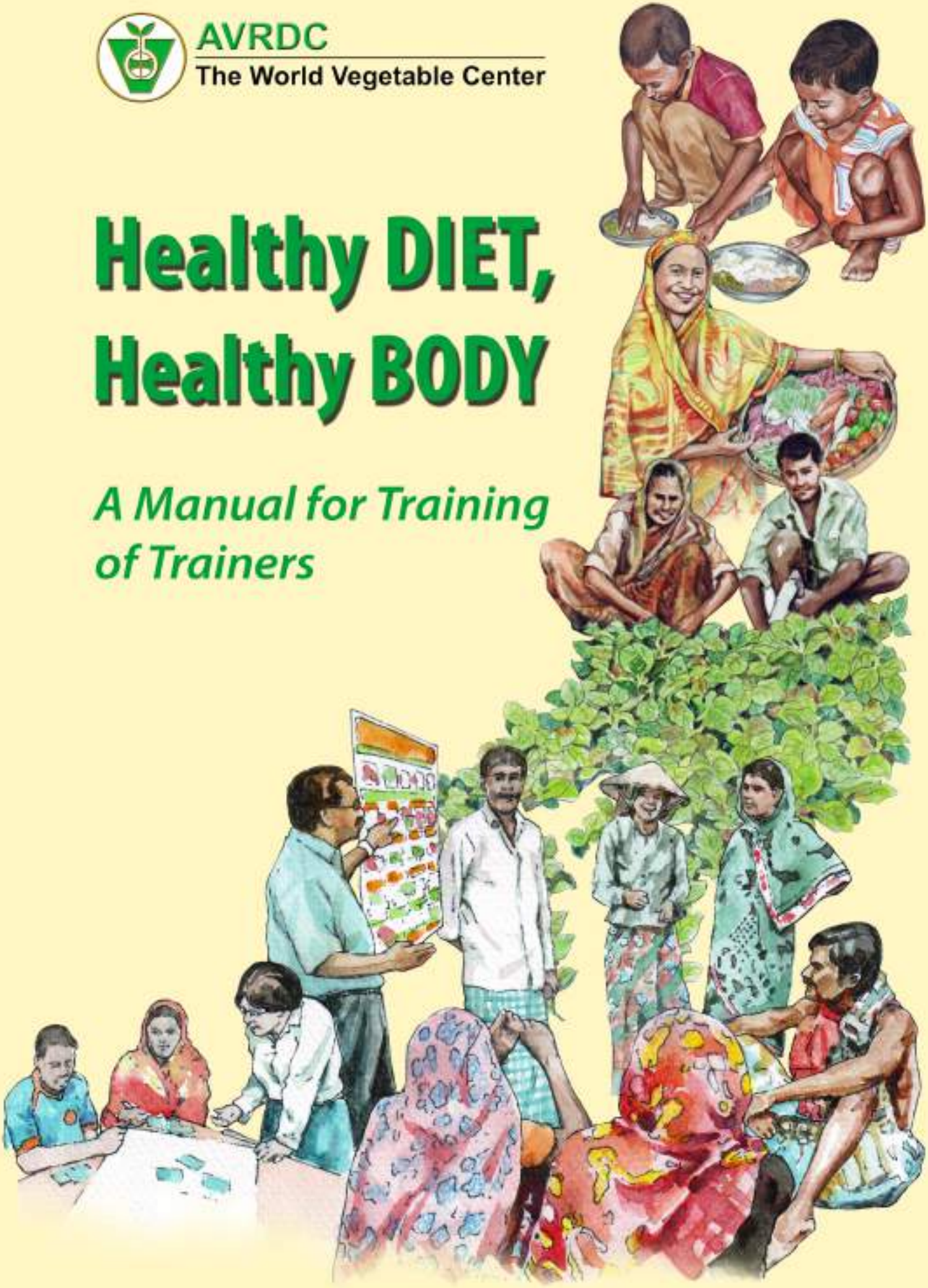
AVRDC
The World Vegetable Center

Healthy DIET, Healthy BODY

A Manual for Training of Trainers



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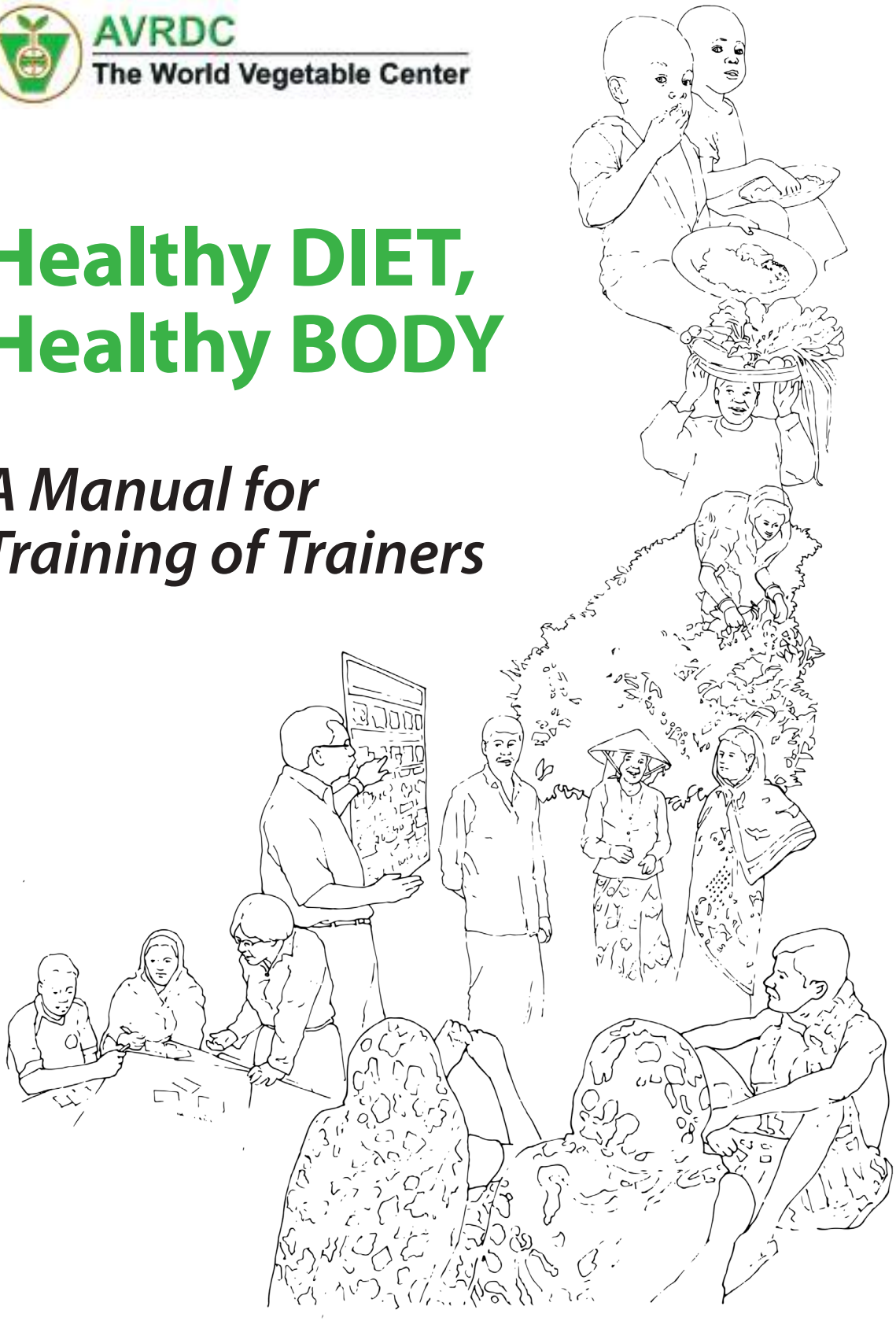

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Foreword

The Food and Agriculture Organization (FAO, 2014) reports that 80 percent of all deaths worldwide are caused by four non-communicable diseases: cancers, cardiovascular, respiratory, and diabetes. A third of these deaths, however, can be prevented by eating a healthy diet, maintaining a normal weight, and taking a regular physical activity.

Yet, many populations, particularly from developing nations, are not able to eat healthy foods for several reasons: poverty, unfriendly food trading & accessibility policies, poor connectivity & food security-enabling infrastructure, and lack of awareness about good nutrition among others.

This publication, Healthy Diet, Healthy Body: A Manual for Training of Trainers supports the World Vegetable Center's (AVRDC) mandate on working out sustainable food security solutions. It humbly aims to contribute a droplet to the bucketful overall agenda of the United Nations: Reduce global hidden hunger of an estimated two billion people all over the world.

Big accomplishments start with small beginnings. This publication starts with the premise that one Trainer honed on the basic knowledge and skills on Adult Learning, Good Nutrition, and Healthy Diets, will, like a yeast making the dough rise, ripple a significant difference in discipling other trainers to deliberately campaign for healthy diets; thus creating healthy communities.

We hope that this Manual would help you train Trainers on advocating healthy diets and healthy bodies. A healthy and prosperous community begins with a brilliant mind powered by a well-fed stomach.

Acknowledgements

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Contents

FOREWORD ..... **iii**

ACKNOWLEDGEMENTS ..... **iv**

MODULE 1: ADULT LEARNING AND ITS ROLE IN TRAINING OF TRAINERS

Introduction **1**

Lesson 1. Core Concepts on Adult Learning 2
1.1. Andragogy : How adults learn 2
1.2. Adult learning styles 4
1.3. Adult learning domains 10

Lesson 2. Learning Goals, Objectives, and Cyle **16**
2.1. Learning goals 16
2.2. Learning objectives 16
2.3. Learning outcomes 17
2.4. Learning cycle 20

Lesson 3. Characteristics of An Effective Trainer **23**

Lesson 4. Characteristics of An Effective Facilitator **25**

Lesson 5. A Map on Preparing a Full-blown Training Plan **26**
5.1. Assess/analyze 26
5.2. Design 27
5.3. Develop 31
5.4. Implement 33
5.5. Evaluate 34

Lesson 6. Summary List of To-Dos **38**
6.1. Before the training 38
6.2. During the training 39
6.3. After the training 40
6.4. How to make powerful presentations 41

Lesson 7. Maximum Action Plan **47**

MODULE 2: NUTRITION, HEALTHY DIET, HEALTHY BODY

Introduction 49

Lesson 1. Basic Principles of Nutrition 51
1.1. Overview and definitions 51
1.2. How our body uses food 58
1.3. Summary definition of nutrition and related terms 59

Lesson 2. Healthy and Balanced Diet 61
2.1. Food and the family 61
2.2. Healthy and balanced diet 61
2.3. Food pyramid 62
2.4. Healthy eating plate 64
2.5. Vegetables in the diet 64
2.6. The 7 colors of phytonutrients 69
2.7. The 12 phytonutrients from fruits and vegetables 71
2.8. How do I use vegetables? 75
2.9. Fortifying food 75
2.10. Vegetable supply gap 76
2.11. What healthy eating can do for you 76

Lesson 3. Special Diets for Breastfeeding Mothers, Infants, Adult, Elderly and the Sick. 82
3.1. Diet for pregnant and breastfeeding women 82
3.2. Infant feeding: Benefits of breastfeeding 84
3.3. Healthy first foods 85

Lesson 4. Three Meals, Nutritional Requirements, Meals for the Sick 87
4.1. Three meals 87
4.2. Adolescence 87
4.3. Nutritional requirements during later years 88
4.4. Special meals for people who are sick 89

Lesson 5. Herbs 97
5.1. Advantages of herbal remedies 97
5.2. Disadvantages of herbal remedies 97
5.3. Important things to note about herbs 97

Lesson 6. Cooking Nutritious Family Meals for Healthy and Sick Family Members 99
6.1. Cooking carbohydrate dishes 99
6.2. Cooking protein dishes 100
6.3. Preparing morning meals 102
6.4. Healthy eating as we age 106
6.5. Special nutrition concerns for older adults 106

Lesson 7. WASH Principles as Part of Healthy Diet, Healthy Body 108
7.1. What is WASH? 108
7.2. WASH practices 109
7.3 . Nutrition Interventions 109

