



LIVING LEARNING LABS

**GROW AND GLOW
TRANSFORMATIVE LEARNING
ANYWHERE**

This Teacher Resource is based on a workshop designed by Papiki Ramoshaba (LEAP 3) and Neliswa Nyandeni (LEAP Institute) for the Global Teachers Institute (GTI) Axis Summit of 2023.



**GLOBAL
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GLOBAL TEACHERS INSTITUTE
AXIS SUMMIT 2023
GLOWING UP LEARNING FOR ALL

AIM OF THIS RESOURCE

LEAP Living Learning Labs is a way of using environmental spaces and themes to blend project-based transformative learning with social responsibility in the lives of learners and their communities.

This resource gives you, the teacher, strategies and content to use Living Learning Labs to foster experiential, guided learning with your learners, and to explore these ideas with your colleagues.

PRINCIPLES FOR EXPERIENTIAL GUIDED LEARNING



Contextual crisis – **contextual solutions.**

Science and **evidence-based** learning.

Schools as sites of learning through **experience.**

Disciplines and learning areas are **interconnected.**



WHAT ARE LIVING LEARNING LABS?

Living Learning Labs are anything that one wants them to be. They are innovative and transformative spaces for learning and teaching situated outside of the traditional classroom, with the aim of fostering productive educational experiences.

These laboratories are accessible and contextually relevant places in schools and communities where different aspects of the curriculum can be taught, studied, experienced, integrated and assimilated. Some of the benefits are:



They make learning and teaching about sustainable development **interesting**, which develops learner **commitment to action** (agency) in sustainable practices in general.



They integrate learning across subjects and support the use of a variety of **innovative teaching and learning strategies**.



They **enrich teaching and learning** in subjects such as Life Orientation, Life Sciences, Natural Sciences and Social Sciences.



They empower learners to **explore alternative avenues** for scientific enquiry in environments with limited access to technology.



SCENARIOS/THEMES FOR LIVING LEARNING LABS

Here are some themes for Living Learning Labs:

FOOD GARDEN EDITION

Food, nutrition, constitutional rights and self-liberation.

THE BEE EDITION

Sustainability, ecological balance and environmental stewardship.

THE EARTHWORM EDITION

Waste, recycling, earthworms and composting.

SOLAR CHARGER EDITION

Energy, renewable energy and just transitions.

SPEKBOOM EDITION

Climate change, carbon sequestration and regeneration.



Food gardens allow for teaching that is empowering, experiential, collaborative, inter-disciplinary and innovative. Teachers and learners are able to co-design learning and teaching activities, promoting learner agency while helping them see different ways of finding information and learning new skills. A key aspect is their role in raising awareness and building capacity around sustainability, in their peers and other circles.

Gardens can be vertical, hydroponic, or soil-based:

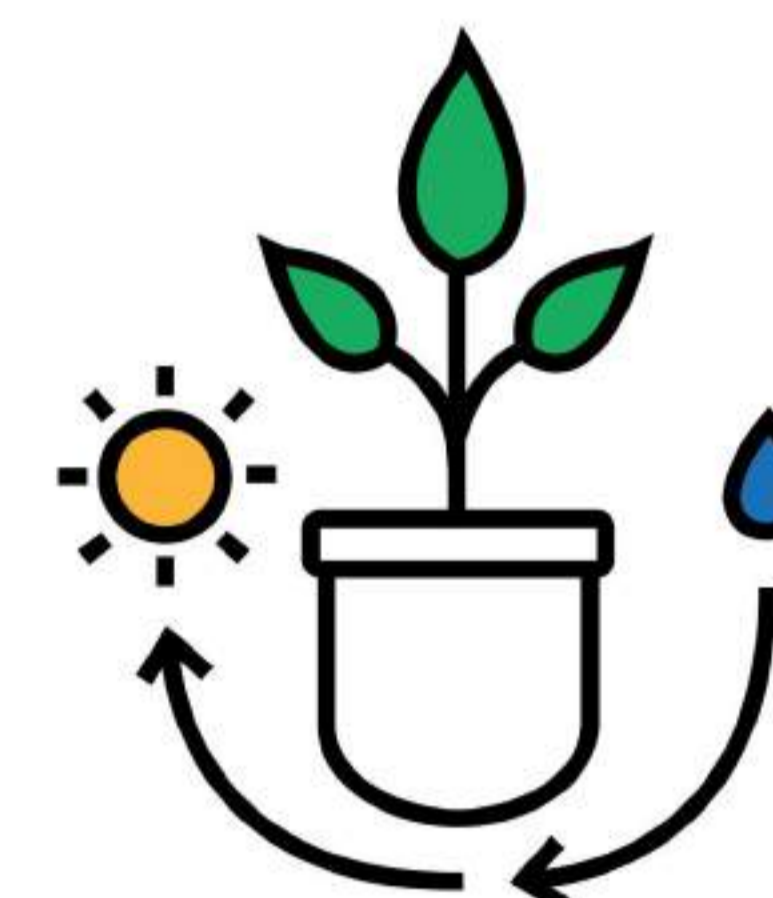
- A **vertical garden** grows plants upwards rather than horizontally on the ground. It maximizes limited space, especially in urban areas. Anything can be used to make a vertical garden: for example, instead of buying baskets to use as planters, learners can collect and use two litre bottles attached to a wall as alternatives. This also promotes recycling.
- **Soil-based gardening** (traditional or conventional gardening) is a method of growing plants directly in the ground using natural soil as the medium for plant growth. Because plants rely on the nutrients and water available in the soil, this may be difficult to sustain.
- **Hydroponics** is the technique of growing plants using a water-based nutrient solution and materials.

