

# CREATE A TOWER GARDEN LEARNER'S PROJECT NOTES



**3** ENTREPRENEURSHIP  
EMPLOYABILITY  
EDUCATION

PROJECT-BASED LEARNING | LIFE SKILLS



basic education  
Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA



GRADE **5**



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

# CREATE A TOWER GARDEN

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# CREATE A TOWER GARDEN

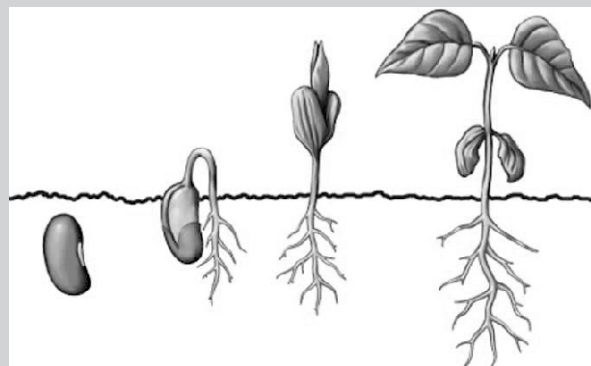


## ACTIVITY 1.1

Your teacher asked you to bring empty 2-litre cooldrink or water bottles and vegetable seeds to school. You and your group will be building a tower garden.

Today you need to plant the seeds so the seedlings will be ready once you've built your garden. Remember to water them often so that they will quickly germinate.

**Germinate** - a seed begins to grow and put out shoots



*Complete Worksheet 1.1 in your Learner's Project Worksheets*



## ACTIVITY 1.2

Start on your tower garden. Carefully read through the instructions and follow the pictures. Your teacher or an adult will help you so that you do not get hurt.

### What you need:

- 3 to 4 empty 2-litre bottles
- A pair of scissors and/or a box cutter
- A small ruler for measurements
- A marker to mark specific measurements
- Long steel nail and a small hammer
- Twine or wire to hold the bottles in place
- Garden soil or potting mix
- Small stones (or charcoal) and sand for the filter
- Seeds for flowers, herbs or small vegetables (spinach, beans)

### How to go about it:

There are 4 major steps to finishing this project, but each step is divided into smaller ones.

1. First you will need to create a base for the tower.
2. Then we move on to creating the actual tower levels.
3. The third big step is all about creating the drip irrigation system.
4. Last, but not least, we will be planting the actual flowers or herbs or small vegetables that you want to grow.



### Step 1

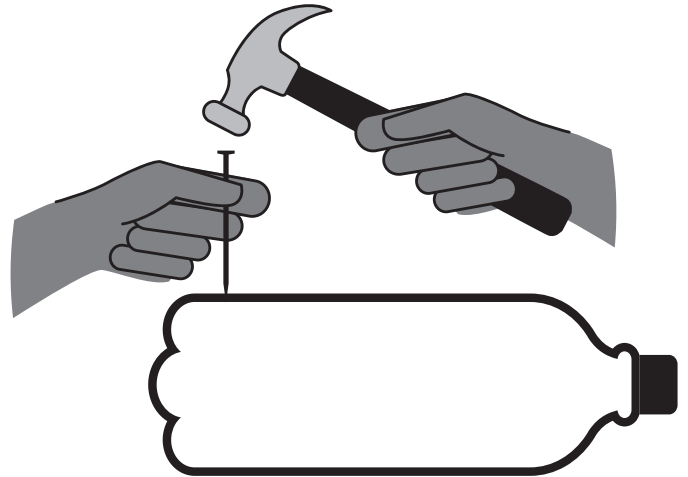
- Cut off the base of all the bottles just below the label.
- Remove the plastic labels. Also remove the caps.
- Keep one bottom as a base for the tower garden.





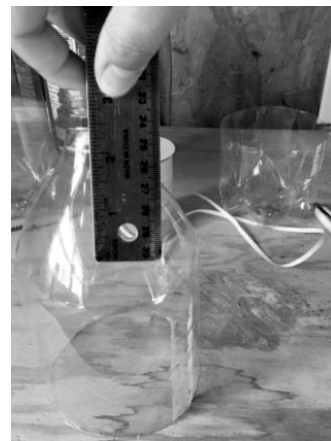
## Step 2

- Punch 4 to 6 holes into the other bottoms with the steel nail and the hammer.
- Fill these bottoms with potting soil and plant the seeds.
- Water them well and put them in a warm place. Use the marker to write your group's name on it.