MODULE 3: GROW YOUR OWN VEGETABLE GARDEN

Introduction 113

Lesson 1. The Benefits of Growing Your Own Home Vegetable Garden 115
1.1. Success stories 115
1.2. Summary benefits of growing your own home vegetable garden 121

Lesson 2. Vegetables of Various Colors and Nutrients 125
2.1. Grow a mix of veggies of various colors and nutrients 125
2.2. Herbs 125
2.3. The nutrients in vegetables 133

Lesson 3. Steps in Growing Vegetables 138
3.1. Select site 138
3.2. Determine size 138
3.3. Select vegetables 138
3.4. Lay-out a home garden vegetable map 139
3.5. Make a year-round vegetable planting calendar 141
3.6. Practice crop rotation 146
3.7. Prepare seeds 148
3.8. How do you raise healthy seedlings? 150
3.9. How to manage seedlings? 152
3.10. How to improve the soil? 152
3.11. How to control pests and diseases? 153

Lesson 4. The Garden Action Plan 159
4.1. The garden action plan 159
4.2. The stakeholders' matrix 161

MODULE 4: TRAINERS' GUIDE: TRAINING FARMER-LEADERS ON NUTRITION, HEALTHY DIET, HEALTHY BODY

Introduction 163

Opening Sessions 164
Session 1. Getting-to-know each other exercise 164
Session 2. Introducing the objectives 169

Nutrition 167
Session 1. What good nutrition is and why many people in the community do not have good nutrition 167
Session 2. Healthy and balanced diet for family members: basic nutrition principles 170
Session 3. Vegetables in the diet 175
Session 4. Special diets and nutritional requirements 179
Session 5. Integrating the WASH principles in good nutrition 185

Tips for Writing a Drama Plot 182

MODULE 5: GUIDE ON TRAINING OF TRAINERS

Introduction 185

Lesson 1. Basic Concepts on Adult Learning 187
Session 1. Opening sessions 190
Session 2. Four concepts on adult learning 194
Session 3. How to write learning goals, objectives and outcomes 197
Session 4. How to integrate learning cycle and learning methods 199

Lesson 2. Designing a Training Plan 201

Lesson 3. Good Nutrition, Healthy Diet and Healthy Body 203
Session 1. Opening sessions 203
Session 2. Basic concepts on nutrition 207
Session 3. Healthy and balanced diet for the family members: Basic nutrition principles 210

Session 4. Vegetables in the diet 219
Session 5. Special diets and nutritional requirements 231
Session 6. Integrating the WASH principles in good nutrition 233

Lesson 4. Creating a Vegetable Garden Map and a Maximum Action Plan 235
Session 1. Vegetable garden map and plan 235
Session 2. Conducting a stakeholders' mock presentation 237

REFERENCES 239

Module 1

Adult Leaning and its Role in Training of Trainers

Module 1: Adult Learning and its Role in Training of Trainers

The overall Learning Goal for Module 1 is to equip potential Trainer of Trainers with knowledge and skills (KS) on Adult Learning and integrate these KS in weaving a holistic advocacy on educating rural households towards better Nutrition, Healthy Diet, and Healthy Body.

Introduction

"You cannot teach old dogs new tricks." Is this passage true for human adults? Can old people still learn new ways of thinking and doing? How do adults learn? When does learning occur in the life of an adult?

In a nutshell, this Module contains information that would address the queries here. The Learners of Module 1 are expected to:

- recall core concepts on Adult Learning and explain in their own words what these concepts mean;
- design a learning event that encapsulates Adult Learning core concepts and skills;
- make a presentation during the session to showcase how Adult Learning core concepts and skills are smoothly integrated to facilitate a meaningful learning experience for co-participants; and
- demonstrate skills in writing and conducting evaluation measures before and after the presentation.

Moreover, this module provides the following lessons:

- **Lesson 1** defines and discusses topics on Andragogy. It introduces key personalities forwarding their assumptions on Learning Principles, Learning Styles, and Learning Domains. As you get to know these topics, you will start to understand that facilitating a meaningful Adult Learning is not a hit-and-miss event, but a deliberate and thoughtful planning of a learning event which is to some extent measurable and quantifiable.
- **Lesson 2** discusses Learning Goals, Objectives, and Cycle and
- **Lesson 3** discusses the Characteristics of an effective Trainer
- **Lesson 4** discusses the Characteristics of an effective Facilitator
- **Lesson 5** charts a Map on Preparing a Full-Blown Training Plan
- **Lesson 6** gives a Summary List of To-Dos before, during and after every Training event
- **Lesson 7** gives guidance on how to make a Maximum Action Plan (MAP)

Lesson 1. Core Concepts on Adult Learning

Lesson 1. 1. Andragogy: How adults learn

Have you ever asked yourself, what facilitates the learning process in adults? Or how do you learn?

Andragogy, the theory of Adult Learning, assumes that adults learn well when the environment contains certain conditions that facilitate learning. Malcolm Knowles (1984) postulated 5 principles that facilitate Adult Learning **(Fig. 1)**. These principles include the following and for easy recall, we coin the acronym **RISER,** which is short for:

a. Respect – when adults feel and are assured that when they share their ideas, they can share without fear and those around them will welcome these ideas without rejecting or insulting them (recognizing, appreciating the ideas of the learners);

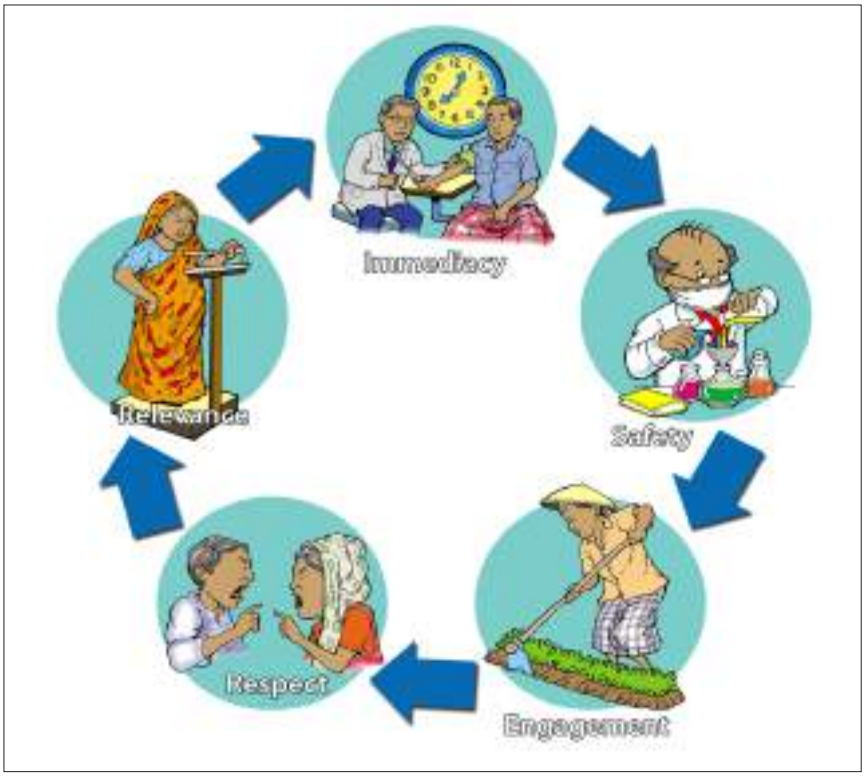


Fig. 1. Knowles' 5 Principles on Adult Learning.

Tip: To facilitate adult learning, the Trainer, must embed these RISER principles into the content and implementation of every training event.

b. Immediacy – adults can immediately use or apply the learning that they acquire and, in the process, benefit from this;

c. Safety – learning is facilitated when it takes place in an environment where learners have the freedom to express their thoughts without being rejected or punished; also that they are free from physical danger or harm;

d. Engaged – adults learn best when they are actively involved or doing the hands-on procedures themselves; and

e. Relevance – adults learn best when the topic they are going to learn will help in solving their problems.

In recent years, however, a **sixth** principle, **Inclusion**[1] (**Fig. 2**) has been added to Knowles' 5 principles.

f. Inclusion - Hear my voice! Includes in the conversation/dialogue those who are silent or do not want to speak out, or have difficulty in engaging and expressing themselves in the classroom. So, now, our acronym reads **RISERI**.

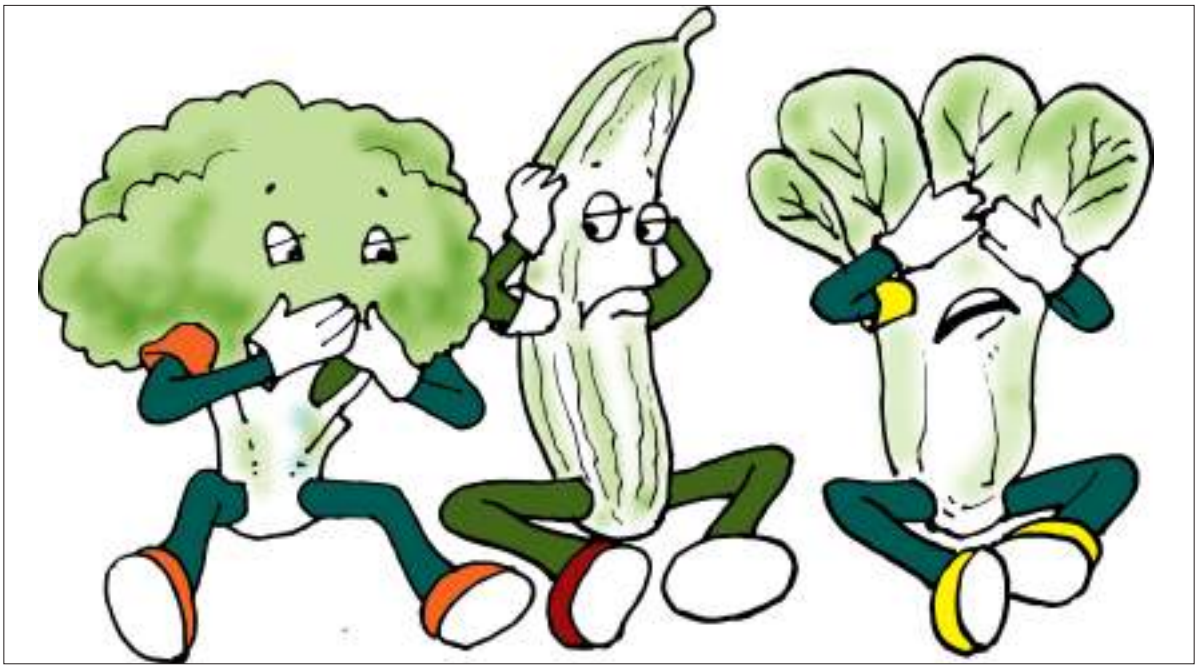


Fig. 2. Inclusion: the Sixth Principle on Adult Learning.

[1] http://www.globallearningpartners.com/blog/6-core-principles-virtually

Lesson 1.2. Adult learning styles

VARK

Adults have different learning styles. Some say there are three major learning styles, while others say, there are four or more. For our purpose, let's discuss four major learning styles (Fleming and Mills 1992)[2] .

Again, to facilitate memory recall for adults, we use the VARK[3] when we refer to learning styles. VARK represents the following:

1. **Visual** – some adults learn best if information is presented to them through flipcharts, photos, posters, slides, graphs, highlighted colors mixed in the texts, flowcharts;

2. **Aural Auditory** – some adults learn best if information is presented to them in sounds which they can listen (oral lectures, radio announcements, songs, other sound/voice recorded messages, informal conversations, group discussion, stories and examples);

3. **Read/write (printed)** – some adults learn best when information is presented to them in lecture notes/textbooks/handouts they can read, and write their thoughts about the topics; and

4. **Kinesthetic** – some adults learn best when they are directly involved in doing some things (role plays, simulations, practice demo, etc.). Often, they learn the most when they are given activities that they perform by themselves. They are easily bored when they are just made to sit and listen without doing anything[4].

