

Cultivating Learning with School Gardens

Training of Trainers Manual



Cultivating Learning with School Gardens Training-of-Trainers Manual was developed by Mary Crave, Ph.D.

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The *Cultivating Learning with School Gardens* program was coordinated and produced by the United States Department of Agriculture as a means of contributing to academic and food security needs in Africa. Several products – a tool kit – were developed and tested in the Republic of Congo, Rwanda, and Mozambique and now are used in many other countries on several continents.

Tool Kit contents:

Teachers' Manuals

The manuals have two main sections:

Part 1: Using the garden as an outdoor classroom – includes extensive materials and guidelines for classroom lessons that incorporate the garden in any discipline.

Part 2: Garden science

Primary-school and secondary-school levels in English; Primary-school level in French

Student Guide

Fully illustrated with steps to gardening. Includes a game and self-reflection questions. English only.

Trainers' Guides

Ready-to-use lessons on 17 topics for teaching gardening concepts to students. Lessons include learner-centered activities. Most topics are written in both low-literacy and detailed formats. English only.

Pocket Guide

A half-size manual for teachers, learners, and community members. Includes how to plant, nutritional benefits of common garden vegetables, and basic steps to gardening. Extensive illustrations for low-literacy users. English and French.

Visual Aids

Posters on garden science – colorfully illustrated. 17 topics in English, 5 in French

Vegetable cards – Illustrations of common fruits and vegetables – Scientific, English, and French names

Training of Trainers Manual

Suggested activities for training others to use the above materials or Tool Kit. English and Portuguese.

Tool Kit materials are available free online at: www.4-Hglobalknowledge.org/activities

How to Use the *Cultivating Learning with School Gardens* Training of Trainers Manual

The goal of the training of trainers program is to ultimately train teachers to use the *Cultivating Learning with School Gardens* Tool Kit and to use school gardens as an outdoor classroom to emphasize experiential learning in all school subjects.

The objective of the Training of Trainers is for trainees to attain skills to train primary or secondary school teachers to use school gardens as a classroom/learning tool. (The teacher is not the trainer at this stage.)

This manual was written with these trainers, trainees and processes in mind:

Trainers:

- Field managers of school feeding programs
- Ministry of Education or Ministry of Agriculture supervisors who work with teachers and schools that have school gardens
- Teacher Training colleges teachers
- Staff or volunteers of community, religious or voluntary organizations who will be training other trainers.
- Others

Trainers use the ToT manual and process to train these trainees.

Trainees who become Trainers/Teachers:

- Primary, secondary, or post-secondary school level teachers
- Teachers at vocational agriculture programs, including farmer field schools or 4-H youth programs
- Coordinators or trainers of community programs for school leavers.
- Leaders of clubs for adults or youth

Trainees use the Tool Kit to teach these target learners.

Target learners:

- Students
- Club members
- Community members
- Others



The ToT materials are NOT intended to be used directly with students. However, some of the Tool Kit materials are to be used directly with students.

The Training of Trainers manual is divided into six main sections with suggested activities that can be used to train about these main components of training on *Cultivating Learning with School Gardens*.

Choose the activities that best meet the needs of your trainees and address your program goals.

Overview and Purpose of School Gardens as an Outdoor Classroom	<ul style="list-style-type: none"> • Getting Acquainted Matching Game • Program Objectives – Puzzle • Purposes and Benefits of School Gardens as Learning Laboratories • Tool Kit Safari • What Do You Know? • Core Beliefs/Principles of School Gardens
Participatory and Child-Centered Learning Methods	<ul style="list-style-type: none"> • Why We Should Use Experiential or Learner-Centered Learning Methods • Sciences in the Garden • Experiment in Experiential Learning
Using the Tool Kit	<ul style="list-style-type: none"> • Developing Lessons that Use the Garden as a Classroom • Using Tool Kit Materials Creatively
Gender Sensitivity in School Gardens	<ul style="list-style-type: none"> • Practicing Gender Equality in the School Garden
Teaching Garden Science	<ul style="list-style-type: none"> • Training with Garden Lesson Guides • Square Meter Gardening – Compare and Contrast
Training Management	<ul style="list-style-type: none"> • Training of Trainers Planning Guide • Examples from Other Trainings • Action Plan Worksheet • Training Evaluation Instrument

Get Acquainted Matching Exercise

Activity summary:

Each participant has a card with a word or phrase on it. Trainees form groups of people whose cards may have a theme similar to their own. Use this as an introduction for participants to get to know each other or for an energizer.

Objective/purpose:

Get acquainted while also introducing a simple way to integrate active learning into the training.

Time: 30 minutes

Materials needed:

Card or slip of paper with one of the words or phrases (see job aid) on it. One card per person. (You can copy the following page and cut and paste onto small vip cards)

Hint: There are 68 words or phrases. If you have fewer persons than topics, remove an entire theme set of cards before distributing. If you have fewer than 30 persons, you can do two rounds of the game. (Doing it twice reinforces how to do the activity.)

Steps:

1. Randomly distribute one card/person.
2. Instruct each person to move around the room and find people/form a group with others whose cards match the same theme. Do not tell the group what the themes are.
Give an example such as this one for further explanation.
Mary, Jennifer, Tom, Josephine – the names of the training team

Use the answer key (next page) if someone needs help finding his/her group. This is fairly easy. Encourage participants to take initiative. Do not help out unless necessary. It is better to have the other trainees help each other.
3. When everyone has found a group, have them discuss and draw conclusions about their group/cards. Which of the cards is the theme or category for the group? They should be ready to elaborate to the entire group.
4. Have each group member introduce him/herself to the rest of the group. (Name, school/town, what they teach, who they work for...)
5. Have each theme group introduce themselves to the entire group of trainees.
6. Debrief. Tell the trainees that each of these topics will be part of the training.
7. Collect the cards for other trainings.

Debriefing Guide:

1. What did the group topics or themes tell you about the training? Are these things you may already know how to do? What topics are new to you?
2. What are some similarities you discovered about the other trainees?
3. Who has some skills that may be different than yours?

Get Acquainted Matching Answer Key:

Applied Experiments

- Problem Identification
- Hypothesis
- Design
- Observation
- Analysis
- Conclusions

Pest Problems

- Favorable environment
- Susceptible host
- Natural pesticides
- Soap application
- Pathogens

Composting

- Natural fertilizer
- Moisture
- Carbon – Brown
- Nitrogen – Green
- Cat and Dog Dung
- Wood Ash
- Chop into small pieces

Experiential Learning Methods

- Drama
- Discussion
- Simulation
- Laboratory
- Demonstration
- Practice

Square Meter Gardening

- Intensive gardening
- Divide into squares
- Varying number of seeds/square
- Less work

Garden Nutrition

- Carbohydrates
- Vitamins
- Minerals
- Protein
- Health

Crop Rotation

- Reduces diseases
- Different family
- Legumes
- Change location each year

Curriculum Integration

- Music
- Geography
- Language Arts
- Mathematics
- Social Studies
- Visual Arts
- Improved Test Scores

Irrigation

- Controlled watering rate
- Less water used
- Distributed directly to root system

Vegetables

- Tomatoes
- Cabbage
- Onion
- Beets
- Carrots
- Pumpkin
- Eggplant

Get Acquainted Matching Exercise (Copy and cut apart.)

Applied Experiments	Square Meter Gardening
Problem Identification	Intensive gardening
Hypothesis	Divide into squares
Design	Varying number of seeds per square
Observation	Less work
Analysis	Crop Rotation
Conclusions	Reduces diseases
Composting	Different family
Natural fertilizer	Legumes
Moisture	Change location each year
Carbon – Brown	Irrigation
Nitrogen – Green	Controlled watering rate
Cat and Dog Dung	Less water used
Wood Ash	Distributed directly to root system
Chop into small pieces	

Vegetables	Experiential Learning Methods
Tomatoes	Drama
Cabbage	Discussion
Onion	Simulation
Beets	Laboratory
Carrots	Demonstration
Pumpkin	Practice
Eggplant	Garden Nutrition
Pest Problems	Carbohydrates
Favorable environment	Vitamins
Susceptible host	Minerals
Natural pesticides	Protein
Soap application	Curriculum Integration
Pathogens	Health

Music

Geography

Language Arts

Mathematics

Social Studies

Visual Arts

Improved test scores

Cultivating Learning with School Gardens Objectives

Activity Summary: Trainees will put together a puzzle that will spell out all the objectives of the program.

