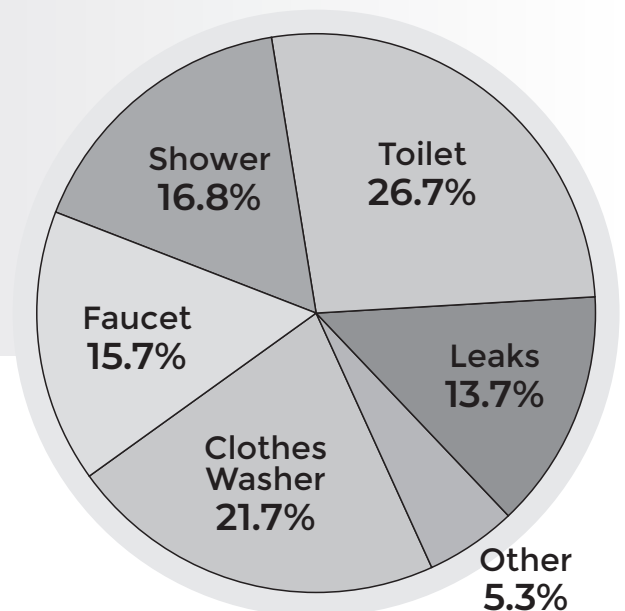
1. Ask learners to sort their items or pictures according to food groups.
2. Use flash cards to label the food groups.
3. Start a discussion on the dietary needs of children. Ask questions like: What should we eat every day? Is this food group important? Why should we eat balanced meals?

Introduce a pie chart. Why is it called 'pie chart'? If possible and you have teaching aids available, explain how excel uses the data typed into columns to automatically create pie charts. Show some examples. Learners create a pie chart in Worksheet 3.1.

### What is a Pie Chart?

A **Pie Chart** is a type of graph that displays data in a circular graph. The pieces of the graph are proportional to the fraction of the whole in each category. In other words, each slice of the **pie** is relative to the size of the category in the group as a whole.

