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Entrepreneurship education challenges for school gardens, school farms and agricultural education. Lessons from South Africa and Uganda. A sprouting entrepreneurs manual

Johannesburg / South Africa : Austrian Federal Ministry of Education, Science and Research (BMBWF) 2023, 126 S.

Matthias Forcher-Mayr

SPROUTING ENTREPRENEURS

Sabine Mahlknecht

Sprouting Entrepreneurs is a United Nations SDG GOOD PRACTICE

Entrepreneurship Education Challenges for School Gardens, School Farms and Agricultural Education: Lessons from South Africa and Uganda

on behalf of

Federal Ministry
Republic of Austria
Education, Science
and Research

A Sprouting Entrepreneurs Manual

growing change

SPROUTING ENTREPRENEURS

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Sprouting Entrepreneurs is a United Nations SDG GOOD PRACTICE

Picture: A Sprouting Entrepreneur at Sharing Youth Center Nsambya, Kampala, Uganda.
Source: participating teachers.

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EASTERN CAPE
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GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

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Published by:
Austrian Federal Ministry of Education, Science and Research (BMBWF), PO Box 66, Kliprivier, 1871, South Africa. Sprouting Entrepreneurs (registered NGO – 1906717747), Colingasse 8, 6020 Innsbruck, Austria

The project has received ethical approval from the Eastern Cape Department of Education (ECDoE) and Gauteng Department of Education (GDE). Depicted persons/legal guardians have given written consent. All mentioned and depicted institutions in South Africa and Uganda have agreed to participate in the project and being included into a teacher manual.

Cover and book design by EAV Studio, eavstudio.com, Johannesburg.

Editing: Natalie Watermeyer, Johannesburg.

Cite as: Forcher-Mayr, M. & Mahlknecht, S. (2023). Entrepreneurship Education Challenges for School Gardens, School Farms and Agricultural Education: Lessons from South Africa and Uganda. Johannesburg: BMBWF/ Sprouting Entrepreneurs.

ISBN: 978-0-6397-8654-4

Authors' note
This manual contains revised sections of the following publications:

Forcher-Mayr, M., & Mahlknecht, S. (2021). Teaching Entrepreneurship Education through School Gardens. Developing and Implementing Ideas for a Sustainable Future. Sprouting Entrepreneurs Teacher's Manual. Grade 5-12. Johannesburg: Austrian Federal Ministry of Education, Science and Research. https://doi.org/10.25656/01:25313

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Sprouting Entrepreneurs supports the SUSTAINABLE DEVELOPMENT GOALS

Picture cover: Learners of Sigidini Primary School, Alfred Nzo West district, Eastern Cape, South Africa collecting their harvest in January 2023.
Source: participating teachers.

SPROUTING ENTREPRENEURS

Sprouting Entrepreneurs is a United Nations SDG GOOD PRACTICE

Matthias Forcher-Mayr

Sabine Mahlknecht

Entrepreneurship Education Challenges for School Gardens, School Farms and Agricultural Education: Lessons from South Africa and Uganda

Picture: The Entrepreneurship Learning Garden of Ntlalontsha Primary School in Alfred Nzo East district in the Eastern Cape, South Africa. This garden epitomises sustainable garden-based learning. It is embedded in the local community, and an engaged subject advisor from the district supervises and supports teaching and learning. The school principal leads the project, together with the teachers. Small plots are assigned to learner-teams for project work, so they feel a sense of ownership. The plots are a manageable size for learners, and sustainable techniques such as mulching are applied. Learning is connected to problems or opportunities in the community, ranging from livelihood creation and food insecurity to the local supply of organic vegetables, healthy eating, and beyond.

Content

List of acronyms

BMBWF	Austrian Federal Ministry of Education, Science and Research
CAPS	Curriculum and Assessment Policy Statement
EC	Eastern Cape
ECDoE	Eastern Cape Department of Education
EMS	Economic Management Sciences
GDE	Gauteng Department of Education
PLC	Professional Learning Community
SA	South Africa
SDG	Sustainable Development Goals
SE	Sprouting Entrepreneurs
SGB	School Governing Body
TVET	Technical Vocational Education and Training
UG	Uganda
UN	United Nations

List of figures and tables

Figures

Tables

Picture: Learners tending to their plots at Mjoli Senior Primary School, Mount Ayliff, Alfred Nzo West district, Eastern Cape, South Africa.

About this manual

This manual is given to teachers who take part in a multi-day training programme, which includes a self-directed, school-based practical project with learners. It seeks to support graduates of Sprouting Entrepreneurs' training in their teaching in the Entrepreneurship Learning Garden. The ideas presented in this manual can be implemented as early as in primary school, all the way to post-school education: The contents of this book have been used in teaching all these age groups in South Africa, and, to a lesser extent, in Uganda and Austria. The manual is divided into two main parts: a general section and a challenge section. The general section defines concepts and offers perspectives on learning in the garden. The challenge section provides teachers with ideas to use in their own subject-specific teaching.

We would like to encourage schools and educators who have not completed Sprouting Entrepreneurs' training to make full use of the manual. Ideally, this manual should be read in conjunction with one of the previous versions, as key sections have not been reprinted here. Both this and previous versions of the manual can be downloaded online (enter "Sprouting Entrepreneurs" in your search engine).

The first Sprouting Entrepreneurs manual was published in 2019 in South Africa, on behalf of the Eastern Cape Department of Education. This was revised in 2020 (for the Gauteng Department of Education) and in 2021 (for the KwaZulu-Natal Department of Education and Durban University of Technology). Over the last four years, we have received valuable feedback from colleagues and gained new insights, ideas and experiences during teacher training and practical work in the Entrepreneurship Learning Gardens of partner schools. This has motivated us to develop a new manual containing both new and modified challenges.

After much discussion, we have decided to write this manual in a more personal and practical style than previous editions. Our aim is to present the underlying teaching ideas in a more accessible way, given the many challenges facing schools in marginalized areas.

With regard to photographs in the manual, we have made a point of naming our esteemed colleagues and their schools, with their enthusiastic consent. We believe that using actual stories of educators and schools makes the action-reflection and joint learning approach of this project more apparent. In doing so, we want to demonstrate the ongoing exchange within communities of practice, as well as the high level of commitment to the project demonstrated by educators and schools. This commitment has produced

a large body of ideas and experiences, developed through practice and shared at workshops and via WhatsApp groups over the years.

Our experience in South Africa shows that primary schools (grade 5-7) and special educational needs schools do exceptionally well in the project – often better than agricultural high schools. This is an invitation to officials to think about and discuss the curriculum and its implementation, as well as the widespread notion that teaching and learning in higher grades must emphasize academic development, as opposed to play and exploration.

Above all, Sprouting Entrepreneurs aims to foster creativity, the ability to inquire critically into society, and the development and implementation of ideas that address societal problems. It is therefore important that teaching and learning are organized in such a way that learners can ask questions, experiment creatively with ideas, and learn from their mistakes. It is the responsibility of the education system, schools, and teachers to provide spaces of action-oriented learning, and to scaffold the learning process so that young Sprouting Entrepreneurs receive the required balance of instruction and experimentation.

We, the authors, are deeply grateful for the opportunity to work on a project for such a prolonged period. For us, it has been a great medium of personal learning, professional development and academic reasoning. Perhaps most importantly, we have learned a great deal about the daily challenges and consequences of educational injustices in the Global South, and the resilience both teachers and learners must display in challenging circumstances. While we are very grateful to our colleagues at the schools, we also want to thank our colleagues from partner institutions in South African and Uganda for their trust, humour and strong support. Moreover, we would like to thank the Eastern Cape Department of Education, as well as the Gauteng Department of Education (both in South Africa) for many years of good cooperation. In Uganda, we have been collaborating with the Luigi Giussani Institute of Higher Education and the vocational training institutes of the Gender Equality in Training (GET) programme, financed by the Austrian Development Cooperation. Finally, we are thankful to our employer, the Austrian Federal Ministry of Education, Science and Research, for supporting this project over the years with great enthusiasm.

Sprouting Entrepreneurs has stimulated South-North, as well as South-South learning. In 2020, our methodology was included in the Austrian entrepreneurship education strategy, and several training sessions were conducted at Austrian teacher training institutions. Our approach has been presented at several academic and professional conferences, and published in a number of peer-reviewed journals. In 2021, the United Nations named Sprouting Entrepreneurs a Sustainable Development Good Practice. In 2022, Sprouting Entrepreneurs was piloted in Ugandan vocational education institutes.

We hope that the content of this manual contributes to teaching that supports the development of young citizens who critically engage with society at the levels of school, community and beyond, by creating value for others in a sustainable way. We also hope that, even in the most resource-deprived and overburdened school, some of the ideas in this book can help teachers make learning relevant, joyful and empowering. Finally, as always,

MAY THE GROWTH BE WITH YOU!

Matthias Forcher-Mayr & Sabine Mahlknecht

Johannesburg, July 2023

Part I

INTRODUCTION TO THE SPROUTING ENTREPRENEURS APPROACH

Picture: Learners from the Sprouting team at Nageng Primary School, Sedibeng East district, Johannesburg, SA share their value proposal: "We sell fresh, organic and learner-produced lettuce close to your home, at a cheaper price than in supermarkets. If you buy from us, you support our effort and our learning, with all the above-mentioned benefits."

1. Sprouting Entrepreneurs: about a problem and an idea

The idea of Sprouting Entrepreneurs (SE) was sparked in 2014 at Ithuba Community College Johannesburg, in the township of Katlehong. Our involvement in the overall development of the Ithuba campus and the quality of teaching and learning there, provided us with deep insight into the opportunities and challenges involved in implementing the South African national school curriculum, CAPS. At the same time, entrepreneurship education was becoming an increasingly important policy initiative in the South African school system.

Over the last decade, we have been working in and with South African public schools, and have observed that the education system provides teachers with conflicting instructions. In line with the global trend, teachers are expected to teach entrepreneurial competences, and what is popularly summarized as "21st century skills" (Fadel, 2008). This requires a constructivist, learner-centred and action-oriented approach to teaching. Implementing this approach requires skill and experience, along with curricular freedom.

Picture: Happy customers buying vegetables at Market Day. Source: participating teachers.

At the same time, however, the education system asks its educators to follow a strongly content-based curriculum, implementing weekly content prescriptions. This is closely monitored by the local education department, and seeks to ensure curriculum coverage and satisfactory pass rates.

The reality of the classroom is that both the open, learner-centred approach and the traditional, teacher-centred approach are often challenged by high teacher-learner ratios and a lack of teaching materials and quality infrastructure. Learner performance is also affected by the wider socioeconomic situation in which children and youth grow up. When thinking about teaching entrepreneurship, it is important to consider both the educational environment and the broader societal structure that shapes school education. Systemic changes to better accommodate entrepreneurship education in the South African CAPS curriculum are yet to be seen.

The SE model has been developed in collaboration with disadvantaged urban and rural South African public schools over almost a decade. It is conscious of the structures in which teaching and learning take place, and the wider challenges facing South African society. Principals, teachers and school governing bodies have collaborated with the authors to implement SE in a meaningful way.

In 2022, SE was piloted in Ugandan primary and secondary schools, as well as in post-school vocational training institutes. While the adaptation of the SE model is at an early stage, this version of the manual includes experiences, discussion and input from Uganda.

The SE model is guided by the following didactical questions:

- How can hands-on entrepreneurship education be implemented in disadvantaged schools (general education, business-related subjects, vocational subjects)?
- What kind of teaching and learning are required to shape young citizens who are motivated and able to tackle societal problems as entrepreneurs?
- How can entrepreneurship education be integrated into agricultural vocational education?

The SE model uses school gardens as a medium of learning. This is emphasized by the use of the term "Entrepreneurship Learning Gardens". In the South African context, gardens are great learning spaces for several reasons: To begin with, most South African schools are equipped with large grounds, relatively fertile soil, and other infrastructure such as a water, adequate fencing and security. The country has an excellent climate in which to grow vegetables all year round, and learners can see the results of their work almost immediately. In addition, food insecurity, malnutrition and obesity are representations of larger societal problems in

South Africa. Growing food in gardens allows learners to explore, understand and engage with some of the country's most pressing developmental problems. Garden-based entrepreneurial learning becomes the lens through which young citizens can learn about their society and its challenges, and engage with them. However, the entrepreneurship competences developed in the Entrepreneurship Learning Garden or an agricultural vocational setting are not limited to these contexts. Learning outcomes are transversal, meaning that acquired competences can be applied in any sector of society – in professional, citizen and private life.

Picture: Learners from Rand Gold Primary School in Gauteng West district, SA, proudly taking their harvested spinach home.

This is a great way of connecting with caregivers and demonstrating some of the school's activities to them.

Learners are usually very proud to show the results of their work to someone outside their school.

Spinach grows well even during winter, and can produce crops for up to four months.

Source: participating teachers.

The SE model uses the garden as a medium through which to ask questions about society and the economy, as well as to teach the creativity and tools needed to develop and implement ideas that create value for others.

Schools can integrate SE into the following subjects:

- Business-related subjects: The garden is used to implement the syllabus. Learner-managed plots are framed as small enterprises, providing learners with hands-on experience of the curriculum. For example, in Economic Management Sciences (EMS), learners grow vegetables to sell on Market Day.
- Agricultural subjects: The SE model allows for teaching that uses project-based learning to simulate real-world vocational experience. The learning of knowledge and skills is integrated into a more holistic and action-oriented approach. For example, instead of learning about soil preparation in isolation, learners independently grow a chosen crop.
- Sprouting Entrepreneurs Club: Interested learners from various grades join a club, usually headed by the teachers of business-related subjects. The club works on one or two days per week. Some schools have reduced the length of all subject periods by five minutes to make time for SE.
- General subjects: The garden is used to cover the syllabus in a practical way. In Mathematics, for example, learning about measuring units is done in the garden.

The following examples from EMS illustrate the application of the SE model in the Entrepreneurship Learning Garden, where learners grow food based on the needs and demands of consumer-citizens:

- Financial literacy / household economics: Learning about household expenses and budgeting is an important element of financial literacy. Learners can tackle topics such as the amount spent by households on vegetables each month and the risk of food insecurity, and develop ideas to lower their household expenses.

ENTREPRENEURSHIP LEARNING OUTCOMES

- We can inquire into and understand challenges and opportunities.
- We can develop and implement an idea.
- We have developed a mindset of critical inquiry, exploration, creativity, initiative, collaboration, self-efficacy, self-reflection.
- We aim towards self-determination, participation, solidarity, and sustainability.

Figure 1: Sprouting Entrepreneurs' core learning outcomes.

- Core entrepreneurship competences through real-life mini enterprises: When learners grow vegetables at school or in their home gardens for themselves, the school, external customers or households in need, they gain first-hand experience of concepts such as costing, growing, and marketing and sales.
- Learning for citizenship: The real-life experience of food production and supply can serve as a prism through which to consider economic and political reasons for food insecurity, along with ways to improve access to affordable, healthy and sustainably-produced food at different levels of society.

Further reading: Forcher-Mayr, M. & Mahlknecht, S. (2020). A capability approach to entrepreneurship education: The Sprouting Entrepreneurs programme in rural South African schools. In: Discourse and Communication for Sustainable Education 11(1). pp. 119–133.

2. Sprouting Entrepreneurs and agricultural education in TVET

Sprouting Entrepreneurs' approach is two-fold: On the one hand, it teaches entrepreneurship using the medium of the garden. As such, it can be used by any subject concerned with activities that create value for others. On the other hand, SE looks at how to teach entrepreneurship in agriculture, and by extension, vocational education in agriculture. In South Africa, garden-based learning that focuses on agricultural skills and/or business skills in upper primary/ lower secondary school (grade 5-8) serves as pre-vocational learning for initial TVET at school or college (grade 9-12), as well as for post-school training.

As a TVET pedagogy, SE moves away from teacher-centred demonstration and demonstration gardens,

The "vocational learning field" refers to the idea that learning should simulate core situations within a trade. Knowledge and skills are selected and taught in context to enable learners to master a specific aspect of their trade. This manual adopts a similar approach.

Picture: Learners at CIDI Training Centre for Gardening and Landscaping in Kampala, Uganda. Source: participating teachers.

Figure 2: Sprouting Entrepreneurs' combined learning areas.

where learners learn passively by observing teachers. In contrast, SE emphasizes the concept of the "learning garden", in which learners learn by doing. This is not to say that there is no room for demonstration. Rather, a short demonstration is followed by a longer period in which learners actively experiment with their newly-acquired knowledge or skills. In addition, new content is presented holistically – for example, learning how to plant a seed is part of the larger process of establishing a garden.

This approach draws on the concept of the "vocational learning field" (Pilz & Fürstenau, 2019), in which training simulates core vocational situations, i.e. the situations that make up the reality of practicing a trade. Rather than teaching knowledge and skills in isolation, a learning field teaches key concepts and tangible skills as they are practiced within a specific trade. Each learning field consists of specific skills and competencies that are taught in a process of increasing complexity, so that learning mirrors real-life situations. For example: "preparing a plot for vegetable cultivation" can be seen as a vocational learning field that includes concepts ("learning situations") such as "identifying a suitable place", "soil analysis", "preparing the soil", "planting plans", "materials and cost calculation", etc. As students move through the stages of establishing their plot, they learn these concepts in a practical and integrated way.

This teaching manual adopts the idea of the vocational learning field. Developing and implementing a business or non-profit idea is conceptualized as a field that progresses from inquiry to the final offering of a product or service. In order to tackle the various learning situations, entrepreneurial learning is organized as a project consisting of key learning activities that are driven by the student and carefully scaffolded by the teacher.

3. Sprouting Entrepreneurs partner schools in South Africa

Since 2017, Sprouting Entrepreneurs has been rolled out in the provinces of the Eastern Cape, KwaZulu-Natal and Gauteng. Schools that have excelled have been named "partner schools", and now form part of a network of several communities of practice that exchange ideas.

SE teachers at partner schools have to complete 70 hours of training, including a practical Entrepreneurship Learning Garden project undertaken by the teacher and learners at the school. At the end of the training cycle, teachers receive a certificate. Since 2023, the Gauteng Department of Education has certified outstanding Sprouting Entrepreneurs learners in an annual ceremony.

Picture: Learners working their raised beds in a growing tunnel. Tunnels are great for maximizing harvest and growing seedlings from seed in colder climates. When approaching sponsors, a tunnel can be a good item to request. Many sponsors prefer to donate things that represent them. A tunnel may therefore be more suitable than, say, bags of compost. Source: participating teachers.

Figure 3: The Sprouting Entrepreneurs partner school signboard shows that a school is a member of the SE network.

Figure 4: Sprouting Entrepreneurs Certificate of Attendance for participating teachers.

Figure 5: The back of a learner certificate, describing Sprouting Entrepreneurs' learning content.

Picture: Graduation ceremony for 40 teachers from 20 schools, who have completed their training – Alfred Nzo West district, Eastern Cape, SA.

Pictures: left – A Rand Gold Primary learner proudly showing his Sprouting certificate.
Right –the learner pictured with the Minister of Education of Gauteng province MEC, Mr. Matome Chiloane, and Rand Gold Sprouting Coordinator, Mr. Shorai Moffat (from left to right). Source: participating teachers.

Picture: Schools who participate in the Sprouting Entrepreneurs programme receive a once-off garden starter pack, which includes tools, seeds, and compost. Here, the advisor for agricultural subjects in Alfred Nzo West district, Eastern Cape, SA, Mr. Nelson Gqada, and his colleague, Ms. Ngozi-Nikelo, are busy distributing packs to principals, at King Edward High School in Matatiele.