Hint: This activity may be difficult for participants who do not read well. If so, just explain and discuss the objectives (Step 3) and skip the puzzle activity.

Objectives: The participants will understand the objectives of the Cultivating Learning with School Gardens program.

Note: This activity is about the overall objectives of the program tool kit, not the Training-of-Trainers.

Time: 20 min.

Materials:

Puzzle pieces – one set of puzzles with each objective (If there are a lot of participants, make a second set of puzzles.) The four puzzles are on the next pages. Cut them each into about 6-8 pieces.

Flip chart with objectives

Steps:

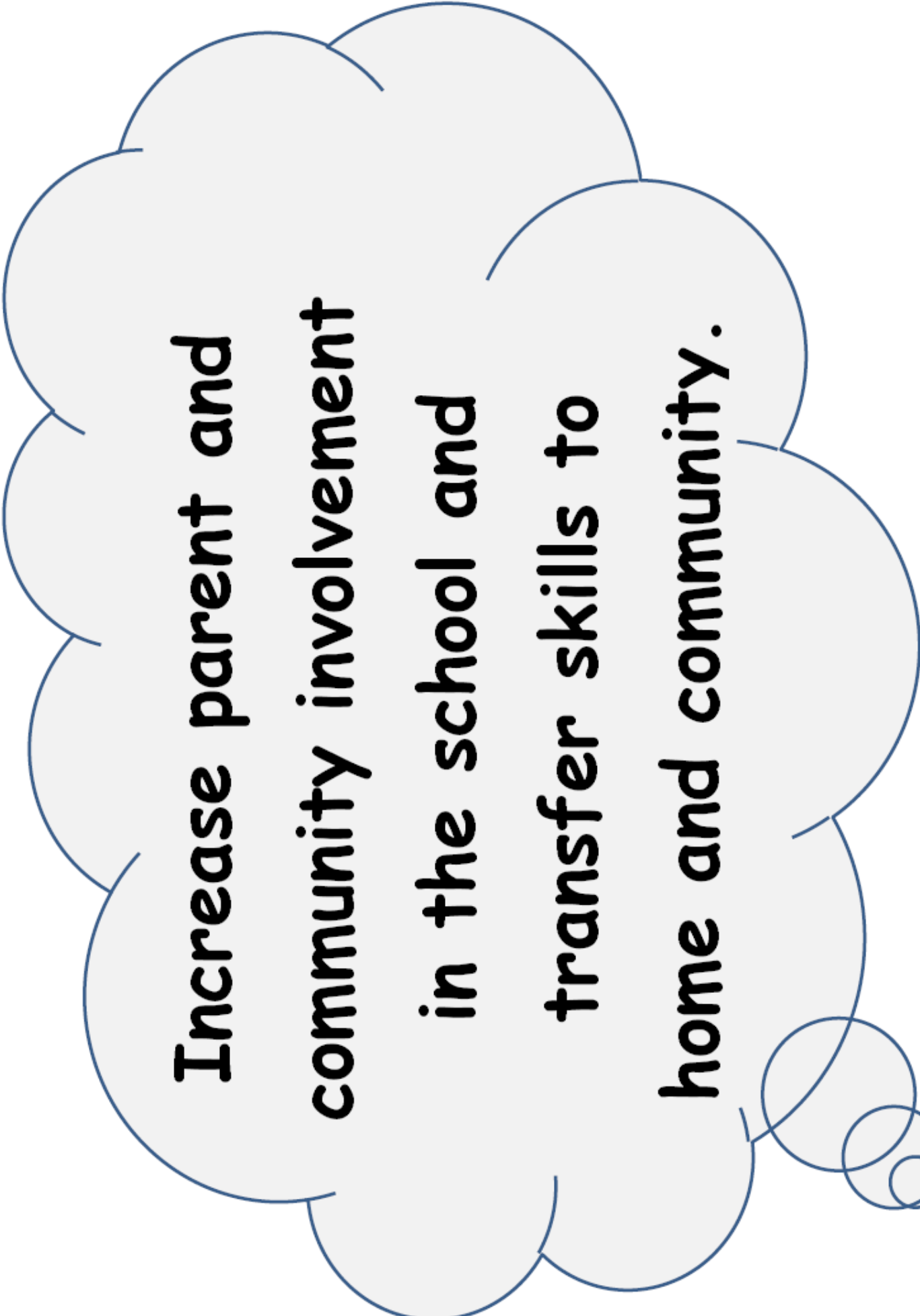
1. Tell the trainees they are going to “discover” the objectives of the *Cultivating Learning with School Gardens* program. Give each participant one puzzle piece. When everyone has a piece, have them move around the room and find others with pieces to complete their puzzle. There are four different puzzles.
2. When each of the puzzles is complete, have one person from each group read the statement it spells out to the entire group. Then have them sit down.
3. Post the flip chart with the four objectives written on it. Discuss each objective one-by-one. Do all agree? Disagree?

Program Objectives:

1. Provide a classroom for experiential learning to complement the standard school curriculum in all disciplines.
2. Contribute to the government’s focus on science, literacy, numeracy, and other educational priorities for both girls and boys.
3. Contribute to the intellectual, psychological, physical, and vocational development of the students through enhanced learning methods.
4. Increase parent and community involvement in the school and transfer skills and knowledge from the school garden to home and community.

Contribute to the government's focus on science, literacy, numeracy, and other educational priorities for both girls and boys.

**Contribute to the intellectual,
psychological, physical, and
vocational development of the
students through enhanced
learning methods.**



**Increase parent and
community involvement
in the school and
transfer skills to
home and community.**

**Provide a laboratory
for experiential learning
to complement the
standard school
curriculum
in all disciplines.**

Purposes and Benefits of School Gardens as Learning Laboratories

Activity Summary:

Participants will form a tree or plant with strips of paper that list concepts of school gardens as a classroom. Concepts may be like the plant's roots, stems, leaves, or fruit. Use this activity as an introduction and to help trainees think about the multiple stakeholders and uses of a school garden.

Objective/purpose:

The participants will consider the various benefits of and components that are necessary for a sustainable and successful school garden as a classroom program.

Time: 45 min.

Materials Needed:

Participants will work in groups. Each group will need a flat surface to work on, such as a table or floor.

Slips of paper with phrases on them. One set for every 6-8 people. (Copy the list attached to this lesson and cut the list into strips, with one phrase per slip. Put each set in an envelope.)

Poster – Parts of a plant (optional)

Steps:

1. Have the participants form groups of 6-8. Give each group a set of slips of paper.
2. Draw a picture of the parts of a plant or show the poster. Discuss the purposes of each part. Be brief – this is not a science discussion but preparation for the lesson.
 - Roots – anchor the plant, take up nourishment, usually not visible
 - Stem – transports nutrients, provides stability, gives structure, visible
 - Branches – carries nutrients, expands the plant's ability to produce fruit
 - Leaves or Fruit – the outcomes or benefits of the plant
3. Tell the groups that school gardens are a lot like plants.
 - There are things going on that are not visible to most people, yet are critical to the health of the program. Like the roots of a plant.
 - Other organizations, stakeholders or program components are the visible structure of the program. They provide stability, like the stem of a plant.
 - With good support – both visible and invisible, a school garden program yields important outcomes. These are the fruits, leaves, and branches.

4. Tell the groups to use the slips of paper they have to form a plant. (Lay the strips on the table or floor.) Decide which are the roots, which are stem, and which are the leaves/fruit/branches.

