



HAND PRINT™
action towards
sustainability

Did you Grow your Greens?



A Share-Net Resource Book

Reading-to-learn curriculum materials to support
Language, Natural Sciences, Social Sciences, Life Orientation
and Arts & Culture learning areas



Acknowledgments

The Handprint resource books have been compiled by Rob O'Donoghue and Helen Fox of the Rhodes University Environmental Education and Sustainability Unit. Lawrence Sisitka was responsible for coordination and review, and Kim Ward for editorial review and production for curriculum and Eco-School use. Development funding was provided by CAPE. Cover illustrations are by Tammy Griffin.

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Available from Share-Net
P O Box 394, Howick, 3290, South Africa
Tel (033) 3303931
sharenet@wessa.co.za

January 2009
ISBN 978-1-919991-05-4

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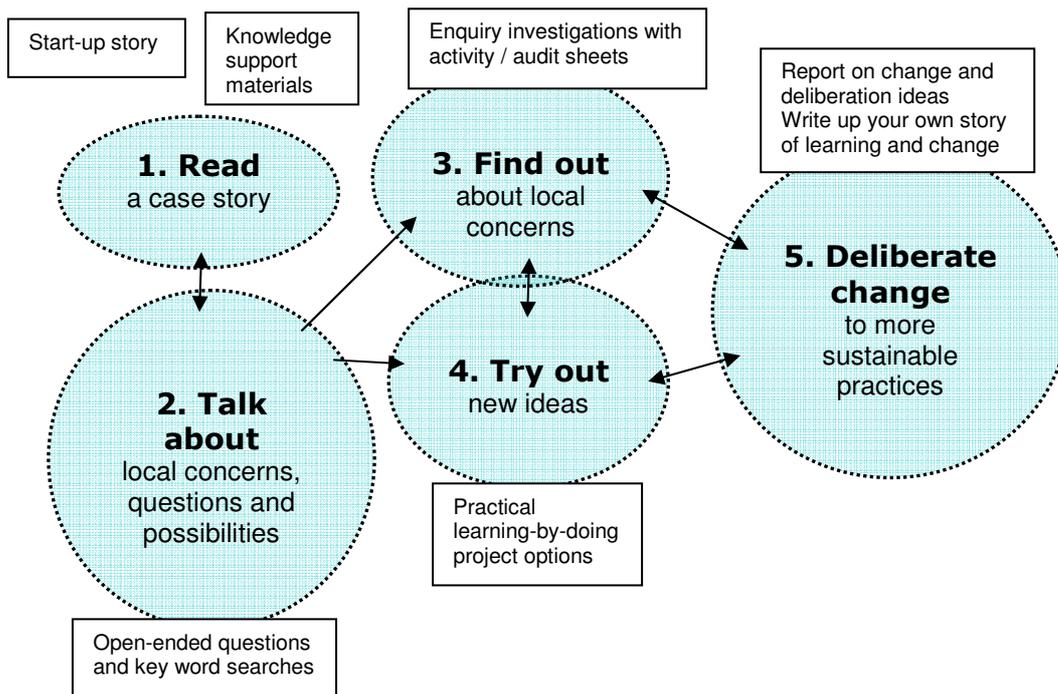
RESOURCE BOOKS

The **Handprint Resource Books** have been designed for creative educators who are looking for practical ideas to work with in the learning areas of the National Curriculum. The focus is on **sustainability practices** that can be taken up **within the perspective that each learning area** brings to environment and sustainability concerns.