### HOW MUCH WATER DO WE USE?



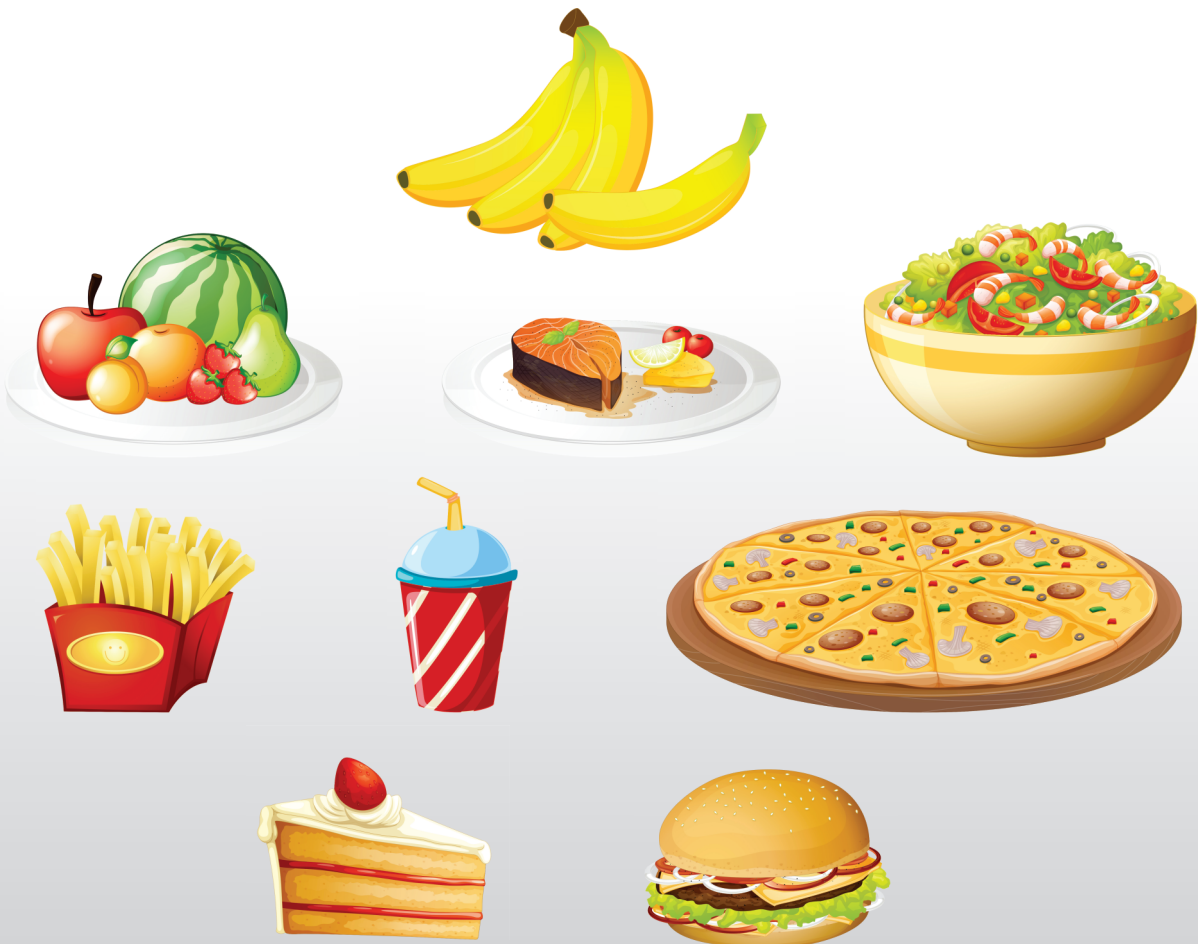
5. Story time (Story in Learner's Project Notes): Teacher introduces a new character - a sick girl called Thumi: "She has no energy, she lives with her grandmother who prefers to buy takeaways, chips, sweets and cooldrinks." Poor nutrition in children leads to obesity, diabetes, bad teeth, gum disease, skin disorders, but also poor concentration, poor brain development and poor social behaviour. Malnutrition stunts growth in general. Do not give all the information – let learners come up with the "theory". Then go to the textbook – you will be surprised by how much they know!
6. Teacher asks the class for possible reasons for Thumi's unhealthy state. Possible answers: She doesn't eat a balanced diet. Mostly grandma doesn't plan ahead and there is no money left in the last week of the month. She buys expensive takeaways.
7. Ask learners to brainstorm solutions and write them on flash cards. (Teach her grandma to buy vegetables instead of sweets, teach her to plant her own veggies, drink water instead of cool drink, etc.) Put the flash cards up in class.

***Learners complete Worksheet 3.2***

8. Each learner draws a circle on a sheet of paper and creates a plate with a balanced meal on it.

***Learners use Worksheet 3.3***

9. Keep all the work done in class for the coming exhibition.







## ACTIVITY 4

### The Importance of Water

#### RESOURCES:

- Flip-chart paper
- Coloured kokis
- Writing paper Pens
- Magazines
- Dry Bath video
- Scissors
- Glue
- Textbook
- Worksheet 4.1 and 4.2

#### CAPS LIFE SKILLS TERM 3:

“Healthy eating for children” and “Water as an important basic need”



### STEP-BY-STEP DESCRIPTION OF LESSON

1. Teacher opens the conversation about the importance of water. Please use textbooks to give some solid info, but only after the learners have presented some of the info – the textbook is there to fill in gaps and consolidate. Play the Dry Bath video if possible.
2. Ask children how they think the quality of water can be protected. Also, what are great ways of saving water? These answers go on flash cards that are put up in class.

#### ***Complete Worksheet 4.1.***

3. Divide the class into three groups. Ask the groups to create a poster using the information on the flash cards. One group makes a poster about the importance of water. The second group makes a poster on how water can be saved. The third group makes a poster on what the world be like without enough water. Create labels/headings for the posters on long strips of paper.
4. Refer back to the tower gardens and how this is an excellent way to save water and to recycle used material, as well as purifying water using the stone and sand filter.
5. The class visit their tower garden and take care of them during break every day, e.g. by watering, checking that they are still safe, etc.
6. Back in class, they discuss who will be invited to the exhibition of their vegetable gardens and their research posters on water and healthy eating.