## Step 3

- Measure 7cm down from the cap side on both sides of the bottle. Mark the spots.
- Punch holes at these spots with your scissors. The holes should fit a Bic pen. These are the water drainage holes.



## Step 4

- Fill the bottle with garden or potting soil (lightly compress the mixture to press out air bubbles) almost to the top. Turn the bottle over and fit into the chosen base (bottle bottom).







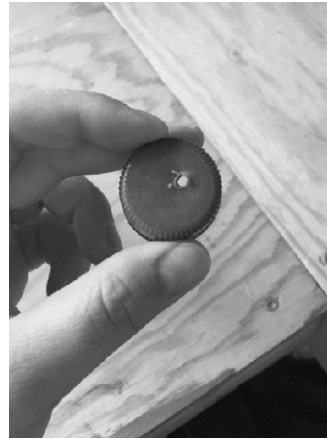
## Step 5 - Creating the tower levels

- Take another bottle and repeat step 3. Then repeat step 4 again. You can create as many levels as you like, but you have to secure the tower to something solid with wire or string so it doesn't fall over. 3 bottles (levels) in a tower works well.



## Step 6 - Creating the irrigation system

- You will need another plastic bottle. Cut the plastic bottle in half. This bottle should be shorter than the others and will become your watering funnel.
- Punch a small hole in the cap of the top half with a nail and a hammer. Re-attach the cap to the funnel bottle. Fit the bottle (cap side down) onto the tower.
- Fill the funnel with small stones or charcoal and top it up with fine sand. This will ensure that the water that flows through is clean and pure.



## Step 7

- Use a box cutter or small incision knife to cut squares into each soil bottle. First mark the places where you will cut out the squares. Only cut out three sides of the square – leave the bottom part and fold out the flap. You can later poke holes in the soil with your finger for your seedlings.





### Step 8 - Test the irrigation system

- Add a little water to the bottle funnel at the top and watch as it slowly drips through the whole tower.



### Step 9

- Secure you tower garden with string or wire to a trellis or pole in a sunny spot and plant with vegetable or herb seedlings of your choice.



### Step 10

- See how it grows!

At break, walk around on the school grounds and check out some suitable spots where you can eventually install your tower garden.

Photo source: <https://www.backyardboss.net/how-to-make-a-bottle-tower-garden>



Complete Worksheet 1.2 in your Learner's Project Worksheets



Where will you put it? How will you make it stand up? How can you protect it?



**Complete Worksheet 2 in your  
Learner's Project Worksheets**



## ACTIVITY 3.1

You will discover how to sort your examples into different food groups. Take a guess and see how many of these you can sort into the right food groups. Good work!



**Complete Worksheet 3.1 in your Learner's Project Worksheets**





## ACTIVITY 3.2

### DEFINITIONS

- **Sluggish**      *Slow-moving or inactive*
- **Energy**      *Strength to move and think*
- **Flaky**      *Separating into flakes*

Read the story of Thumi with your teacher:

Thumi has just turned 11 years old. She had a good birthday. At her birthday party she had cake, chips, toffees, cooldrink and lots of fizzers, but she also had these treats the day after, and the next day. If she complains of hunger, grandma cuts her another slice of cake. Now she is not feeling so well. Lately she has been feeling very sluggish and she has little energy. She used to run around with her friends at break, playing 'Open the Gate', but she doesn't seem to have the energy these days. Her skin is all flaky and she sometimes has terrible toothache. But worst of all, her schools dress doesn't fit anymore. The buttons are stretching over her tummy. Grandma struggles on a monthly pension, so she cannot ask for new school dresses now.

All grandma ever buys is food. She loves pizza, Nando's, cheesy chips and toasted sandwiches. If the money is finished near the middle of the month, she buys two vetkoek and white bread. Thumi suspects that their lifestyle is not good for her health. She can use a little help from a few friends! Please help!

Discuss these questions in class and jot down some points in order to use them when writing the letter.





Thank you for helping Thumi get better!