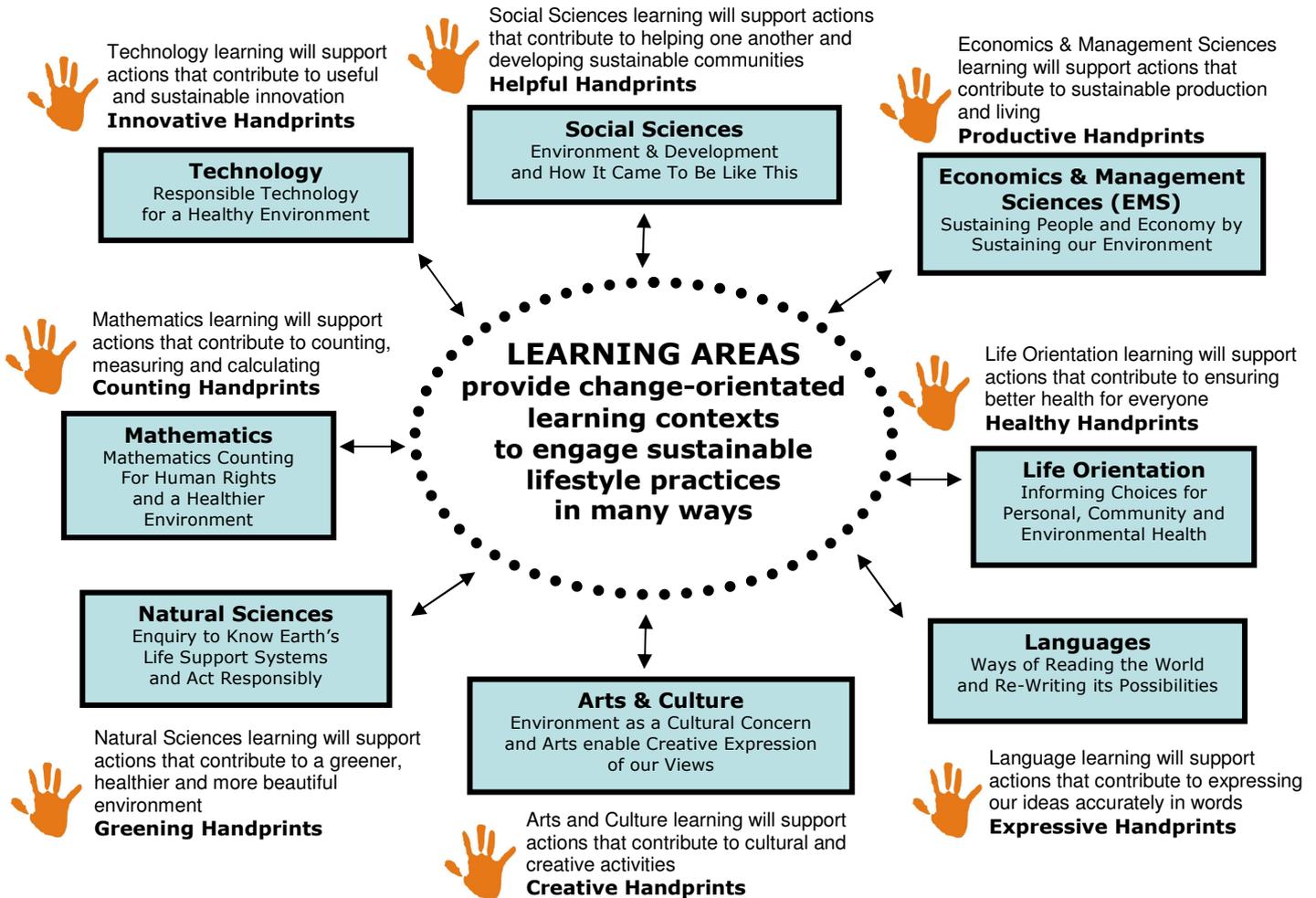
The resource books are intended to provide teachers with authentic start-up materials for change-orientated learning. The aim is to work towards re-imagining more sustainable livelihood practices in a warming world. Each start-up story was developed as a **reading-to-learn** account of environmental learning and change. Included are copies of the knowledge resources that informed those involved in the actual learning experiences described here. Working with local cases of learning and change has allowed us to develop the resource books around **locally relevant knowledge resources** and **practical learning activities** that relate to our African context. We are grateful to teachers and Eco-School support groups who have willingly shared their learning experiences and activities.

The **Handprint Resource Books** are an attempt to work from authentic cases of environmental learning and change. They combine some of the best teaching and learning tools that are being used to support change-orientated learning in the everyday realities of our South African schools. The resource books include:

1. **Start-up stories** with **knowledge support materials** (*Reading for information to build up a picture*)
2. Questions to **talk** about (*Talking to clarify issues and to plan local enquiry*)
3. Tools to **find out** about local concerns (*Writing about and reporting on local issues*)
4. Things to **try out** (*Writing up and reporting on what has been tried out*)
5. Ideas to **deliberate** (*Discussing, weighing up and recording decisions that will allow us to 're-imagine and re-write' our sustainability practices in a warming world*).



Change-orientated learning & the curriculum



The activities in this book can be used to support learning in the **Natural Sciences, Social Sciences, Life Orientation, Arts & Culture** and **Language** learning areas, and can contribute to the development of **Greening, Helpful, Healthy, Creative** and **Expressive Handprints**.