Tell the trainees they have 30 minutes to form their plant. Each strip should be used.

Hint: There is no right or wrong answer to where each strip should go. Keep each group moving along as some tend to deliberate too long about each phrase. The point is to consider all the different inputs, outputs, and outcomes of a successful school garden program. Each group's plant will look different.

5. Debrief
6. Summarize: Remind participants that the training will address many of the components of a successful school gardens as an outdoor classroom program. However, there will not be enough time to discuss all of the components during one training session.
7. Have each group put their phrases back in the envelope. Collect the envelopes.

Debriefing Guide:

- What were some of the concepts or components that formed the root of your plant? The stem? The fruit, branches, or leaves?
- Were there phrases you didn't expect to see? What were they? Were they roots, stems, or fruit?
- What part of the plant do you have control over in your role? If you don't have control over some parts, what can you do to strengthen the plant/program? Are there partners that could help you? Who are they?

Purposes and Benefits of School Gardens as Learning Laboratories – program parts

(Copy these pages, one set for each group of trainees. Cut the page into strips so each strip of paper has one phrase on it. Be careful: you cannot copy on both sides of the paper.)

Strong local partners (Who are they?)

Educational Aims and Benefits

Trained teachers

Increased relevance and quality of education for rural and urban children by introducing into the curricula important life skills

Provide active learning by linking gardens with other subjects

Improved children's attitudes towards agriculture and rural life

Promote practical nutrition and health diets and lifestyles

Economic and Food Security benefits

Improved food availability and diversity

Children are familiar with sustainable food production for household food security

Increased school attendance.

Compensation for the loss in transfer of "life skills" from parents to children, especially in child-headed households.

Intellectual Development – Academic Skills

Support core academic training, particularly in science and mathematics – real world hands-on experiences.

Enrich core curriculum in language arts through introduction of new learning topics

Learn about the environment and promote sustainable development

Learn scientific methods

Psychological development – Social and Moral Skills

Develop responsibility

Learn the joy and dignity of work – foster work ethic

Increased self-esteem and confidence

Develop patience

Develop a sense of cooperation and school spirit

Learn respect for public and private property

Vocational Development – Life Skills

Demonstrate basic skills and vocational competencies

Produce food and other commodities

Make the most of limited resources, including food

Invest in leadership and decision-making

Transfer to household the skills learned in school

Physical Development

Provide nutritious food for students

Reinforce public and personal health concepts

Shared value and commitment to school garden

Students and teachers are willing to try new things in the garden

Strong political commitment at national level

School gardens initiative is part of the national strategy to expand rural people's access to education and enhance its quality

Program is designed locally and adapted to specific local needs, with strong involvement of ministries of education and agriculture.

Educational role of schools gardens is reflected in the curricula

Adequate access to land, water and technical assistance

Students, parents and community all participate in planning and implementation

Children become familiar with improved methods of sustainable food production

School gardens linked with school feeding programs

Tool Kit Safari

Summary: This activity uses a game to introduce trainees to the training tool kit materials. Participants work in teams to find the answers to a set of questions.

Objective/Purpose:

By becoming familiar with the different types of content in the teachers manual and learning tools, participants will use the materials as a resource for the classroom and garden.

Time: 1 hour

Materials: Teachers Manual, Student Guide, Lesson Guides, Pocket Guide, Posters
Vip cards or half-sheets of paper – each with one question (see job aid)

Masking tape

Labels for each category of resources – Teachers Manual, Student Guide, Lesson Guides, Pocket Guide, Posters

Steps:

Before the lesson: Write questions (or copy, cut and paste) from the job aid. Or write your own questions based on your program or training goals.

1. Form groups of 3-5 participants. Distribute about 5 cards to each group. (Each group will have different cards.)

Hint: Give each group some easy and some more challenging questions as well as questions that require each of the different resources. Use the potential number of answers for each question as a guide. Some will require 5 answers and others 1 or 2. Make sure the total number of answers for each group is about the same.

2. Explain the goals of the activity:
Answer the questions on each of the cards. Write the source of the answer and the page number (if applicable) on the bottom of the card. For example: The card might look like the example on the left. After the group answers the question, it might look like the card on the right.

What famous African used to garden when he was a political prisoner?

Source:

T
e

What famous African used to garden when he was a political prisoner?

Nelson Mandela

Source: Student Guide page 4

Tell participants that the answers may be in more than one place or in more than one resource. They only have to list/find the answer in just one place. Participants may know the answer to the question, but they **MUST** tell where the information is in one of the training tool kit tools. The point is to become familiar with the tool kit resources.

When each group answers all the questions, have them bring the cards to the chalk board or wall and tape them up in the proper category.

Hint: Make this a fun competition. Have a small prize for the winning group if you can, such as a packet of seeds, first in line for lunch...

3. As each group brings their cards to the board, or wall, help them to tape each card by page number in the manual or by resource/tool type. This will help you review the materials at the end of the exercise.
4. After all the teams are finished, congratulate the team that completed their cards first.
5. Review the general types of concepts/topics in the materials as well as the different types of materials. Have trainees follow along with you.

Point out that the materials are to be **USED** by teachers and students. They belong to the entire school, not to an individual teacher. Keep the materials where other teachers can use them.

6. Debrief.
7. Summarize by reminding trainees that they will be using the tool kit materials throughout the training. By the end of the training, they will be able to use all the tools for teaching students, teachers or others about school gardens as a classroom.

Point out that the materials are written for multiple African audiences so some of the language, vegetables, or practices may vary slightly for their particular context.

Debriefing Guide:

1. What did you notice as you looked through the materials?
2. Did you find any themes?
3. How do the materials complement each other?
4. What topics did you expect to see in the materials?
5. What topics were you surprised to see in the materials?
6. Are there topics that you know a lot about?
7. Are there topics that you don't know much about? Are there other people who do?

Hint: Keep the cards and list on the wall for another activity: "What Do You Know?"

Safari Questions

Copy this page and cut and paste the questions onto a card or half sheet of paper. Or rewrite each of the questions onto a card by hand.

Important: The answers to some of the questions here may only be available in particular tools, some of which you may not have, such as the Teachers Manual. Make sure participants have the materials they need to answer each question. If they do not have at least one of the tools that has the answer to a question, remove the question. If you like, you can add other questions that can be answered with the tool kit resources available.

Why is it important to rotate crops in the garden?

List three advantages to gardening in raised beds.

The three major plant nutrients are:

List the major steps to making a natural fertilizer.

List two benefits of using mulch in the garden.

How deep do you plant vegetable seeds in the garden?

List the three biological causes of plant diseases.

List three reasons for adding compost to garden soil.

When making compost, what two types of materials are added in layers?

List two things NOT used in making compost.

List the steps for transplanting a young plant.

What are the three factors of the Disease Triangle?

What local ingredients can be used to make a natural insecticide?

Why are different plants spaced differently in the square meter garden?

How can you tell if your seeds are viable?

What are the main functions of roots, stems and leaves?

Why do young seedlings have to be thinned?

The two major sections of the teachers' manual are:

List the 5 steps of school gardens.

What are two of the goals of school gardens?

Two aims of school garden programs are:

Four benefits of schools gardens are:

List four of the eight elements necessary for a school garden.

What are the four steps of the experiential learning cycle?

List four steps to planning an Open House.

What is one benefit of hosting a garden Open House?

What are two advantages of using demonstrations?

List four items you might have available in your environment that can be used for a classroom aid?

What are the five elements of a good experiment?

Why is a good observer more actively involved in learning?

What supplies do you need to keep a journal?

List eight disciplines that use experiential activities in the garden.

List two lessons from the teachers manual that help teach languages.

List two lessons from the teachers manual that help teach science.

List two lessons from the teachers manual that help teach mathematics.

List two lessons from the teachers manual that help teach social studies.

What five things does the pocket guide tell us about each plant?

What measurement tools are included in the pocket guide?

In the student garden game, how many steps forward does a player get for using natural fungicide?