[2] http://vark-learn.com/introduction-to-vark/the-vark-modalities/
[3] http://www.edutopia.org/blog/games-support-multiple-learning-styles-andrew-miller
[4] http://www.learningstyles.org/styles/kinesthetic.html

How do we capture the attention of all types of learners? Here are some training strategies that would appeal to all types[5].

1. **Visual learners (Fig. 3) -** may be bored by lectures. Combine PowerPoint slides with lectures to garner their attention. Also, show videos, movie clips, or online visual media. Write key words and draw images on a flipchart or whiteboard. To create a good environment for people with this learning style, you can also show and explain diagrams. Ask them to draw a picture. Include plenty of content in your handouts. Provide extra material to read after your session.

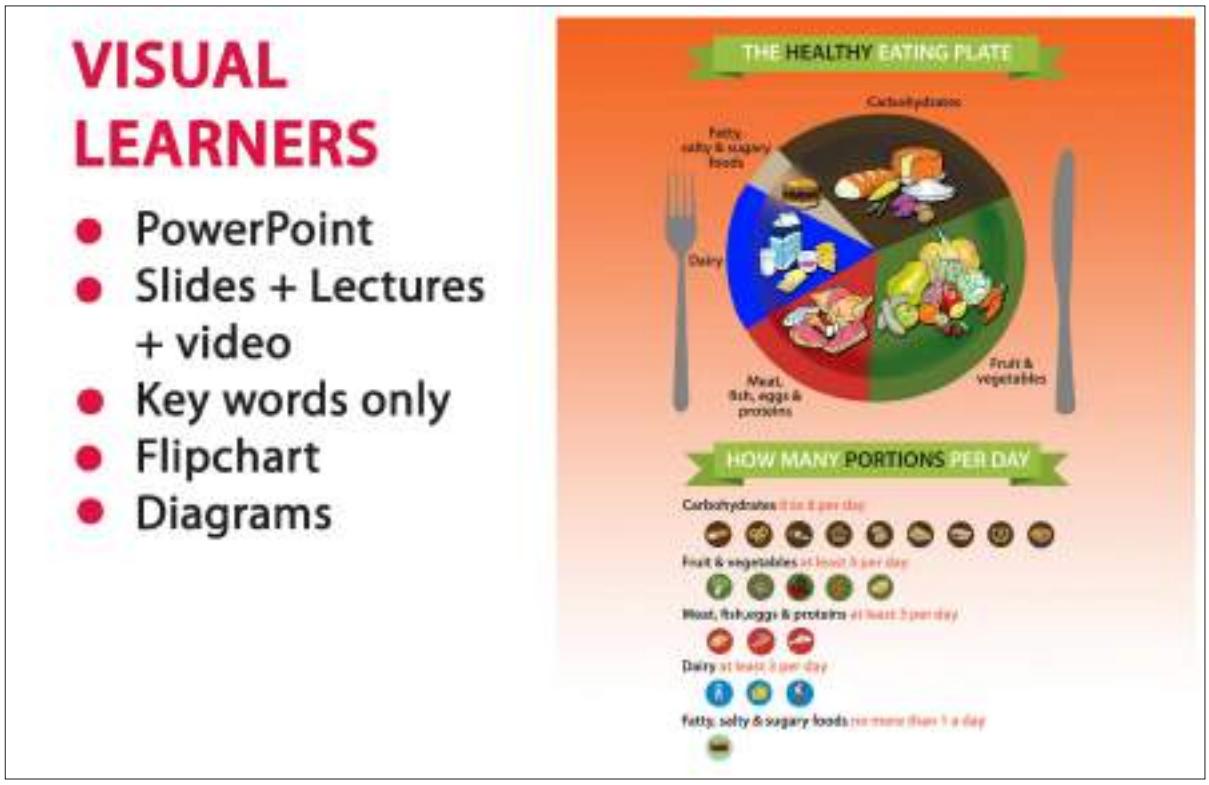


Fig. 3. Visual Learners.

2. **Aural Auditory learners (Fig. 4)** - typically enjoy lectures and may be able to learn from them, with or without taking notes. Some may find reading tedious or difficult, but appreciate hearing material read out loud. To create a good environment for auditory learners, use lecture, question and answer segments, and discussions.

   Play a song to illustrate a point or use background music when appropriate. Auditory learners enjoy having breakout groups to discuss the content and hear the perspectives of others. Also, allow time at the end of the session to summarize your main points and allow for additional questions.

[5] http://www.strengtheningnonprofits.org/resources/e-learning/online/deliveringtraining/defaultaspx?chp=4

3. **Read/Write learners** - for this type of learners, use flyers, handout, and reference reading materials to supplement your lectures.

4. **Kinesthetic learners (Figure 5)** - may get restless with long or frequent lectures. They can become quickly bored if they're not active. Taking notes helps them concentrate on a presentation. Using a highlighter helps them when they're reading material.

   To create a good environment for **kinesthetic learners**, use creative activities that get people out of their chairs and doing something interesting. Put Play-Doh, pipe cleaners, stress balls, or other objects on their tables so they can do something with their hands. Hold standing discussion groups in the four corners of the room. Take frequent stretch breaks, even if you don't leave the room.

Figure 6 shows a summary infograph of these learning styles[6] .

Fig. 4. Use sound/audio in presenting information to capture the interest of the auditory learner.

Fig. 5. Kinesthetic learners like to get out of their chairs and do something.

Tip: To accommodate all learning styles of the participants, Trainer must remember to integrate a mix of VARK in designing their training strategies.

[6]https://s3.amazonaws.com/infographics/Type-of-Learner-800.png

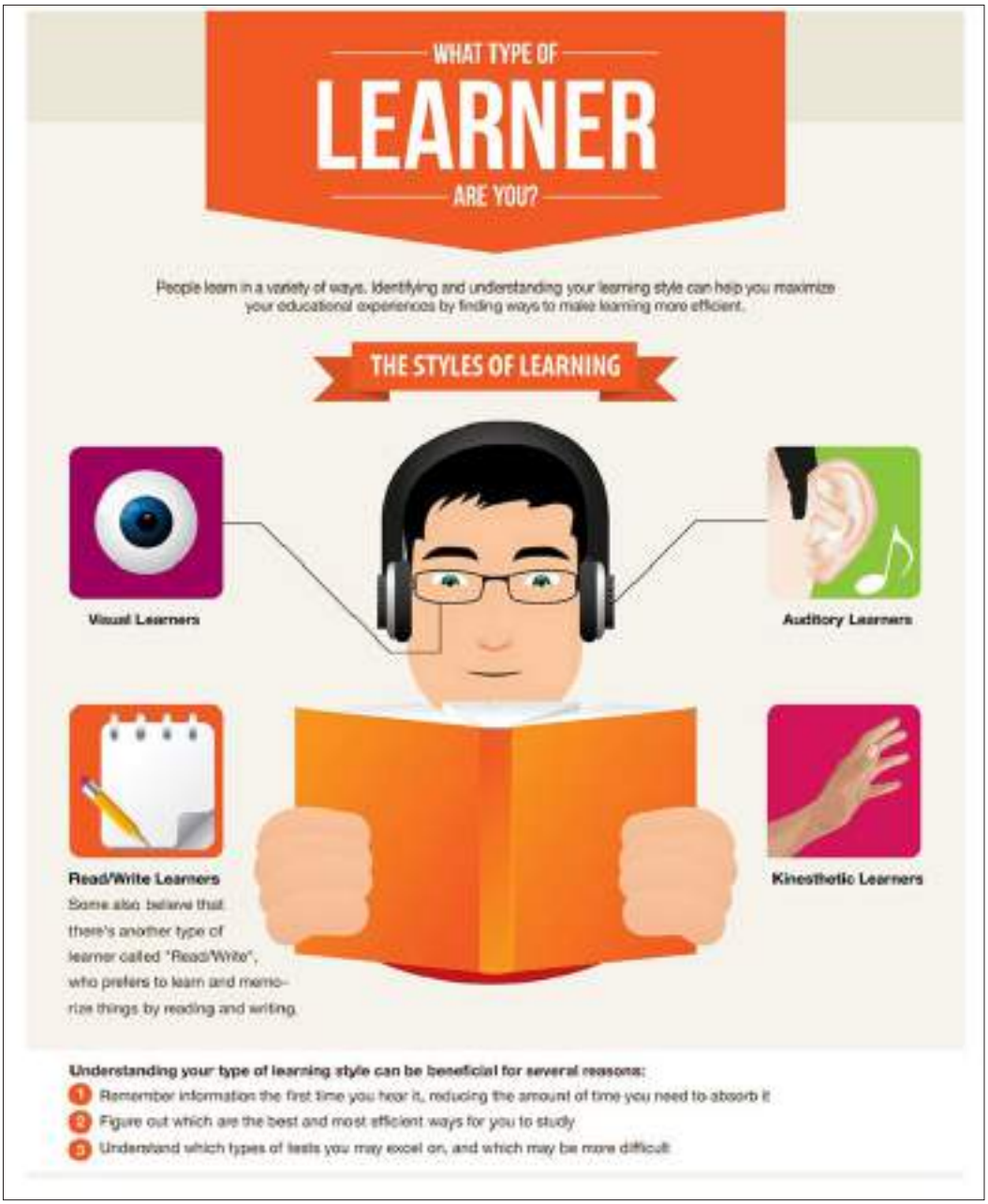


Fig. 6. Summary of the four styles of learners.

Kolb's Learning Styles[7]

Similarly, David Kolb published his 4 learning styles model in 1984 from which he developed his learning style inventory.

[7] McLeod, S. A. (2013). Kolb - Learning Styles. Retrieved from www.simplypsychology.org/learning-kolb.html

Kolb observes that the learner's knowledge is transformed by his experience; and that learning style of the individual is interplay of his social, environmental, educational experiences. He goes on to say that regardless of the person's learning style preference, it is a product of two separate variables: 1. The processing or how to approach the tasks (inside the person's mind) and 2. The emotional response (how we think or feel about it).

Kolb describes four learning styles; namely: Diverging; Assimilating; Converging; and Accommodating (DACA).

1. **Diverging** (feeling and watching)
   - They are sensitive.
   - Have broad cultural interests
   - They prefer to watch rather than do, tending to gather information and use imagination to solve problems.
   - They are interested in people, tend to be imaginative and emotional, and tend to be strong in the arts.

Tip: People with the diverging style prefer to work in groups, to listen with an open mind and to receive personal feedback.

2. **Assimilating** (watching and thinking)
   - Think that Ideas and concepts are more important than people.
   - They need good clear explanation rather than practical opportunity.
   - They excel at understanding wide-ranging information and organizing it in a concise, clear logical format.
   - People with this style are more attracted to logically sound theories than approaches based on practical value.

Tip: This learning style is important for effectiveness in information and science careers. In formal learning situations, people with this style prefer readings, lectures, exploring analytical models, and having time to think things through.

3. **Converging** (doing and thinking)
   - They can solve problems and will use their learning to find solutions to practical issues. They prefer technical tasks, and are less concerned with people and interpersonal aspects.

- They are best at finding practical uses for ideas and theories. They can solve problems and make decisions by finding solutions to questions and problems.

Tip: People with a converging learning style are more attracted to technical tasks and problems than social or interpersonal issues. A converging learning style enables specialist and technology abilities. People with a converging style like to experiment with new ideas, to simulate, and to work with practical applications.

4. **Accommodating** (doing and feeling)
   - The Accommodating learning style is 'hands-on', and relies on intuition rather than logic.
   - They use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out plans.
   - They commonly act on 'gut' instinct rather than logical analysis. People with an accommodating learning style will tend to rely on others for information than carry out their own analysis.

Tip: Educators should ensure that activities are designed and carried out in ways that offer each learner the chance to engage in the manner that suits them best. Ideally, activities and material should be developed in ways that draw on abilities from each stage of the experiential learning cycle and take the students through the whole process in sequence.

Now, make your own assessment (Table 1) on which learning style are you more inclined? Or If combined, which of these combinations?

Table 1. Learning Styles.