Teachers should consult the learning outcomes and assessment standards and should adapt the activities to suit their grade requirements.

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Growing Greens

Key words

Botanist

Nutrition

Iron

Sustainable

Livelihood



Rob came across two new vegetables at the Saturday morning farmers' market. One was a leafy green kale and the other was something between a lettuce and a Chinese cabbage. He had an interest in leafy vegetables after he'd read a friend's study on *imifino* (isiXhosa leafy vegetables: see **SM 1**). He was therefore interested in learning more about and tasting the new vegetables at the market.

A woman he met at the farmers market, Mrs Grace Petela told him how to cook the leafy vegetables. He took notes (**SM 2**). Rob could hear from Grace's accent that she was not local. She was a refugee from Zimbabwe and had travelled down to South Africa in search of a job and a better life. She had brought the seeds of these 'exotic' vegetables with her because they had saved her family from starvation when the economy of her country had collapsed. She was uncertain about what life in South Africa would bring but she knew that whatever happened, she would be able to grow healthy green vegetables and feed her family.

Grace told Rob they were African plants and she had grown them as a young girl. They grew well in Grahamstown, so well in fact that she had more than she needed and was selling some for extra money. Rob noticed that the vegetables were already well-known because by the time Grace had told Rob her story, she

was sold out. Grace left promising to come the next week with some seed and plants to sell to Rob and others who were keen to grow them.

Intrigued by her story, Rob took a sample to a botanist friend who identified them immediately as *kovu* (kale) and *tsunga* (mustard greens). Rob found out more about these two vegetable crops from the Wikipedia (**SM 3**). They are both easy to grow and drought resistant.

The next week at work Rob proudly showed off the two slips of *kovu* and the tiny *tsunga* seeds that he was going to plant in his garden. A student from Botswana called them by different names. She was keen to cook some immediately as she had missed the taste and had felt 'weak' without these vegetables.

When Rob took the vegetables home, his wife Carmen identified them as curly kale, a vegetable that she had eaten when she was young. Her parents were from the Netherlands and they had used kale to make a traditional dish called 'stamp pot'. Rob looked at the recipe and noticed many similarities with the recipe Grace had given him to make *imifino*. To make stamp pot one used potato, German sausage and cheese instead of maize meal. Rob was intrigued that both recipes stressed that an iron pot should be used for the cooking. So he asked Rachel, a friend who was studying nutrition, about this. She gave him some notes that described how cooking in an iron pot enabled people to get iron

necessary for healthy blood cells (**SM 4**).

Over the next few months, Rob successfully grew the green kale. Clayton, a Zimbabwean student at Rhodes University, showed him how to break the shoots off the plants to grow new plants (**SM 5**). Rob was very excited about this and took all the shoots off the existing plants to start a new bed of green kale. Unfortunately the next day was hot and dry. All the new shoots were scorched by the sun and died. He was very disappointed. Clayton told him that this often happened. In a rural community people would have known

not to use all the shoots on one day. He drew him a diagram that explained the sharing culture of growing *kovu* that ensured that there was always some for everyone (**SM 6**).

Later in the season, Rob also had more leaves than his family could eat. So he gave away leaves and shoots at the farmers' market so that other gardeners could grow their own vegetables at home. He told everyone this story and how he had learned that it is very important for people to grow at least some of their own food in aiming for a sustainable livelihood.



Glossary

Botanist: someone who studies plants.

Nutrition: the study of foods and nutrients and how they affect one's health.

Iron: an essential mineral needed in the human body to transport oxygen in the blood.

Sustainable: something able to continue indefinitely into the future.

Livelihood: the way you support yourself, meeting various social and economic needs, e.g. earning a salary, growing vegetables, having a savings club.

Comprehension Questions

1. Why do you think the *kovu* and *tsunga* saved people from starvation?
2. What did you find interesting about *imifino*? **(SM 1)**
3. Do you think you would enjoy eating food that Mama Petela cooks? What do you think of the fact that some of the vegetables are weeds that are growing in the garden? **(SM 2)**
4. What did you find out about *kovu* and *tsunga* after reading **support material 3**?
5. Why do you think cooking in an iron pot improves the levels of iron in your blood? **(SM 4)**
6. Explain in your own words how you can grow a plant from a cutting. **(SM 5)**
7. What are the benefits of the sharing culture of growing *kovu*? **(SM 6)**

Discussion Points

Reflect on Rob's statement that it is "very important for people to at least grow some of their own food in aiming for a sustainable livelihood."