In the student garden game, what happens when the class fails to make arrangements for tending the garden during school holidays?

In the student garden game, what happens when you use the garden to experiment on composting?

List five sciences used in gardening.

List four skills used in gardening.

What are two common myths about gardening?

In what plant family is the tomato?

In what plant family is cabbage?

List three plants in the brassicaceae family.

List three plants in the cucurbitaceae family.

What Do You Know?

Activity Summary:

Trainees will identify what they already know about gardening, school gardens, or teaching by placing stickers on the list of materials from the 'Tool Kit Safari' lesson.

Objectives:

Trainees will identify what their current strengths and gaps are relevant to Cultivating Learning with School Gardens.

Trainees will identify ways they can learn from each other during the training.

Time: 15 min.

Materials:

Cards/list of materials from the Took Kit Safari activity.

Adhesive dots – two colors, two dots of each color for each participant. (If dots are not available, markers can be used.)

Steps:

1. Review the variety of backgrounds the trainees have, based on the introduction matching activity. For example, some are teachers, some are school feeding managers, some are agriculturists. Explain that good training programs recognize the experience and expertise of the trainees and encourage them to learn from each other. This Training expects to do the same.
2. Ask trainees to look over the list of topics from the 'Tool Kit Safari' that will be included in the training (composting, teaching social sciences, garden myths...). Choose two topics they think they are already somewhat or very familiar with or good at. For example, a teacher may think she knows a lot about soil chemistry. Trainees should get two dots of the same color from the trainer, and place one next to each of the two topics they are good at.
3. Ask trainees to identify two topics they are especially interested in learning more about. Give each trainee two dots of a different color (not the same color as for Step 2) and have them place one dot next to each of these interesting topics.

Debrief:

Look at where most of the dots are from Step 2 and review what topics trainees already know a lot about. Encourage them to help fellow trainees and the trainer when appropriate.

Look at where most of the dots are from Step 3 and review what topics trainees want to know more about. IF the training will be addressing those topics, say so. If time is limited, discuss ways they might be able to learn more – such as from another trainee who knows a lot about the topic, or by using the Teachers Manual.

Core Principles or Beliefs about School Gardens

Activity Summary: Sometimes parents, school administrators, students, teachers, and other stakeholders have differing ideas on how the purpose of the school garden and how it should be managed. This exercise uses brainstorming and discussion to help the different stakeholders come to agreement.

Before doing this activity, do the *Purposes and Benefits of School Gardens* activity.

Objectives:

Stakeholders will develop a list of core beliefs of school gardens to guide them throughout the school year.

Time: 30 min.

Materials: flip chart and markers (or chalkboard and chalk)

List of program objectives (these should be on a flip chart throughout the training)

Steps:

1. Review the Benefits of School Gardens list that the participants discussed in an earlier activity.
 - Intellectual development and academic skills: sciences, math, languages, social studies, environment, scientific methods, problem solving)
 - Psychological, social and moral skills: patience, cooperation, joy and dignity of work, responsibility
 - Vocational and other life skills: using resources wisely, environmental stewardship, transferring new skills to home or community.
 - Physical development: provide nutritious foods, reinforce personal and public health concepts.
2. Review the objectives of “Cultivating Learning with School Gardens”.

Program Objectives:

1. Provide an outdoor classroom for experiential learning to complement the standard school curriculum in all disciplines.
2. Contribute to the government’s focus on science, literacy, numeracy, and other educational priorities for both girls and boys.
3. Contribute to the intellectual, psychological, physical, and vocational development of the students through enhanced learning methods.
4. Increase parent and community involvement in the school and transfer skills and knowledge from the school garden to home and community.

3. Ask trainees to keep in mind the benefits and program objectives, and brainstorm about some common practices or principles (some call these 'core beliefs') that should govern a garden at their school. Encourage trainees to think about: students, parents, teachers, garden management, and other key parts of managing a garden. Have each person write down some ideas on their own for about 5 minutes. An example might be:

“All students should have an opportunity to work in the garden.”
4. Ask participants to list their ideas. (You may want to have trainees work in groups, listing ideas on a flip chart, before sharing their ideas with the entire group.)
5. Discuss the ideas as a large group. What are the commonalities? The differences? Gaps? How does this list contribute to program transparency? During a Training of Trainers it is not necessary to come to a consensus on what should be on the list. When trainers are working at the school level, they should take the time to lead the development of a list and have stakeholders come to agreement on it.

Here is a sample list:

We believe:

- All students will work in the garden. The garden will not be used as a reward or as a punishment.
- The garden will be planned and managed by a team of community and school leaders, parents, and students.
- The produce from the garden will be (sold to generate income for the school, given to the students, used in school feeding...)
- Parents will assist in tending the garden.
- The primary purpose of the garden is as a classroom.
- Each individual student will work in the garden one hour/week.

6. Debrief.

Debriefing Guide:

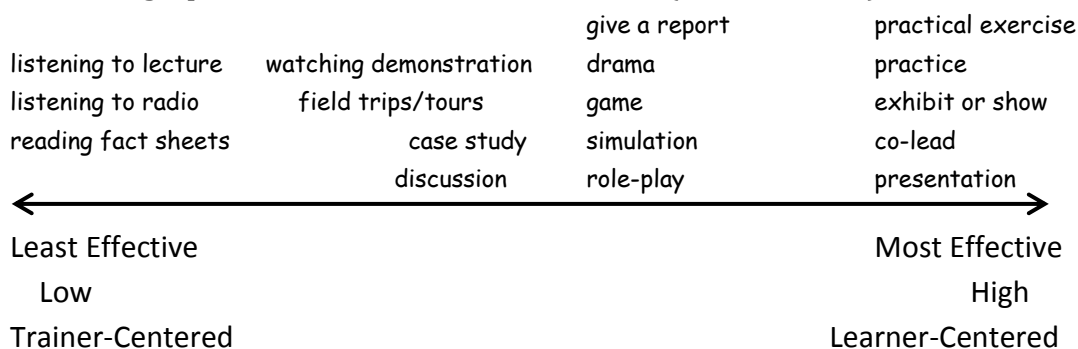
1. What things might determine what beliefs a school might list? Culture? Poverty level? School leaders? History?
2. Why is a belief statement helpful?

Answers: Sometimes stakeholders have different ideas and problems come up when they haven't discussed this.

There are multiple purposes of school gardens. The main purpose can be promoted with a list of core beliefs.
3. What suggestions do you have to using this activity in your school community?

5. Quiet the group and review the graph again. Have each group read their training method to the rest of the participants. Why did they decide to plot themselves at that particular place in relationship to the other methods?

A correct graph should look somewhat like this. (It is not exact.)



Point out that lessons that use methods on the left of the continuum, such as fact sheets or lectures, are “trainer-centered”. Lessons that use methods on the right of the continuum, such as giving presentations or practicing, are “learner-centered.” The goal of trainers – in ANY topic – should be to use methods that are “learner-centered”.

6. Make a chart like the one below on the board or on a flip chart. Have the participants tape each of their cards into the section where they think it fits the best. Leave the third column empty for now.

Learning and Teaching/Training Methods		
Students learn by	Teachers teach by	When to use

A completed chart should look similar to the one below.

7. After the first two columns are filled in, debrief. Is one method always better than another? Some methods are more effective, but sometimes less effective methods are useful if they are balanced with more experiential and learner-centered methods.
8. Ask trainees to give some specific examples of when each of the methods might be used. Write them in the third column of the chart. Some examples are listed below.