Tools	*Units*
Wheelbarrow Builders Black Concrete Wheelbarrow Product number: 467570	1
Hand fork Tramontina Product number: 620892	25
Hand spade Tramontina Product number: 620886	25
Garden Rake Lasher Garden Rake Product number: 18580	5
Garden Hoe Tramontina Small Garden Hoe Product number: 744325	5
Garden fork Builders Black/Yellow Four Prong Fork Product number: 529846	5
Garden Master Ladies' Spade Product number: 529821	5
Garden Master Hose Pipe Plus Fittings Product number: 628126	2
Garden Master Sprinkler Product number: 457186	1
Watering can Watering can (5 L) Product number: 750699	10
Materials	
Compost Culterra Compost 30dm3, Product-No. 34538	50
Seeds Garden Master Vegetable Seed Packs: Starke Ayres Chard Seeds (Product-no: 598219) Starke Ayres Beetroot Seeds (Product-no. 598190) Starke Ayres Cabbage Seeds (Product-no. 598192) Starke Ayres Carrot Seeds (Product-no. 598193) Starke Ayres Lettuce Seeds (Product-no. 598200) Starke Ayres Tomato Seeds (Product-no. 598220) Starke Ayres All year round Onion seeds (Product-no. 598205) Starke Ayres Beans Seeds (Product-no. 598188)	80 10 10 10 10 10 10 10 10

Table 1: Specifications of the recommended garden starter pack (per school/40 learners). Product no. supplier: www.builders.co.za

Before schools receive their starter packs, it is important to ensure that all items will be safely stored and catalogued. It should be emphasized that tools are only to be used by learners working in the garden, and not for other purposes.

4. Properties of a successful Sprouting Entrepreneurs implementation cycle

Experience has shown that teachers and learners can only successfully implement the Sprouting Entrepreneurs programme with adequate support from their schools and local education officials.

4.1. The role of officials in the education department

In public school systems that emphasize the role of centralized monitoring, schools expect a certain level of guidance from the education department. This is especially so when a programme is initiated by the department. In the Eastern Cape, Sprouting Entrepreneurs has been implemented by the Sub-Directorate for Revitalization of Agricultural Schools since 2019. Effective leadership has made the process highly successful. This includes ownership and stewardship of the programme, from procurement, determination of implementation cycles, districts and schools, to monitoring and following up on schools that have completed their cycle. In a public system, implementing partners, district officials and schools rely on departmental leadership to ensure sustainable and efficient implementation.

Picture: Deputy Chief Education Specialist Keith Chauke – Revitalization of Agricultural Schools, and Acting Chief Director Reverend Amos Fetsha of the Chief Directorate Resourcing and School Administration, Eastern Cape Department of Education, in conversation with one of the authors (right to left).

4.2. The role of subject advisors

Elmien Le Roux is a subject advisor for the Gauteng West education district, SA. Her main responsibility is to monitor the implementation of the Economic Management Sciences (EMS) syllabus in her district's schools. During the introduction of SE, Elmien was responsible for selecting schools and managing training. Since then, Elmien has overseen SE (among other responsibilities). She monitors the gardens and organizes an inter-school competition every term, in which schools showcase their work.

Picture: Elmien Le Roux in conversation with learners from Rand Gold Primary School.

Elmien: *"When I visit schools, I let them know that I am not only checking on EMS, but also the Entrepreneurship Learning Garden. I work with teachers on how they can implement the EMS syllabus in the garden. For me, Sprouting Entrepreneurs offers a great way of teaching, as it fosters academic learning in a practical way. One can see the enthusiasm of the learners every time they step into their garden! Each term I organize an inter-school competition. Last term, for example, we did the 'Scarecrow Challenge', in which schools tried to create the most creative scarecrow using only recycled waste materials. What is really great about learning in the garden is that it allows us to discuss the many societal challenges facing South Africa from what I call the 'perspective of the soil'. Learners are encouraged to think about issues such as poverty, food insecurity, and soil erosion within their communities, in a different way than if they were reading about it. I also believe what studies tell us: that work in the garden has a positive impact on the overall academic performance of learners."*

Zama Zameko is an advisor for agricultural subjects in Alfred Nzo East education district in the Eastern Cape, SA. As a result of the discriminatory policy of Bantustans ("homelands") during Apartheid, the area continues to suffer from a range of socioeconomic challenges. Agriculture is seen as an important component of rural development. Zama comes from a family of farmers. In his youth, he herded his parents' cattle. On weekends, he runs his own cattle farm in Pondoland, where he grew up. Like Elmien, Zama is responsible for implementing SE in his district:

Picture: Zama Zameko addressing teachers at a Sprouting graduation in Mbizana, Eastern Cape, SA.

"I try to support the schools as best as I can during my regular visits. If there are challenges that reach beyond the teacher, I address them with the principal or the school governing body. The implementation of a programme commissioned by the Education Department must be adequately supported by it. Education should connect to the realities of a place. For us, here, agriculture is such a reality. Many people who live here feel very connected to their land and the soil they stand on. So, by teaching through the garden, we can incorporate rural life into our teaching. In addition, many of our learners will be farmers, whether this is subsistence or small scale farming, or even larger commercial farming. Farming is not only tending to crops or livestock – it is also proactively developing agricultural products based on local, regional or national needs. I always say: 'Agriculture is life. There is no way we can survive without agriculture'."

4.3. The role of teachers, principals and the school governing body

Sprouting Entrepreneurs reaches its full potential if a core group of teachers drives the process, supported by their principal and the school governing body. While teachers are responsible for planning and implementation, the school management approves their suggestions in a timely manner and supports their work with additional resources, where possible. The allocation of responsibilities related to the project, e.g. support from the groundskeeper, must be approved by the principal. Six years of SE implementation have demonstrated that the leadership and support provided by the principal are key to successful project implementation.

Sprouting Entrepreneurs Good Practice: The case of Nageng Primary School, Johannesburg

Nageng is a primary school in the Vosloorus township on the Johannesburg East Rand. It is one of the best-performing Sprouting Entrepreneurs partner schools in Gauteng. The programme was implemented and is run by Head of Department (HOD) Katlego Makgatho and his colleague, Dennis Malapane. Both are EMS teachers. Immediately after completing the training cycle in June 2022, they went on to establish an Entrepreneurship Learning Garden on a formerly abandoned section of their school grounds. Instead of involving several classes and grades, Katlego and Dennis started off with a small Sprouting team of motivated learners. After a few months, they had grown several crops, established a compost heap, and managed to attract corporate sponsorship, which covered an irrigation system. A cornerstone of their success is the support they receive from the principal and the rest of the school staff.

Dennis: *"We went with our learners to examine the area that we had identified as a potential gardening site. As a group, we agreed on long but rather narrow beds, so that learners could work them properly. The garden is next to a fence along a side road. Community members stop by to purchase vegetables and salads from the learners. We keep a record of these sales."*

Katlego: *"Our school faces the typical challenges of a township school – a high number of learners per classroom, suboptimal infrastructure, low supply of learning materials, and learners bringing all sorts of issues to school. I have realized that the garden is a learning site where these young people really flourish. Those who struggle academically are offered a place where they have positive learning experiences. It is a fact that many of our learners will end up unemployed, so it is important that they are exposed to entrepreneurship and agriculture. At some point, this will enable them to put food on the table."*

Picture: The signboard shows which team is responsible for the bed. Long, narrow beds allow learners to reach the plants easily.

Picture: Learners experimenting with different crops and different styles of planting. Customers buy vegetables through the fence throughout the week.

Picture, above: On Market Day, each gardening team sells the produce they have grown in their plot. Teams are responsible for setting up their sales stand, calculating their profitability, and marketing their produce. At a more advanced level, learners conduct market research and create a customer profile. Source: participating teachers.

Picture, above: A learner from Nageng Sprouting Team presents his home garden. After learning about gardening at school, he started his own plot out of interest and joy – and to grow vegetables for his family. He also hopes to sell to the community to generate extra income. Source: participating teachers.

Picture: Mr. Dennis Malapane and Mr. Katlego Makgatho discussing their work with Austrian Ambassador, Ms. Romana Königsbrun, on the grounds of Nageng Primary School.

4.4. The role of the groundskeeper

Mr. Solomon Mabena, known to learners as "Baba D", is a pensioner who grows a small garden of his own at Intokozo Primary School in Katlehong. When the school started their Sprouting Entrepreneurs project, he helped the teacher and learners set up their garden. While teachers are in charge of pedagogical planning, Baba D helps with agricultural questions. Under his supervision, learners plant small nursery beds, transplant seedlings, mulch, and learn other techniques. After volunteering for many years, Baba D now receives a stipend from the school governing body, in appreciation of his service.

Baba D: *"I enjoy sharing my knowledge with young people and creating beautiful gardens with them. It adds purpose to my life. It is exciting – we experiment and try a lot of things together. There are a number of additional tasks that I take care of: I manage the tools; there is a lot more weeding to be done than learners like to do; and during holidays, I maintain the garden. During really hot periods, I do additional watering."*

Lassie Sibanda: *"I am an EMS teacher at Intokozo Primary School. Baba D is a great help. The garden needs a lot of maintenance – it is hard to do all of this with the learners, while also following the curriculum. Baba D helps a lot with this. Watching him, one can see that some people have a natural gift for engaging with young people and teaching them."*

Picture: Baba D working in the Entrepreneurship Learning Garden, together with members of various Sprouting teams. For legal reasons, a SACE registered teacher must participate at all times.

Picture: Sipetu Primary School in Alfred Nzo West district, Eastern Cape, SA. Learners and Sprouting teacher, Mr. Khotseng, rely on the support of groundskeeper, Mr. Waka, to maximize the potential of the garden as a learning space. Source: participating teachers.

4.5. The role of the Entrepreneurship Learning Garden committee

Successful Sprouting Entrepreneurs partner schools often have a garden committee. The committee coordinates teaching and learning in the garden, as well as maintenance. Schools often run several initiatives or activities that may compete with SE for time, the principal's attention, and resources. A committee can help to coordinate efforts to maintain or expand commitment to garden-based learning at their school. Some schools go so far as to establish an annual teaching plan that includes subjects such as Economic Management Sciences, Accounting, Agricultural Subjects, Social Sciences, Geography, Natural Sciences and Technology, Life Orientation, Mathematics and Languages, in order to (1) use the garden for practical teaching, or (2) work jointly to give a cross-curricular perspective on a subject.

During a committee meeting, teachers can discuss the upcoming term using the following suggested agenda:

- Principal's address
- Head of committee's address
- Best practice examples to learn from
- Challenges experienced and ideas to overcome these
- Learning projects planned for each subject
- Excursions planned
- Sponsoring/fundraising initiatives planned
- Events planned
- Resources needed
- Tool maintenance and replacement
- Time needed
- Support needed
- Groundskeeper's feedback
- Parent communication
- Introduction of junior teachers to the programme

Picture: The garden committee of the highly successful Rand Gold Primary School – Mr. Maposa Sihambile, Mr. Shorai Moffat and Mr. Phillimon Thebeila (left to right).

Part II

THE DEFINITION OF ENTREPRENEURSHIP EDUCATION AND ITS APPLICATION IN THE GARDEN

Picture: Learners at Mjoli Junior Secondary School. They share their garden with members of the community, who help maintain the learners' section of the garden.

1. Defining entrepreneurship education at school

Before the Entrepreneurship Learning Garden is set up, it is important to understand the underlying concept of entrepreneurship education. This is not business education, nor is it only concerned with the development of economic ideas. Entrepreneurship is often limited to financial value creation, but this overlooks the fact that human development extends beyond this sphere to include activity in all sectors of society.

Entrepreneurship education (EE) is a concept that first emerged in the late 1940s, in the field of business studies. In the last 25 years, its development has picked up pace. Today, EE can be found in schools from primary schools to TVET institutions and higher education. As interest in EE has grown, its scope has broadened.

Today, EE is no longer limited to business studies, economic ventures or financial value creation. Instead, the European Commission's Entrepreneurship Competence Framework (EntreComp) defines "entrepreneurship competence" as the ability to develop and implement ideas based on opportunities or needs, to create something that has value for others (Bacigalupo et al., 2016). The term "value creation" describes what a product or a service means to customers or clients. As such, value can be economic, but also social, cultural, ecological or civic. For instance, the formation of organized protest action against non-democratic governments during the Arab Spring, or young people collaboratively raising their voices against their government's lack of commitment to climate change action, can both be seen as civic value creation. Building a community garden that supports food security creates social value. A cleaning campaign started by a school creates ecological value. An app that allows farmers to book the services of a local tractor driver creates financial value. Entrepreneurship education can therefore play a role in tackling challenges ranging from global warming to social inequality, through the development and implementation of innovative ideas.

The EntreComp framework defines "entrepreneurship competence" as three areas of competence that cover the entrepreneurial process, from spotting an opportunity and developing an idea, to mobilizing resources and implementing the idea. The three competence areas are made up of 15 individual competences. Teachers and trainers can use this framework to monitor how many of the competences are regularly addressed in their teaching.

Entrepreneurship Competence is...

- the ability to develop and implement ideas
- based on challenges or opportunities
- to create value for others

Figure 6: The three properties of entrepreneurship competence.

John Dube - A South African entrepreneur creating diverse values for others

When entrepreneurship is broadly understood as the creative development and implementation of ideas in response to societal problems, then John Langalibalele Dube (1871-1946) is the personification of an all-round entrepreneur.

John Dube was born in the British colony of Natal (now KwaZulu-Natal). He dedicated his life to a number of ideas that created value for other people. John Dube was a social rights activist and missionary who trained in the United States. His entrepreneurial activities had the common goal of advancing the societal status and freedoms of Africans.

Dube established Ohlange High School to provide quality education for African students, and founded the first isiZulu language newspaper, "Ilanga lase Natal", thereby supporting African journalism and political debate. John Dube was also the co-founder of the South African Native National Congress in 1912, which later became the African National Congress – the party of the first democratic president of South Africa, Nelson Mandela.

John Dube's ideas were based on an understanding of societal needs and opportunities. From there, he went on to implement his ideas to create economic, social, educational and civic-political value. John Dube pursued what is now known as "societal entrepreneurship".

The development of a society like South Africa requires more than just the creation of economic value. Transforming South Africa into a democratic, just and equitable society, given its background of colonialism and apartheid, calls for people who can identify challenges across society, and who are committed to addressing them.

Today, all of John Dube's ideas continue to serve South African society and are testament to the claim that entrepreneurs contribute to the development of society and are crucial for shaping the future.

Picture: John Dube (public domain, kznheritage.org)

Picture: Dr. Dube's school in Inanda, KwaZulu-Natal, SA, emphasized skills development and practical doing.

The widely endorsed EntreComp Framework emphasizes the process of developing and implementing ideas as core entrepreneurial competences. The importance of financial and economic literacy is recognized, but this is only one of 15 competences.

Figure 7: The competences of the EntreComp Framework (McCallum et al., 2018, p. 14)

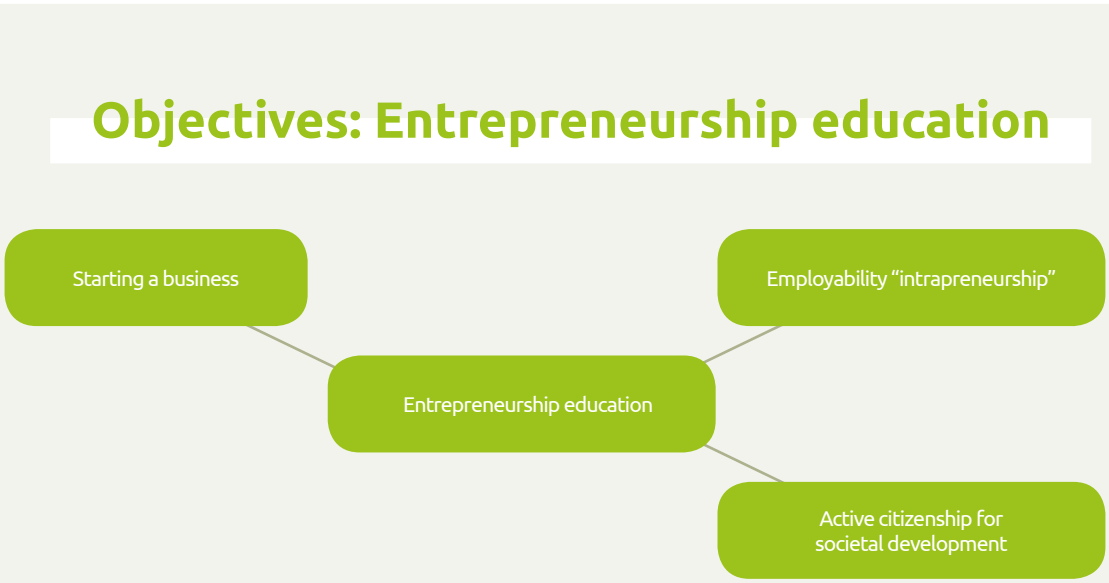


Figure 8: Three objectives of entrepreneurship education.

EE contributes to three areas of societal development. It provides competences that support the development and implementation of business ideas; helps employees contribute to the success of their company or organization; and it can provide skills to support organized collective action in civil society, to hold government accountable.

Sprouting inspiration: examples of young African entrepreneurs in farming

Meet the entrepreneur: Sinethemba Masinga is the CEO of Sinesthembiso Produce (Pty) Ltd. in Mdwedwe, northern KwaZulu-Natal, SA. In 2019, she dropped out of university to become a full-time farmer:

"My journey began during the Covid-19 pandemic. I took over the existing family business and formalized it. After dropping my science degree because of a lack of passion, I saw the need to come up with innovative ideas that would not only help the farming business grow financially, but also serve the community in this time of need."

Her small-scale farm produces spinach and red groundnuts. It employs five workers and supplies supermarkets and shops. To Sinethemba, farming is an activity that requires eagerness to learn and improve from one's own activities, as well as

from experienced farmers in the community. Both spinach and groundnuts are in high demand, and Sinethemba is concerned with finding a larger piece of land so as to expand her business. She also runs the NPO Emseni, which teaches school children the importance of agriculture for food security and healthy nutrition. Through her activities, Sinethemba addresses commercial opportunities as well as social needs, and thus creates value for others.

@sinesthembiso_produce; @sinethemba_zwan (Source: Masinga, 2023)

Meet the entrepreneur: Neo Moate is a psychologist and entrepreneur who hails from a township called Ga-Rankuwa, Gauteng, SA. In 2014, she founded a wholly black woman-owned company called MBS Garden Services – "Leaf it to us!", which specializes in landscape design, irrigation design and installation, rehabilitation work and garden maintenance services. Her parents, who are farmers in Rustenburg (North-West Province), reinforced her enthusiasm for business and belief that education is crucial from a young age. She is also enthusiastic about community outreach initiatives and gives youth motivational speeches about entrepreneurship and career advancement.

@mbsgardenservices (Source: Moate, 2023)

Meet the entrepreneurs: In Kampala, the capital city of Uganda, you can find many nurseries run by young people along the main roads. These sell an array of plants, ranging from trees to hedge shrubs and flowers. These businesses supply private homes, as well as a wide range of businesses, restaurants and hotels. The nurseries' products are used for indoor and outdoor decoration. In South Africa, there is a large demand for plants for suburban landscaping, both of private gardens and business grounds. Relatively few nurseries exist, and these are mostly found in the suburbs. Mobile or permanent nurseries are therefore a potential business idea for young farmers.

3. The role of creativity and innovation in entrepreneurship education

Creativity allows us to establish links between pieces of information in our brain, to develop a new perspective, idea or solution (Zimmermann & Leondieva, 2017). Creativity, the ability to develop ideas, is an important competence for successful entrepreneurship.

Picture: Teaching can be infused with creativity in many ways. A learner at Tsoaranang Primary School, Sedibeng East district, Gauteng, SA, decorates tyres for planting. Source: participating teachers.