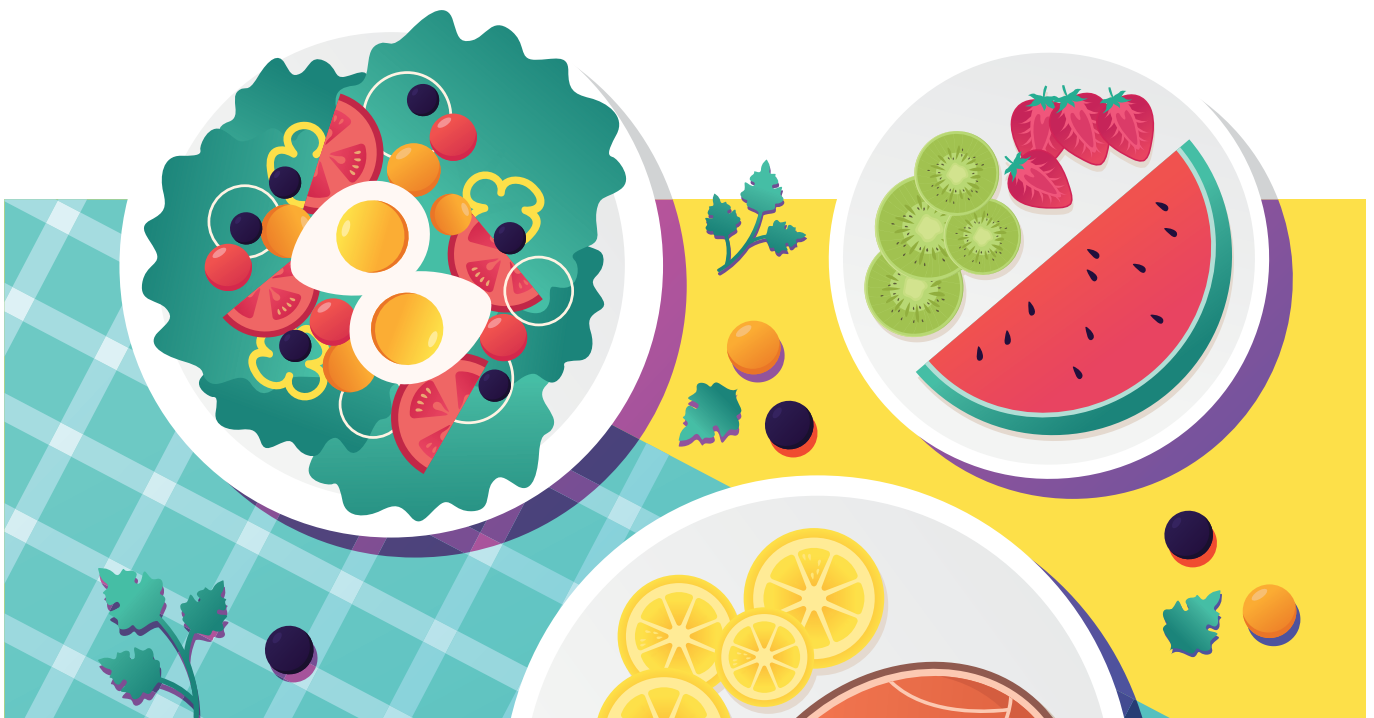
- Can you help her to make better choices?
- Can you come up with creative solutions for a better lifestyle?
- What does Thumi eat?
- Why is this not healthy?
- Why does she not eat healthy food?
- What can Thumi do to be healthier?



### ACTIVITY 3.3

Take the paper that the teacher hands you and draw a circle on it. This is a plate. Now draw a balanced meal on the plate and colour it. Remember to use what you have learned about food groups.

Be creative! Write your name on the back of the plate and hand it back to your teacher. Your drawing may be used for the exhibition.





## ACTIVITY 4.1



Take the paper that the teacher hands you and draw a circle on it. This is a plate. Now draw a balanced meal on the plate and colour it. Remember to use what you have learned about food groups.

Why is water so important to us and all other life forms on earth? Discuss in your group and ask your group communicator to give feedback to the class.

The quality of our water should be protected. How can we do that? Discuss your personal ideas with your group and then in a class discussion.

Saving water is important! How many ways you can come up with to save water? No idea is a bad idea.

Work together as the tower-building group. Your teacher will divide the class into groups. Using all the information your teacher has written on flash cards, create posters of the following:

- Group A: The importance of water
- Group B: How to save water
- Group C: A world without water



***Complete Worksheet 4.1 in your Learner's Project Worksheets***





## ACTIVITY 4.2

As a class, discuss when you will exhibit your tower gardens and research (healthy food and the importance of water) to family, friends and the rest of the school. Will it be best to do it before school one day, or after break, or maybe after school on a Friday?

Make a list of the people you would like to invite. If you invite people, you should also keep them happy. (Do they need chairs for sitting down? Is there a welcoming speech? Do they expect entertainment, singing and dancing? Will they be expecting food and drinks?)

Plan the final details of the exhibition with your teacher.