Fleming and Mill's Learning Styles (VARK)	Check Which are you?	Kolb's Learning Styles (DACA)	Check Which are you?
Visual		**Diverging**	
Aural		**Assimilating**	
Read Write		**Converging**	
Kinesthetic		**Accommodating**	

Lesson 1.3. Adult learning domains

Just as there are many learning styles, there are also several ways by which a person learns. Remembering facts is just one of them. Education psychologist, Dr. Benjamin Bloom in 1956 forwarded the concepts of learning domains. Bloom and his colleagues identified six categories of how people learned; and these categories each had a corresponding learning domain[8] . These 3 learning domains are:

1. **Cognitive** – refers to what the person thinks, or his ability to recall or recognize knowledge. In this domain are the ways a person remembers knowledge, comprehends, applies, analyzes, synthesizes, and evaluates. Here the person not only recalls knowledge, but also fully develops his "intellectual abilities and skills (**Fig. 7**).
2. **Affective** – covers what he feels; the person's interest, attitudes, values, appreciation, and adjustment belong to the affective domain. Here, learners attach emotions to the knowledge or skill that they learn.
3. **Psychomotor** – encompasses "the manipulative or motor-skill area."1 This is where the knowledge is translated into actual practice or skill being applied after the learning process.

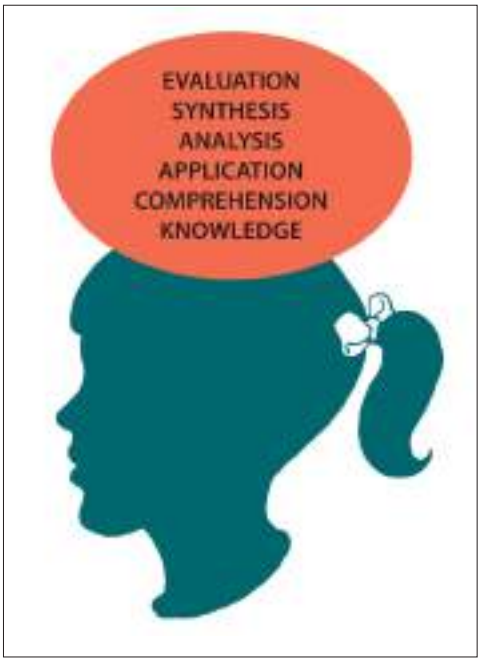


Fig. 7. Bloom's cognitive learning domain.

In integrating these three domains, the person's brain (thoughts) are connected to his/her heart (emotions and/or feelings) and to his/her hands and feet (action). The mental processes, however, play a big role from learning to application of what the person has learned. See Figure 7 for interplay of cognitive processes (what the mind goes through) during the learning process. In this figure, the highest level of the pyramid is the **evaluation** part, while the lowest is the **knowledge** part.

Cognitive Learning Domain

In 2001, Anderson and Krathwohl revised the original version of Bloom's learning domains (**Table 2**)[9] . They revised the nouns (e.g., Knowledge, Comprehension, Application, Analysis, and Evaluation) to respectively verb forms: knowing, comprehending, applying, analyzing, and evaluating (**Fig. 8**).

[8] http://www.learnnc.org/lp/pages/4719.
[9] http://thesecondprinciple.com/instructional-design/threedomainsoflearning/

Table 2. Bloom vs. Anderson/Krathwohl revisions (Wilson, L.O. 2001).

Bloom's Taxonomy 1956	Anderson/Krathwohl Taxonomy 2001
1. Knowledge: Remembering or retrieving previously learned material. Examples of verbs that relate to this function are: Know, identify, relate, list define, recall, memorize, repeat	**1. Remembering:** Recognizing or recalling knowledge from memory. Remembering is when memory is used to produce or retrieve definitions, facts, or lists, or to recite previously learned information. **Record, name, recognize, acquire**
2. Comprehension: The ability to grasp or construct meaning from material. Examples of verbs that relate to this function are: Restate, locate, report, recognize explain, express, identify, discuss describe, discuss, review, infer, illustrate, interpret, draw, represent, differentiate, conclude	**2. Understanding:** Constructing meaning from different types of functions be they written or graphic messages, or activities like interpreting, exemplifying, classifying, summarizing, inferring, comparing, or explaining.
3. Application: The ability to use learned material, or to implement material in new and concrete situations. Examples of verbs that relate to this function are: apply, relate, develop, translate, use, operate, organize, employ, restructure, interpret, demonstrate, illustrate, practice, calculate, show, exhibit, dramatize	**3. Applying:** Carrying out or using a procedure through executing, or implementing. Applying relates to or refers to situations where learned material is used through products like models, presentations, interviews or simulations.
4. Analysis: The ability to break down or distinguish the parts of material into its components so that its organizational structure may be better understood. Examples of verbs that relate to this function are: analyze, compare, probe, inquire examine, contrast, categorize differentiate, investigate, detect survey, classify, deduce, experiment, scrutinize, discover inspect, dissect, discriminate	**4. Analyzing:** Breaking materials or concepts into parts, determining how the parts relate to one another or how they interrelate, or how the parts relate to an overall structure or purpose. Mental actions included in this function are differentiating, organizing, and attributing, as well as being able to distinguish between the components or parts. When one is analyzing, he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or diagrams, or graphic representations.
5. Synthesis: The ability to put parts together to form a coherent or unique new whole. Examples of verbs that relate to this function are: compose, produce, design assemble, create, prepare, predict modify, tell, plan, invent, formulate collect, set up, generalize, document, combine, relate propose, develop, arrange construct, organize, originate, derive, write, propose	**5. Evaluating:** Making judgments based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation. In the newer taxonomy,evaluating comes before creating as it is often a necessary part of the precursory behavior before one creates something.
6. Evaluation: The ability to judge, check, and even critique the value of material for a given purpose. Examples of verbs that relate to this function are: judge, assess, compare, evaluate, conclude, measure, deduce	**6. Creating:** Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Creating requires users to put parts together in a new way, or synthesize parts into something new and different thus creating a new form or product. This process is the most difficult mental function in the new taxonomy.

Figure 8 summarizes the differences between Bloom's original version and that of Anderson's/Krathwohl's revisions.

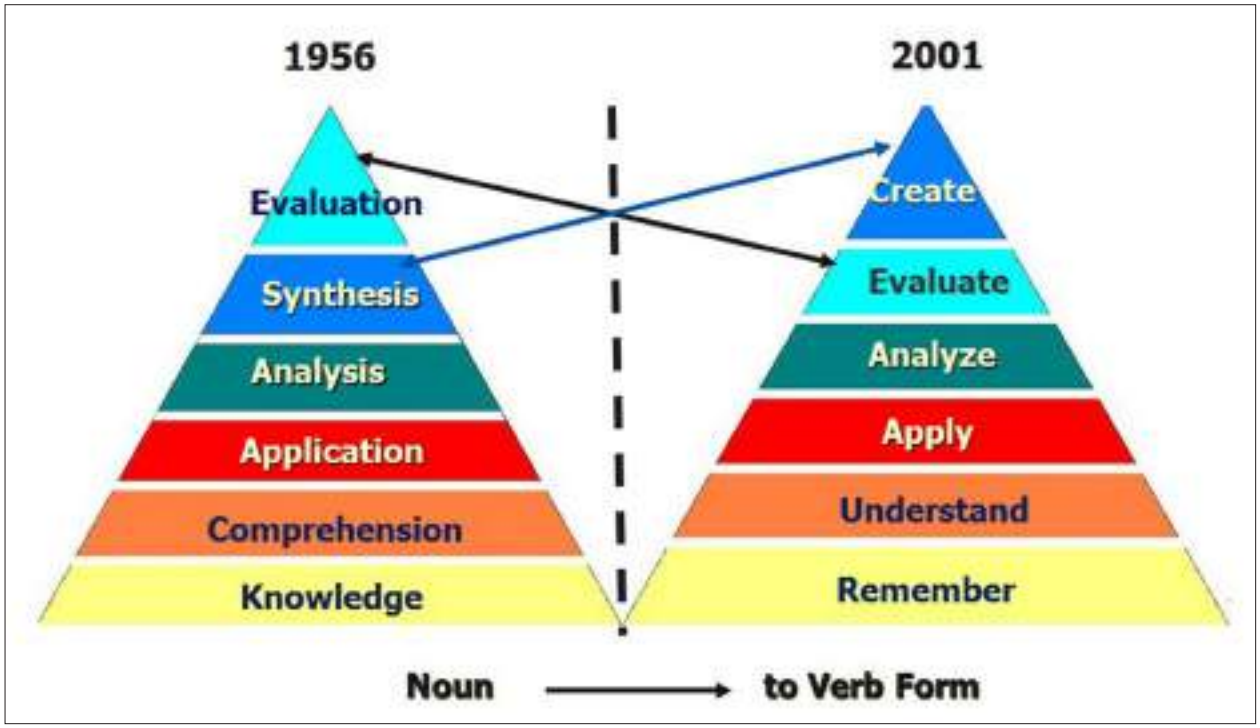


Fig. 8. Bloom's versions vs Anderson's/Krathwohl's revisions of cognitive learning.

Affective Learning Domain[10]

The domain (Krathwohl, Bloom, Masia, 1973) includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories are listed from the simplest behavior to the most complex (**Table 3**):

- **Variables on Attitude**[11] - Variables on attitude can be examined based on the folowing:

  1. Who (Communicator) says what (Message) to whom (Audience) and with what effect (Attitude Change)?
  2. Attitudes and attitude change can be measured by using self-report scales, drawings, personal interview, photographs, personal diaries and physiological expression, including personal posture, gestures, and facial expressions.

[10] http://www.nwlink.com/~donclark/hrd/Bloom/affective_domain.html

[11] Simpson, R. D., Koballa, T. R., Oliver, J. S., & Crawley, F. E. (1994). Research on the affective dimensions of science learning (p. 211-234). In D. Gabel (Ed.), Handbook of research on science teaching and learning . New York: Macmillan.http://serc.carleton.edu/NAGTWorkshops/affective/framework.html

Table 3. Five major categories of Affective Learning Domain

Category	Example and Key Words (verbs)
Receiving Phenomena: Awareness, willingness to hear, selected attention.	**Examples:** Listen to others with respect. Listen for and remember the name of newly introduced people. **Key Words:** acknowledge, asks, attentive, courteous, dutiful, follows, gives, listens, understands
Responds to Phenomena: Active participation on the part of the learners. Attend and react to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).	**Examples:** Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practice them. **Key Words:** answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, presents, tells
Valuing: The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable.	**Examples:** Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with commitment. Informs management on matters that one feels strongly about. **Key Words:** appreciates, cherishes, treasures, demonstrates, initiates, invites, joins, justifies, proposes, respect, shares
Organization: Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating an unique value system. The emphasis is on comparing, relating, and synthesizing values.	**Examples:** Recognizes the need for balance between freedom and responsible behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the organization, family, and self. **Key Words:** compares, relates, synthesizes
Internalizes Values (characterization): Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most important characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).	**Examples:** Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revises judgments and changes behavior in light of new evidence. Values people for what they are, not how they look. **Key Words:** acts, discriminates, displays, influences, modifies, performs, qualifies, questions, revises, serves, solves, verifies

- **Motivation -** Attitudes influence motivation, if the attitude towards something makes the learner becomes more motivated to strive to accomplish particular goals. Motivation is internally derived. It arouses, directs, and sustains the learner's behavior.

    1. "Adult learners usually get more motivated than others, depending on their drive for personal growth, freedom to chart their own future, desire to achieve and excel, and capacity to embrace requirements to get them to where they want to go."
    2. "Cognitive orientation to motivation emphasizes students' goals, plans, expectations, and attributions. A social orientation to motivation emphasizes students' identities and their interpersonal relationships in the communities that exist inside and outside of school."

Psychomotor Learning Domain[12]

The psychomotor domain (Simpson, 1972) includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. Thus, psychomotor skills range from manual tasks, such as digging a ditch or washing a car, to more complex tasks, such as operating a complex piece of machinery or dancing.