Creativity requires curiosity and the willingness to explore. It is an innate human trait, but also a competence that can be nurtured and trained. The way children learn supports this: Children are born with insatiable curiosity and a drive to explore their environment and themselves. They learn through play. Similarly, writing a text, designing an interior, or developing a tasty recipe are all playful processes where we use curiosity and imagination to develop something. Both human curiosity and the ability to play depend on the freedom to use these capacities. If one accepts that curiosity and creativity are important elements of entrepreneurship education, how should education systems, schools and teachers nurture these?

Creativity can be described as a combination of divergent and convergent thinking. Divergent thinking is the process of brainstorming – opening the mind to all ideas, without questioning their feasibility. Convergent thinking, on the other hand, is a less chaotic, more structured process, where ideas are scrutinized, selected and fine-tuned. In reality, creativity does not unfold in two separate phases. Rather, our brain alternates between divergent and convergent thinking, moving back and forth between the two perspectives (Zimmermann & Leondieva, 2017).

Creativity can be encouraged by allowing students to play with ideas, and giving them room to explore without having to achieve a certain outcome. Teaching for creativity requires a playful and flexible attitude. It looks beyond dominant patterns and often combines old and new things. Allowing learners to experience their own creativity and cultivating this as a valuable strategy of exploration, helps learners to grow confident in their ability to be creative – and learn to appreciate the potential of doing so.

Picture: Designing a scarecrow using recycled materials as a creative exercise. Learners compete in teams to design the best scarecrow. Die Poort Primary School, Gauteng West district, SA. Source: participating teachers.

Pictures: “Develop a carrot-based product and market it.” Setting assignments like this for projects in the Entrepreneurship Learning Garden fosters creativity. Above, right to left: Creative work by learners at Nageng Primary School. Source: participating teachers.

Teacher-centered/academic teaching in the classroom should be mixed with a more open approach to curriculum delivery. Entrepreneurship education can learn from pre-primary and lower primary school: learning through play benefits not only children, but also youth and adults. When playing, we follow our curiosity, explore, experiment and develop ideas.

Picture: Preschool learning at Ithuba Community College in Johannesburg. Humans can learn through play at any age.

The Process of Creative Thinking

Figure 9: The process of creative thinking (Zimmermann & Leondieva, 2017, p. 28).

"Creativity is an ability that helps us process the wealth of information that our minds collect and forge connections between different pieces of information in order to find a solution to a problem in a new way, or to come to a new understanding of the problem itself." (Zimmermann & Leondieva, 2017, p. 10)

Innovation is often seen as the creation of something entirely new. However, it is hardly possible to constantly invent products or services that are entirely new. The economist Joseph Schumpeter (1912), defines innovation as new combinations of already existing products or services. For example, while portable phones, music players and cameras, etc. already existed, combining these products in the smartphone was an innovation.

An innovation can also be new to a specific area or market. For example, a mobile vegetable store on a bicycle that travels to elderly customers with limited mobility can be seen as an innovation within a township.

Playful and collaborative learning arrangements allow people to overcome feelings of pressure and timidity, and discover their capacity to come up with good ideas.

Picture: Agricultural TVET trainers in Kampala, UG, at play. They are creating products out of waste materials, and discovering the power of creativity through play.

4. The concept of life-world orientation

Rather than assuming that we all process and integrate knowledge in the same "objective" way, taking a life-world orientation means viewing learning as an individual process, in which we learn based on prior knowledge and life experience. Whenever we learn something new, we integrate this with what we already know. The more we can relate new information to our existing knowledge, the easier it is to integrate this – and learn. Teaching therefore aims to establish a connection between learning content and learners' daily lives.

In both South Africa and Uganda, most learners come from disadvantaged urban or (often remote) rural areas. The lives of young people in these areas are very different to those from more affluent urban areas or the larger commercial farms. When taking a life-world approach, learning should connect to their lived experience, and especially to the challenges that they and their communities face daily.

Picture: Bonakele Ncube in front of his spaza shop in an informal part of eThekwini, Kwa-Zulu Natal, SA.

Spaza shops are small businesses and a key feature of the South African township economy. Learners shop here every day.

A life-world oriented approach to economic education can use these as an example with which to analyze the challenges faced by township entrepreneurs.

Picture: An agricultural smallholding in Zigoti, rural Uganda. Farms like this are often affected by limited availability of land, depleted soil, and a lack of access to markets.

A life-world oriented approach takes the experiences of learners who live and help out on their parents' farms into account.

Picture: All around Sigidini Primary School, learners are confronted with huge "dongas" (erosion gullies; see background). This area is part of the Transkei, a former Bantustan created by the Apartheid government. The depletion of soil is a result of the marginalization of Africans in these areas. The poverty-driven overuse of an initially less productive soil (in comparison to areas with high-quality soil reserved for white farmers) has led to even greater depletion, creating a vicious cycle of further erosion, soil depletion, and the spread of invasive plants. Due to a lack of rural development, the challenges remain to this day.

Project work in the garden provides a context in which teachers and learners can critically inquire into society. For an emancipatory economic education, learners should be made aware that rural or urban poverty around them is not a "natural condition" or a self-inflicted state, but a result of historical and current economic and political structures. The inclusion of this perspective is a step towards decolonization; learners realize through inquiry that their community has to be viewed within a larger context.

While local action can drive rural development, such efforts only bring lasting change if they are supported by communal, provincial and national policies that are sustainably and effectively implemented.

5. "What are we free to do?" Developing critical thinking through entrepreneurship education

One criticism of entrepreneurship education is that it emphasizes individual initiative, but neglects the factors that enable people to undertake an enterprise. This criticism is particularly relevant for marginalized communities in the Global South, who lack resources and government support. Thus, educators should avoid letting learners from such areas believe that they can achieve their ideas simply by being creative and persistent. If they fail, they are likely to blame themselves without considering other explanations. It is therefore important to discuss with learners the role of knowledge and skills, as well as that of factors such as assets and government policies that influence entrepreneurship but may be beyond their control. Ultimately, by inquiring into and learning about problems in their communities, learners should gain a better understanding of the roots of the lack of assets and support available to them and their community. This will help them to become critical citizens who engage constructively with community leaders and political representatives.

Amartya Sen in 2012. Source: Fronteiras do Pensamento, CC BY-SA 2.0

The following section discusses the work of two great thinkers from the Global South whose ideas can be used to develop a more critical approach to teaching entrepreneurship education.

Amartya Sen (born 1933) is an Indian economist, philosopher and Nobel Prize laureate. He is well known for his work on human development. Sen argues that our understanding of human development should move away from narrow economic terms (e.g. GDP per capita) towards a broader perspective. In his work he suggests that development be defined as the expansion of people's freedom to live lives they have reason to value (Sen, 2001). Human development should therefore aim to remove human "unfreedoms". For Sen, the freedom to realize the lives we desire is largely determined by our means (assets) and contextual factors that allow us to use these assets (e.g. support from government through policy-making; access to grants, subsidies, and programmes; and access to basic services, such as free quality education).

Picture: Inequality in Johannesburg. This aerial photograph shows the stark difference between the suburb of Primrose (upper left side) and Makause informal settlement (lower right side) – an image that has famously made it to the cover of TIME magazine. The visible inequality of housing structures makes it easy to imagine the different levels of freedom available to people in Primrose to do or become what they want, versus those in Makause. Source: Google Earth.

Following Sen, it can be argued that successful agripreneurs in marginalized rural areas cannot rely solely on their willpower or creativity, but must have access to assets such as capital, land, and machinery, as well as policies that support their entrepreneurial undertakings (e.g. improvement of market access for rural entrepreneurs).

The following section illustrates Sen's ideas using a picture of a rural homestead in Pondoland, Alfred Nzo East district, Eastern Cape, SA. To determine the entrepreneurial capacity of this homestead, its young owner should ask the questions in the speaking bubbles.

The question of what the farmer is free to do is broken down into sub-questions about assets and social support. Using these questions to compare the situation facing a homestead to that of a large commercial farm reveals key socioeconomic challenges in South African society. By asking similar questions, learners can determine their own or other people's freedoms, including the freedom to become a farmer or an entrepreneur, or to mitigate poverty.

Important components of entrepreneurship, based on Amartya Sen		
Availability of assets as a condition of entrepreneurship	Examples: land, money, housing, machinery, tools, seeds, water, social networks, etc.	What assets do I have at my disposal? Assets include access to money, education, land, transport, tools, as well as support from other people in my household who can support me with their assets and/or connections to other businesses or associations. **"My assets affect my freedom to become an entrepreneur."**
Supportive societal context as a condition of entrepreneurship	Examples: laws, programmes, grants, mentorship programmes, policing, safety and security, climate, quality of roads, access to markets, business support services, etc.	How do policies at a community, provincial or national level support agricultural businesses in disadvantaged communities? How do government policy initiatives improve the quality of roads, access to markets, impact of climate change, safety and security, and provision of basic agricultural support services for young farmers? How do these policies support or disadvantage my business idea? **"Societal factors affect my freedom to become an entrepreneur."**

Table 2: Important components of entrepreneurship, based on Amartya Sen.

Paulo Freire in 1977 (Source: Slobodan Dimitrov, CC BY-SA 3.0)

Paulo Freire (1921-1997) was a Brazilian educator and leading thinker of the critical education movement. Freire's pedagogy builds on the realities of marginalisation and colonialisation in the Global South, which he viewed as a state of oppression.

He argued that education should aim for "critical consciousness" through "problem-posing education". To Freire, oppression or domination builds on a false perception of reality, which must be challenged by a liberating education. The goal of critical learning is therefore to understand one's marginalization or instrumentalization through practical learning and questioning of societal conditions. Freire emphasised that such an education is implemented through practical doing led by learners, i.e. through "praxis". Practical inquiry leads to a (deeper) understanding of oppression or domination (Freire 2005).

5.1. Identifying and understanding human unfreedoms: the starting point of the entrepreneurial learning process.

Societal entrepreneurship education aims to empower critical young citizens who want and are able to take responsibility as community leaders and engaged citizens. Paulo Freire's concept of problem-posing education seeks a similar outcome: to achieve this, he would argue, learners must be enabled to go out and inquire into community problems. From here, products, services or initiatives can be developed to help solve a problem.

Is food insecurity normal?

What are the properties of food insecurity?

Why do people act like it is a natural state?

What can WE do to fix it?

1 in 5 South African households begs for food – the link between food insecurity and mental health

(…)

We found that over 20% (1 in 5) of the South African households were food insecure. But the prevalence varied widely across the provinces. The Eastern Cape province was the most affected (32% of households there were food insecure). We also confirmed that food access in South Africa largely depends on socio-economic status. People who are uneducated, the unemployed and those receiving a low monthly income are the most severely affected by inadequate food access.

Food insecurity was most common among coloured people (24%) – people of mixed European, African or Asian ancestry. Black people (23%) were also more food insecure than white (5%) and Asian (4%) categories. These large differences in food insecurity rates have been attributed to former apartheid regime policies. These policies led to racial discrimination, geographic segregation, and other unsustainable settlement patterns. Hence, solutions to such inequalities require fundamental restructuring of the South African economy.

(…)

Our findings demonstrated that living in a food insecure household was associated with a higher risk of anxiety and depression.

Published by Siphiwe Dlamini in The Conversation 02 April 2023 (creative commons license)

No, it is a problem of distribution.

Supermarket shelves in town are always full. Everything is there! Why do people still go hungry?

What should others do to fix it?

Figure 10 (opposite bottom left): Food insecurity is often part of learner's life-worlds. The example shows critical questions that learners can ask about food insecurity. In doing so, they gain a deeper understanding of this societal problem, draw their own conclusions as critical citizens, and think of ways to help through an entrepreneurial project.

From Freire's perspective, learners should realize that food insecurity is not a natural state caused by a lack of food, but a problem of distribution. Food insecurity in South Africa is therefore a political-administrative challenge. Whatever self- or community-helping ideas are developed through Sprouting Entrepreneurs, learning should also emphasize responsibility beyond the community.

6. Conceptualizing the entrepreneurial learning process.

This manual follows the concept of "learning through entrepreneurship". This means that learning takes place through learner-driven projects that pursue an entrepreneurial objective. Entrepreneurship competence is developed by moving though the full entrepreneurial learning cycle. As learners' competence grows, projects become more complex. However, this does not mean that the teacher cannot teach learners anything new. Throughout a project, learners may be exposed to new concepts that help them to achieve better results.

Learning through entrepreneurship minimizes teacher-centred learning. Instead, learners do self-directed projects. The teacher serves as a facilitator and scaffolds the learning process according to the learners' level of competence.

Figure 11: The teaching of creativity and other entrepreneurial competences calls for an action-oriented approach.

Figure 12: A project-based approach to entrepreneurial learning consists of inquiry into a problem, idea development and implementation.

This is the basic idea informing SE: societal challenges or opportunities are viewed through the lens of the garden. Young Sprouting Entrepreneurs develop garden-based ideas that address these problems or opportunities, through which value for others is created.

Figure 13: "Learning through entrepreneurship" is an experiential learning process. Learners develop and implement ideas based on their understanding of a specific need or opportunity. This is a "messy" process: the journey from an opportunity to an idea and, finally, a product or service, is not a straight one. As in real life, the path twists and turns; it may even be interrupted at some points. This "messiness" is a positive property. In making detours, we cover more ground and understand a need or opportunity better than if we had gone in a straight line.

Picture: Developing and implementing an idea is an explorative and "messy" process of trial and error. The Entrepreneurship Learning Garden at Intokozo Primary School in Katlehong, Ekurhuleni South district, SA, demonstrates curiosity and experimentation.

Table 3. divides the entrepreneurial learning process into seven steps. This helps teachers to structure projects in the Entrepreneurship Learning Garden, and ensure that projects include all of these steps. The steps move from inquiry, to problem or opportunity, and on to the development and implementation of an idea – and then require participants to introduce their project to their school, customers or even the wider community. Lastly, learners are asked to reflect on the learning process. Teachers should dedicate time to reviewing projects with their learners. Often, learners are not aware of the knowledge and new skills they have learned. At the same time, identifying and discussing mistakes can improve future project work.

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	
I plan the execution of an idea.	
I implement an idea.	
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Table 3: Key elements of the entrepreneurial learning process.

Picture: Each learner in the "Dream Wonder Team" from Rand Gold Primary School keeps an Entrepreneurship Learning Garden diary. This helps them to reflect on what they learn in the garden.

Learner reflection: The following questions cover the learning process throughout the project. It is important to ask open questions, so that learners must reflect on their learning process to answer.

- What was new to you?
- What was initially a problem?
- How did you address the problem?
- Did you learn how to use new tools or techniques while you were working on the project?
- What would you do differently next time?
- How did working on the project feel to you?

Part III

COMPETENCE DEVELOPMENT AS PRACTICAL LEARNER-DRIVEN DOING IN THE ENTREPRENEURSHIP LEARNING GARDEN

Picture: Mafube Primary School, Alfred Nzo West district, Eastern Cape, SA. Many grades take part in Sprouting Entrepreneurs. During the visit of subject advisor, Mr. Nelson Gqada (centre), learners eloquently explained how their Entrepreneurship Learning Garden was set up, what they were doing in the garden, how and why they were doing it, and what their future plans were. This example shows that learners should be made aware of learning rationales. This is a precondition for taking ownership of the learning process. The teacher must therefore begin by formulating a concise learning rationale that guides the teaching and learning process.

1. Entrepreneurship competence: learning through doing projects in the garden

Entrepreneurship competence is best developed through project-based learning. The Entrepreneurship Learning Garden lends itself to this approach.

Project-based learning has a long tradition in education and gained popularity in the early 20th century. Its theoretical development is strongly connected to the work of proponents of reform pedagogy, such as John Dewey, Célestin Freinet and Maria Montessori.

Picture: Projects are fun and can be done at any age. The garden makes projects feel real to learners like these from Funulwazi Primary School, KwaZulu-Natal, SA. This supports their ownership of the learning process. Source: participating teachers.

Picture: Learners at Ithuba Community College Johannesburg at work planting seeds in tyres as part of their nursery project. Each learner takes responsibility for a tyre.

Academic, teacher-centered learning is often objectivist, segmented and removed from learners' life experiences. Working in projects resembles the way people usually tackle problems: they take on a task that needs to be addressed, and learn as they go. Organizing subject-based learning in this way still leaves room for using a teacher-centred approach to teach specific skills or knowledge. The difference is that such sessions are a means of achieving the overall goal of the project.

Picture: A team of four learners from Sipetu Primary School tends to their plot, where they are growing lettuce for Market Day. Knowledge and skills for several CAPS curriculum subjects can be nurtured through the project. Source: participating teachers.

They argued that teacher-centred instruction should make way for a more open learning environment organised by teachers, in which learners could actively conduct their own research based on real, relevant and predefined challenges. This "openness" applies to the content, method, organisation of the learning process and interaction between teachers and learners. In this process, the teacher and learners select a challenge and plan activities and outcomes (Grünke, 2009). The extent of the teacher's involvement depends on the learning group and the environment in which learning takes place. Project-based learning ranges from project-oriented learning (high degree of teacher involvement) to project learning (low degree of teacher involvement). This level is determined by factors including the learners' age and ability, class size, teacher's experience, culture, school location, and the curriculum, time and resources available.

Savery & Duffy (2001, p. 3) identify the following key principles of project-based learning:

1. Learning should be connected to a challenge
(e.g. "produce seedlings for sale").

2. Learners should develop ownership of the project
(e.g. "learners run the nursery themselves").

3. The project and its activities should be authentic
(e.g. "a real nursery that grows and sells plants").

4. The project and its activities should reflect real complexity
(e.g. "we operate a micro-business in the community").

5. Learners should be supported and challenged at the same time
(e.g. "our teacher points out micro-challenges and gives us directions to solve them ourselves").

6. Encourage discussion and the testing of ideas
(e.g. "every decision is based on discussion among the learners as the leaders of the project").

7. Learners should be encouraged to reflect on the content and process of learning
(e.g. "throughout the project, we discuss what we learn and write this in a learning diary").

The concept of entrepreneurial learning within the garden can also be applied to the school grounds. Landscaping, developing an idea for a more appealing, learning-friendly school environment, can serve as a playful learning challenge that develops entrepreneurial skills and creates value for everyone who spends time on the school grounds.

Pictures, top left to bottom left:

1. The school grounds consist of brown grass and buildings. How can plants from the garden and the surrounding natural environment be used to create a more appealing space?

2, 3, 4. These examples show how learners have created more and less formal beds on the school grounds using plants and flowers they have grown, along with transplanted local grass and other plants from the surrounding area. The beds can also be used to create smaller spaces on the school grounds, by using them as symbolic boundary.

Picture 1: A school in Lesotho near Ramatsediso.
Pictures 2-4: Ithuba Community College Johannesburg, Ekurhuleni South district, Gauteng, and Mzamba, Alfred Nzo East district, Eastern Cape, SA.

A school-based project should have the following properties (Lechmann et al., 2005):

1. It has a clear beginning and end, and stretches over a pre-defined period.
2. It is based on a challenge (project goal).
3. It includes interdisciplinary thinking/spans multiple subjects.
4. It includes a timeline, activities and outcomes.
5. It consists of phases.
6. It needs management in order to reach goals and outcomes.
7. It includes phases of reflection on learning content and processes.

2. Planning for teaching in the Entrepreneurship Learning Garden

The quality of teaching and learning is strongly connected to the amount of planning and reflection done by teachers. Like any instructional undertaking at school, a garden-based entrepreneurship education project needs to be structured, and therefore requires planning. At all times, a teacher should be able to explain why content is chosen, and why it is tackled in a certain way ("Why are you doing this with your learners? What is the purpose of this exercise?")

The following approach is suggested:

- Start at the end: define your learning outcomes
The first step is to determine the learning outcomes you want to achieve. These will be strongly influenced by the curriculum or syllabus you follow.