What are different ways that we can help each other through difficult times?

Add your own ideas and questions

FINDING OUT ACTIVITY

Identify what plants are edible in your garden, using **support material 7** to help you. Pick a variety of different kinds and cook them to find out which ones are your favourites.

TRYING OUT ACTIVITY

Try to plant one or two vegetables from cuttings, to be grown in your own school vegetable garden. Use **SM 5** to guide you on how to do this.

DELIBERATION IDEAS



To deliberate is to think carefully about, to consider, to discuss in a focused way, to weigh up and debate. Here are some ideas to support this process in your learners.

- Discuss with your learners the value of growing your own vegetables and how this can help during times of crisis.
- Deliberate how the learners can share things amongst each other to help when one of them is going through a difficult time.



IMIFINO

"I grew up eating imifino. The species of imifino I know are: *utyuthu*, *ihlaba*, *umsobosobo*. I eat *imifino* because it is healthy. I like the wild *imifino* because it is nutritious. *Utyuthu* is the tastiest one. I learned how to cook *imifino* from my grandmother." Sisi Andiswa, 15 years, East London.

Since ancient times, humans have supplemented their diet with wild leafy vegetables. Most of the species used nowadays to make *imifino* in South Africa are originally from countries in the Americas, Europe, Asia or North Africa, but now grow as weeds across the world. Some species are cultivated as vegetables elsewhere, for example *imbikicane* (in India and Nepal), *utyuthu* (Kenya, Tanzania and India), *umsobo* (West and Central Africa) and *ihlaba* (Indonesia).

How and when these plants were brought to South Africa remains uncertain, but by the nineteenth century most of these exotic species were considered part of the traditional diets of black people. Written records show us that certain species were already eaten here in the late seventeenth century: *isiqwashumbe* (cultivated by Jan van Riebeeck in 1652) and *utyuthu* (documented as "very frequently stewed instead of spinach" as early as 1680).

Today many people in the Eastern Cape eat wild leafy vegetables. More than 30 species are eaten in the Transkei region alone! When the wild species are not available, other plants are used to prepare *imifino* or *isigwampa*, for example pumpkin leaves, potato leaves, beetroot leaves, turnips and turnip leaves, spinach and cabbage.

Imifino plants are full of goodness. *Imifino* species such as *utyuthu*, *imbikicane* and *umhlabangulo* contain **protein**. Proteins are needed to build up and repair body tissues and muscle development. This is very important for growing children. Protein helps fight infections. Most importantly, *imifino* plants contain many **vitamins** and **minerals**, which are essential for good mental and physical health.

Vitamin C helps the body to use calcium and other nutrients to build bones and blood vessels. It helps the cells heal from damage. Vitamin C is therefore important for healing wounds and fighting infection. *Imifino* species especially rich in Vitamin C include *utyuthu*, *imbikicane* and *isiqwashumbe*.

Vitamin A and **carotenoids** are needed to help the body resist infections and body cells from damage. They keep our eyes healthy and help children to grow. *Umsobo*, *utyuthu*, and *umhlabangulo* are good sources of vitamin A.

Vitamin E protects the body cells from damage and deterioration. It is also good for the skin. *Imbikicane* and *umhlabangulo* contain vitamin A.

Calcium helps to build strong bones and teeth, so it is especially important for growing children. Yoghurt is a good source of calcium, but so are *irhawu*, *umsobo*, *utyuthu* and *ihlaba*.

Iron is needed for the body to replace and build red cells and to build new tissue. It also assists with mental development of children. Most *imifino* species contain iron.

Zinc and **selenium** are both important for the immune system. *Utyuthu* and *umhlabangulo* are rich in zinc. *Imbikicane* contains a lot of selenium.

Reference

Husselman, A. and Sizane, N. 2006. *Imifino: A guide to the use of wild leafy vegetables in the Eastern Cape*. Institute of Social and Economic Research, Rhodes University.
email: iser-sec@ru.ac.za



MAMA PETELA'S IMIFINO

- 1 bag fresh imifino (e.g. *umsobosobo*, *imibikicane*, *isisqwashumbe*)
- 1 potato and 1 carrot
- ½ cup of mealie meal
- 1 onion and 1 bunch of green onions/onion leaves
- 1 clove garlic
- 1 cup water
- 1 teaspoon salt
- 1 tablespoon fat or oil

Boil the chopped potato and carrot for 5 minutes in half the water. Add the chopped imifino and cook till the vegetables are half done. Stir in the mealie meal, salt and the remaining water. Add the fat/oil to flavour. When everything is cooked, mix in the chopped onion, onion leaves and garlic. Eat hot!