Learning and Teaching/Training Methods		
Students learn by	Teachers teach by having students	When to use
Hear	Listen to Radio Listen to Lecture	Facts
Read	Read fact Sheets	Facts such as formulas or directions for later use
See	Go on Field Trip or Tours	Look at other school gardens
Hear and See	Play a Game Watch demonstrations	A new technique such as how to treat a disease when student practice is not possible.
Say	Make a Drama Do Role-Playing Read and discuss a Case Study Discuss Play a Game Do a Simulation Give a report	Topics that address how we feel such as gender issues or conflict.
Do	Do Practical Exercises Co-Lead Practice Exhibit or Show Presentation	Planting Preserving produce Open House for parents Training others

9. Debrief and close.

Debriefing guide:

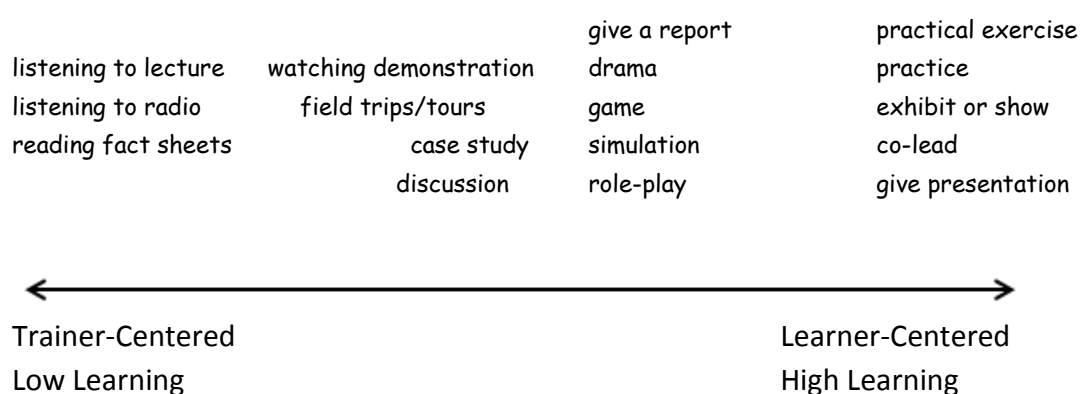
- Which training methods are best for helping students learn?
- Which training methods are not as effective for helping students learn?
- Which methods do you prefer to use as a teacher?
- Which methods do you think students would prefer?
- If more experiential or child-centered methods are more effective, why don't we use them? (Answer may be that they take more time to prepare and deliver. Some will not know how to use some methods.)

10. Continue to use the graphs throughout the training.

Draw a continuum on a flip chart or the chalkboard like the one below.

Have participants list each of the lessons/activities you've done in the training, so far. Then have them tell you where on the continuum each might be. For example, the opening activity – Grouping words or phrases used in the training and getting to know each other at the same time – is a game. The activity was learner-centered.

Refer to the continuum throughout the training when participants are teaching gardening, developing lesson plans that use the garden, etc. Participants tend to use lectures or trainer-centered methods and need to be encouraged to use more learner-centered methods.



As each lesson is given look at the continuum. Ask participants or facilitators to mark on the line where their lesson was. For example, if it was a lecture, then make a mark on the left end of the continuum. Discuss what specifically could be done to move the mark further to the right to make it more learner-centered.

Sciences in the Garden

Activity Summary:

A garden can be a source for studying many different sciences. This activity summarizes some of those sciences and challenges teachers to think about how classroom theory and lessons are applied in everyday life.

This activity works best after trainees have worked in the garden for a while. Give this lesson AFTER the participants practice giving the lessons in the Garden Lesson Guides and before they develop lessons that use the garden in other school disciplines.

Objective:

Participants will identify social and physical sciences that are applied in the school garden.

Time: 30 min.

Materials:

Cards with the following sciences written on them. One science per card.

(Alternative: Write the sciences on a chalk board.)

Biology	Agronomy	Horticulture	Entomology	Mathematics
Plant Pathology	Chemistry	Geography	Hydrology	Pedagogy
Social Science	Soil Science	Languages	Economics	Nutrition

Steps:

1. Ask trainees to list some of the sciences that they have applied in the school garden. Write these on the blackboard or a flip chart.

Hint: It is likely the trainees will think of about 5 or 6 sciences. That is fine. Just list those 5 or 6 on the board. The additional sciences will be a surprise to them in Step 2.

2. Divide the group into smaller groups of 3-4. Give each group a set of 3 cards. (Mix the cards up so some sciences may be more difficult than others.) Make sure participants know the meaning of each of the sciences on their cards.

Have each group list at least two examples of how the particular science is used in the garden. Allow about 10 minutes for discussion of all three cards.

3. Discuss each science one at a time, with participants contributing their examples.

Many of the participants will be very broad by saying, “We used biology in the garden.” Challenge them to list the specific application in each of the sciences. Be sure it was actually applied.

4. Debrief and close the activity.

Debriefing Guide:

- Were there sciences applied in the garden you hadn’t thought of? What were they?
- Were there sciences you thought about but were not on our list? What are they?
- This was challenging for some of you. Why do you think that was so?
- Why do you think we did this activity?
- What can you do to prepare yourself for helping students think about how science is applied in the garden?
- Are there sciences learned in school that are applied in places other than the garden? What are they? Give a specific example.
- How can teachers help students understand how what they are learning in the classroom can be used all around them?

Alternative steps:

Instead of having the trainers list the ways the different sciences are applied, try this:

Use the list in the answer key below and write out each example on a card. Have participants match the card with the science. Debrief the same way as Step 4 using the guide below.

Answer Key for Sciences in the Garden

The following types of sciences and examples are used in classroom and school gardens:

Biology:

- Most essential plant nutrients – Nitrogen, Phosphorus and Potassium
- Proper planting depth and consistent water techniques to improve seed germination

Agronomy:

- Crop rotation – planting different crop families successively
- Mono-culture planting contributes to spread of pest problems

Horticulture:

- Some vegetables are adapted to the classroom garden
- Vegetables can be planted year around

Plant Pathology:

- Fungus diseases caused by successively planting tomatoes (and can be reduced by crop rotation)

Nutrition:

- Harvesting vegetables at the peak stage improves nutritional content
- Over mature vegetable plants lose nutritional value
- Food insecure people can grow food in small areas
- Small gardens can provide high-nutrient vegetables – which can address causes of stunting and diabetes

Entomology:

- The spread and control of the common cabbage diseases transmitted by the aphid
- Using natural pesticides for local insects

Chemistry:

- Role of carbon and nitrogen in making compost
- Applying a solution of sodium bicarbonate changes the pH of the leaf surface of plants, reducing the rate of fungus infection.

Soil Science:

- Adding compost improves the soil and plant growth
- Various animal dung and compost supply nutrients in varying amounts

Geography:

- The conventions of making a garden map
- Slope soil erosion can be reduced by mulching and intensive planting
- Wise use of limited land
- Hydrology of soil drainage and raising garden beds to improve soil drainage

Social Science:

- Students cooperate while working in the garden, improving garden success
- Student leadership in school garden clubs
- Students plan to teach garden concepts in the homestead and in the community

Languages:

- Observation and descriptive skills are practiced, especially in experiments
- Scientific vocabulary used in the garden contributes to higher-level language skills

Economics/Entrepreneurship:

- Homemade natural pest control and making compost will reduce input costs
- Growing crops year around, with close spacing, provides a higher return on area planted
- Growing vegetables can contribute to life-long household economics

Pedagogy:

- Teachers and students practice learner-centered methods and teaching skills through demonstrations, group activities and simulations.

Mathematics:

- Weighed produce
- Calculated multiple square meter garden beds

Experiment in Experiential Learning

Activity Summary:

Most trainees will not have been exposed to or led learning activities that are “experiential” – meaning “learning by doing” or by experience. This activity uses an easy and small experiment (learning about natural pest control and taking an exam) to prove the value of learning-by-doing. It is best to do this activity in two parts, with the first part on one day, and the second part the next morning.

Objective:

Participants will test the theory of learning-by-doing as an effective training method.

Time: Part 1 – 30 min. Part 2 – 30 min.

Materials:

Materials for making natural insecticide and pesticides –

1 set for Group B, and 5 sets for Group C (about 1 set for every 5-6 people).