The seven major categories are listed from the simplest behavior to the most complex (**Table 4**):

Table 4. Seven categories of Psychomotor Learning Domain (Simpson, 1972).

Category	Example and Key Words (verbs)
Perception (awareness): The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.	**Examples:** Detects non-verbal communication cues. Estimates where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat of stove to correct temperature by smell and taste of food. Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet. **Key Words:** chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects.

[12] http://www.nwlink.com/~donclark/hrd/Bloom/psychomotor_domain.html

Table 4. continuation...

Category	Example and Key Words (verbs)
Set: Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).	**Examples:** Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations. Shows desire to learn a new process (motivation). NOTE: This subdivision of Psychomotor is closely related with the "Responding to phenomena" subdivision of the Affective domain. **Key Words:** begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.
Guided Response: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.	**Examples:** Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift. **Key Words:** copies, traces, follows, reacts, reproduces, responds
Mechanism (basic proficiency): This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.	**Examples:** Use a personal computer. Repair a leaking faucet. Drive a car. **Key Words:** assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.
Complex Overt Response (Expert): The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. For example, players often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce.	**Examples:** Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano. **Key Words:** assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches. **NOTE:** The Key Words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc.
Adaptation: Skills are well developed and the individual can modify movement patterns to fit special requirements.	**Examples:** **R**esponds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Performs a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task). **Key Words:** adapts, alters, changes, rearranges, reorganizes, revises, varies.
Origination: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.	**Examples:** Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine. **Key Words:** arranges, builds, combines, composes, constructs, creates, designs, initiates, makes, originates.

Lesson 2. Learning Goals, Objectives, and Cycle

Lesson 2.1. Learning goals

What are Learning Goals? These are what we expect our participants need to learn and apply at the end of our Program or Project. A learning goal is a broad statement of the intended general outcome of a program, a project of which training and/or other strategies are imbedded to achieve at the end of the program/project[13] .

You must have a clear goal on what you want your trainees to achieve at the end of the Training. The goal is your general map to guide you on what concepts and skills your trainees can take away at the end of the workshop.

Lesson 2.2. Learning objectives

These are clear and concise statements that describe what you (Trainer-centered) intend your students to learn by the end of the course[14] . Learning objectives describe an intended state (what you hope your students will learn).

Learning objectives explain what you plan your participants should know or be able to do as a result of the training or learning activity. Objectives should be specific. They should state specific knowledge, attitudes, or skills that a participant should be able to demonstrate.

Learning objectives are "specific statements that are nested within a goal that describes what are the means to achieve the goal, what is expected the trainees must do." Each learning goal typically contains at least 3-5 objectives.

Tip: The Learning Domain is a core concept, it is an important Map to guide you as you develop the Learning Goal and Objectives. In developing the learning objectives, start with the basic level of cognitive, and progress towards integrating the affective and psychomotor (when learners need to learn new set of skills).

[13] Areola, 1998. Cited from the Science Education Initiative, Universoty of Colorado, December 2006. Accessed from the internet, 17June 2016.

[14] http://resources.depaul.edu/teaching-commons/teaching-guides/course-design/Pages/course-objectives-learning-outcomes.aspx

Objectives should be measurable. It should be possible by observation, testing, problem-solving exercises, or some other means of evaluation to determine whether participants have achieved the anticipated learning objective.

Objectives should be achievable and realistic. Learning objectives describe expectations of knowledge, attitude, or behavior change that are realistic given the instruction conditions (e.g., training time and size of the group).

Tip: Learning Objectives can be patterned after the SMART Model:

- **S** for specific,
- **M** for measurable,
- **A** for achievable,
- **R** for relevant/realistic, and
- **T** for time-bound.

Lesson 2.3. Learning outcomes

They express a present or observed state (what your students actually learned). Both the learning objectives and the learning outcomes are distinct from learning goals which are more broadly conceived.

Learning outcomes specify what learners' new behaviors (learner-centered) will be after a learning experience. They state the knowledge, skills, and attitudes that the students will gain through your course. Learning outcomes begin with an action verb and describe something observable or measurable. They define the type and depth of learning students are expected to achieve and clearly communicate expectations to learners[15] .

When specifying learning outcomes, think about what learners will actually be able to perform (knowledge and skills) as a result of their learning. Units of learning fall into three possible categories (domains):

- thinking, knowledge (cognitive domain)
- doing, skills (psychomotor domain)
- feeling, attitudes (affective domain)

[15] http://kb.bcit.ca/files/articles/fsr/teach/courseprep/ja_learningoutcomes.pdf

Example of Learning Outcomes:

At the end of this Training, the participants will be able to:

1. Explain in their own words 5 basic principles in creating memorable powerpoint presentations,
2. Use these principles in developing their own powerpoint presentation, and
3. Apply 3 of these principles when they make a 15-minute present of their mini-training plan to the class.
4. Evaluate themselves on the strengths and weaknesses of their use the 3 principles they apply when using the powerpoint as a tool after their class presentation.

Tip: A Goal, an Objective, an Outcome serve as your Map/Destination where you want to take the learners and what specific knowledge and skills you want them to acquire at the end of the Training sessions (Fig. 9).

Our learning objectives should be constructed in such a way that we start first from lower cognitive (knowledge, comprehension) levels and gently build these up to arrive at the highest level (evaluation part) of learning.

Now that we have learned basic concepts on cognitive, affective, and psychomotor, we can use these concepts as our basis on developing our learning goals and learning objectives. See Example here (**Table 5–6**).

Fig. 9. A Goal, an Objective, an Outcome serve as your Map/Destination

Learning objectives that are measurable have the following characteristics[16]:

- it focuses on the learner and not on the instructor;
- should not be stated in terms of the subject matter that will be presented or covered during a course;
- should focus on the learning results from an activitiy and not the activity itself;
- uses the Bloom's Taxonomy in writing learning objectives.

[16]FDI, Virgina Tech, 2004. Cited from the Science Education Initiative, University of Colorado, December ww2006. Accessed from the internet, 17June 2016

Table 5. Examples of A Learning Goal and Learning Objectives

Learning Goal	Learning Objectives: Specifics to achieve goal	Write Your own Learning Outcomes (what do you hope to do after this session?)
• At the end of the session, Trainees will present to the class their own training plan on any of the topics learned during training	Trainees will be able to identify the different parts of a training plan	
	They will be able to explain how each part relate to each other	
	They will be able to create their own mini training plan by choosing the topic that they most understand during the training	
	They will be able to demonstrate a 15-minuter presentation of their Training Plan by to the class with a passing confidence level of 7 out of 10	

Table. 6. List of Verbs for Bloom's Learning Domain.

Information-Oriented		Suggested Verbs		
Knowledge: to remember, recall, or memorize terms, facts, definition, etc.	Assess by direct questions. The object ive is to test the learner's ability to recall facts, to identify and repeat the information provided.	Acquire Arrange Define Distinguish Duplicate	Identify Label Match Memorize Name	Recall Recognize Repeat Reproduce
Process-Oriented		**Suggested Verbs**		
Comprehension: knowing what a message (term, fact, concept, statement) means	Assess by having learners 1) restate material in their own words, 2) reorder or extrapolate ideas, predict or estimate. May provide evidence that the learners have some understanding of what they are saying.	Abstract Classify Convert Describe Discuss Explain	Identify Indicate Interpret Locate Recognize Restate Sort	Tell Translate Transform
Application: applying or using information in a new situation	Assess by presenting learners with a unique situation (ie. Not identical to that used during instruction) and have them apply their knowledge to solve the problem or execute proper procedure	Apply Carry out Choose Demonstrate Dramatize Explain	Generalize Illustrate Interpret Operate Plan Prepare	Repair Schedule Sequence Solve Use

Table. 6. continuation...

Information-Oriented		Suggested Verbs		
Analysis: Examining a concept and break it down into parts	Assess by presenting learners with a unique situation of the same time type used in instruction and have them analyze the situation and describe the appropriate procedure or solution to the problem	Analyze Appraise Breakdown Calculate Catalog Classify Compare Contrast Criticize	Detect Determine Diagram Differentiate Discover Discriminate Distinguish Estimate Examine	Explore Identify Investigate Observe Order Question Recognize Test
Synthesis: assembling a whole from parts to solve a problems	Assess by presenting learners with a unique situation and have them solve a problem by selecting and using appropriate information	Arrange Assemble Build Compose Construct Create	Design Formulate Integrate Manage Organize Plan	Produce Propose Specify Synthesize Systematize Theorize Write
Evaluation: making judgments based on specific criteria	Assess by presenting the learners with a situation which includes both a problem and a solution and have them justify or critique the solution	Appraise Argue Assess Check Estimate Evaluate	Judge Measure Predict Rank Rate Score	Select Support Test Value Verify

Lesson 2.4. Learning cycle[17]

4 Steps for Learning that Lasts

When you're designing any kind of learning event – a workshop, seminar, class, meeting – one of the more important components of your design is your learning tasks, those elements of the event in which the learners do something with the content they've set out to learn. For learning that lasts, use the **4-A Model** (**Fig. 10**), a foolproof tool.

To design your learning tasks, it is helpful to use the model in the order laid out above. It is also helpful to view the 4As as though each 'A' is one of four components in a single learning task; these four parts — ANCHOR, ADD, APPLY, and AWAY — complete a single learning cycle.

[17] Goetzman, D. 2012. Dialogue Education Step by Step: A Guide for Designing Exceptional Learning Events. Sep 26, 2012. http://www.globallearningpartners.com/blog/4-steps-for-learning-that-lasts; accessed June 23, 2016.

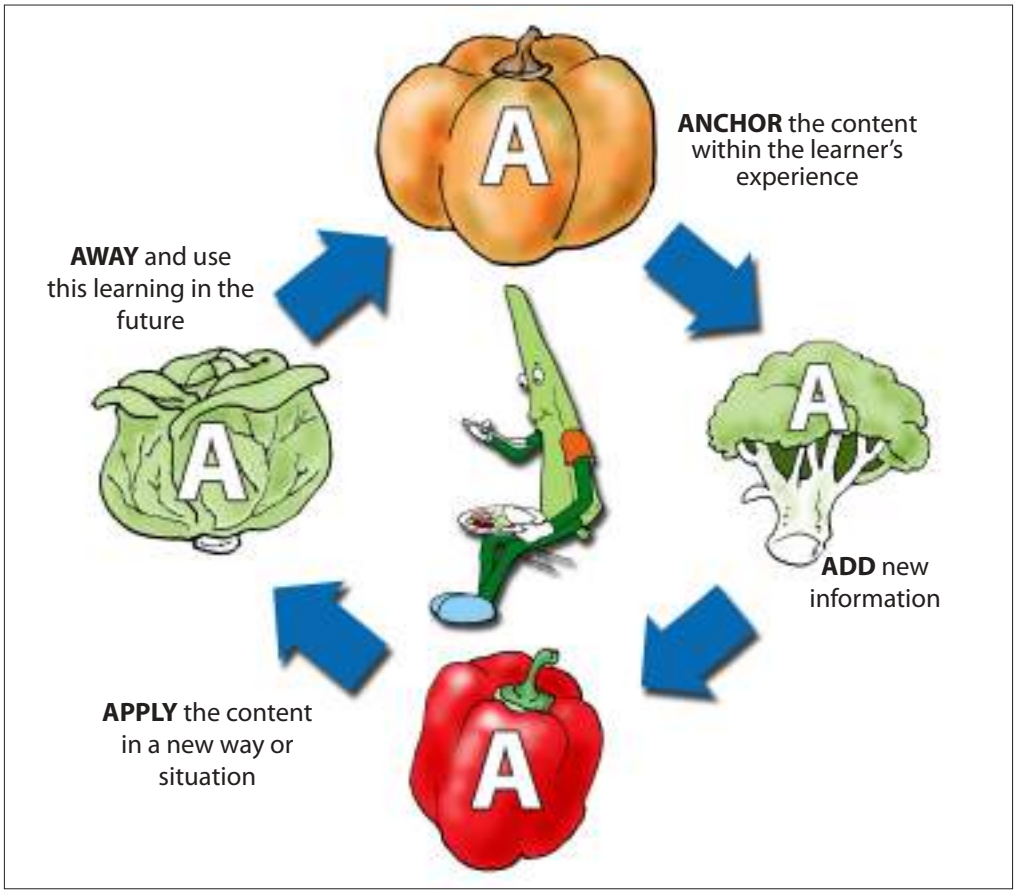
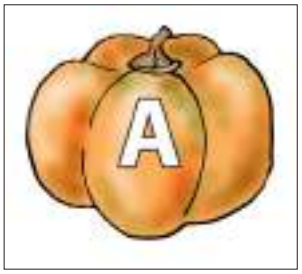
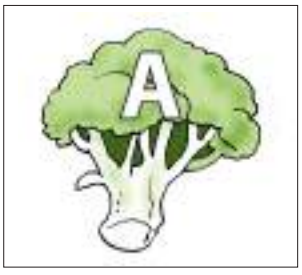


Fig. 10. The 4-A Learning Cycle.