Tip: *imifino* is traditionally cooked in a cast iron pot. This is the healthiest and most delicious way of making *imifino*.

Reference

Husselman, A and Sizane, N. 2006. *Imifino: A guide to the use of wild leafy vegetables in the Eastern Cape*. Institute of Social and Economic Research, Rhodes University.
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KALE (*Kovu*)



Knowledge & activity support material 3



Kale is a form of cabbage (*Brassica oleracea* Acephala Group). It is green and the central leaves do not form a head. It is considered to be closer to wild cabbage than most domesticated forms. The species *Brassica oleracea* contains a wide range of vegetables including broccoli, cauliflower, collard greens, and brussel sprouts.

Cultivation: The most important growing areas lie in central and northern Europe and North America. Kale grows more rarely in tropical areas as it prefers cooler climates. Kale is the most robust cabbage type - indeed the

hardiness of kale is unmatched by any other vegetable. Kale will also tolerate nearly all soils provided that drainage is good. Another advantage is that kale rarely suffers from pests and diseases of other members of the cabbage family - pigeons, club root, and cabbage root fly (*Delia radicum*).

Nutritional value: Kale is considered to be a highly nutritious vegetable with powerful antioxidant properties and is anti-inflammatory. Kale is very high in iron, calcium, beta carotene, vitamin K, vitamin C, lutein, zeaxanthin, and is reasonably rich in calcium. Because of its high vitamin K content, patients taking anti-coagulants such as warfarin are encouraged to avoid this food since it increases the vitamin K concentration in the blood which is what the drugs are often attempting to lower. This effectively raises the dose of the drug needed. In Japan, kale juice (known as *aojiru*) is a popular dietary supplement. Kale, as with broccoli and other *brassic*as, contains sulforaphane, a chemical believed to have potent anti-cancer properties, particularly when chopped.

Origins: Until the end of the Middle Ages, kale was one of the most common green vegetables in all Europe. Curly leaved varieties of cabbage already existed along with flat leaved varieties in Greece in the fourth century BC. These forms, which were referred to by the Romans as Sabellian kale, are considered to be the ancestors of modern kales. Today one may differentiate between varieties according to the low, intermediate, or high length of the stem, with varying leaf types. The leaf colours range from light green through green, dark green and violet-green to violet-brown.

During the Second World War, the cultivation of kale in the UK was encouraged by the Dig for Victory campaign. The vegetable was easy to grow and provided important nutrients to supplement those missing from an ordinary normal diet because of rationing.

Culinary uses: Tender kale greens can provide a delicious addition to salads, particularly when combined with other strongly-flavoured ingredients such as dry-roasted peanuts. In the Netherlands kale is very frequently used in the winter dish stamp pot and is regarded as one of the country's traditional dishes, called *boerenkool*. Kale is eaten throughout southeastern Africa, typically boiled with coconut milk and ground peanuts and served with rice or boiled cornmeal.

Reference

Adapted from <http://en.wikipedia.org/wiki/Kale>

MUSTARD GREENS (*Tsung*)

Mustard greens (*Brassica juncea*) also known as Indian mustard and leaf mustard, are a species of mustard plant. Sub-varieties include Southern Giant Curled Mustard, which resembles a headless cabbage such as kale, but has a distinct horseradish-mustard flavour. It is also known as *green mustard cabbage*.

Uses

Food

The leaves, the seeds and the stem of this mustard variety are edible. The plant appears in some form in African, Indian, Chinese, Japanese, and Soul food cuisine. Cultivars of *B. juncea* are grown as greens, and for the production of oilseed. The leaves are used in African cooking, and leaves, seeds, and stems are used in Indian cuisine. *B. juncea* subsp. *tatsai* which has a particularly thick stem, is used to make the Indian pickle called *achar*, and the Chinese pickle *zha cai*. The mustard made from the seeds of the *Brassica juncea* is called brown mustard. The leaves (*Rai/Rai* in Gujarati) are used in many Indian dishes.