ACTIVITY EXAMPLES

A. GRADE 8: NATURAL SCIENCES - PHOTOSYNTHESIS

**These can be adapted for the Intermediate, Senior and FET phase.*

Take learners outside to observe photosynthesis to make the learning experience more engaging and practical. Here's how you can demonstrate the process using plants with different levels of sunlight:



1 PREPARING FOR THE ACTIVITY

- Tell learners about the purpose of the activity beforehand and explain what they should expect to observe.
- Choose two similar plants, ideally ones that are commonly found in your area.
- Find a location where one plant will receive ample sunlight throughout the day, while the other will be partially shaded or completely deprived of direct sunlight.

2 OBSERVING THE PLANTS

- Take your learners outside and introduce them to both plants.
- Explain that photosynthesis is the process by which green plants use sunlight, water, and carbon dioxide to produce glucose (food) and release oxygen as a by-product.
- Encourage learners to closely observe both plants for visible differences over time.

3 MONITORING GROWTH & CHANGES

- Have learners record their observations regularly, noting any changes in leaf colour, size, or overall health.
- Ask them to describe any variations between the plant receiving sufficient sunlight and the one lacking it.
- Discuss how these differences relate to photosynthesis.

4 REFLECTING ON FINDINGS

- After sufficient growing time, get learners together to discuss their observations.
- Encourage them to share their recorded data and compare results between both plants.
- Facilitate a conversation around how getting enough sunlight affects plant growth and survival through photosynthesis.

5 SUMMARISING KEY LEARNINGS

- Summarise the main points discussed during the activity: the importance of sunlight for photosynthesis, its role in providing energy for plant growth, and its impact on overall plant health.
- Emphasise that this outdoor observation helped reinforce theoretical knowledge with real-life evidence.

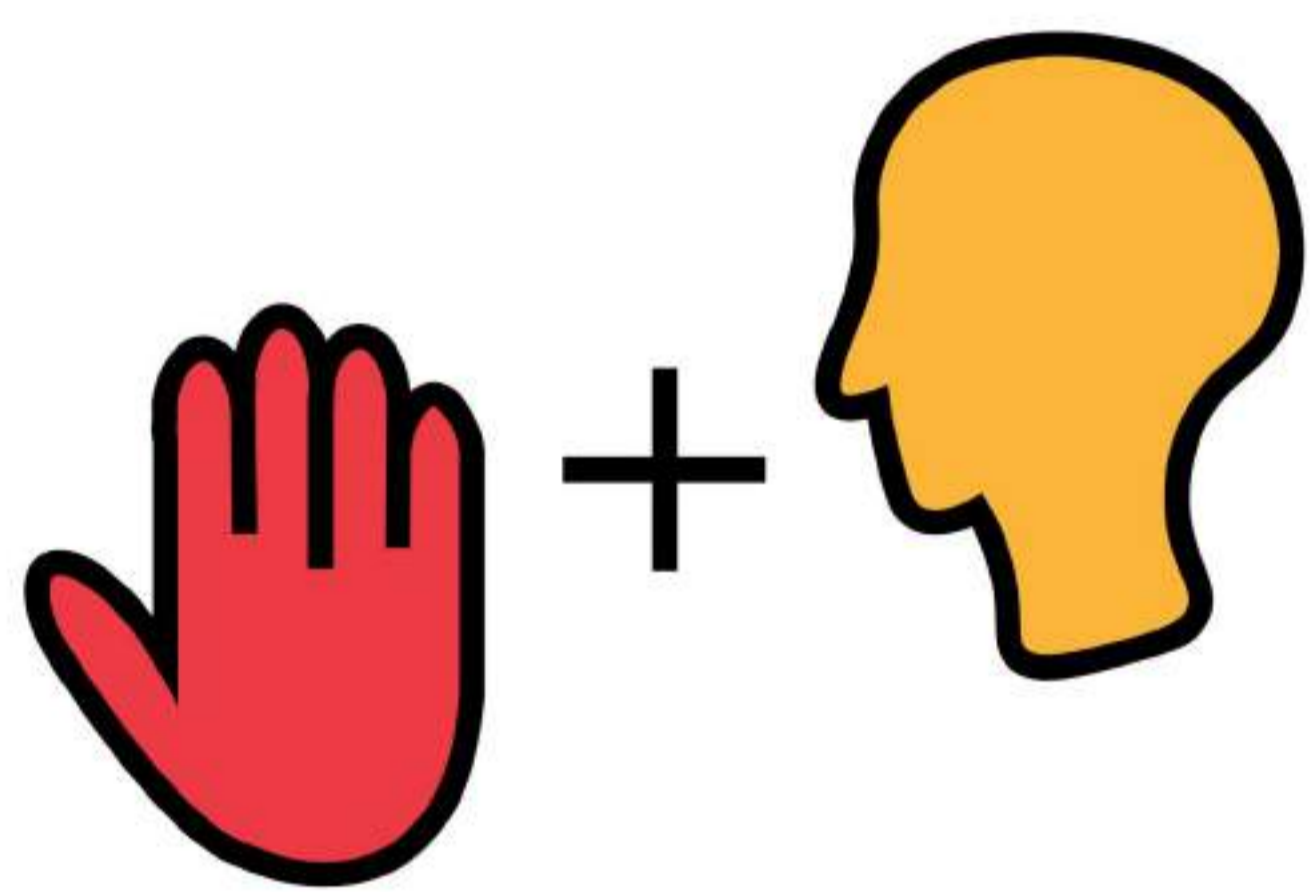
Remember to provide guidance and support throughout the activity, encouraging learners to ask questions and fostering a sense of curiosity about photosynthesis in nature.