1. **ANCHOR –** The ANCHOR part of the 4-A Model connects the topic you're teaching to the learner's experience. This component of a learning task ensures relevancy for your particular group of individuals and begins to indicate to them why this information is important to them right now. Through a well-crafted anchor question learners will be telling you and others in what way the content is relevant or connected to their experience.



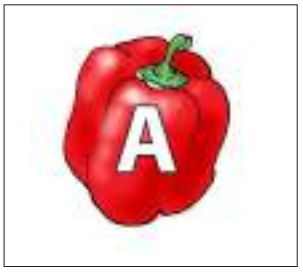
2. **ADD –** In the ADD task, the emphasis is on adding new and vital information, and on inviting learners to do something with the new material to make it their own. One way to increase attention to important dimensions of the material is to preface a presentation with an instruction, such as:



- As you watch this video clip, decide which features might be challenging and which may be easiest to implement at your site.
- As you listen to the reader, circle what you see in the text box as most important for your work.
- As you watch, decide which feature might be most useful to your clients.
- As you study the diagram, write your questions about...

This provides a clear focus for the learners, makes them an active participant in the task, and reminds them of a meaningful reason for participating in this activity. (Notice that meaningful reasons come from what the learners decide in each of the above examples.)

3. **APPLY –** Depending upon the content, the amount of time you have, and the level of proficiency that you are aiming for the learners, a variety of ways in which the learner works with the content are necessary for learning that sticks.



   In the APPLY part of the 4-A Model you will create an additional meaningful opportunity for the learner to decide and do something with the content in order to cement his or her learning. Here are three APPLY examples:

   - Create a visual graphic of your responses to the questions; we'll hear and consider these ideas.
   - At your table, share what you circled as important; together create a three-column poster, naming the important items, why you see each as important, and one way you could integrate this content into your daily schedule.
   - With your co-trainee, design a thirty-minute session that incorporates and reflects all you have learned about this topic while you're taught it.

4. **AWAY –** Research indicates that when learners make verbal and written commitments to new behaviors or practices, the likelihood that they will follow through on these commitments increases. What will help learners make their own unique decision to do something different or new later? An ideal AWAY provides learners with an opportunity to:

   - Select a new behavior or practice;
   - Commit to it; and
   - Create a reminder that will hold them accountable to their commitment.

In others words, an AWAY task sets learners up to be more successful at practicing their learning when they're back at home or at work. In reality, not every learning task has or even needs an AWAY, but every great design for a learning event has at least one! It is good practice for you to get into the habit of including an AWAY so that you are always considering what it is you hope the learner will do differently because of engaging with the content through the learning task you created.

Lesson 3. Characteristics of An Effective Trainer

Now that we have laid out some basic concepts and facts about how adults learn, and some pointers on how we create correctly learning goals and objectives, we want to apply these when we train/teach adults how to be an effective Trainer of Trainers.

By nature, adults want to identify with people who are successful and copy the things they do that make them successful. In this lesson on how to be an effective Trainer, we adapt some 10 tips from Thomas Moore, a well-known author and trainer. Here are 10 tips adapted from Thomas Moore on how to be effective in trainer of trainers[18] :

1. Empathize with the experience of a variety of individuals.
2. Learn new things.
3. Believe in your message
4. Speak with passion and confidence.
5. Do Not be afraid to admit when I am wrong.
6. Be Goal-oriented. Reasonable, Exact, Appropriate, Calculable and Honest. When you REACH for a goal you will progress further and faster.

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[18]Stephen Ibaraki, FCIPS, I.S.P. https://blogs.technet.microsoft.com/cdnitmanagers/2006/06/21/top-10-attributes-for-an-effective-trainer-top-10-keys-for-effective-training-part-12/

7. Know the material you are presenting by heart. Practice.
8. Have a purpose for your presentation. Share your expectations with your audience. Divide any presentation into segments and establish criteria for each segment that you attain with the group you are presenting.
9. Be ready with an assortment of examples and analogies. It is often helpful to draw upon your own experience even when in unrelated areas. To illustrate complex concepts you must draw comparisons to a variety of easily recognizable elements.
10. Prepare a strong finish for your delivery to be successful. You must be able to summarize, restate and clarify the entire lesson in a concise manner. Using some posing queries you must analyze the audience to ensure that they have captured the material and will be able to apply the concepts learned.

11–15. _____(your own). You may add 4 more.

You may now write your own thoughts: what characteristics, based on your own personal experience, make an effective trainer.

Many times, when you are playing the role of a Trainer, you also at the same time do the role of a Facilitator. When you become skilled both as Trainer and as Facilitator, you are on the road to success. Our next lesson brings to us adapted tips on how to be an effectve facilitator.

Lesson 4. Characteristics of An Effective Facilitator[19]

How do we become effective Facilitators? While Trainers are usually the expert in the subject matter or the content of the training messages, Facilitators have the skills that are different from those of the Trainer. Both the Facilitator and the Trainer, however, can learn from each other's skills which are handy when teaching adults. Here are 15 characteristics to cultivate for those who aspire to become excellent Facilitators[20]. You may add your own based on your experience as a Facilitator.

1. "Ask" rather than "tell."
2. Pay personal compliments.
3. Spend time in building relationships rather than being always task-oriented. Initiate conversation rather than wait for someone else to.
4. Ask for other's opinions rather than always offer your own.
5. Negotiate rather than dictate decision-making.
6. Listen without interrupting.
7. Emote but able to control your emotions when the situation requires it.
8. Be confident and look someone in the eye when you talk to them.
9. Be more enthusiastic than systematic.
10. Be more outgoing than serious.
11. Behave more like a coach than a scientist.
12. Act more like a counselor than a sergeant.
13. Be naturally curious about people, things and life in general.
14. Keep the big picture in mind while working on the nitty-gritty.
15. Be flexible and not bound by, a slave to, your natural social style.

16–20._____(your own).

You may now write your own thoughts: what characteristics, based on your own personal Experience, make an effective trainer.

So far, we have covered the fundamental topics on how adults learn, learning style, learning domains, tips on writing a goal and an objective, and tips on how to become an effective Trainer and/or Facilitator.

We shall now proceed with looking at the Training Plan development from concept to evaluation.

[19] http://www.albany.edu/cpr/gf/resources/FacilitatorCompetencies.html
[20] http://www.albany.edu/cpr/gf/resources/FacilitatorCompetencies.html

Lesson 5. A Map on Preparing a Full-blown Training Plan[21–22]

When we want to travel to a place which we have never been before and we have no idea where this place is, what do we need? We need a Map so that we can reach our final destination. In creating a full-blown training plan, we adapt the ADDIE Map or Model[23] . In this Map, there are **five** guideposts[24] , namely: (1) Assess/analyze; (2) design; (3) develop; (4) implement; and (5) evaluate.

Lesson 5.1. Assess/Analyze

Assessment is basic to the development of a Training event or plan. The trainer needs to know first who the participants are so that the content, strategy, length of training time can be designed to meet the needs of the participants. In this part, we ask the following key questions[25] :

- **Who are your learners?** What do they currently know, feel and do in relation to the theme of the training? What are their learning styles? (Attach needs assessment tools and learning style diagnostic tool)
- **What do they presently do in their roles?**
- **What are their learning gaps/needs?**[26] What gaps exist between what these providers know how to do, and what they need to know to carry out their roles successfully? A need is a gap between what is and what could or should be within a particular context, leading to strategies aimed at eliminating the gap between what is and what should or could be.

We assess the needs of the learners so we can make a demand-driven decision on which priorities to set, what core messages to develop, how much resources to allocate and what strategies to use to meet those needs.

We assess needs by asking the learners; either in a written survey or key informant interview. Focus group discussions with them prior to designing the training is a useful method of knowing what they need.

Outcome: will training help fill this gap?

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[21] https://www.msb.se/RibData/Filer/pdf/26433.pdf
[22] http://www.go2itech.org/HTML/TT06/toolkit/evaluation/forms.html
[23] http://connect.ala.org/files/45988/free_learning_handouts_pdf_99152.pdf
[24] http:// www.click4it.org/index.php/A.D.D.I.E_Model
[25] https://www.msb.se/RibData/Filer/pdf/26433.pdf
[26] Effective adult learning: a toolkit for teaching adults. www.nwcphp.org

The results of the Needs Assessment will inform the next step which is the Design step.

Lesson 5.2. Design

In this part, we plan and structure our Lessons to enable our learners achieve the learning outcomes/ goals and objectives at the end of the Training. In this part, we ask 5 key questions:

- Learning Outcomes: What will learners be able to do as a result of completing the training?
- Training Materials: What materials need to be Developed and what will the materials include?
- Trainers and Content Experts: Who will facilitate the training and act as content experts to review materials?
- Training Methods: What methods will be used so that participants meet the learning objectives and learn the content most effectively?
- Logistics: where and when will the training take place? Who will be invited and how will they be notified? Will a per diem be paid to participants?

4 Steps to Designing

1. Think of the big picture – it is better to sketch out the whole curriculum before going into the specifics.
2. What is the major aim of the training? What is it trying to achieve?
3. Write a goal or aim statement. This should be a broad, general statement, such as; participants will be able to understand the importance of training trainers alongside nutrition and vegetable home gardening and consumption.
4. Consider the overall scope of training. Specify the major topics or sections of the training by brainstorming with others and making a list. What sort of things do we want the participants to learn?

At this level the outcome statements will be quite broad referring to such areas that cover the whole subject. For example: It is anticipated that participants who successfully complete the training will be able to:

- Understand the core concepts of Adult Learning
- Integrate adult learning concepts into the design process of a Training Plan
- Discuss the key parts of a Training Plan from assessment to evaluation
- Think about how participants can demonstrate their learning – specify exactly what the participants should be able to do at the end of the Training. Brainstorm and generate a list of ideas for how participants can demonstrate what, how much (Relevance to Adult Learning Principles), and how well (Training Design Competencies Checklist[27] [28] ,) they have learned (**Tables 8 & 10**).

Table 7. Guide Questions for Creating your Training Design[29]

Principle	Ask Yoursel	Put Comments and Check (if Done)
Respect	How did you show respect to the person's previous experiences and expertise, as well as situation, learning styles and interests?	
Immediacy	How did you ensure that the design was immediate both during and after the sessions?	
Safety	How did you provide safety in all its dimensions for the learners?Consider: learning environment, language, use of themes, and issues important for this group	
Engagement	Are the learners fully engaged in the learning process? How?	
Relevance	How did you ensure that the learnings are relevant to the needs, interests, situation for this group?	
Inclusion	Does the design include everyone? Age, gender,	
Open Questions	Are open questions used to engage learners in their learning and make the learning relevant, authentic and meaningful?	

[27] Adapted from Vella, Jane. Learning to Listen, Learning to Teach: The Power of Dialogue in Educating Adults. (2nd ed). San Francisco, CA: Jossey-Bass.
[28] http://ph.search.yahoo.com/yhs/search?hspart=ddc&hsimp=yhs-ddc_bd&p=Training%20Design%20Competencies%20Checklist&type=cam-80801035__alt__ddc_dss_bd_com
[29] Adapted from "Course Design," Center for Instructional Development and Research, The University of Washington, 2004. http://depts.washington.edu/cidrweb/CourseDesign.html
[29] cited from http://www.go2itech.org/HTML/TT06/toolkit/design/strategies.html

Table 7. continuation...