Brassica juncea is more pungent than the closely-related *Brassica oleracea* greens (kale, cabbage, collard greens, etc.) and is frequently mixed with these milder greens in a dish of "mixed greens", which may include wild greens such as dandelion. Mustard greens are high in Vitamin A and Vitamin K.

Green manure

Vegetable growers sometimes grow mustard as a green manure. Its main purpose is to act as mulch, covering the soil to suppress weeds between crops. If grown as a green manure, the mustard plants are cut down at the base when sufficiently tall, and left to wither on the surface, continuing to act as mulch until the next crop is due for sowing, when the mustard is dug in.

Phytoremediation

This plant is used to remove heavy metals from the soil in hazardous waste sites because it has a high tolerance for these substances and stores the heavy metals in its cells. The plant is then harvested and disposed of properly. This method is easier and less expensive than traditional methods for the removal of heavy metals. It also prevents erosion of soil from these sites preventing further contamination

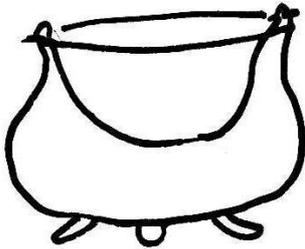
Reference

Adapted from http://en.wikipedia.org/wiki/Brassica_juncea





THE BENEFITS OF COOKING IN AN IRON POT



The number of people who suffer from anaemia, an iron deficiency in the blood, is estimated at over 2 billion people. About 50% of women and 25% of men in developing countries suffer from this. This deficiency causes tiredness, fatigue, poor concentration, pale skin and shortness of breath during exercise. The symptoms become worse as the deficiency becomes stronger.

Researchers at McGill University have found that eating food in an iron pot reduces iron deficiency in the blood. They did their research in Ethiopia and found that there was extra iron in food that had been cooked in an iron pot.

For their research they compared 195 children who ate food cooked out of iron pots with 207 children who ate their food out of aluminium pots. They did blood tests after a year of this experiment. Their results were very interesting. Children who had eaten their food out of iron pots showed a very big drop in iron deficiency, or anaemia. The percentage fell from 57% to 13%. In the group of children who had eaten food cooked in an aluminium pot, anaemia only dropped from 55% to 39%.

Reference

Adapted from *Iron pots help fend off anemia*. 1999. Science News
http://findarticles.com/p/articles/mi_m1200/is_11_155/ai_54296728



HOW TO MAKE STEM CUTTINGS

You can propagate or grow many plants by taking cuttings from mature plants and rooting them. A cutting is a piece of plant material, normally the stem of the plant, which you cut off a mature plant and use to grow a new plant. Cuttings work best with long-lived 'perennial' plants, such as trees and shrubs; quite well with some 'biennial' plants that live for up to two years before seeding and dying, such as the *Brassicacae* like Kale; but not well with 'annual' plants that live for less than a year before seeding and dying, such as many garden flowers like Namaqua daisies.

It is best to take stem cuttings from the soft growth at the end of the stem, as woody cuttings are more difficult to root.

Making stem cuttings

- Prepare a container with well-drained sand and water well.
- Before you make the cuttings, make a small hole in the soil for each cutting.
- Select a healthy, soft (flexible) branch to make your cutting.
- Make a cutting of about 3-6 nodes long from the tip of the branch.
- Cut just below a node.
- Trim off the bottom leaves of the cutting
- Pinch off the tip of the cutting if very soft, about 0.5 cm.
- Place the cutting in the hole in the soil and press down gently.
- Keep the container in a warm, sheltered spot where it gets some sun.
- Keep the soil moist.
- Once the cutting has rooted (usually in 3-4 weeks) move it to a spot where conditions are less sheltered. This allows the young plant to 'harden off' or toughen up before being transplanted into the garden.



Reference

Shaide, T., Ashwell, A., Symonds, A. 2002. *Greening South African Schools*. National Botanical Institute. Howick: Share-Net.