**Complete Worksheet 4.2 in your Learner's Project Worksheets**



## ACTIVITY 5

**It is EXHIBITION DAY!**

Help your teacher and classmates to set up the exhibition. You already have a task list and you know what to do. Put up the posters, pack out the chairs and make sure that your tower garden is watered. Enjoy showing the guests around and share what you have learned about healthy eating and saving water.

You should be proud of your hard work!

***Please help to clean up afterwards***

Back in class the day after the exhibition, reflect on your experience.



**Complete Worksheet 5 in your Learner's Project Worksheets**



# GLOSSARY

## Some word meanings

| LANGUAGE STRUCTURES AND CONVENTIONS |  |
|-------------------------------------|--|
| PART OF SPEECH                      | EXPLANATION  |
| Noun                                | a word (other than a pronoun) used to identify any of a class of people, places, or things (common noun), or to name a particular one of these (proper noun).    |
| Verb                                | a word used to describe an action, state, or occurrence, and forming the main part of the predicate of a sentence, such as hear, become, happen.                 |
| Adjective                           | a word naming an attribute of a noun, such as sweet, red, or technical.  |
| WORD                                | DEFINITION   |
| base (noun)                         | the lowest part or edge of something, especially the part on which it rests or is supported.   |
| charcoal (noun)                     | a porous black solid, consisting of an amorphous form of carbon, obtained as a residue when wood, bone, or other organic matter is heated in the absence of air. |
| compress (verb)                     | be squeezed or pressed together or into a smaller space.   |
| create (verb)                       | bring (something) into existence.  |
| divide (verb)                       | separate or be separated into parts.   |
| drip (verb)                         | cause or allow (a liquid) to fall in small drops.  |
| entertainment (noun)                | the action of providing or being provided with amusement or enjoyment.   |
| exhibit (verb)                      | publicly display (a work of art or item of interest) in an art gallery or museum or at a trade fair.   |
| exhibition (noun)                   | a public display of works of art or items of interest, held in an art gallery or museum or at a trade fair.  |
| filter (verb)                       | pass (a liquid, gas, light, or sound) through a device to remove unwanted material.  |
| flaky (adjective)                   | breaking or separating easily into flakes.   |
| flash cards (noun)                  | a card containing a small amount of information, held up for learners to see, as an aid to learning.   |
| funnel (noun)                       | a tube or pipe that is wide at the top and narrow at the bottom, used for guiding liquid or powder into a small opening.   |
| germinate (verb)                    | (of a seed) begin to grow and put out shoots after a period of dormancy (sleep).   |
| guest (noun)                        | a person who is invited to visit someone's home or attend a particular social occasion.  |



## GLOSSARY (CONTINUED)

### Some more word meanings

| WORD                  | DEFINITION  |
|-----------------------|---|
| herb (noun)           | any plant with leaves, seeds, or flowers used for flavouring, food, medicine, or perfume.   |
| incision (noun)       | a mark or decoration cut into a surface.  |
| instructions (noun)   | detailed information about how something should be done or operated.  |
| irrigation (noun)     | the supply of water to land or crops to help growth, typically by means of channels.  |
| lifestyle (noun)      | the way in which a person lives.  |
| major (adjective)     | important, serious, or significant.   |
| marker (noun)         | an object used to indicate a position, place, or route.   |
| measurements (noun)   | the size, length, or amount of something, as established by measuring.  |
| personal (adjective)  | done or made by a particular person; involving the actual presence or action of a particular individual.  |
| posters (noun)        | large printed pictures used for decoration or to advertise something.   |
| potting mix (noun)    | special sand in which to grow plants, herbs and vegetables in a pot or other durable container.   |
| seedlings (noun)      | a young plant, especially one raised from seed and not from a cutting.  |
| sluggish (adjective)  | slow-moving or inactive.  |
| suspect (verb)        | have an idea or impression of the existence, presence, or truth of (something) without certain proof.   |
| system (noun)         | a set of things working together as parts of a mechanism or an interconnecting network; a complex whole.  |
| tower garden (noun)   | The tower garden system is a vertical, aeroponic tower structure that allows you to grow up to 20 plants such as fruits, vegetables, spices, or flowers, using the one unit. The tower takes up very little room. |
| trellis (noun)        | a framework of light wooden or metal bars used as a support for fruit trees or creepers, typically fastened against a wall.   |
| twine (noun)          | strong thread or string consisting of two or more strands of hemp or cotton twisted together.   |
| vetkoek (noun)        | a small, unsweetened cake of deep-fried dough.  |
| welcoming (adjective) | behaving in a polite or friendly way to a guest or new arrival.   |





## NOTES

[illegible]



## NOTES

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