ACTIVITY EXAMPLES

B. EXPERIENTIAL LEARNING

In this activity, learners/ teachers will engage in one or more of the following activities in the vegetable garden, whether this is a vertical or conventional garden:

- Plant vegetables
- Tend to the garden by weeding, combating attacks on plants by animals
- Adding mulching or compost or fertilizer
- Harvesting
- Watering
- Exploring



This is learning through experience - 'doing with the hand and learning with the head' - introducing learners to difficult concepts such as nutrition, food security, balanced food consumption, climate change, sustainability, hydroponics, photosynthesis, etc.



Other discussion topics include relationships with nature, planting, and a call to action: "Think global, act local".

Explore the following questions:

- What vegetation exists and how does its position affect its impact?
- How much food can/has it produced?
- Where does our food come from?
- How much do we buy in stores, and where do we get it? How does it get to the store?

REFLECTION:

Talk about the experience of planting, what you learnt about vegetables, gardening or producing food.

CHALLENGES & BARRIERS

The following challenges and barriers were discussed by teachers/participants during the workshop at the GTI Axis Summit.

Garden maintenance and advocating for sustainable conservation practices with the school community are typically difficult tasks. Gardening has poor occupational and social standing, which influences how learners interact with the practice. We need to emphasise that gardening has many advantages for people of all backgrounds. It can be a hobby, a form of exercise, a way to unwind and connect with nature, or a method of producing sustainable food.

Learners sometimes have fixed notions about gender roles in garden work which need to be addressed.

Many schools cannot afford to engage a professional gardener, and we need support when creating a food garden. Gardens need to be consistently looked after. When a garden is first established, teachers and learners are enthusiastic and the gardens are properly cared for, but they die out over time.

Soil-based gardening necessitates regulating nutrient levels in the soil to promote healthy plant growth, which is difficult to manage.

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Greenhouses can be an alternative since they protect plants from draughts, animals, and harsh weather conditions; however, they are pricey, and the tools needed to set them up may not be available to the school.

It is important to set up adequate irrigation practices to avoid under or over-watering. With water scarcity, we need to make sure that we plant crops that do not require a lot of water.

A shortage of space is a barrier to maintaining a food garden. Vertical gardens are a space saving solution.

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CONCLUSION

The goal of Living Learning Labs is to ensure that teaching and learning are not limited to the traditional classroom. By creating accessible learning spaces in the context of schools and communities, the labs help promote and support learning and scientific inquiry. This contributes to quality in South Africa's education. With some ingenuity, all teachers at any grade level can use Living Learning Labs.

Living Learning Labs ensure that "every African child is a **citizen scientist**; every school is an active living learning laboratory."





SPREAD THE WORD

If you want to share these ideas with other teachers in your school or network, you will find a complete Workshop Guide and set of resources and handouts at:

globalteachers.org

These work on the principle of modelling what you would do with learners with other teachers. The workshop also gives all participants a chance to enrich these activities and resources with new ideas, and to help you address any problems you might have come across in using this approach.

WE WISH TO ACKNOWLEDGE THE GENEROUS SUPPORT OF OUR SPONSORS

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