DISCUSSION WITH CLAYTON ZAZU ABOUT THE FAILURE OF ROB'S FIRST CROP

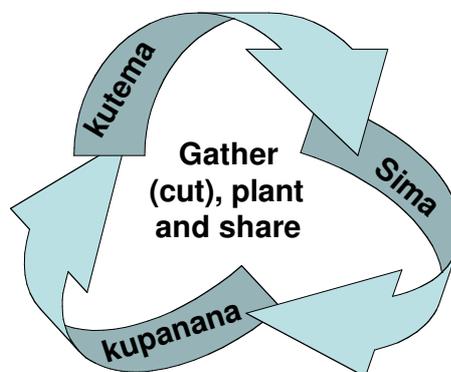
I grew *kovu* as a boy and I had a similar experience of everything dying so I went to my dad and he just laughed saying that the same thing had happened to him when he was a boy. He had also been impatient and tried to plant a big bed all at once. As you get older you get to know when it is a good time to plant successfully. But mistakes still happen and a hot day after planting will normally mean that the young plants do not survive. So you learn not only to choose a good day but to plant a few at a time, on different days, so you don't waste your effort and the *kovu*. Next time just plant a few and if they die then you can pick another few shoots and have better luck the next time.

The *kovu* is a cultural plant in my home area of Sebakwe so everybody knows not to plant them all at once and anyone in need can always get plants from others. The best way to explain this to you is to draw a picture of the three ideas that make up a sharing culture for growing *kovu*.

The three stages in the picture start with ***kutema*** (the cutting or picking of the shoots). Its always best to pick them because then you get a broken end to the stem and this will often grow roots better than if you cut them with a knife. The ***sima*** is the planting and this is most often done by women who were the farmers traditionally in older Shona culture. It was simply their job because the men's job was to look after the cattle.

Kupanana is the most interesting because it means sharing. It is the sharing that you look forward to when the fresh young leaves are picked. These really make the tastiest relish that is soft and melts in the mouth and does not need as much cooking as when the leaves are older and tougher. But also there is the expectation of sharing by giving plants to people who need them to grow a garden. Everybody knows that if you plant and your crop fails and you don't have enough shoots to plant again, all you have to do is visit a friend and they will be there for you.

Sharing culture for growing *kovu*



Propagating and growing *kovu* (African kale) in Sebakwe, Zimbabwe



EDIBLE PLANT IDENTIFICATION TABLE

Indigenous name	Common name	Scientific name
<i>Irhawu</i>	Stinging nettle	<i>Urtica dioica</i>, <i>U. urens</i>
Whole plant: 60 cm high (<i>U. urens</i>) to 150cm high (<i>U. dioica</i>) Flowers: Tiny grey-green flowers, growing in bunches Fruit/seeds: Small green seeds Leaves: Up to 10cm long, covered with tiny hairs that cause a burning feeling on the skin		
<i>Ihlaba (irhaba, ihabehabe, iklaba)</i>	Common sow thistle	<i>Sonchus oleraceus</i>
Whole plant: Up to 80 cm high Flowers: Yellow Stem: Green or purplish, when cut a milky juice appears. Leaves: Up to 20cm long, folded around the stem. Green on both sides, sometimes a little purple. Fruit/seeds: Brown, up to 4mm long, with white hairs (7-8mm), for wind or water dispersal		
<i>Imbikicane (imbilikicane, isijabane)</i>	Goosefoot, fat hen	<i>Chenopodium album/ murale</i>
Whole plant: Branched, up to 1 m high Stem: Green to brownish Flowers: Small, pale green Fruit/seeds: Small and black Leaves: Up to 5cm long and 3 cm wide. Bright green (<i>C.murale</i>) or whitish green (<i>C.album</i>)		
<i>Umhlabangulo</i>	Black Jack	<i>Bidens pilosa</i>
Whole plant: Up to 60cm tall Stem: Green or with brown stripes. Leaves: Usually three (or five) leaflets, up to 9cm long and 3 cm wide. Green. Flowers: Up to 1 cm in diameter, white petals. Fruit/seeds: Blackish up to 1 cm long. Little 'teeth' make them stick to clothes and fur.		
<i>Ihlaba lekati (irhaba)</i>	Dandelion	<i>Taraxacum officinale</i>
Whole plant: Up to 30cm tall Leaves: Basal rosette, up to 30cm long and 5cm wide Flowers: Bright yellow Fruit/seeds: Light brown or green, about 5 mm long with fine white hairs, enabling wind dispersion		
<i>Isiqwashumbe (isihlalakuhle, Iqange)</i> (indigenous to SA)	Wild mustard, wild horseradish	<i>Sisymbrium tellungii</i>
Whole plant: Up to 30cm high, with a long tap root Flowers: Yellow Leaves: Yellow to dull green. Lowest leaves up to 20cm long and 5cm wide, others 6cm by 2cm. Fruit/seeds: Fruit pods up to 10cm long, crowned with stout beaks 2-3mm long. Golden seeds, 1mm long, in one row in the pod		
<i>Utyuthu (imbuya, unomdlomboya)</i>	Amaranth, cockscomb	<i>Amaranthus hybridus</i>
Whole plant: 30-100 cm high. Branched. Stem: Green, brownish or purple Leaves: 3-6 cm long. Green to purple Flowers: Light green, white, pink or purple Fruit/seeds: Tiny brown or black seeds		
<i>Umcaleka</i>	Gallant soldier	<i>Galinsoga parviflora</i>
Whole plant: Branched, up to 45cm high Stem: Green, slender Leaves: Up to 5cm long and 4cm wide. Bright green. Flowers: Small, yellow Fruit/seeds: Black, 2mm long		