Each set needs: 2, 1-liter (minimum) pails or bottles

Cooking oil – about 2 large spoons full

Sodium bicarbonate (baking soda)

Soap – liquid, grated bar soap, laundry (ANY kind of soap is ok)

Two liters of water

Cloth or brush to apply pesticide or insecticide

1 spoon

Disease Triangle poster or drawing (also in Teachers Manual and Students Manual, and lesson guide)

Exam questions (attached)

Steps:

Part 1:

1. Divide the participants into three groups. (Ask them to remember which group they are in.) Have each group move to a different room so they cannot see what the other groups are doing. Tell them they will all learn how to make natural insecticides and pesticides.

Hint: Do not let the participants know that each group will be using a different learning method. They should be led to think they are all learning the same thing. They are. Do not indicate that this is a sort of experiment or that the objective of the lesson is about experiential learning.

You may want to use three different trainers and do this all at once, or you can have the same trainer for each group with the other two groups doing another activity in a different location.

2. Group A – lecture only – Use the notes attached. You can have questions and answers.

Group B – demonstration only – The trainer will demonstrate making a natural pesticide and insecticide. You can have questions and answers.

Group C – practice – The trainer will lead the participants through the activity, with groups of 4-5 making their own pesticide and insecticide. You can have questions and answers.

3. When each group has had their lesson, tell them you will talk about it more the next day. (Save the pesticides and insecticides each group made for use later in the training.)

Part 2:

4. The next day, ask the participants if they enjoyed learning about natural insecticides and pesticides. Do not summarize or answer questions at this time. Give each of the trainees a written exam. At the top of a blank sheet of paper, they should write if they were in Group A, Group B or Group C. (No names are necessary.) Read each question to the trainees, and have them write their answers on the paper. This should take about 5 minutes.
5. Collect the exams. Redistribute them for “grading”. Review each question, give the correct answer, and discuss and clarify.
6. After all the exams have been graded, have participants tally the scores on each. Have participants count up the total number of points for each exam. Then have them calculate the average score for each group.

Hint: Make sure participants know how to calculate averages. There are several ways but the fastest is to add the total score/number of points for each exam (0-10) and divide by the total number of exams/persons in that group.

7. On the board or a flip chart, list the average score for each group. (0-10)

<u>Group</u>	<u>Method</u>	<u>Average Score</u>
A	Lecture	
B	Demonstration	
C	Practice	

Compare the scores among the groups. Did those that heard the lecture only remember as well as those with the demonstration or practice?

8. Debrief.
9. Close the activity. Tell trainees that this is just one example of why learning by doing is usually more effective than lecturing. This training will practice learning-by-doing (also called “experiential learning”) and discuss ways of using experiential learning in the classroom and garden. (They will also learn more about pesticides and insecticides later.)

Debriefing guide:

- Group A – lecture only – Did you enjoy the lecture? Did you think you learned the lesson well? What senses did you use? Hearing, talking (asking questions).
- Group B – demonstration only – Did you enjoy the demonstration? Did you think you learning the lesson well? Were you frustrated at all? What senses did you use that made this more experiential? Seeing, not just listening.
- Group C – practice – Why do you think you scored so well on the exam? Even if you worked as a group, were you still able to practice? Which senses did you use? Hearing, seeing, touching, talking.
- Which training method was most effective? The least?
- If lecturing is not as effective, why do we use it? Should we never lecture? When? When should we not?
- What keeps you from using more experiential or learning-by-doing teaching or training methods?

Hint: Usually this experiment finds that Group C (the practice group) does much better on the exam than Group A (the lecture group). If this is not the case, use the debriefing to discuss what they might have predicted.

Directions for the lecture, demonstration, or practice on making natural pesticides and insecticides.

1. Show the Disease Triangle poster or drawing and explain it.
2. Tell participants that the recipes they will learn today are safe for animals, including humans, easy on the environment, and don't cost much. Most people have the materials at home.
3. Make a Natural Insecticide:
 - Lecture – Just read the directions. Do not write on a board or flip chart.
 - Demonstration – Show how to make the insecticide step by step. Do not write on a board or flip chart.
 - Practice – Demonstrate each step and then have the participants repeat in small groups.

How to make: Dissolve 1 spoon of soap in about 1 liter of water. Shake. Apply to the plant with a brush or cloth.

When to use: This is effective with soft-bodied insects – aphids, white fly, mealy bugs

Why this works: The soap sticks to the plant but also coats and suffocates the insects. ANY type of soap can be used if it dissolves in the water.

4. Make a Natural Fungicide:
Lecture, Demonstrate, or Practice as for Step 3.

How to make: Add one spoon of baking soda to about 1 liter of water. Apply to the plant with a brush or cloth.

When to use: This works on fungus diseases, mainly on member of squash family, beans and peas, and tomatoes.

Why this works: The baking soda changes the pH of the leaf surface and the fungus is less likely to grow well.

Other ways to prevent fungus: Fungi are spread by the wind in the reproductive stage; as spores. That is why fungi are everywhere. Worse, they can stay on vegetation; which is why gardeners should rotate crops.

Avoid over watering. Root rots love water and once they are in the soil they stay for a long time (in resting stages), even if you rotate to a non-susceptible crop family. Stake tomatoes to get them off the ground to dry, get air movement, and to avoid the soil and old leaves splashing on the leaves when it rains.

5. You can make both insecticides and fungicides stronger by adding 1 spoon of high quality cooking oil to the solution. Mix frequently. This coats the plant and insects and kills more. However, do not apply in hot sun or the oil will burn the plant.

Exam on Natural Insecticides and Pesticides:

For lesson on Experiment in Experiential Learning

1. What are the three parts of the disease triangle? (2 points)
Answers: susceptible host, favorable environment, pathogen
Without all three there is no disease or need to treat a plant. (This does not need to be part of the answer)
2. What is the recipe for an insecticide? (2 points)
Answer: Water – 1 liter, 1 spoon of soap (optional 1 spoon of oil to make it stronger.) Shake and apply.
3. What is the recipe for a pesticide/fungicide? (2 points)
Answer: Water – 1 liter, 1 spoon sodium bicarbonate/baking soda (optional 1 spoon of oil to make it stronger.) Shake and apply.
4. What is the purpose of baking soda/sodium bicarbonate in a fungicide? (1 point)
Answer: changes the pH of the leaf surface, which makes it unfavorable to the fungus/pest. Fungus is less likely to grow well.
5. What is the purpose of soap in an insecticide? (1 point)
Answer: Sticks to the plant. Also coats and suffocates the insect. The soap covers the insects' ability to breathe.
6. True or false: Cooking oil makes a mixture stronger and can be applied anytime. (1 point)
Answer: False. Cannot be applied when it is sunny or it will burn the plant.
7. Why should gardeners stake up their tomatoes? (1 point)
Answer: Staking tomatoes keeps them off the ground and therefore dryer. Fungus cannot grow as well in dry conditions.

Developing Lessons that Use the Garden as a Laboratory or Classroom

Activity Summary:

This activity guides teachers in developing a lesson they can use with their students that uses the garden as a tool or outdoor classroom.

Objective: Teachers will write lesson plans in several disciplines that use the garden as a classroom.

Time: 90 min. preparation

Lesson delivery – depends on number of groups.

Materials:

Lesson plan outline. Any of the Tool Kit materials.

Steps:

1. Have teachers organize themselves into groups with those that teach the same level/grade and/or subjects. (Agriculture cannot be one of the subjects as it will not provide the challenge needed for this activity.) Each group should be no more than 4 people.
2. Review what you've talked about previously in the training. Why is experiential or learner-centered learning better than lecturing? Think of some ways that you can use the garden to teach something you are already teaching – math for example. Think about how you can use experiential methods to teach this.
3. Direct each group to develop a lesson plan for their grade level or discipline that uses the garden in some way. They should use the attached lesson planning guide. They have 90 min. to plan. They should be prepared to teach part of the lesson the next day to the rest of the trainees/teachers. They can use any materials they like from the Tool Kit, from the school, from the garden, etc.