- Anchor your content in the life-experience of your learners
Determine whether the curriculum content can be tied to the community that your learners inhabit. Examples of entrepreneurship, healthy eating, poverty, ecological challenges, and so on can be found around every township school.

- Inquire into a chosen community problem or opportunity
Teaching entrepreneurship should start with the identification of a specific problem or opportunity in the learners' community. Learners think of and develop ideas in response to this. Use a problem/opportunity as a starting point for your lesson or project.

> Even very young learners (starting from grade 3) can be interested in societal challenges. They notice problems in their homes, streets and community, as well as on TV or when listening to the radio, and try to make sense of them: Why are there poor and rich people? Where do people commit crimes? Why do some people not have enough to eat? Why are so many people unemployed? Where does the pollution in our community come from? Why can't we afford certain foods? What is behind all these things? Can we do something to help solve these problems?

For junior learners (grade 3-5), inquiry does not always mean serious research. Try to engage your learners in a discussion about issues in the community. What do they see? What explanations can they offer? Their experiences can be used as the rationale for an entrepreneurial garden project.

For senior learners (grade 6-12), the higher the grade, the more complex an inquiry can be. Inquiry is the foundation of entrepreneurial idea development. The better one understands a problem, the easier it is to think of solutions.

3. Developing a lesson plan for projects in the Entrepreneurship Learning Garden

Drafting a lesson (in SA: periods) plan should start with the learning outcomes to be achieved in that lesson. Learning outcomes are usually taken from the subject syllabus.

AGRIPRENEURSHIP PROJECT PLANNING MATRIX FOR TEACHERS								
Key elements	**Curriculum**	**Project focus**	**Proficiency of learners/required content**	**Time required**	**Resources**	**Stakeholders**	**Steps of implementation**	**Outcome**
Content	What learning outcomes do you want to achieve? How do you connect the project to the syllabus?	What problem or opportunity will the project tackle?	How advanced are your learners? How much scaffolding and support will they need? What knowledge and skills must be covered?	How much time will the project take?	What resources do you have available? What quantity of these can you provide to your learners?	Which people or entities will support the project inside/ outside your school?	Which key activities will your learners complete?	What products or services are learners likely to produce?
Example: growing and selling spinach at a Market Day	"Entrepreneurship Day/Grade 7/ Term 3/Economic Management Sciences" Topics: "Starting a business" "Entrepreneur's Day"	Opportunity: selling affordable organic spinach.	Learners can grow produce, but have never tried selling it.	3 months (this includes the time needed to grow spinach).	Depends on your institution.	Depends on your institution.	See PROJECT PLANNING MATRIX FOR LEARNERS	Bundles of organic spinach to be sold on Market Day.

Table 4: A planning matrix for teachers. This can be used as a guide when planning the single periods or lessons that make up a project.

When planning, teachers should break the project down into single periods. Planning for each period should list the activities and resources needed. Furthermore, it is important to evaluate learners' level of competence and plan for the teaching of knowledge and skills that they will need to reach the envisaged learning outcomes of a specific period or a set of periods.

4. Teaching methods for advanced projects in the Entrepreneurship Learning Garden

The following compilation of methods is geared towards learners in higher grades (senior phase, grade 10-12). However, they can be used as an orientation for teachers in lower grades or carried out in a simplified version. Each of the methods below follows three steps: problem analysis, creative ideas development, and finally, planning an entrepreneurial learner project that creates value for others.

4.1. A method of inquiry: The problem tree

The problem tree is a classic tool for investigating problems or opportunities in a community.
It follows these steps:

1. Choose a problem or opportunity and write it on the trunk of the tree (e.g. "food insecurity" or "supply of affordable vegetables in the community").

2. Each problem or opportunity has roots. Try and list these roots. Be specific (e.g. "poverty" is too general; "no land", "no knowledge", or "no seeds/compost" is better).

3. Each problem or opportunity has consequences (the tree's branches). Try and name these consequences (e.g. "people eat cheap, unhealthy food"; "save money on education", etc.)

How to approach this with learners: Give teams (maximum 5 learners) a flipchart paper and instruct them to discuss a problem or opportunity using the problem tree. All teams should work on the same challenge.

Picture: Teacher Ms. Elizabeth Kefilwe Xhale and her learners enjoying their mealie harvest at Die Poort Primary Farm School. Source: participating teachers.

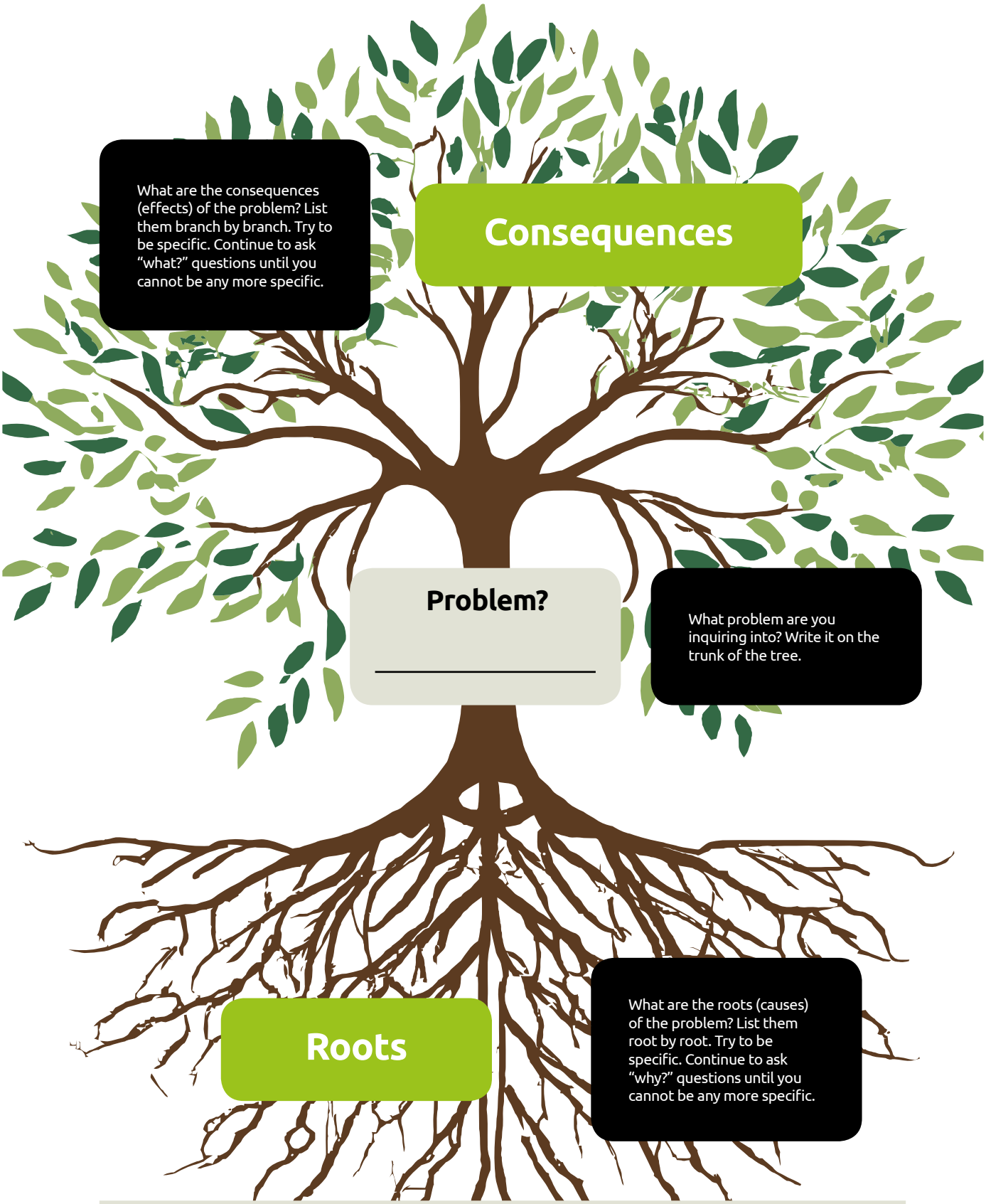


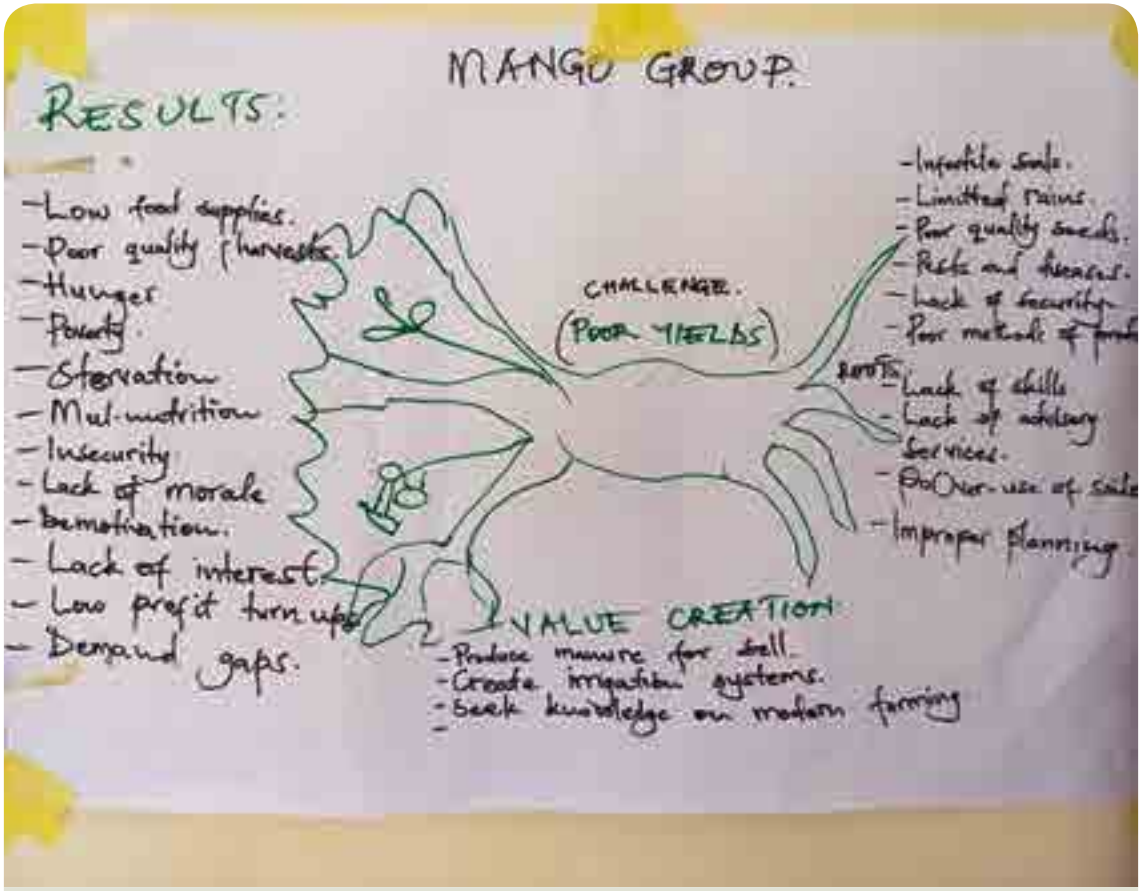
Figure 14: Problem tree. This method is popular when working with disadvantaged communities to understand the complexity of community-based problems.

Analysing a problem or opportunity using the problem tree leads to a better, deeper understanding of the issue. This makes it easier to develop ideas in response to it. To discuss the individual groups' results, the following steps are suggested:

1. A teacher or learner representative draws up a master problem tree on a fresh poster.

2. Each group presents their findings to the class.

3. After each presentation, the class discusses the presentation's findings. Significant findings are added to the master problem tree.



Picture: Example of a problem tree from Uganda. What are the root causes and results of poor yields among community farmers? Learners' solutions based on this analysis included learner-facilitated workshops for community members on compost production, irrigation, mulching, etc. Note: The goal of identifying a problem and developing an entrepreneurial idea is not to solve large-scale problems. Instead, the aim is to familiarise learners with the process of analysing and developing ideas that create value for society, however small.

4.2. A method of idea development: Brainstorming

As discussed in section 3 of Part II, creativity is a product of divergent and convergent thinking. Brainstorming is an activity that stimulates divergent thinking. When thinking of solutions to a problem, we open our minds and generate as many ideas as possible. In doing so, we try to access any relevant information that we have and determine whether it is useful to the task at hand. The process of brainstorming is outlined in the box below.

How to brainstorm ideas:

- Write down every idea.
- Write one idea per paper card.
- Note the idea in one to five words. Do not write a paragraph; rather explain the idea later.
- First write all ideas on cards, and only then post them on the wall. In this way, the process of creative thinking is not interrupted.

4.3. A method of selecting ideas: Evaluation

After the divergent thinking phase, learners move on to convergent thinking. The ideas that have been collected in the creative phase must now be filtered using relevant criteria. Ideally, learners should develop their own criteria and choose their final idea based on this. To complete the idea selection phase successfully, learners can also use the idea evaluation matrix (see below). Most importantly, an idea needs to be specific. Take the following example: "Fighting hunger" is not a specific idea, given a background of widespread food insecurity. In contrast, "providing knowledge, skills and resources to establish home gardens in those households that experience food insecurity" is a specific measure.

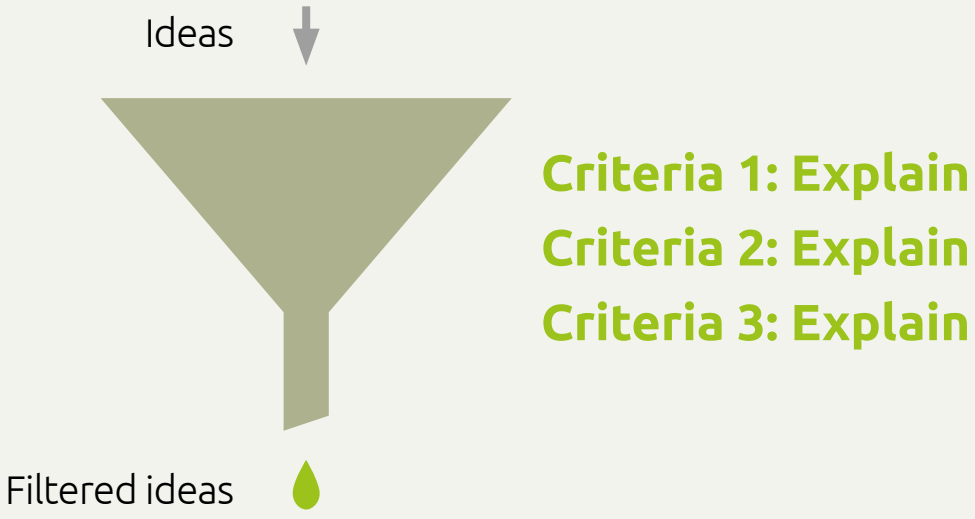


Figure 15: After the process of brainstorming, ideas have to be filtered.

IDEA EVALUATION MATRIX FOR LEARNERS					Add-on
Criterion	**Explanation**	**Can work.**	**Doesn't work like this.**	**Make it work: what can we change so that the idea meets the idea evaluation criteria?**	**Can we improve on an idea that already works?**
Budget	Do we have the capital to implement this idea?				
Community-based	Does the idea address a problem/opportunity within our community?				
Response	Does the idea really correspond with the problem/opportunity we have analyzed?				
Feasibility	Is the idea doable for us as learners, or is it too complex?				
Location/accessibility	Do we have access to a location where we can offer our product or service to our customers or clients?				
Time	Can we implement this idea in the timeframe given to us?				
Technical competence	Do we have the technical knowledge and skills to provide this product or service?				
Market and supply	Do current market/non-profit initiatives leave a gap for our product?				
Affordability	Will community members be able to afford the product? Can we offer it at an affordable price?				
Acceptability	Will religious, cultural, political or other challenges make our product/service unacceptable to community members?				
Attractiveness	Is our product attractive (e.g. organic food) – do community members see the value of our product or service?				
Seasonality	Can our product/service be offered in the current season?				
Ethical	Is our product/service ethical?				
Sustainability	Does our product/service cause environmental or social damage?				
Profitability	Can our idea generate profit or will it create loss?				
Tools	Do we have what we need to implement this idea? To what extent can our school assist us in getting what we need for this idea?				
Materials					
Land					
Soil					
Water					
Transport					
Other…	Find and define other criteria that are relevant to your idea.				
Other…					
Other…					

Table 5: Idea evaluation matrix. The suggested criteria can be used to help determine the feasibility of ideas.

4.4. A method of planning a project based on ideas: The planning matrix

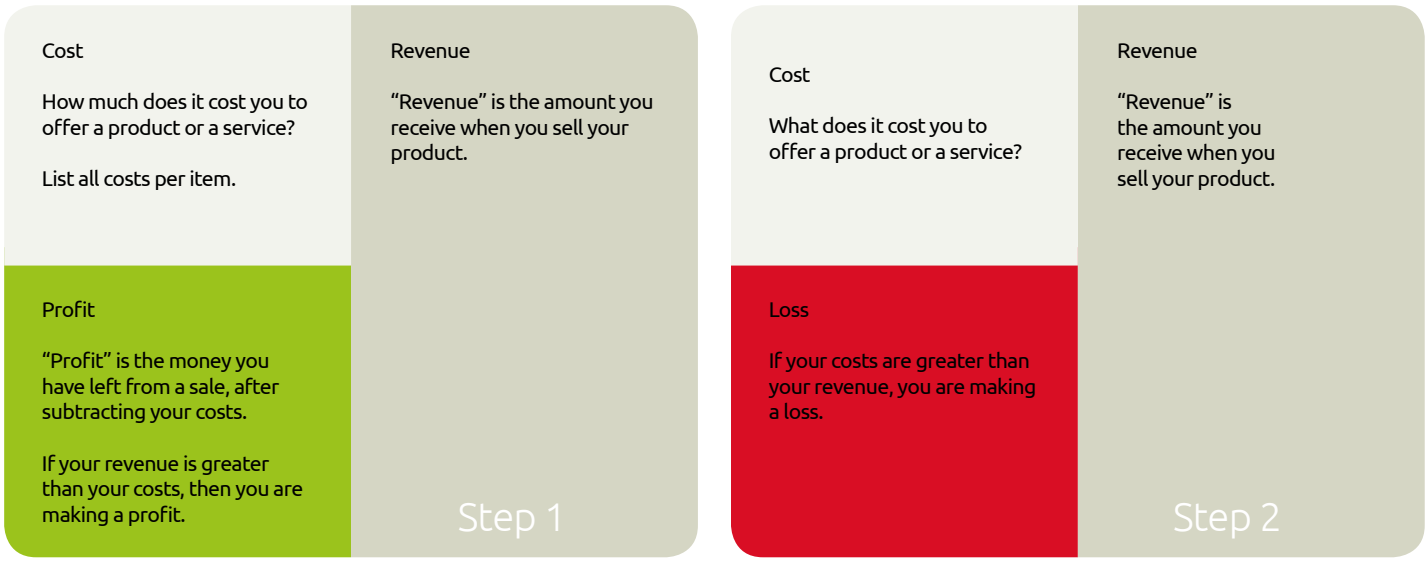
To translate an idea into a project, draw up a plan. The purpose of this plan is to structure the implementation of the idea in terms of activities, the amount of time these will take, and the people, resources and cost they will require. The most challenging part of this method is to define clear-cut activities that do not overlap with each other. Each list of activities will look different, depending on the idea selected. The example below shows the simple project of producing spinach for sale (see table 6).