Principle	Ask Yoursel	Put Comments and Check (if Done)
Warm-ups and closings	Are purposeful warm-ups and closings used everyday?	
Accountability	Do you post and/or review the achievement-based objects (objectives accomplished?) at the start of the session and review the plan for the course (objectives to be accomplished for the next day's session). Do you write and agree on guidelines for a longer workshop?	
Learning Needs & Resources Assessment	Is there a plan for an in-depth learning needs and resources assessment? Will it collect vauable information about all steps in the designing process?	
Learning Styles	Does the design meet the needs of visual, auditory, read/write, and kinesthetic learning styles?	
Learning Domains	Does the design meet the needs of cognitive (head" knowledge), affective (heart: attitudes/emotions), and psychomotor (hands: skills) to ensure wholistic teaching and learning?	
Learning Tasks	Is the design made of learning tasks (not boring lectures and pointless activities?)	
Learning Cycle	Does the design follow a 4A approach (anchor? Add, apply, Away)? If not, does the flow work?	
Evaluation	Is there a plan to evaluate learning, transfer, and impact of the learning event? Will evidence of this be collected and evaluated? Does the evaluation plan seem doable and affordable?	

Tip: After your training, you can gather feedback from the participants about the effectiveness of the training design that you used (design of learning tasks and accompanying visual aids or communication support materials).

Table 8. Checklist of Competencies. Have training designers.

1. Been in dialogue with adult students prior to the course?
2. Prepared the course or session by using a sequential planning model?
3. Negotiated the size of the group for optimal learning?
4. Set learning tasks for small groups of learners as one way of teaching the content?
5. Examined these learning tasks for sequence: easy to more difficult, simple to complex?
6. Designed a warm-up exercise related to the topic and appropriate for the group?
7. Honored in your design the fact that adult learners are in control of their own learning and lives?
8. Named content (skills, knowledge, and attitudes) clearly and precisely?
9. Designed achievement-based objectives that can be readily evaluated?
10. Selected a site that lends itself to small-group work?
11. Built in a time frame so that learning tasks can be accomplished during the allotted course or session time?
12. Planned for open questions to stimulate dialogue throughout the course or session?
13. Examined each learning task for its cognitive, psychomotor, and affective potential?
14. Designed a safe course or session?
15. Set up processes and structures (small groups, breaks, gallery walk review of charts) to assure inclusion?
16. Built in brainstorming or associative processes without judging or editing?
17. Designed for optimal engagement of everyone via small group work, learning tasks, affirming responses, and echoing?
18. Avoided monologues by designing for adequate dialogue?
19. Designed a synthesis learning task to summarize all that have been learned?
20. Planned for quiet, reflective time for learners to think about what they are learning?
21. Designed adequate closure tasks for the end of each day or session?
22. Designed an opportunity for small groups to examine their own work together and their task maintenance?
23. Planned for a wide variety of learning techniques?
24. Provided follow-up contact names and numbers and supportive materials (such as pocket guides, posters, triage trees)
25. Successfully utilized a translator if necessary?

Lesson 5.3. Develop

"If the design phase of training is like creating a blueprint for a house, the development phase is the actual hammer-and- nails construction…[30] "This is the part where writing of detailed contents are done. Based on the learning outcomes and objectives of the Training, the planner asks the following questions:

- What kind of learning domain does your outcome intend to achieve? (Knowledge? Skill? Attitude?). Identify one of your clearly stated learning objectives.
- What content needs to be developed?
- What appropriate activities need to be created? (choose an instructional method (activity, handout, team project, etc. to help learners acccomplish your stated learning objective by doing.
- What formative and summative evaluation instruments need to be developed?
- How do I choose instructional methods?

Creating Content

Developing training content involves writing materials, creating learning exercises, and working with content experts and trainers. It is the most time-consuming phase of training; draft materials may go through multiple revisions, involving several people, before they are ready for training use.

As you progress through this development phase, be sure the training materials and exercises match the learning outcomes you identified in the design phase, which are based on your needs assessment. All subsequent training phases should reflect these outcomes. **Table 9** lists the Learning Interventions that can be used as you develop the content[31].

[30] http://www.go2itech.org/HTML/TT06/toolkit/development/index.html
[31] Effective adult learning: A toolkit for teaching adults. www.nwcphp.

Table 9. Learning Interventions.

	Learning Type	Description or Explanation	Sample Applications
☐	Case Studies, Role Plays, & Small Group Discussions	Participants discover learning points by themselves. The individual assumes roles other than his/her real ones or is thrust into settings that are different from the current one	Problem-based learning, psychodramas, sociodramas, group role play, practice in handling social interactions
☐	Classroom Training, Lectures & Lecturettes	The individual acquires skills and knowledge through guidance from an instructor in a formal group setting, not in the workplace. In the case of distance learning, webinars, and webcasts, the individual may be at the work site, but the session is not usually a part of work activities	Seminars, conferences, workshops, lectures, demonstrations, internet-based classes, video and audio conferences, webinars, webcasts, certificate programs
☐	Experiential Learning	Individual or group participates in structured debriefing sessions to reflect on the experiences encountered and draws conclusions.	Practicum, structured and mentored internships, field placement with coaching, on-the-job practice and work sessions, and supervised transitional work settings following training
☐	Games, Tabletops and Simulations	The individual performs as she/he would in real life. The setting, however, is an artificial creation designed to resemble the natural environment	Physically realistic simulators, virtual reality environments, psycholgically realistic settings, in-basket exercises, structured games, virtual labs, assessment centers
☐	Projects and Writing Tasks	Participants reflect on their understanding of concepts, information, ideas and allow them to work individually or in small groups with the content	Reports, powerpoints, articles, postings, larger writing projects
☐	Self-Study	The individual acquires skills and knowledge through self-learning, guided by structured materials ranging from print to electronic systems	Directive instruction, computer-based modules, web-based virtual labs, CD-ROM/DVD learning modules, web explorations

Basic Parts of the Training Content

- Background and descriptive information
- Rationale (why The Training concept was developed)
- Target audience (who?)
- Other relevant information explaining the material and supporting its use in a different setting
- Resources supporting the content, (e.g., citations, web links, prototype materials, tools, and guidelines)
- Copyright and contact information
- Directions on how to use the Training Modules.
- Guidance on using adult learning principles
- Specific tips to improve learning
- Outcome and competency statements
- Suggestions on adapting the Module and supporting materials for a different target audience or for a different context

Course planning forms and checklists

- Materials, equipment, and facility specifications
- Unit or module or lesson overviews with key messages
- Scope and sequence guidelines, (e.g., sample course outline or agenda with timeframe)

Lesson 5.4. Implement

Let's assume that you have already identified your audience, assessed their learning needs, developed your learning objectives, determined the type of training, and developed your training materials. In implementing the Training Plan, we ask the overall question: How do I put it all together for a Training Course?

1. Prepare a course outline with the needs to be learned and time allotted. Clearly name the content (knowledge, skills, or attitudes) and learning objectives. Make sure your learning is sequenced, with easier learning first, building to complex.
2. Determine work-related professional competencies, capabilities or standards that your course will address, if applicable (e.g. Public Health Standards and Competencies, core competencies for public health professionals… national standards for state and local planning http://www.phf.org/resourcestools/pages/core_public_health_competencies.aspx;). Trainer competencies (http://www.narccw.org/trainet/trainer%20competencies.pdf)
3. Develop how learning will be evaluated. Will you include an assessment of some type? (Examples include a quiz, test, or final project).

4. Develop a trainer's manual or instruction sheet for yourself (see Module 5, p.), and a syllabus denoting what the class will cover for your students. Provide this to participants in advance if possible.
5. Include a warm-up exercise, appropriate for the group and setting.
6. Plan for open questions and ways to stimulate discussion throughout the course.
7. Make your course design flexible, providing options for assignments, to help meet different learning styles.
8. Set up activities that ensure the inclusion of all participants.
9. Provide follow-up: resources, books, contact names and numbers, websites to reinforce learning.

Lesson 5.5. Evaluate

In this part, we ask ourselves if the learners' needs have been met, and/or learning gaps have been addressed by our training intervention. As a common practice, most trainers, immediately evaluate the participants' level of learning at the end of the workshop. The "formative" evaluation is done daily to determine immediate feedback from the participants' intake of lessons and accompanying activities. Examples:

1. **Pre-test and Post-test** to determine levels of Awareness, Knowledge, and Skills of the participants about the topic being discussed. The same sets of questionnaire about knowledge and skills on the topic are given to the participants before and after the training. About 10 to 12 questions are asked to determine what the participants already know about the topic and what they don't know yet. The questions should be synched with the learning objectives. This information will help the Trainer determine which topic he/she needs to spend a longer time, and which topics to spend a shorter time as reflected in the knowledge level of the participants. These questions can also be given to the participants during the Needs Assessment step.
2. The "**Summative Evaluation**" is done at the end of the Training to get the participants' overall learning responses/feedback to the overall Training event.
3. Participant **Check-in** evaluation can be done either in the middle of the day or before the day ends just to have a feel of how participants are progressing in their learning experience. Five questions include:

    a. What have you learned so far in this training session that you didn't know before?
    b. What would you like to know more about that was addressed so far?
    c. How is the pace of the session so far? Too fast? Too slow? Just right?
    d. What did you like best about the morning (or afternoon session?)
    e. How can the trainers make the remainder of the session most effective for you?

4. Using **ORID**[32] – The strategic questions.

O **Objective questions –** The O questions identify objective facts relevant to the topic. The key question is: what do we know about this? If it is an event or occurrence that is the subject of the ORID, then the group recalls the event and distills facts from it.

The facilitator will have to be alert to pull people back from discussing what they think about the topic and their feelings about it at this stage — that comes next. All we want now are the facts. Beware of comments starting with 'I think…', 'I feel… ''It's my opinion…'. What we want are statement starting with terms like 'I saw…', 'I heard…', 'I know…', 'There is evidence for…', 'It's on the record that…'. These are documented but not analysed.

R **Reflective questions –** The R questions are about how people feel about the topic. They are about subjective perceptions. The key question is: how do we feel about this?

Feelings might be positive or apprehensive and might be emotional. The R questions allow participants to express their gut feelings although these might have no objective facts to support them. Nonetheless, they are part of a comprehensive assessment of the topic in question and should not be ignored. Fears and concerns may come to the surface during this phase.

The phase is one of identifying feelings and not of analysing them.

I **Interpretive questions –** These questions have to do with meaning. The key question of the interpretive stage is this: what does it mean for me/you/the organisation etc? Basing discussion on information derived during the objective and reflective questioning, the discussion allows the topic to be put into perspective and for the potential impacts of the topic on the individual or organisation to be explored.

Interpretive questions might include 'What if…?' questions as well as 'What would it mean… ?', 'What would that do… ?' and so on.

This is the analyitical phase.

D **Decisional questions –** Based on information coming from the three previous stages of questioning, this is the stage at which a decision is produced. The key question at the decisional stage is: What are we going to do?

The facilitator might set a scene for this critical question by recapping the findings of the previous three stages.

[32] Adapted from Grayson R., 2010. ORID - Strategic questioning that gets you to a decision. http://pacific-edge.info/2010/08/orid/

The focus of discussion in the decisional stage focuses on the future. What would be the best course of action? What would be achievable, positive outcomes? What is realistic given the limitation of our resources?

A few needs…In all four stages **(Fig. 11)**, the phrasing of the questions and statements by the facilitator are critical to the maintenance of focused discussion.

It is important to set aside sufficient, uninterrupted time for the ORID process. Rushed conversations and frequent interruptions cut off important discussion and are distracting. There is no fixed time over which to run an ORID process. It can be made comparatively short providing there is enough time to adequately cover all of the questions.