Reference

Husselman, A and Sizane, N. 2006. Imifino: A guide to the use of wild leafy vegetables in the Eastern Cape. Institute of Social and Economic Research, Rhodes University.
 email: iser-sec@ru.ac.za



NOTES



Handprint resource books available from Share-Net

TITLE	LEARNING AREAS COVERED (BROADLY)
 1. Reusing Shower and Bath Water	Language Natural Sciences Technology
 2. The Buzz on Honey Bee Economics	Language Natural Sciences Social Sciences Technology Economics & Management Sciences
 3. Have you Sequestered your Carbon?	Language Natural Sciences Technology Mathematics
 4. Did you Grow your Greens?	Language Natural Sciences Social Sciences Life Orientation Arts & Culture
 5. Clearing Invasive Weeds	Language Natural Sciences Technology
 6. The Secret of a Spring	Language Natural Sciences Social Sciences Life Orientation Technology Mathematics
 7. The Secret of the Disappearing River	Language Life Orientation Social Sciences Economics & Management Sciences
 8. Creative Garden Design	Language Natural Sciences Technology
 9. Recycling, Waste Reduction and Creative Re-use	Language Social Sciences Life Orientation Arts & Culture Technology Economics & Management Sciences
 10. Worming Waste	Language Natural Sciences Technology
 11. Growing Mother-tree Seedlings	Language Natural Sciences Technology
 12. Rooibos: a Biodiversity Economy at Risk	Language Natural Sciences Economics & Management Sciences

Many more Handprint resource books are in the planning stages. These resource books and many others for teacher educators and teachers are available electronically in pdf format on www.tessafrica.net. The Handprint resource books can also be downloaded from www.handsforchange.org.

The adaptive use of these resource books for educational purposes is encouraged. Anyone wishing to develop their own resource or adapt one, can contact Share-Net sharenet@wessa.co.za for a version in Microsoft Word.



HAND PRINT™
action towards
sustainability

This handprint is of a 10-year-old girl, Srija, from a school in Hyderabad, India, who was involved in a project taking action for sustainability. Her handprint can be taken as a symbol for positive action.

Increase your handprint. Decrease your footprint.

Human impact on the Earth has tripled since 1961 and our human footprint is now 25% bigger than the planet can support. In other words we are using 25% more natural resources and services than the planet can create and provide. The 'Ecological Footprint' is one way to measure what area of land and water the whole human population requires to produce the resources it consumes and to absorb its wastes, and we now need 25% more area than is available on the whole planet. This means that the planet is simply being damaged beyond what it can repair, and this cannot continue without causing very serious threats to all life, including our own.

Education is a key way to achieve the changes we need to live in a manner that the planet can support. Environment and Sustainability Education (an environmentally focussed approach to Education for Sustainable Development – ESD) is a move away from seeing education just as a means of producing the skills to carry on doing what we are doing. It develops the abilities needed to address the big issues affecting the planet, and builds the capacity in communities to make important decisions about their future. Environment and Sustainability Education calls for action.

The Handprint is one measure of Environment and Sustainability Education action. The idea is to decrease the human footprint and to make the world more sustainable. The Handprint is a new approach or 'tool' being developed by the Centre for Environment Education (CEE), in Ahmedabad India, with many partners across the globe. The purpose of the Handprint is to help measure **positive action for change** at different levels. We all need to decide **what we can do** at the individual, community, national and global level in order to increase our Handprint, and decrease our Footprint.

“Through our actions, we add substance and vigour to the quest for sustainable living.”

The Ahmedabad Declaration 2007: A Call to Action, 4th International Conference for Environmental Education



www.handsforchange.org