PROJECT PLANNING MATRIX FOR LEARNERS								
Example: production of spinach for sale (excerpt)								
No.	Name of activity	**Description of activity**	**Starting date**	**Finishing date**	**Duration**	**People involved**	**Resources required**	**Cost**
1	Purchase of materials							
2	Preparation of nursery							
3	Planting of seeds							
4	Preparation of plot							
5	Planting the seedlings (spinach)	• Transfer seedlings from the nursery and plant these in rows. • Apply mulch.	01 March	01 March	1 day	Entire team	• Seedlings • Mulch	X ZAR
5.1	Production	• Watering • Weeding • Pest control • Fertilizing • Harvesting	02 March	17 May	2.5 months	Entire team	• Water • Fertilizer • Tools • Organic pest control	
6	Establishing a price structure	• Calculate the price.						
7	Marketing of product	• Design and make marketing materials.						
8	Preparation for Market Day	• Arrange a venue. • Source or make a market stand. • Arrange transport for products. • Prepare packaging materials. • Complete preparations for handling cash.						
9	Setting up market stand	• Furnish and decorate the market stand.	28 May	30 May	3 days	Entire team	See activity 7 and 8.	X ZAR
10	Market Day	• Sell produce.						

Table 6: A project planning matrix for learners, using the example of growing spinach for sale.

4.5. A method for calculating cost, revenue and profit: The profitability model

Whether an Entrepreneurship Learning Garden project is a profit or non-profit venture, costs are involved. Learners should be introduced to the concepts of "cost", "revenue", "profit" and "loss" as early as grade 5. They will use this information for projects in the garden, and these concepts are also important components of basic financial literacy.



This example uses cabbage. In the beginning, it is easier to calculate using vegetables that produce a single harvest. For example, a cabbage seed produces one head of cabbage. The calculation becomes more complex if a single seed allows for two or more harvests. For example, spinach regrows and can be harvested for up to 4 months. To calculate this properly, learners must estimate the number of bundles of spinach one seed can produce.

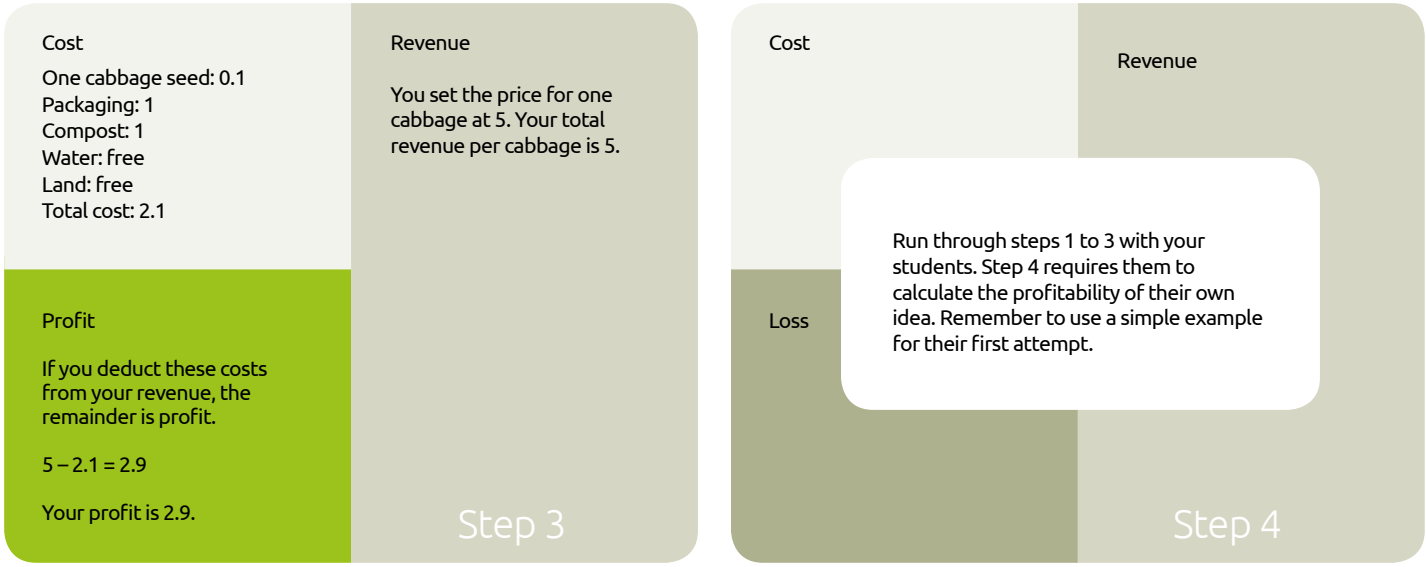


Figure 16: Profitability model.

Note:
1. Prices can change, so the example uses price units instead of a currency.
2. This basic example does not differentiate between fixed and variable costs. In a school environment, fixed costs such as access to land, water, electricity, security and tools are covered by the school. Labour is provided by the learners. Remaining costs include seeds or seedlings, materials for packaging, marketing and perhaps transport to the nearest point of sale.

Picture: Growing food to cook a delicious meal – by learners for learners – can be a rewarding project. With support from the school nutrition programme's staff, even lower grades can do this, as demonstrated by Rand Gold Primary Farm School in the Gauteng West district.

5. Establishing an Entrepreneurship Learning Garden

This section discusses key considerations when using the garden for entrepreneurial learning. Self-directed learning is central to Sprouting Entrepreneur's approach, and begins with the preparation of an Entrepreneurship Learning Garden.

5.1. Types of school gardens

Many schools must start a garden from scratch when they introduce SE; others already have one. However, schools with existing gardens seldom use them for entrepreneurship or other forms of learning. Instead, these gardens are used to grow food, and are run by members of the community or the Extended Public Works Programme. Integrating learners into such schemes does not work, however, as the aims of these gardens contradict the principles that inform Sprouting Entrepreneur's approach.

This is because the various types of school gardens have fundamentally different approaches to production, demonstration and learning.

- Demonstration gardens: These can sometimes be found in agricultural high schools, where teachers use them to demonstrate specific techniques to learners. However, learners are not expected to apply their knowledge by running their own project.

Picture: A production-oriented garden at Bavumile Primary School in Alfred Nzo West district, Eastern Cape, SA. Applying a protective layer of mulch between crops would limit evaporation – the material could be sourced from the surrounding grasslands. Source: participating teachers.

- Production gardens: These must produce the highest possible yield to either make a profit or reduce spending for the school nutrition programme. Learning therefore takes a back seat, as there is little room for mistakes – and making mistakes is an important part of learning. Schools sometimes promote themselves by showcasing their extensive gardens. Again, learning and experimentation often look messy, so spotless gardens suggest good promotional skills, rather than active learning.

Picture: Example of a learning garden at Ithuba Community College, Johannesburg. Each learner is responsible for a tyre, in which they are growing a mix of spinach, lettuce, onions and cabbage.

- Learning garden: This is an experimental space where learners can make mistakes, modify their approach, and do better. In an ideal learning garden, teams of learners work on projects that that they themselves plan and implement. The teacher's role is to provide technical input or advice, as and when needed. Teachers and learners jointly set a goal and then work towards this – for example, producing vegetables to sell at Market Day.

- Combined garden: Demonstration, learning and production are usually all part of the same learning process. It therefore makes sense to divide the garden into clearly marked sections, so that learners' projects each have a dedicated space.

Picture: The end of a successful project cycle. A proud team of four secondary school learners presents organic beans for sale at Magaliesburg School of Specialization for Agriculture in the Gauteng West district, SA. Garden projects here are facilitated by Sprouting Entrepreneurs teacher, Ms. Dorothy Rakgotho (right). Source: participating teachers.

5.2. Properties of the Entrepreneurship Learning Garden

When establishing a new garden or transforming a section of an existing garden into an Entrepreneurship Learning Garden, the following considerations are essential:

- "Learners should establish the garden."
  Learners inspect the space and discuss the outline of the garden with their teacher. This can be done by drawing plans on paper, or by marking the outline using rocks, sticks or other natural resources. Teachers should discuss the advantages and disadvantages of possible locations on the school grounds with learners.

- "Learners should work in teams of four."
  A team of four is ideal, as this allows for constructive communication between all team members and a shared identity. Learners work in teams both when setting up the garden and for all subsequent garden projects. This fosters ownership and accountability.

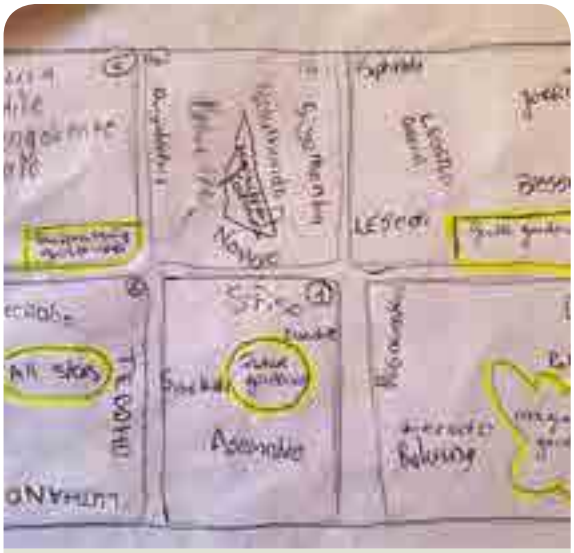
- "Each team runs their own garden."
  Each team is responsible for a section of the garden. The size of a team's plot depends on the age of team members and the crops selected. At primary school level, learners should be allocated at least one square meter each. Higher grades should have larger plots to work on. These should be laid out in such a way that learners can reach any part of their plot without standing on soil prepared for planting. (Plot size will therefore vary with learners' age and height.)

Picture: The principal of Ntlalontsha Primary School, Mr. Thamsanqa Msane, works in the garden. His active participation in the project motivates learners to do the same.

- "Each team garden is a for-profit/non-profit enterprise." Teams are mini-enterprises that use their plots to realize a value-creation project. For example, each team produces their own garden products to sell at their stand on Market Day. Teams also use the garden as a medium of inquiry through which to consider problems or opportunities within their communities. Based on their analyses, they develop and implement garden-based ideas that create value for others.

- "Organize support." Maintaining gardens can be a lot of work, requiring more time than learners can spare. Moreover, gardens need supervision and care during school holidays, when learners are away. In many schools, the grounds staff help learners maintain their Entrepreneurship Learning Gardens. If community members grow their own gardens on school grounds, they may also be asked to look after learners' gardens in return for their use of school resources.

- "Lead by example." Learners will be more motivated if their educators are hands-on and work in the garden alongside them. This is also a great way for teachers to build relationships with their pupils, and learn more about how they see the world.



Picture: A map of learners' plots drawn by a teacher. Each plot is marked with the team's name and all the learners' names.

Picture: Patric "Prof" Mkhosana is an agricultural teacher at Ncura Secondary School in Alfred Nzo East district, Eastern Cape, SA. He says that working with his learners helps him build relationships with them and allows them to discuss important issues that are rarely tackled in class.

Note the layout of the learner plot: It is fenced with fabric from a local hardware store, and has a path that allows learners to move around without standing on the beds. The soil around seedlings is covered with mulch, which provides additional nutrients and slows evaporation.

5.3. Planning and setting up the Entrepreneurship Learning Garden at school

Picture: Teachers planning the implementation of Entrepreneurship Learning Gardens and their first learner projects during teacher training at King Edward High School.

When introducing the programme, it is best to start with a small group of learners.
Define your: (1) desired learning outcomes, (2) methods, and (3) content to achieve them. Always make sure your planning starts with the desired outcomes.

Picture: Think outside the box. Learners at Ithuba Wild Coast Community College, Alfred Nzo East district, Eastern Cape, SA, present their herb project. Herbs can be transformed into products such as rosemary salt, and used to educate community members about the use of natural seasoning – as opposed to MSG-rich artificial seasoning. Source: participating teachers.

5.4. Hacks for project work in the Entrepreneurship Learning Garden

Hack no. 1: Ensure that learners participate in the design and set up of their Entrepreneurship Learning Garden. This will help them to take ownership of it; in pre-established gardens where learners feel like guests, they are likely to act like guests. Ideally, learner-teams should discuss their ideas and agree on a garden layout with their teacher.

The following creative approaches can be used when planning:

Build models: Learners use coloured paper, bottles and other recycled materials to build models of their ideas.

Draw: Learners draw their "dream garden" as a brainstorming exercise, before drawing a realistic version based on the actual space available. (Alternatively, learners can skip straight to drawing a realistic plan for their gardens.)

On-site: Teachers take the learners around the school grounds and discuss the best location for their Entrepreneurship Learning Garden. The learners then lay out possible beds using rocks or wood, or by digging lines into the earth.

Facilitation matrix for the school-based Entrepreneurship Learning Garden

AREA	ACTIVITIES	TIME						STRATEGY	HUMAN RESOURCES		FINANCIAL	
		Now	Soon	In a while	Let's see	Duration	Frequency	How	Coordinator	Team	Cost/item	Budget
SCHOOL MANAGEMENT	Permission											
	Location (bed)											
	Total size (bed)											
	Size per learners											
	Security (bed)											
	Colleagues/district											
	Parent information											
	Grounds staff training											
	Parent involvement											
	School kitchen											
	Tools storage/security											
COMMU-NITY	Community support											
	Stakeholder involvement											
	Customers											
PEDAGOGICAL	Classes/grades											
	Timeline											
	Entrepren. edu. roadmap											
	Subject collaboration											
	Subject integration											
	Mission statement											
GARDENING	Compost											
	Seeds											
	Seedlings											
	Fencing											
	Pest control											
	Year plan (planting)											
PRODUCTION & VALUE CREATION	Nursery											
	Seeds											
	Seedlings											
	Compost											
	Marketing											
	Sales											
	School Nutrition Programme											
	Community event											

Table 7: Matrix for planning and establishing the Entrepreneurship Learning Garden.

Hack no. 2: There is no rule that garden beds must be rectangular. Learners can think of creative planting solutions using objects found at their schools.

Top left: Learners use wasted space behind their classroom to establish a garden.

Top right: Beds in boxes are mobile and can even be taken home. It's important to drill holes in the bottom of containers, so that water can run out.

Middle right and bottom: Ms. Chrispine Wanyahoro of COWA Vocational Training Centre in Kampala, Uganda, presents gardens made using tyres and old plastic bottles.

Hack no. 3 and 4: When working in the Entrepreneurship Learning Garden, do tasks in parallel.

Top left: A small bed provides enough space for a nursery. After the seeds have sprouted and grown into seedlings, they can be transplanted.

Middle: While the seeds are still sprouting in the nursery, learners can plan and dig beds. Ideally, learners should be able to reach into the middle of a bed, as shown in this picture.

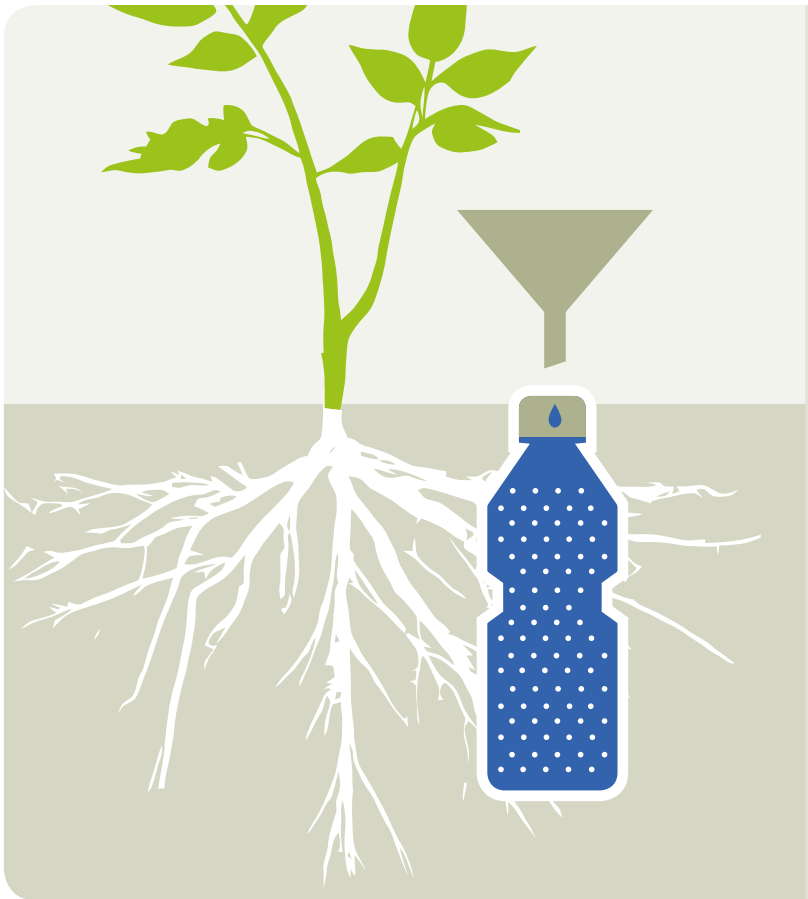
Bottom: Ask the groundskeeper to provide cut grass, and lay this out to dry.

Below: After learners transplant seedlings, they should put a small layer of dried grass around them. This technique is called "mulching". It protects young plants from the sun and keeps the soil moist for longer. In addition, nutrients from the dry grass will feed the soil.

Pictures: middle to bottom, Nageng Primary School. Source: participating teachers.

Picture: Learners of Katlehong Secondary School, Ekurhuleni South district, Gauteng, SA, present their nets. The yellow-orange fabric behind them is used to fence the garden.

Hack no. 5: A simple plastic net can protect seeds and seedlings from being destroyed by birds. Wooden sticks collected from trees on school grounds may be used to install the nets, as demonstrated by learners of Katlehong Secondary School.



Hack no. 6: To spend less time watering crops, use old bottles. Drill holes into the bottles so that they slowly release water, and then bury them next to seedlings. Ensure that the opening of the bottle remains above ground, so that the bottle can be refilled when empty.

Hack no. 7: Some schools in rural areas suffer from a chronic water shortage. Each learner must then bring a 1 to 1.5l plastic bottle filled with water to school every day. This will be enough to keep plants moist. Remember to mulch plants to slow evaporation.

Hack no. 8: Composting is a cheap, efficient and sustainable way to improve soil. To produce compost, build a heap of so-called "brown" and "green" organic materials. ("Brown" materials include dried leaves, tea bags and soil. "Green" materials include freshly cut grass and vegetable scraps.) The figure below shows how to arrange layers of compost: 2/3 brown, 1/3 green, 2/3 brown, 1/3 green, and so on. Some materials should not be used, as they attract rats (see the boxes below).

Ensure that the heap is kept moist but not soaked, otherwise the compost will rot. To control this, keep the heap covered. After 10 days, the compost will start "cooking": if you put a stick into the heap, it will feel warm. This shows that the process is underway. After 3 to 4 months, the compost should be ready.

How to organize compost production: (1) Establish one or more teams of learners who are responsible for managing compost production. (2) Work with them to establish a compost site. (3) Ask the kitchen staff to bring fruit and vegetable scraps (green materials) to the compost site every day. (4) Ask the groundskeeper to bring any green materials (e.g. grass) and brown materials (e.g. dry leaves) to the compost whenever these are available.

Tip: if you have a limited amount of compost do not spread it evenly over the whole bed. Rather deepen the hole in which you will plant your seeds or seedlings, and then ensure that the plant is surrounded by fresh compost.

Picture: Compost team at Ithuba Community College Johannesburg adding kitchen leftovers to the green layer.

COMPOST HEAP
Cover with banana leaves, plastic sheet (TOP)
25% ...
75% ...
25% green
75% brown
25% green materials
75% brown materials (BOTTOM)

Table 8: Layers of the compost heap.