This is challenging for some of the teachers because they may not have had to write a lesson before. Make the activity fun by encouraging competition between the groups, perhaps even providing a small prize to the best lesson.

Because they are most familiar with the methods, most groups will want to use lectures or demonstration methods in their lessons. You may need to work with each group individually and challenge them to think how they might use a drama, music, simulation, game, practice, etc. to make the lesson more learner-centered.

4. The next day, have each group present a 10 minute lesson to fellow teachers/trainees. They may only have time for part of a lesson if not the entire lesson.
5. Debrief: After each group has presented, have the entire group give feedback to each other. Encourage them to give constructive criticism that might improve the lesson. Point out what the strong points of the lesson were. What made the lesson experiential for the students?

Refer to the continuum on learner-centered learning. Have the each group mark where their lesson fell on the continuum. If it was towards “trainer-centered”, discuss what other methods they could have used to move the mark further to the right and toward “learner-centered”.

6. Discuss how the teachers might share lesson ideas and plans with the rest of the group.

Lesson Planning Guide:

(If your country has a standard lesson format, use that instead of the guide below.)

Lesson Topic: _____

Grade level and discipline: _____

Unit where lesson would be taught: _____

Goal: _____

Objectives: (What will students be able to know or do as a result of this lesson? Use action verbs.)

Materials needed: _____

Steps: (sometimes called operational goals)

Time	Key points	Activity
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Check students' skills or knowledge Key questions:

Using Learning Tools Creatively

Activity Summary:

Trainees are asked to list multiple, creative uses of the *Cultivating Learning with School Gardens* Tool Kit.

Objectives:

The participants will list creative and multiple uses of the training materials and tool kit.

Time: 30 min.

Materials: (Some training sites or schools may not have all of these materials. Use the ones that are available.)

Teachers Manual

Students Manual

Pocket Guide

Posters

Vegetable cards

Garden lesson guides

Sticky notes (or small pieces of paper and tape)

Flip chart paper

Steps:

1. Introduce the activity:
Many teachers are not used to having many – if any – teaching resources. The use of some of the “Cultivating Learning with School Gardens” is very obvious. For example, the Student Guide is for students. The poster on composting can be used to teach composting. However, each of the materials could be used in many different ways we may not have thought about. This activity gives you some example ideas, but you have to provide the ideas for yourself and the others.
2. Divide the participants into groups of two or three. Pass out to each group 3-4 of the lesson guides, 1-2 posters, a student guide, some vegetable cards, etc. so that each group has one large tool or 1-3 smaller tools.

Give each group 5 sticky notes or pieces of paper.

Hang each poster or a flip chart listing each tool around the room. (Do this before you start the activity.)

3. Ask each group to list 5 ways the tool could be used. List one way on each piece of paper/sticky note, and post it on the corresponding poster or flip chart. Allow 15 minutes.
4. After the groups have finished, read through the list for each tool. Debrief. Give trainees an opportunity to write down the ideas they want to remember.

Hint: This is a challenging exercise for most trainees. Encourage them to be creative and think beyond the obvious. There are no right or wrong answers but some ideas will be more useful than others. The activity will also encourage more creativity in teaching – with or without the tools.

Some examples of creative uses of some of the materials may be:

Vegetable flash cards –teaching drawing, vocabulary and spelling in any language, nutrition, crop rotation, or plant families.

Student Guide – given as a prize to a child, put in school library, the game could be played at an after-school club...

Crop rotation poster – spelling, drama about crop rotation, displayed at a demonstration for parents

Debriefing Guide:

- Review each list. Ask for additional ideas from other participants.
- Was this easy, moderate, or difficult? Why?
- Are you used to having teaching tools?
- What are some tools you could develop to use in addition to these?
- Which team had the most creative ideas?
- Name two ideas you want to try.

Practicing Gender Equality in the School Garden

Activity Summary:

Culture and tradition in many households or communities suggest that girls and boys do not have the same or equal opportunities at school. This extends to the school garden sometimes. This activity uses dramas to identify common gender equality problems and how to address them.

Objective:

Trainees will develop an awareness of common gender equality problems that may be found in the school garden or classroom.

Time: 1 hour

Materials: flip chart and marker (or chalk board)

Steps:

1. Ask trainees to quickly list several ways that boys and girls in their schools may be “unequal”. Examples may be about access to or use of resources, opportunities, expectations, or stereotypes. Do not debate at this step.

Alternative:

Have males and females work on this task separately. Then compare lists to see if they are the same or different. Discuss how each gender may perceive equality differently.

2. Divide participants into groups of 5-6. Ask them to prepare a short drama that illustrates some gender inequality they might see at school.

Give the groups 15 minutes to prepare.

3. Have each group present their drama to the other groups. Do not discuss the messages until each group has finished.
4. Discuss the common themes or messages dramatized in the activity. List them on the flip chart.
5. Research about gender equity in one African country found these challenges related to school gardens. Add them to the list on the flip chart.
 - Not enough tools for all, boys take the tools first and girls must use sticks or stay late.

- Boys and girls stay late after school to work in the garden. It is unsafe for girls to walk home after dark.
 - Girls let the boys make decisions about the garden.
 - Teachers expect the girls to be better gardeners because boys will take different jobs when they are older.
 - Teachers think boys are better in math, girls are better in languages.
 - Girls put away the tools, tidy up after the boys.
 - Boys start playing football while the girls work in the garden.
6. Look at the entire list and identify what inequalities can be changed at the school level. Put a check next to those items.
 7. Divide participants into pairs. Assign one item from Step 6 to each pair. Have them list ways they can make the opportunity, resources, expectations, or processes more equal. Share ideas with the entire group.
 8. Debrief: Discuss how these new practices will influence the success of both:
 - Classroom learning
 - The school garden

Training with Garden Lesson Guides

Activity Summary:

This activity prepares trainees to use the garden lesson guides to teach gardening.

Objective:

- Trainees will practice teaching gardening with the use of the garden lesson guides.
- Trainees will identify the experiential training methods used in each of the lesson guides.

Time: Part 1, Preparation – 1 hour

Part 2, Practice – 1-3 hours (depending on number of lessons presented)

Materials:

Garden lesson guides

Materials required for each garden lesson

Teachers Manual – as resource for more garden science information

Steps:

Part 1:

1. Focus the purpose of the garden lesson guides.

Ask trainees how they would rate their gardening knowledge and skills. Are they “expert”? “ok”? “poor”?

Look back at the introductory activity when participants put markers or dots on the Safari cards that identified what their strengths and weaknesses were.

Point out that sometimes it’s difficult to teach about topics we know a lot about. We may want to talk more than let learners discover on their own. Or be too scientific and detailed. Other people are great trainers.



Many people get excited about learning about gardening and want to improve their gardening skills. Remember that the purpose of this Tool Kit is to use the garden as a classroom or laboratory. Therefore, the focus of some of the training may be less about garden science and more about how to teach gardening or about learning to be a scientist.

Because teachers will be working directly with students both in the classroom and in the garden, the garden lesson guides were written for them, rather than for an expert gardener or agriculturist.

2. Put the trainees into 17 groups of 2 or 3, matching skilled gardeners with skilled teachers, if possible. Assign each pair a different garden lesson guide.

Assignment: Each team will prepare and present a lesson using the assigned lesson guide.

- a. Review the lesson guide.
- b. Identify the training methods used. (e.g. lecture, demonstration...)
- c. Identify how the different training methods are applied. (e.g. drama on gender problems)
- d. Prepare to teach the lesson following the guide as closely as possible. (If there are questions or suggestions, please see the trainer.) Gather materials needed. Prepare the garden or supplies needed. Practice if necessary.
- e. Be prepared to give your lesson over the next couple of days. The lessons will be taught in numerical order.
- f. After you give your lesson, be prepared to discuss the methods used. If you have suggestions for improving the lesson, be prepared to tell the group.

Part 2:

3. Have teams present their assigned lesson.

At the conclusion, have each team discuss the training methods.