***They design an invitation and draw up a ‘to do’ list.  
(Worksheet 4.2)***



7. The class decides on a day and hour (during break, after school, before school) for their.
8. What else is needed? More fresh fruit and veggies for a display? Stands to put posters up? Plan the final details for the exhibition.
9. In Arts and Culture, ask the class to design an actual invitation to parents and care givers for the exhibition.



## ACTIVITY 5

### Exhibition day of tower gardens and research on water and healthy eating

#### RESOURCES:

- Tables, chairs, displays (all work done on project in class)
- Finished tower gardens
- Prestik, tacks
- Visitors
- Worksheet 5

#### CAPS LIFE SKILLS TERM 3:

“Healthy eating for children” and “Water as an important basic need”



## STEP-BY-STEP DESCRIPTION OF LESSON

1. Learners display their tower gardens, posters and drawings to visitors. They take visitors through the exhibition to explain important notes and facts. Depending on their language ability, 3 learners can prepare to present to the visitors.
2. ***In class, learners complete the reflection Worksheet (5).*** Please ensure that they do this seemingly unimportant activity as it is a critical skill: the activity is worth much more if learners understand the deeper meaning. Also, learners get to know how they learn, what they do well and where they can improve.

“We do not learn from experience... we learn from reflecting on experience.”

John Dewey



## RUBRIC: VEGETABLE TOWER

Name of learner: \_\_\_\_\_ Grade 5: \_\_\_\_\_

School: \_\_\_\_\_ Date: \_\_\_\_\_

CRITERIA	EXCELLENT	GOOD	FAIR	POOR	TOTAL MARKS
<b>Content</b>	Thorough and clear plan for garden; includes detailed information on each of the following: When to plant Where to plant How much of each plant Potential pests and diseases Water and light requirements Seeding depth/spacing Soil types and fertilizers Common pests and diseases	A good solid plan with good information. Although the fine detail is lacking.	The plan is fair but there are large gaps in content knowledge.	Almost no content knowledge is reflected in the plan of when, where and what to plant. No indication that seeding, pests, water and light requirements are understood.	[5]
<b>Subject Knowledge</b>	Learner demonstrates full knowledge of subject; was able to use knowledge to enhance the garden project and incorporate all of the required content; answered questions on own by searching out appropriate resources.	Learner has a basic knowledge of the subject; uses few or no resources after planning started and finds ways to answer most questions on own. Learner's basic knowledge was evident in their garden layout and accounts for most of the required content.	Learner knows little about the subject as is evident in final garden plan; layout does not account for plant growth factors and requirements. Consulted very few resources when creating plan.	Learner does not have grasp of the information as is evident in how the garden is laid out and planned; Learner did not collect or use information about subject to help with the garden project.	[5]
<b>Planning Outline</b>	Learners have plan; outline has more than 10 steps, are in sequence, and have details.	Learners have planning; outlines has 8-10 steps, are in sequence, and have little or some detail.	Learners have some planning; outline has 4-8 steps and are somewhat sequential.	Learner did no or little planning; outline has fewer than 3 steps which are non-sequential.	[5]
<b>Organization / Neatness</b>	Learner showed excellent organization and neatness; garden has order and is well labelled.	Learner showed organization to garden. Neatness and order are present. No labels though.	Learner showed some organization; garden has little to some order and is quite neat.	Learners showed no organization in the garden project; garden is messy and there is no order to the vegetables.	[10]
<b>Teamwork</b>	Learners exceeds working with teammates; Learner participates and helps lead team.	Learner works well with teammates; Learner participates.	Learners works with teammates for small amounts of time; Learner participation is fair	Learner does not work with teammates; Learner participation is poor.	[5]



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