WASTE SCRAPS TO USE	BROWN/DRY	GREEN/WET	WASTE SCRAPS TO AVOID
Fruits/fruit scraps		X	Meat/fish/bones: attract pests, smell
Vegetables/vegetable scraps		X	Glossy paper: contains chemicals, breaks down slowly
Coffee grounds/tea bags	X		Oil, grease, fat: attract pests, smell
Wood ash	X		Diseased plants: transfer diseases to compost soil
Egg shells	X		Seeded weeds: spread weeds in compost
Grass/flower clippings		X	Animal excrement(meat-eating animals): health risk
Green leaves		X	Dairy products: attract animals, smell
Newspaper/brown paper	X		
Brown leaves	X		

Table 9: Composting materials.

Picture: Training learners to make compost: Bring small, transparent containers to school. Ask learners to collect brown and green materials from the school grounds and build a miniature compost heap. In addition, you can ask the Natural Sciences and Technology teacher to explain more about the process of composting in an upcoming lesson.

Picture: Learners of Ithuba Community College Johannesburg, spreading compost. Note that learner-produced organic compost can be used both to improve the garden and as a product that learners can market and sell.

Hack no. 9: Companion planting

Planting the right plants together can help deter insects and stimulate growth by improving soil quality. Support between plants can be one-sided or mutually beneficial. Companion planting helps solve some of the problems created by monoculture (planting fields with a single crop), including insect infestation, disease, and soil degradation.

The box opposite above lists plants that go well together (e.g. lettuce and onions). For more information, research "companion planting" online.

VEGETABLE	NUTRITIONAL VALUE	COMPANION PLANTS – PROMOTE GROWTH AND OFFER PROTECTION FROM PESTS
DWARF BEAN	All vegetables are a rich source of nutrients that promote good health and energy. They contain vitamins, minerals and fibre while they are fresh, and are low in fat, salt and sugar.	Lettuce, spinach, beetroot, carrot, radish, cauliflower, potato, cabbage
CARROT		Lettuce, tomato, dwarf bean, radish, onions
BEETROOT		Lettuce, cabbage, dwarf bean, onion, spinach
LETTUCE		Dwarf bean, carrot, beetroot, onion, cabbage, broccoli
TOMATO		Carrot, pea, radish, lettuce, onion
CABBAGE		Beetroot, dwarf bean, onion, potato
SWISS CHARD		Dwarf bean, cabbage, cauliflower, onion, broccoli
RADISH		Dwarf bean, carrot, lettuce, pea, tomato

Table 10: Companion planting.

Hack no. 10: What to plant? When learners start to work in the Entrepreneurship Learning Garden, they are usually full of excitement and energy. To maintain their enthusiasm, start with a crop that is likely to produce good results. Spinach, for example, grows all year round and can be picked for several months. Choosing plants that fail for two or more cycles makes it hard to keep learners motivated.

Picture, right: A bountiful spinach harvest at Ekukhanyeni Special School in KwaZulu-Natal, SA. Source: participating teachers.

VEGETABLE	SOWING: METHOD AND TIME	GERMINATION	HARVEST
DWARF BEAN	Direct to soil, year-round, best in summer, August to February	8-10 days	7-10 weeks
CARROT	Direct to soil, no transplanting, year-round, best in cooler seasons, August to April	10-14 days	12-15 weeks
BEETROOT	Direct to soil, year-round, best in spring/autumn, August to April	7-10 days	11-16 weeks
LETTUCE	Direct to soil or grown from seedlings, year-round, best August to April	4-10 days	11-12 weeks
TOMATO	Direct to soil or grown from seedlings, year-round, best in spring, August to November, staking is recommended	7-14 days	12-15 weeks
CABBAGE	Direct to soil or grown from seedlings, year-round, best August to April	7-10 days	12-13 weeks
SWISS CHARD	Direct to soil or grown from seedlings, year-round, best in spring and August to April	7-14 days	8-12 weeks
RADISH	Direct to soil, year-round, best February to November	5-10 days	3 weeks

Table 11: General sowing chart for South Africa.

Hack no. 11: Starter packs for the Entrepreneurship Learning Garden are an important and valuable resource. All tools must be recorded and stored safely. It takes time to prepare tools before a lesson and to collect them afterwards: Ideally a learner-team is assigned to manage the tools on a rotational monthly basis, so that the lesson can start and end without delay. If required, arrange a groundskeeper to help teams manage the tools. Ensure that tools are only used in the Entrepreneurship Learning Garden, so that they last longer.

Picture, left: Garden starter packs for schools are delivered by a service provider to a central collection point at Matatiele. Picture, bottom: A container for safely storing tools at Rand Gold Primary School.

Hack no. 12: Entrepreneurship, youth in agriculture, and fighting food insecurity are important and popular topics in South Africa. The idea that learners develop entrepreneurial competences in the garden and work on ideas that support the transformation of South Africa can attract sponsorship from the corporate sector, including hardware store chains, banks, insurance companies, food retailers or agricultural businesses. When approaching a sponsor, have a clear idea of what the project requires, e.g. garden tools, seeds, compost, greenhouse tunnels, raised beds or an irrigation system. When presenting a proposal to potential sponsors, say what the materials are needed for and how they can contribute to improving the quality of teaching and learning.

Picture, top and bottom left: At Thoko Thaba Secondary School, Ekurhuleni South district, Gauteng, SA EMS and Accounting teacher Mr. Nkosi Scara secured sponsorship via an McDonalds outreach programme through which the garden was set-up including the sponsorship of seedlings. Harvest is sold to school staff as well as to the school tuck shop, donated to community members in need incl. an old age home. Source: participating teachers.

Picture bottom right: learners at Ithuba Community College Johannesburg celebrating their tomato harvest in a sponsored growing tunnel.

Hack no. 13: Learning about social media can form part of Entrepreneurship Learning Garden projects.

If schools have access to data, learners can document the work of their Sprouting Club on Facebook or Instagram.

Learner-teams can be assigned to take pictures and draft a post on a school-owned tablet. Once approved, the teacher can post this on their behalf.

Understanding the potential, risks and protocols of social media is an important part of digital literacy.

Documenting work in the Entrepreneurship Learning Garden allows potential sponsors to see the work being done and verifies the project's credibility. It is also a good way of promoting the brands of current sponsors by documenting the support they are giving young Sprouting Entrepreneurs.

Before posting, ensure you have permission and that you comply with the POPIA act.

Pictures: Nageng Primary School and Magaliesburg School of Specialization for Agriculture. Source: participating teachers.

Part IV

Challenges for the Entrepreneurship Learning Garden

1. How to use this manual

Challenge 1

Design a garden using plants, natural and recycled materials

Rationale: Learners add creative features to their garden, giving it a personal touch and developing their feeling of ownership.

Time: several lessons
Subject area: Agricultural Subjects, Natural Sciences (and Technology), Creative Arts, Life Skills, Life Orientation
Grade: three and above. Teacher facilitation is grade-dependent.

Level: beginner
Knowledge required: See teacher support box.
Materials required: rocks, stones, plants, trees, etc.
Support required: groundskeeper

This section gives an overview of the challenge.

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	
I plan the execution of an idea.	
I implement an idea.	
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

This section points out the key entrepreneurial learning activities that are addressed through the challenge.

Just like the classroom, the garden is a site of learning and creativity. Think of it as an innovation space – developing the layout and features of the garden supports creative thinking.

BIG IDEA

This section introduces the main idea that the challenge builds on.

Step 1:

Organize design materials for the challenge. These should include natural materials collected on and around the school grounds; plants; and recycled materials collected from learners' homes, the school or during a community cleaning campaign. It is important to ensure that these resources are clean and safe to use.

Each challenge is broken down into a limited number of steps.

Teachers' experiences

"Our school is in a rural area close to the coast, so we collected rocks, stones, driftwood and branches from our school surroundings. We also used old tins, plastic bottles filled with sand and other plastic materials to build structures and divide up various areas of the garden. Some rocks were painted by the learners. We also chose to leave lines of grass uncut, which created a natural perimeter fence around our garden."

"We created spaces by planting sunflower walls, and used rocks to create pathways, to prevent them from becoming too muddy. We also used old tree branches to demarcate certain beds. Car tyres and other containers were used to grow seedlings. You can find other good ideas on the internet or on the Pinterest app."

Many ideas have been discussed in workshops and in Entrepreneurship Learning Gardens over the years. We have combined and condensed some of these ideas and formulated them as "teacher statements". In reality, these statements should not be attributed to a single teacher or school, but rather to the Sprouting Entrepreneurs community as a whole. We hope that they help readers to implement the challenges.

Essential Content Box

"Brainstorming" is a creative exercise in which ideas are collected. At the end of a session, the results are reviewed. Relevant ideas are clustered, while impractical ideas are removed from the discussion.

This box explains key content such as teaching methods or concepts mentioned in the challenge.

Pictures: A group of learners from Sigidini Primary School presenting their garden designs.
Source: participating teachers.

Challenge 1

Design a garden using plants, natural and recycled materials

Rationale: Learners add creative features to their garden, giving it a personal touch and developing their feeling of ownership.

Time: several lessons
Subject area: Agricultural Subjects, Natural Sciences (and Technology), Creative Arts, Life Skills, Life Orientation
Grade: three and above. Teacher facilitation is grade-dependent.

Level: beginner
Knowledge required: See teacher support box.
Materials required: rocks, stones, plants, trees, etc.
Support required: groundskeeper

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	X
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

A garden design using natural and recycled materials.

Just like the classroom, the garden is a site of learning and creativity. Think of it as an innovation space – developing the layout and features of the garden supports creative thinking.

BIG IDEA

Step 1:
Organize design materials for the challenge. These should include natural materials collected on and around the school grounds; plants; and recycled materials collected from learners' homes, the school or during a community cleaning campaign. It is important to ensure that these resources are clean and safe to use.

Step 2:
Introduce the learners to the challenge. The class inspects the available resources. Learners form groups of five and brainstorm design ideas based on the resources available. They note their ideas on paper and decide how much space they need.

Step 3:
Each group presents their ideas. These are discussed, possibly adjusted and finally approved by the class and teacher.

Step 4:
Each group is assigned a space in the garden. The learners get to work and implement their creative ideas. After the work is completed, each group presents their final product to the class.

Optional: The class votes for the best idea, which all groups then implement.

Teachers' experiences

"Our school is in a rural area close to the coast, so we collected rocks, stones, driftwood and branches from our school surroundings. We also used old tins, plastic bottles filled with sand and other plastic materials to build structures and divide up various areas of the garden. Some rocks were painted by the learners. We also chose to leave lines of grass uncut, which created a natural perimeter fence around our garden."

"We created spaces by planting sunflower walls, and used rocks to create pathways, to prevent them from becoming too muddy. We also used old tree branches to demarcate certain beds. Car tyres and other containers were used to grow seedlings. You can find other good ideas on the internet or on the Pinterest app."

Essential Content Box

"Brainstorming" is a creative exercise in which ideas are collected. At the end of a session, the results are reviewed. Relevant ideas are clustered, while impractical ideas are removed from the discussion.

Challenge 2

Plan a budget for your Entrepreneurship Learning Garden

Rationale: Learners identify potential costs, estimate prices and create a basic budget. They practise budgeting and develop an understanding of the costs of garden-based production.

Time: several lessons
Subject area: Agricultural Subjects, Natural Sciences (and Technology), Creative Arts, Life Skills, Life Orientation, Economic and Management Sciences
Grade: six and above. Teacher facilitation is grade-dependent.
Level: intermediate, advanced
Knowledge required: See teacher support box.
Materials required: none
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	
I plan the execution of an idea.	X
I implement an idea.	
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

What do you need to set up and run a garden?

BIG IDEA

It takes money to set up a garden. To realize their ideas, learners need to identify and plan their expenses. Good planning is the first step towards a successful garden project.

Step 1:
Take learners to the selected garden site and map out the space, using rocks or other markers.

Step 2:
On-site, ask learners to brainstorm what materials and tools they need, and estimate how many hours of work it will take to establish the garden. They should work in groups.

Step 3:
Give learners a price list for gardening items (you can find this information at the local hardware store or do research online).

Step 4:
Groups should use these prices to estimate how much the project will cost.

Step 5:
The teams present and compare their results. Using their results, help them to create a final budget.

Step 6 [optional]:
Do this exercise based on the average size of a home garden. Calculate the costs of installing a home garden using the household's available labour (i.e. without including a cost for labour).

The cost of establishing a garden varies depending on the approach taken.

Teachers' experiences

"This exercise is important, as it teaches learners about budgeting. It gives them a sense of what things actually cost, and prepares them for any basic project, be it at home or at work. After doing this exercise, learners can go home and plan their own gardens."

"Is it important to remember that there is no standard cost per m² when developing a garden. If the soil is very rocky or sandy, one has to consider the work needed to clean the soil, as well as the cost of compost to improve soil quality."

Essential Content Box

"Once-off costs": These are the expenses that occur only once, when a production site is established.

"Cost of labour": Learners' work in the garden is tied to learning during school hours. When they tend their home gardens, they grow food mostly for themselves. However, it is important to remind them that there is a cost attached to labour when starting and running a business.

Challenge 3

Establish an Entrepreneurship Learning Garden at school

Rationale: Teachers and learners wanting to start garden-based projects need to set up a garden or adapt an existing one for their purposes.

Time: several lessons
Subject area: Agricultural Subjects, Economic and Management Sciences, Natural Sciences (and Technology)
Grade: three and above. Teacher facilitation is grade-dependent.
Level: beginner
Knowledge required: See teacher support box.
Materials required: garden tools
Support required: groundskeeper

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Learners preparing the ground for an Entrepreneurship Learning Garden.

Less than 5% of South African schools run sustainable school gardens that function as a medium of learning and a source of food. With the help of their teacher, learners plan and implement a school garden that will serve future learning projects and produce food.

BIG IDEA

Garden teams are responsible for their gardens.

Step 1:
Introduce the idea of establishing an Entrepreneurship Learning Garden (ELG) at school. Get permission from the school management and enlist support from the groundskeeper. Discuss and agree upon logistical questions such as space, gardening time, and how much help you can expect from the groundskeeper.

Step 2:
Explain the challenge to the learners. The class identifies a potential garden site. At the site, ask learners to brainstorm layout ideas for the garden. Together they agree on a layout, draw it in the soil and take pictures with a cellphone to keep a record.

Step 3:
The class discusses the steps needed to set up the garden, and draws up an action plan. They put together small gardening teams, consisting of a few learners. Each team agrees on a name and works on a section of the garden.

Step 4:
Work together with learners to establish the school garden in teams, according to the action plan. The groundskeeper supports their work.

Step 5 [optional]:
Learners invite the school management and present their garden.

Teachers' experiences

"When we established our school garden, we worked in small groups. The learners used different old materials to demarcate their plots, tried to design the most creative signboards, and quickly developed a sense of ownership. They took good care of the garden; they watered the plants early in the morning and during break, and couldn't wait for them to grow. It was great to see them working hard for their first harvest."

Essential Content Box

"Preparing a garden" means:

- Finding space for a new garden or revitalising an old, unused garden.
- Digging the ground and clearing it of stones, plants, and rubbish (wetting the soil can make this job easier).
- Preparing beds, adding compost to the soil, and demarcating beds. (Leave space for paths, so that learners can move around easily while they work.)
- Fencing the garden: Use poles and netting materials to keep animals out. Alternatively, use recycled materials such as wood, old tyres etc. to mark the plot (note: this will not keep animals out).

Challenge 4

Create a container garden

Rationale: Learners plant healthy food in containers, and contribute to a clean environment.

Time: several lessons
Subject area: Creative Arts, Life Skills, Life Orientation, Agricultural Subjects, Natural Sciences (and Technology)
Grade: three and above. Teacher facilitation is grade-dependent.

Level: beginner
Knowledge required: See teacher support box.
Materials required: recycled materials (e.g. bottles, buckets, containers), garden materials and tools
Support required: groundskeeper

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	X
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Learners grow vegetables in crates.

BIG IDEA

Learners who don't have a garden at home can still grow their own vegetables. Mini gardens require few resources. They are made of environmentally friendly materials and can contribute to a healthy diet, regardless of their size.

Step 1:
Invite the learners to reflect on how much waste people produce every day. What materials get discarded in their community that could rather be recycled and reused?

Step 2 [optional]:
Ask learners to draw pictures of used materials that could serve as containers for mini gardens on paper cards. Collect the cards and play a card guessing game.

Step 3:
Ask the learners to bring a clean bottle or old container from home. Show them how to prepare these vessels for gardening by drilling drainage holes into them and filling them with soil and compost (if available).

Step 4:
Learners decide which plants they want to grow. They must consider the space available, choose seeds accordingly, and plant them. Once the seeds grow into small plants, learners can either take the containers home (where they can keep the plants in the container, or plant them out in their gardens) or decorate their classroom or school grounds with their tiny gardens.

Learners making small container gardens.

Teachers' experiences

"This challenge tackles two important problems: littering and food production. After break, our school grounds are often covered with papers, plastic bottles, containers and bags. We can reuse some of these materials for gardening projects."

Essential Content Box

Card guessing games stimulate creativity and support the ability to describe or identify things based on specific characteristics. By guessing or describing what's on the card, learners develop deductive and language skills.

Challenge 5

Design a theme garden

Rationale: Learners explore and creatively work on gender-related issues. They use the garden space to raise awareness and create social value for the school community.

Time: several lessons
Subject area: Creative Arts, Life Skills, Life Orientation, Agricultural Subjects, Natural Sciences (and Technology)
Grade: five and above. Teacher facilitation is grade-dependent.

Level: intermediate, advanced
Knowledge required: See teacher support box.
Materials required: natural and recycled materials, seeds or seedlings, garden tools and stationery
Support required: groundskeeper

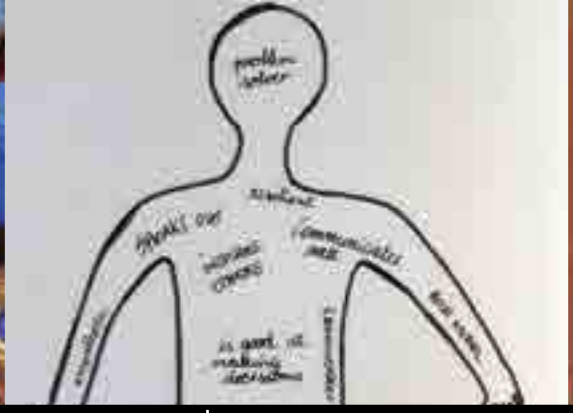
Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	X
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Learners practice creative arts in the garden.

Entrepreneurship Learning Gardens help to develop learners' social skills through group activities, and can serve social purposes. For example, the creation of a theme garden can raise awareness of topics like equality and women's rights.

BIG IDEA

Creating body maps of female leaders and change-makers.



Sketching a garden element (gender symbol) made of stones and plants.

Step 1:
Discuss the situation of girls and women in the community/the country. Name the challenges they face.

Step 2:
Create body maps. Learners draw the outlines of a learner's body on a big piece of paper and fill in the qualities of female leaders and change-makers.

Step 3:
Ask them to use the ideas collected in the body maps to design a tiny garden or part of a garden that expresses the ideas of women's rights.

Step 4:
Invite the learners to present their theme garden designs. How do they address gender equality and empowerment? Implement the ideas on school grounds with the help of the groundskeeper, after getting permission from the school.

Step 5:
Upon completion, learners present the theme garden (or elements) to teachers and fellow learners (e.g. on 11 October/International Day of the Girl). An exhibition of the body maps may complement this.

Teachers' experiences

"At first, the learners were confused by the idea of a theme garden. In order to develop both the general idea and single elements of the garden, we discussed the following questions:

What is the key message that the garden should convey?
What shapes and colours underline this message?
What symbols and signs can be used to support the statement?
What materials can be used to create the garden?
What plants would match the topic in terms of colour, shape and properties?"

"Before we started creating the garden, we discussed its location. We realized that a central area that many people pass by is the best place for activities to raise awareness of a topic."

Essential Content Box

"Body maps" are helpful tools for visualization, representations of inner worlds (feelings, thoughts) and everyday experiences. They allow learners to express and reflect aspects of themselves or their lives in a creative and personal way.