Have the rest of the group provide feedback on what went well in the lesson and what might be improved, if anything.

4. Debrief and close the activity.

Debriefing Guide:

- What methods used in the lessons were especially effective?
- How did you feel using the lesson guides? Were they easy to use?
- Non-expert gardeners – Were you confident?
- Gardeners – What did you learn about teaching gardening?
- How will you use these guides in your school?

Square Meter Gardening – An Introduction

Activity Summary:

This activity makes a chart to compare square meter gardens to traditional gardens. It makes a good summary after the basic practices of square meter gardening are introduced.

Objective:

Participants will compare the features of square meter gardens with traditional gardens.

Time: 15 min.

Materials: flip chart and marker or chalk and chalkboard

Steps:

1. The idea of a square meter garden is difficult for some people to understand. Draw this chart on a flip chart and have participants complete it by making a check in the appropriate box for each principle. Discuss why they checked each box. For example: if they checked that crop rotation can be practiced in both traditional and square meter gardens, they should make a check in the box in each column, and explain why.

Garden Principle	Traditional Garden	Square Meter Garden
Crop Rotation	✓	✓
Pest Control		
Variety of plants		
Produce enough food for school or household		
Classroom for learning		
Other		

2. Use another chart to determine which type of garden might be best to demonstrate gardens as a classroom. Check the box or make a comment for each production challenge.

Production need or challenge	Traditional Garden	Square Meter Garden
labor	Much needed	Less needed
Space/land		
Water		
Soil fertility/compaction		
Consistent production		
Other		

3. Debrief.

Discuss if the school should plant square meter gardens or a traditional garden. Would a square meter garden be better for some of the students' parents? If so, could the school have a square meter garden for a demonstration?

Training of Trainers Planning Guide

Use the worksheet as a guide to plan a training workshop.

Target trainees: (Who is the training for? Who is your main trainee? Are there others?)

Goals of the training: (What do you want the participants to gain from the training? What are they supposed to do as a result of the workshop?)

Objectives: (What are the specific knowledge, skills, or attitudes the participants should gain from the workshop?)

Most important training topics: (Based on your goal and objectives, what are the most important topics to teach or skills to train?)

Resources needed to hold a training: (Space and location for practice and demonstrations, tools, supplies...)

When should the training be held? (Based on the goals of the training and the target participants)

Who will lead, manage, coordinate and assist with the training? What resources do they need to do this?

Other considerations or needs:

Cultivating Learning with School Gardens Teacher Trainer

Objectives:

As a result of this training, teachers will be able to:

1. Understand the benefits of a school garden to the students and to the school.
2. Plant and maintain a garden to use as a learning laboratory or outdoor classroom for students in their school.
3. Apply scientific theory in a school garden.
4. Develop and use lessons in all disciplines that integrate the school garden.

Training Agenda

Day 1 - AM

Opening Ceremony
Introductions
Training Goals and Objectives
Training Expectations and Process
Manual Contents
Benefits of School Gardens

Day 1 - PM

Garden Design
Role of Questioning in Science
Growing a Good Garden Attitude
Summary, evaluation and adjournment

Day 2 - AM

Introduction to day
Experiential Learning
Vegetable selection
Seed germination

Day 2 - PM

Soil Fertility
Integrating the Garden into the Classroom
Summary, evaluation and adjournment

Day 3 - AM

Introduction to day
Composting
Garden as a Classroom
Demonstration Skills
Observation Skills
Journals

Day 3 - PM

Experimentation in Science
Non-science lesson example
Lesson preparation time for next day
Summary, evaluation and adjournment

Day 4 - AM

Introduction to day
Organic Pest Control
Water Management
Bringing the Garden into the Classroom
– teachers present lessons

Day 4 - PM

Training Wrap-up
Bringing the training back to school –
Action Plans
Next Training plans
Training evaluation
Feedback on manual and materials
Closing Ceremony

Cultivating Learning with School Gardens

Teacher Action Plan

Name of Teacher:

Name of School:

Plans for taking this training back to the other teachers in your school:

Plans for taking this training back to the students in your school:

Plans for personally implementing this training in your classroom:

Cultivating Learning with School Gardens (Date) Training Evaluation

Your evaluation of the *Cultivating Learning with School Gardens* training will be used to improve the training and materials for other schools. *Please be honest.* Your answers are anonymous. Please tell us how each part of the training improved your knowledge, if it was useful, and if you are confident in applying what you learned.

For each topic in questions 1-2, circle the number that best represents what you think.

1. Teaching with a School Garden				
Topic	Knowledge <i>before</i> the training 1 = none 2 = little 3 = some 4 = much	Knowledge <i>now</i> , <i>after</i> the training 1 = none 2 = little 3 = some 4 = much	Usefulness of Information 1 = not at all useful 2 = a little useful 3 = fairly useful 4 = very useful	Confidence in applying or doing practice 1 = none 2 = little 3 = some 4 = much
Aims, benefits and elements of School Gardens	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Planning and managing a garden with your community	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Experiential learning	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Demonstration methods	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

How to do an experiment	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
2. Classroom Activities and Integration				
What did you learn in preparing and developing lessons for your classroom or school? (Check all that apply): <input type="checkbox"/> how to design a lesson – set objectives, choose learning activities, etc. for my grade level <input type="checkbox"/> how to insert a garden-related lesson into the national curriculum <input type="checkbox"/> how to adapt a lesson from the teachers' manual for my classroom <input type="checkbox"/> how the garden relates to my classroom lessons <input type="checkbox"/> how to work with other teachers for lesson ideas <input type="checkbox"/> how the students will learn better through experiential activities <input type="checkbox"/> none of the lessons in the book apply to what I teach <input type="checkbox"/> nothing <input type="checkbox"/> do not know <input type="checkbox"/> other _____				
	Did this <i>before</i> the training 1 = none 2 = little 3 = some 4 = much	Will do this <i>now</i> 1 = none 2 = little 3 = some 4 = much	Usefulness of information or practice 1 = not at all useful 2 = a little useful 3 = fairly useful 4 = very useful	Confidence in using in your classroom 1 = none 2 = little 3 = some 4 = much
Make and use rain gauges	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Use songs, dramas and journals	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Teach students how to be good observers in the garden	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

Integrate activities into the language curriculum	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Did this <i>before</i> the training 1 = none 2 = little 3 = some 4 = much	Will do this <i>now</i> 1 = none 2 = little 3 = some 4 = much	Usefulness of information or practice 1 = not at all useful 2 = a little useful 3 = fairly useful 4 = very useful	Confidence in using in your classroom 1 = none 2 = little 3 = some 4 = much
Integrate activities into Social Studies curriculum	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Integrate activities into Mathematics curriculum	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Integrate activities into Science curriculum	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

3. How will the community field day help you as a teacher?

If you conduct a community field day, how do you think it will help your school garden?

4. The best part of the training was:

5. To improve the training I would suggest:

6. Overall, the training (check all that apply):

- ☐ will help our school sustain a school garden
- ☐ will help me be a better teacher using the garden
- ☐ has overwhelmed me
- ☐ was outstanding
- ☐ was average
- ☐ was poor
- ☐ has given me the knowledge and skills I need for a school garden
- ☐ was a waste of my time

7. Please tell us about yourself.

Did you come to the school garden training in 2005?

☐ yes ☐ no

For the purposes of this training I am (check all that apply):

- ☐ a teacher
- ☐ a community member
- ☐ a school administrator
- ☐ on the parent/school committee

If you are a teacher, how many years have you been teaching? (check one)

- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-10 years
- ☐ 11 or more years

What is the *highest* level of formal education you have had? (check one)

- ☐ some elementary education
- ☐ completed elementary education
- ☐ some secondary education but no diploma
- ☐ secondary diploma
- ☐ some higher education but no degree
- ☐ higher education degree

10. Is there anything else you would like to tell us about the training, the manual, or school gardens project? If so, please write your comments here.

Thank you!