"Theme gardens" are made of plants and design elements that serve a certain purpose or relate to a specific theme. Just like body maps, theme gardens express ideas and build on imagination.

Challenge 6

Create a mosaic garden path

Rationale: Learners brighten the school grounds with pretty pathways, using the mosaic technique.

Time: several lessons
Subject area: Creative Arts, Life Skills, Life Orientation, Agricultural Subjects, Natural Sciences (and Technology)
Grade: three and above. Teacher facilitation is grade-dependent.

Level: beginner
Knowledge required: See teacher support box.
Materials required: stationery, natural and recycled materials, cement (optional), garden tools
Support required: groundskeeper

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Learners creating a mosaic with painted stones and pieces of tiles.

BIG IDEA

Landscaping and mosaics provide great opportunities for learners to be creative and use their gardening and planning skills to design and build beautiful learning spaces.

Learners creating a sketch and painting stones for the mosaic path.

Step 1:
Ask learners if they have seen mosaics before. Share experiences in class.

Step 2:
Invite the learners to find the ideal space for a mosaic path on the school premises. Ask them to sketch the path.

Step 3:
All learners present their mosaic path designs and choose one to be implemented.

Step 4:
Next, learners demarcate the path, and clean and level the ground. The class collects and decorates materials for the mosaic garden path, and finally, lays it out. It helps to stick the mosaic pieces into a concrete base to keep them in place (see teacher support box).

Teachers' experiences

"We got very creative and recycled a lot of materials to make the mosaics. We painted stones and pressed broken ceramics, as well as the flower-like bottom parts of plastic bottles, into a cement base. The mix of sand and cement (2:1) and water helped us to keep all the mosaic pieces in place."

Essential Content Box

By presenting their designs, learners develop and improve their communication skills. When they speak in front of others, they build confidence. If their presentations are well-structured, they will communicate their message more clearly to their audience. Ask learners to structure their presentation as follows:

- greet the audience
- introduce themselves
- introduce the topic (state their purpose, goals, challenges, outcomes etc.)
- summarize key statements
- leave time for questions
- thank the audience

Using visual aids (e.g. posters, power point, etc.) will illustrate the topic and capture the audience's attention.

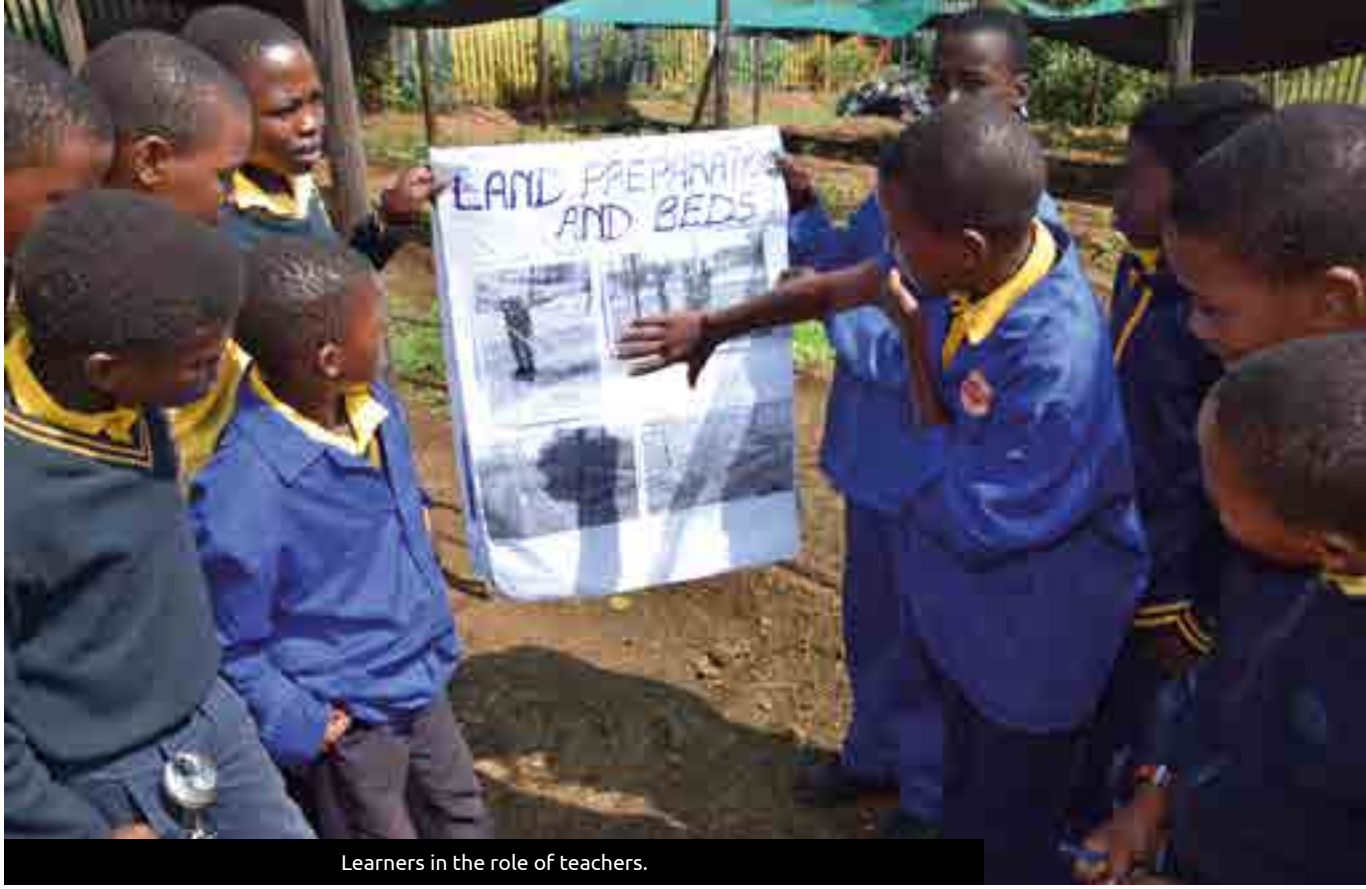
Challenge 7

Peer learning in the Entrepreneurship Learning Garden

Rationale: Learners teach their peers about gardening in the Entrepreneurship Learning Garden.

Time: several lessons
Subject area: Life Skills, Life Orientation, Agricultural Subjects, Economic and Management Sciences, Natural Sciences (and Technology)
Grade: five and above. Teacher facilitation is grade-dependent.
Level: intermediate
Knowledge required: See teacher support box.
Materials required: stationery, garden tools
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	X
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	



Learners in the role of teachers.

BIG IDEA

The Entrepreneurship Learning Garden is a great space for learners to share knowledge. Those who regularly take part in the programme can teach their peers.

A learner sharing her knowledge about herbs.

Step 1:
What are the learners' most memorable garden experiences and learnings? Write these on the board.

Step 2:
Let the learners take on the role of teacher. They form groups, choose one topic from the feedback on the board, and prepare a presentation for their classmates. Their teaching can include a poster presentation, a role play, an exercise in the garden or any other creative activity to get their peers excited and more knowledgeable about gardening.

Teachers' experiences

"In the process of teaching, the learners developed a deeper understanding of the subject. Those being taught felt comfortable asking questions, and caught the enthusiasm of their fellow learners. They enjoyed their simple explanations."

"We started a Sprouting Entrepreneurs Club at our school. Once a month, learners who are experienced in gardening train interested new members. By presenting their projects and telling stories about their garden activities, they pass on knowledge, and inspire and motivate their peers. It is nice to see how the club grows from year to year."

Essential Content Box

"Peer learning" is an interactive way of learning. Learners teach one another, and share their knowledge and experiences. In doing so, they step into the role of facilitators and gain a deeper understanding of the concepts they explain. Being taught by their peers can motivate learners and make a topic easier for them to understand. This method encourages team work, builds confidence, promotes communication skills in a safe environment and motivates through its playful character.

Challenge 8

Inquire into food insecurity

Rationale: Learners inquire into the problem of food insecurity using the problem tree method, and tackle the issue with their own practical ideas.

Time: several lessons
Subject area: Agricultural Subjects, Natural Sciences, Economic and Management Sciences, Life Orientation
Grade: seven and above
Level: advanced

Knowledge required: See teacher support box.
Materials required: flipchart paper
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	X
I plan the execution of an idea.	
I implement an idea.	X
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Garden solutions for households with little space for growing food (CIDI, Uganda).

BIG IDEA

According to Statistics South Africa, 20% of South African households didn't have adequate access to food in 2021. Sprouting Entrepreneurs should develop an understanding of this key societal problem and think of ways to address it with constructive, garden-based ideas.

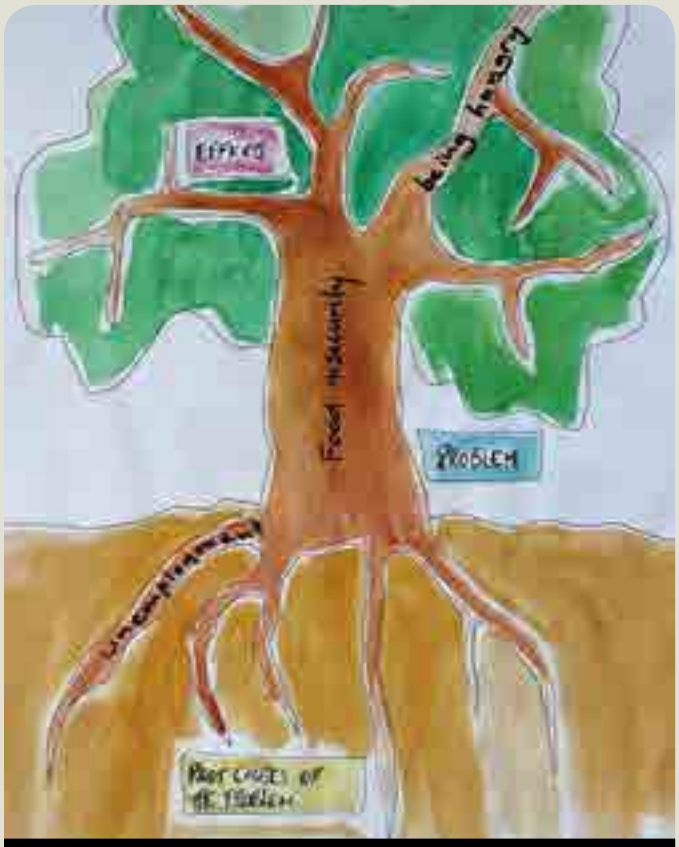
Step 1:
Talk about food insecurity. What do learners know about this key societal problem? Point out that it is a sensitive issue and that no one needs to disclose personal experiences in this regard.

Step 2:
Discuss the following questions:
Who do learners think are the most vulnerable people/groups in the country/in the community?

- Why are they vulnerable?
- How does the government respond to food insecurity?
- How do those affected by food insecurity deal with the problem?

Step 3:
Introduce and explain the problem tree method to learners.

Step 4:
Create a problem tree that depicts the root causes and effects of food insecurity identified by learners. To make this more detailed, invite learners to ask the "why" question for every root and consequence they find. This helps to foster an in-depth understanding of the issue.



Using the problem tree method to analyze and understand a topic.

Step 5:
Form groups and ask them to brainstorm ideas that address the problem of food insecurity in their community.

Step 6 [optional]:
Each team implements their idea during the school year.

Teachers' experiences

"We are planning to transform sections of the Entrepreneurship Learning Garden into a nursery. The idea is to grow seedlings and donate them to selected households in our community. Food prices have been rising, and we realize that more people are struggling to meet their basic needs. We will convince people of the benefits of home gardens, help them to set up their own and plant the seedlings. From time to time, we will visit and check if our seedlings are growing nicely, so that the families can eat more vegetables in future."

Essential Content Box

The "problem tree" is a tool for analyzing and representing topics in a structured way. Mapping out the root causes and effects, and the connections between them, helps learners to understand a problem.

Creating a problem tree:

- What is the problem? → Write it on the tree trunk.
- What causes the problem? → Put each cause on a separate tree root.
- What are the effects of the problem? → Label the branches of the tree.

Challenge 9

Inquire into food costs and learn basic budgeting

Rationale: Learners consider how much their families spend on food and how this affects the family budget. They become price conscious, reflect on their own eating habits and spending behaviour, and learn how to plan a basic budget.

Time: several lessons
Subject area: Life Orientation, Economic and Management Sciences
Grade: six and above. Teacher facilitation is grade-dependent.
Level: intermediate, advanced

Knowledge required: See teacher support box.
Materials required: none
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	
I plan the execution of an idea.	
I implement an idea.	
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	X
I refine my idea based on my learnings.	

What are households spending on food?

BIG IDEA

Do learners know how much their families spend on food? As they investigate food expenses, they learn the basics of budgeting.

Food	Price per item (ZAR)	Number of items per week	Eating out (how often?)	Cost of eating out	Costs per week (ZAR)
Milk (1l)	16	2			32
Bread	17	4			68
Chicken breasts (500 gr)	39	2			78
Chicken polony (1 kg)	47	1			47
Soft drinks - Pepsi Max (2l)	17	2			34
Street food	25		2	50	50
Maize meal (5 kg)	60	1			60
Spinach	10	4			40
...					
Total					**409**

Recording food items and expenses.

Step 1:
How much do households spend on food per week? Ask the learners to create a list of food items eaten by their family at home and elsewhere. They should research the price of each item and calculate the total cost of food per week (see example above).

Step 2:
Ask the learners to calculate how much their family spends on food per month. How much money must the family earn (income) to cover this expense?

Step 3:
What percentage of the total household budget is spent on food? Discuss the different results in class. What does it mean for a household if a large percentage of their total budget is spent on food?

Step 4 [optional]:
A family or household has to cater for many needs and wants. Ask the class to make a list of other living costs that occur monthly.

Step 5:
Encourage learners to discuss their weekly food list. Can the family/household save money by giving up or changing certain eating habits? How much can they save by growing their own food? Ask the learners to calculate the financial impact of their suggested changes.

Teachers' experiences

"By recording food expenses, the learners realize that consumption happens on a daily basis, that regular small amounts add up to a large amount over time, and that prices vary. As they become more aware, they see how their daily choices influence their budgets and how they, in turn, can shape them positively."

"In our class, we had a very interesting discussion. The learners realized that in many households food costs take up a lot of the total budget. They discussed what they could do about that, and started a community project. They supported lower-income households with fresh vegetables from the Entrepreneurship Learning Garden for a period of six months."

Essential Content Box

"Family budgets" are a great way to create awareness of spending behaviour and patterns. They are also a starting point for understanding the importance of planning and monitoring expenses.

Challenge 10

Create garden-based business ideas and determine business opportunities

Rationale: Learners think of new, garden-based products and services. They determine the value of an idea before implementing it.

Time: several lessons
Subject area: Economic and Management Sciences, Agricultural Subjects, Natural Sciences
Grade: seven and above. Teacher facilitation is grade-dependent.
Level: advanced

Knowledge required: See teacher support box.
Materials required: used materials (e.g. plastic bags, containers, packaging materials etc.), stationery
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	X
I plan the execution of an idea.	
I implement an idea.	
I communicate an idea to stakeholders.	X
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Business idea: Learners produce vegetables for neighbours without gardens.

BIG IDEA

New ideas are important driving forces for socio-economic development. Sprouting Entrepreneurs creatively respond to this need. They develop (business) ideas and learn how to turn some of them into business opportunities.

Step 1:
Ask learners to think of creative ideas for garden products and services that they could sell in or outside school. Collect all ideas on the board.

Step 2:
Form small teams. Each group chooses one idea. They create a presentation (e.g. a poster or collage, samples made of recycled materials, etc.) and discuss the idea in class. Their demonstration must include the following information:

- Who are their potential customers?
- Will the idea be new to these customers?
- Can learners manage the production or service to be offered?
- Will the new product or service be profitable?
- Is the idea of value for others?

Step 3:
All groups present their ideas and then test these outside school, by asking ten adults (e.g. family members, neighbours, etc.) for their opinions. The following questions can help them to determine the value of their ideas. How many of their ideas could become a business opportunity?

Step 4 [optional]:
Discuss in class: How do the new products or services relate to the widespread problems of food insecurity and lack of healthy nutrition and affordable food in communities?

Test your business idea

- Who is interested in or needs my product or service?
- Why do they like or dislike my product or service?
- Are they willing to buy it or trade it for another product?
- Will they want to buy the product regularly or seasonally (sustainable)? Or will they stop buying it completely (unsustainable)?
- How many of my products or hours of my service will they need?
- Where should the product be available (location of sales points)?

(UNESCO, 2006, p.14-15)

Teachers' experiences

"The challenge helped learners to understand that not all business ideas can become business opportunities. By interrogating their ideas in and outside school, they managed to select the most promising ones, which they successfully implemented on our Entrepreneur's Day in August."

Essential Content Box

A "business idea" is an entrepreneurial concept. It describes innovative products or services. If it passes certain tests and proves to be profitable, the idea becomes a "business opportunity".

Challenge 11

Test your garden business idea

Rationale: Learners evaluate their business ideas and put their garden products to the test. They request feedback from test volunteers, and use this to refine their original products.

Time: several lessons
Subject area: Agricultural Subjects, Economic and Management Sciences
Grade: six and above. Teacher facilitation is grade-dependent.
Level: intermediate, advanced

Knowledge required: See teacher support box.
Materials required: none
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	
I plan the execution of an idea.	
I implement an idea.	
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	X

Chilli peppers preserved in oil.

Wrong assumptions about products, their quality or market fit can cause a business to fail. Asking a group of people to evaluate a product helps the seller to understand customers' needs, wants and preferences. This, in turn, allows for the refinement of a business idea.

BIG IDEA

CUSTOMERS SATISFACTION SURVEY

1) Did you like our product?

☐ YES ☐ NO

2) Would you recommend our product to a friend?

☐ YES ☐ NO

3) How innovative is the product?

☐ INNOVATIVE ☐ NOT INNOVATIVE

4) Rate the quality of the product!

☐ VERY GOOD ☐ GOOD ☐ AVERAGE ☐ NOT GOOD

Example of a customer satisfaction survey.

Step 1:
Review and evaluate the results of the "Create garden-based business ideas" challenge. Ask each group of learners to design a questionnaire evaluating their garden product. This should look at the innovative character, quality, strengths and weaknesses of the product, and ask test volunteers to suggest improvements.

Step 2:
Each group should produce 10 samples of their products. Learners then ask school staff members to participate in a test run, in which they taste the product and fill in the questionnaire.

Step 3:
Back in class, ask the groups to evaluate their surveys. They prepare a presentation to show what they have learned to their fellow classmates. Encourage learners to consider different presentation methods, such as mind maps, graphs, video clips, role plays, etc., to visualize and introduce their research findings.

Step 4:
Discuss in class:

- Were the learners surprised by the feedback they received?
- Are they going to make changes to their initial business idea or modify their products?
- What did they learn about conducting a survey?

Teachers' experiences

"The learners were humbled by the feedback from the test run. In doing this challenge, they gained basic knowledge about conducting research. They learned how to define their research objectives, choose useful questions, analyse and synthesize answers, and creatively present their findings to an audience. They understood the importance of collecting data, and how research can inform their decisions and make their businesses more successful."

Essential Content Box

Customer surveys are an important marketing tool to determine the potential success of a product or service. Feedback from customers helps to evaluate the quality of a business idea. In addition, regular customer surveys allow for the refinement of ideas, products or services, since trends and preferences change over time.

Challenge 12

Create prototypes for garden products made from waste

Rationale: Learners experiment with waste materials. Taking inspiration from the shapes, colours and parts of discarded objects, they think of ways to upcycle waste into garden products, which they then design and create.

Time: several lessons
Subject area: Agricultural Subjects, Creative Arts, Life Skills, Natural Sciences (and Technology)
Grade: four and above. Teacher facilitation is grade-dependent.

Level: beginner, intermediate
Knowledge required: See teacher support box.
Materials required: used materials (e.g. plastic bags, containers, packaging materials etc.), stationery, old newspaper and magazines
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	X
I plan the execution of an idea.	
I implement an idea.	
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Collecting ideas from learners.

BIG IDEA

Using their creativity and skills, learners help to reduce waste by upcycling unwanted items. Instead of just reusing old materials, they create something new for their garden. This supports Sustainable Development Goal 12, which targets responsible consumption and production.

Step 1:
Ask the learners to regularly check their waste at home. They must select a variety of reusable materials, clean these and bring them to school. Every learner should bring at least one rubbish bag filled with items.

Step 2:
Discuss the problem of waste production. How do we contribute to growing landfills?

Step 3:
Learners work in teams to create unique garden ideas. These can be decorative (e.g. sculpture) and/or useful (e.g. a scarecrow).

Step 4:
Each group chooses their best idea and designs a prototype. They answer the following questions to evaluate the potential of their idea:

- Will the product attract people?
- Has the group seen similar products?
- Are competing products better than their own? Why/why not?
- Does the product need further improvements?

Step 5:
Finally, all teams present their products. Together they vote to determine the three most popular ideas. They then reflect on the voting results: Which ideas do people like best? Why? What makes these appealing?

Giving waste materials a second life.

Teachers' experiences

"This was a fun and thought-provoking challenge! After one week of waste collection, we were already drowning in an abundance of old and colourful materials. The learners realized how much waste is produced every day. The project made them aware of the problem of excessive packaging and encouraged them to act on it."

Essential Content Box

"Upcycling" means using discarded materials to create something new. It addresses the problem of growing landfills. Many waste materials take a long time to decompose (e.g. plastic). Upcycling prolongs the useful lifespan of such materials. Thinking of ways to reuse these materials boosts creativity and develops the maker's manual and technical skills.

Challenge 13

Price a garden product

Rationale: Learners set prices for garden products, to make a profit.

Time: several lessons
Subject area: Economic and Management Sciences, Agricultural Subjects
Grade: six and above. Teacher facilitation is grade-dependent.
Level: intermediate, advanced

Knowledge required: See teacher support box.
Materials required: none
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Learners selling takeaway salad on Market Day.

The ability to price products is an important business skill. Learners who aim to make money with their garden products must understand basic financial concepts and make informed decisions.

BIG IDEA

A learner harvesting lettuce.

Step 1:
Discuss with learners the importance of knowing how to price products.

Step 2:
Assume the class produces and sells organic lettuce. How would the learners determine the price for a single lettuce? Ask them to work through pricing methods A, B and C:

A	"Cost-plus pricing": Calculate the cost it takes to produce one lettuce. Add a markup to make a profit. This determines the price of a lettuce.
B	"Willingness to pay": Here the price is based on research. Ask potential customers in the community what they can afford to pay for an organic lettuce. Suggest a price based on most answers.
C	"Market-orientated pricing": Visit local vendors and shops in your vicinity and ask about the price of lettuce. Suggest a price based on the different prices you discover in this process.

Step 3:
Ask the learners to compare the outcomes of exercises A-C and decide on the best price for their lettuce.

Step 4:
What do learners think about the value of organic vegetables for the community? How can people benefit from them? Discuss in class.

Teachers' experiences

"Our school supported the implementation of an Entrepreneurial Learning Garden and allowed us to use water and some land to grow organic lettuce. When we set the price for one lettuce head, we calculated the material costs (e.g. for seeds, compost, and packaging) and added 10% as our markup and profit. The lettuce sale went very well and we celebrated our success with some treats."

Essential Content Box

"Pricing" means deciding how much to charge for an item. Step 2 introduces three ways of doing this:

- "Cost-plus pricing" means calculating the costs per single item and then adding a markup.
- The "willingness to pay approach" means researching the (highest) price that customers are willing to pay for a product.
- "Market-based pricing" also requires research. Here, the price is set based on a comparison of the prices charged by competitors in the area.

Challenge 14

Create a buyer persona for your vegetable business

Rationale: Learners do research and describe potential customers for their vegetable business. They create buyer personas based on data collected in interviews at school, home and in the community.

Time: several lessons
Subject area: Agricultural Subjects, Natural Sciences, Economic and Management Sciences, Life Orientation
Grade: seven and above. Teacher facilitation is grade-dependent.

Level: advanced
Knowledge required: See teacher support box.
Materials required: none
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	X
I plan the execution of an idea.	
I implement an idea.	
I communicate an idea to stakeholders.	
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Coming back from shopping.

BIG IDEA

When Sprouting Entrepreneurs inquire into customer needs, their backgrounds, habits and pains, they collect valuable information that allows them to tailor their offering to their target market.

Step 1:
Introduce learners to this market research challenge through discussion. Why is it important for entrepreneurs to know as much as possible about their customers?

Step 2:
Help learners develop questions for interviews with people who might be interested in buying vegetables grown in the Entrepreneurship Learning Garden. Each learner has to conduct one interview with someone at home, at school or in the community, and write their findings down.

Step 3:
Back in class, learners form groups. They present their interview findings to each other, compare them, and choose the most promising future customers.

Step 4:
Each group must then create a profile – i.e. a buyer persona – of the chosen customer.

Step 5 [optional]:
Ask learners to develop a marketing tactic to reach the buyer persona they have created.

BIO: Nomsa is a nurse in a private hospital. She has a diploma in nursing, is 35 years old and a single mother of 2 teenage boys. Nomsa lives in Soweto, renting a 2-bedroom house. From there she travels to work in Parktown, Johannesburg five days a week.

Goals: Nomsa aims at better balancing work and family life. It is important for her to spend time with her kids, and raise them healthily.

Interests: Nomsa loves cooking and baking; is interested in healthy lifestyles; likes outdoor activities; enjoys shopping and social media (Instagram, Facebook).

Challenges: Due to Nomsa's busy and uneven work schedule, time for family activities, including shared meals, is limited. The same applies to shopping or cooking. Nomsa also feels she can't spend much on healthy food due to other financial responsibilities (e.g. paying rent, school fees, etc.)

Creating a buyer persona (example)

Interview with prospective customers (example)

Personal details
Name: _____
Age: _____
Gender: _____
Profession: _____
Location: _____
Educational background: __
Family status: _____
Interests: _____
Social networks: _____

Shopping information
- How often do you buy food per week?
- What's important when you buy food?
- Where do you buy your food?
- How often do you buy vegetables per week?
- Are vegetables important to you? Why?
- Where do you buy them?
- How much do you spend on vegetables per week?
- Do you cook regularly?
- Describe your favourite meals.
- What are the challenges with food shopping?

Teachers' experiences

"This was a great exercise for learners to improve their research skills by conducting interviews and analyzing their findings. I was surprised by the accuracy of their customer profiles. Because of their different habits, motivations, lifestyles, and so on, people have different buying patterns. Once the learners understood that, they were able to develop new ideas for their vegetable business."

Essential Content Box

"Buyer personas" are characterizations of likely future (or current) customers. They help businesses to understand their customers' needs, habits and challenges, so as to develop tailor-made offers (products and services) and enhance marketing for their business.

Challenge 15

Inquire into places to sell, and establish a pop-up market in the community

Rationale: Learners view their community through the eyes of an entrepreneur. They inquire into different sales locations and explore the concept of a pop-up market for selling their products from the Entrepreneurship Learning Garden.

Time: several lessons
Subject area: Agricultural Subjects, Natural Sciences, Economic and Management Sciences, Life Orientation
Grade: seven and above. Teacher facilitation is grade-dependent.

Level: advanced
Knowledge required: See teacher support box.
Materials required: furniture, decorations and packaging materials for the pop-up market stand
Support required: groundskeeper

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	X
I develop an idea.	X
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	X
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Exploring places for a pop-up sale in the community.

A pop-up event, with its element of surprise, is a great opportunity for learners to develop business skills and occasionally support the supply of healthy food in the community. Learners consider the properties of different market venues, and choose the most profitable one.

BIG IDEA

Selling products to neighbours and passers-by on a street in Uganda.

Step 1:
Ask the learners to compare a small spaza shop with a bigger supermarket. Why do people in the community prefer to shop in one store or the other?

Step 2:
Present the idea of a pop-up market to the learners. Explain the characteristics and advantages of this way of selling products.

Step 3:
Form groups and inquire into suitable/unsuitable places for a pop-up event selling vegetables in the community. Where could the learners sell produce from the Entrepreneurship Learning Garden for a day? The following questions can help them find good locations:

- Which place in your community would be special for a pop-up vegetable market?
- Why is it a good location for the event? List at least five criteria for your choice.
- Do you need permission to run a pop-up market there? From whom?
- Can you partner up with an established business in the community?
- Can you think of specific occasions that may benefit the pop-up market (e.g. Youth Day)?
- Does this place present any challenges? What are these?

Step 4 [optional]:
Take a walk in the community. Are all the places suggested for a pop-up vegetable market equally suitable? Choose the best location for a future event.

Step 5:
Test the pop-up market idea. Ask the school management for permission. Then plan and organize a once-off vegetable sale in the community.

Teachers' experiences

"Every year we organize an Entrepreneur's Day with the grade 7 learners, usually at school. This year, we held a pop-up market in the vicinity of our school. The school groundskeeper helped us to transport the materials and harvest, and the learners set up their market stand right next to a hair salon. The lady who operates the salon liked the idea of learners selling fresh vegetables on her doorstep. Some of her clients liked it too, and shopped on their way out."

Essential Content Box

A "pop-up market" is a temporary sales event. This concept is often used in the retail sector – a unique selling place is used for a short time to test products, reach new customers, and limit costs (e.g. for rent).

Challenge 16

Organize a vegetable Market Day at school

Rationale: Learners gain basic business skills and create financial value through the production and sale of garden products.

Time: several lessons
Subject area: Life Orientation, Economic and Management Sciences, Agricultural Subjects, Natural Sciences (and Technology)
Grade: six and above. Teacher facilitation is grade-dependent.

Level: intermediate, advanced
Knowledge required: See teacher support box.
Materials required: furniture, decoration and packaging materials for the market stand
Support required: groundskeeper

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	X
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	

Hosting a vegetable Market Day at school.

BIG IDEA

Holding a Market Day is a great way to gain real-life business experience. Financial, marketing, communication and time management skills are essential when planning and implementing this school event.

Packaging the harvest and promoting products on Market Day.

Step 1:
Introduce the idea of organizing a Market Day at school, using self-grown vegetables that the community likes to eat.

Step 2:
Begin by preparing for the event. Brainstorm everything that needs to be done to prepare for the Market Day. Draw up a timeline, set dates for all tasks, and form teams. Each team is responsible for a market stand and must prepare for the event accordingly. They develop their own work plans and coordinate their work with other groups.

Step 3:
Discuss with the teams how they intend to use the profit they make on Market Day.

Teachers' experiences

"To prepare for our Market Day, we started by identifying the most important tasks. These were the jobs all teams had to do:

- *Harvesting and packaging: maintaining the garden, checking in on the vegetable growth and preparing bundles of vegetables to sell.*
- *Marketing: creating different promotional materials for the Market Day (e.g. leaflets, posters), doing a market survey with potential customers to see if they intended to buy vegetables on the day, and gathering feedback about certain products and prices.*
- *Logistics: preparing the market stall, organizing furniture and decoration materials.*
- *Sale: Pricing the products, selling them, keeping a records of products sold and revenue earned, and checking the profit at the end of the day.*

By doing so everything went pretty smoothly and the day turned out to be a grand success!"

Essential Content Box

A planning framework is an important tool for managing projects. Learners grasp how to identify what steps must be taken to realize their idea (i.e. Market Day) and practice the chronological planning of project activities. The following questions may help to guide them in planning a sales event:

- What makes a Market Day successful?
- How long will preparing for the Market Day take?
- Who could assist at the event?
- When and where should the Market Day take place?
- Who do we need permission from?
- When/how should we advertise the Market Day?

Challenge 17

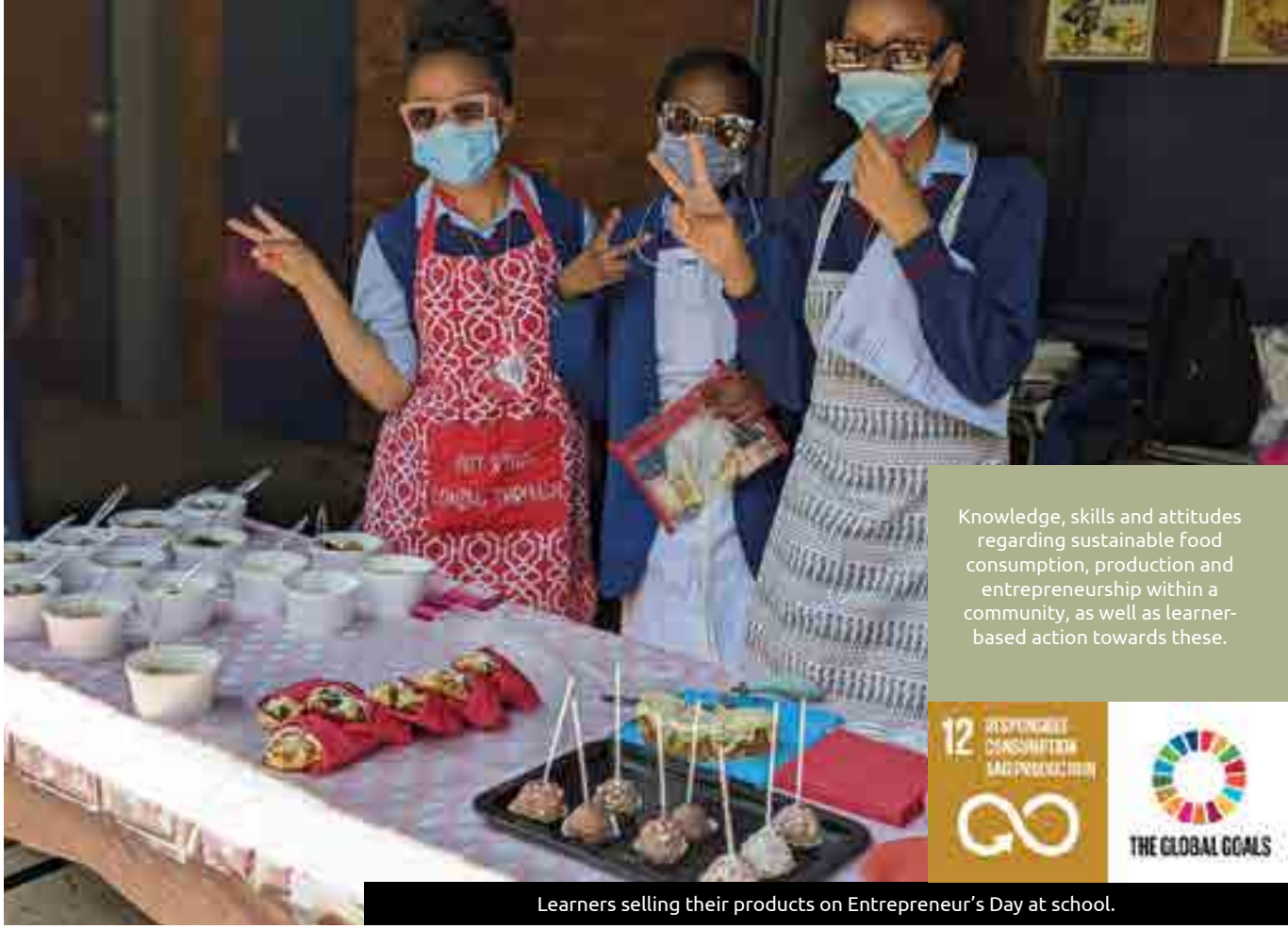
Host an earth-friendly Entrepreneur's Day at school

Rationale: Learners use their entrepreneurial skills and contribute to Sustainable Development Goal 12, which targets responsible consumption and production.

Time: several lessons
Subject area: Life Orientation, Economic and Management Sciences, Creative Arts
Grade: six and above. Teacher facilitation is grade-dependent.
Level: intermediate, advanced

Knowledge required: See teacher support box.
Materials required: none
Support required: none

Key entrepreneurial learning activities	
I inquire into an opportunity or a problem.	
I develop an idea.	X
I plan the execution of an idea.	X
I implement an idea.	X
I communicate an idea to stakeholders.	X
I reflect on what I have learned in the process.	
I refine my idea based on my learnings.	



Knowledge, skills and attitudes regarding sustainable food consumption, production and entrepreneurship within a community, as well as learner-based action towards these.

Learners selling their products on Entrepreneur's Day at school.

BIG IDEA

Learners act as entrepreneurs and host a school event. They design and create earth-friendly products that are sold to the school community on Entrepreneur's Day.

Step 1:
Introduce the idea of an earth-friendly Entrepreneur's Day. Challenge learners to create and sell products with low ecological impact at a school event.

Step 2:
Prepare for the challenge. Ask the learners to collect recyclable materials – old items in different shapes and colours – and to clean these thoroughly. Store these in a cardboard box in class.

Step 3:
Form groups of 5-6 learners. Lay out the materials in the classroom. The teams brainstorm ideas for products that can be made using these materials.

Step 4:
Each team focuses on different product ideas. The groups choose the waste items they need, and create a minimum of 10 products for Entrepreneurs' Day.

Step 5 [optional]:
In addition to eco-friendly products, learners can make and sell food and drinks produced using local and seasonal fruits and vegetables.

Step 6:
Each team is responsible for one stall at the event. Their tasks include setting up their stand (i.e. organizing tables, stand decoration, etc.) as well as promoting and selling items.

Step 7:
Decision makers: All groups must keep records of their sales. After the event, they decide how to use their profits. Will they use these for themselves or to benefit others?

Teachers' experiences

"My grade 7 class did so well at the Entrepreneur's Day! The learners loved the creative session and bubbled with ideas. All the groups worked tirelessly and produced a variety of eco-friendly products. Their papier-mâché bowls, plastic bottle flowers, and mini bottle gardens sold really well!"

"I liked the idea of linking an entrepreneurial exercise with the topic of sustainability. The challenge encouraged learners to think about the impact of unsustainable production and consumption. By inventing and selling climate-friendly goods, they assumed the role of changemakers."

Essential Content Box

"The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability."

https://www.undp.org/sustainable-development-goals

Part V

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The United Nations highlights the significance of entrepreneurship education for societal development in its Agenda 2030. Entrepreneurship education is highly sought-after in public education systems worldwide, from general and vocational education in primary and secondary schools to institutions of teacher education. However, despite this demand, there is a shortage of teaching materials and concepts to support the learning of entrepreneurial competences.

This Sprouting Entrepreneurs manual therefore aims to contribute a fresh perspective on entrepreneurship education. It draws on project work conducted with rural and urban schools in the Global South between 2015 and 2023.

Sprouting Entrepreneurs' methodology uses school gardens and school farms as a medium of entrepreneurial learning. Its real-life, action-oriented and project-based approach to learning also lends itself to vocational education in agriculture and beyond.

Sprouting Entrepreneurs defines entrepreneurial competence as the ability to develop and implement creative ideas in response to societal problems or opportunities through which value for others is created. This value may be financial, social, cultural, ecological, civic, educational, or aesthetic: in short, any form of value that enhances people's freedoms, in accordance with the definition of human development by economist and Nobel Prize winner Amartya Sen.

Sprouting Entrepreneurs frames critical thinking as an inquiry into the social, political and economic structures of young people's life-worlds within their communities in the Global South. Developing critical consciousness of how these structures shape their lives is not only a learning outcome in itself, but also the starting point for entrepreneurial ideas that aim to create sustainable and transformative value for others.