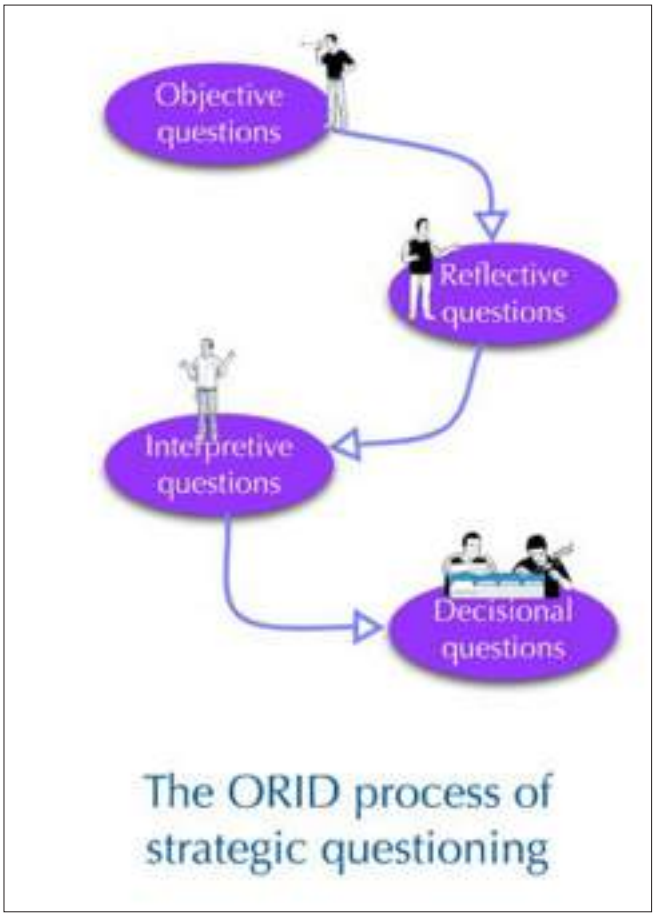


Fig. 11. ORID

Facilitators and educators planning to make use of the ORID technique are advised to practice it with people they know before launching into an important decision making process.

5. **Post-training assessment.** Done after 3 months or 6 months.
   a. What has gone well so far in this training?
   b. What have you learned that is new?
   c. What was presented that you already knew?
   d. What would you like to know more about?
   e. What can trainer(s) do differently to make the training more effective?
   f. What can you as participants do to make it more effective?

Wrapping up our discussion on the five-step Model of Creating a Training Plan, **Figure 12** shows the ADDIE in a nutshell. The ADDIE Model[33] is helpful in providing you with a complete guide in preparing your Training Plan.

[33] http://www.click4it.org/index.php/A.D.D.I.E_Model

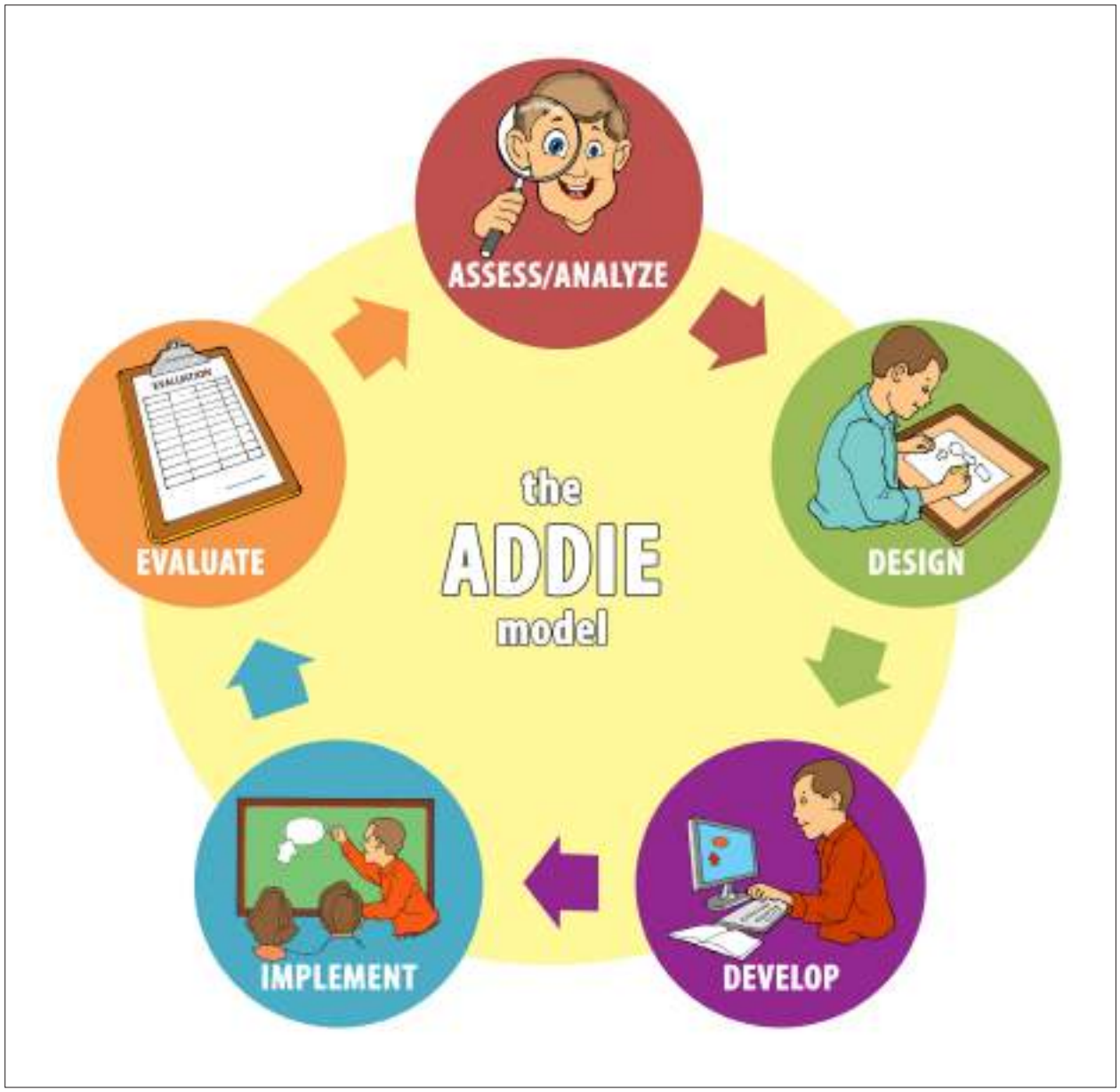


Fig. 12. The ADDIE Model

Lesson 6. Summary List of To-Dos

Lesson 6.1. Before the training

- Prepare the Training Program and Schedule
- Finalize Venue, List of Participants, Invite Letter, Final Instructions to the Participants, and Map of the Venue and How to get there
- Decide on the Menu, Resource Persons
- Send Training Needs Assessment Forms to Participants
- Prepare a Do-Things List for the Resources Needed during the Training
- Complete the Training Toolkit
- Design the Strategies and Support Communication Materials
  - Adult learners' attention span in listening to a lecturer is good only for 20 minutes[34]. After that, if you keep on talking, they get bored, and they will stop listening to you. To increase their attention span and engagement, you need to spice up your lecture sessions with activities that will involve their five senses. Be it games, quizzes, movie or video clips.
  - Stats to keep in mind. After two weeks, the learner remembers only 10% of what was read, 20% of what was heard, 30% of what was seen, 50% of what was seen and heard at the same time, 70% of what was gotten in group discussion, and 90% of what was done by the learner himself/herself.

- Develop Content of the Training
  - Learning Goals/Outcomes
  - Learning Objectives
  - Interactive Powerpoint Presentation
  - Posters and Flip Charts
  - Fact Sheets
  - Infographs
  - Training Tool Kit (Instructions for Learning Tasks)
  - Communication Collaterals
  - Branding Message

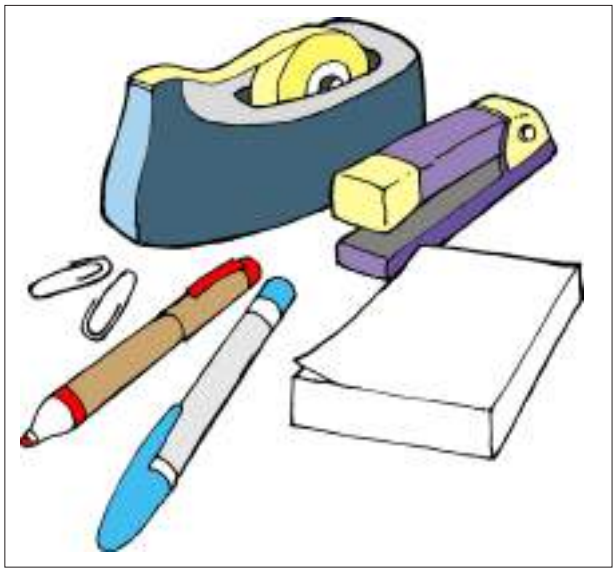
Add your own list based on your own personal experience

[34] https://www.businesstrainingworks.com/training-resources/making-lectures-active

Lesson 6.2. During the training[35]

The checklist below is adapted from Mariane Kaba's article on Tools and Tactics for Successful Youth-Led Organizing. The following are examples:

- Arrive earlier than the participants to check for the following:



  - venue arrangement to fit to the type of Training you are implementing and the number of participants
  - audiovisual equipment video equipment (if necessary), overhead projector, board, tripod or stand, or somewhere to put large sheets of paper on thewalls. An option is a flip chart by the wall where there is open access (flip-charts)[36] .
  - refreshments.
  - set up of the chairs and tables (adequate number of chairs and tables, including extras).
  - materials (large and small sheets of paper, pens, markers of different colors, scotch tape, chalk, sign-in sheet and participants' IDs, staplers, scissors, etc.).
  - registration area
  - availability of handouts

- The event outline. Includes the "script" for the event, similar to an agenda for a meeting. This includes the order of activities, the time frame for each, the people involved in leadership roles, and the supplies and equipment needed.
- Respectful Sharing During the Workshop
  - Agree to discussion ground rules before you start. Examples: No one may interrupt someone who is speaking, and people should speak for themselves ("I think…"), not generalize ("All young people think that…").
  - Clearly state the purpose(s) of your workshop. If the discussion gets off track, remind the group of the purpose.
  - Remind participants that they may be talking about their neighbors or that they may be offering an opinion on the most important event in another person's life.

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[35] http://www.rogersparkywat.org/wp-content/uploads/2010/09/Organizing-a-Successful-Workshop.pdf

[36] http://hrlibrary.umn.edu/svaw/advocacy/whrtraining/guidelines/organizing.htm

- Talk about the difference between "debate," where participants try to convince others that they're right, and "dialogue," as in your workshop, where participants try to understand each other, really listen to each other, and expand their thinking by sharing viewpoints.
- Remind participants that who we are influences how we interpret what we see – 20 people in this workshop may have 20 different views, all of which may have some truth to it.

Add your own list based on your own personal experience

Lesson 6.3. After the training

After the event includes everything that needs to be done after participants leave. The following are examples:

- Return the equipment.
- Clean the tables.
- Collect unused supplies.
- Lock the room.
- Send thank-you notes
- Take time to evaluate to evaluate it, whether formally or informally. Your approach to evaluation should be one of learning, not judgment. The purpose is not to label the event a failure or success, but to determine what was learned throughout the steps of selecting, planning, and implementing it.
  - Discuss what went well and what should be done differently in the future. The point to be made here is that there is always room for improvement. This does not mean that what was done before was bad. It means that to reach our potential, we must constantly work at challenging ourselves to be the best we can be.

Add your own list based on your own personal experience

Lesson 6.4. How to make powerful presentations[37]

The day of the training has finally come, and you are one of the trainers and you will make a presentation. Here are some pointers.

Preparing your presentation

- **Set your objectives.** In setting your objectives, you need to get back to the four leaning domains that we discussed earlier and build your lessons and the learners' take aways by using those as your guide. From the outset, your objectives will determine what knowledge and/or skills you want people to learn.
- **Analyze your material.** Organize the material you want to teach, whether knowledge or skills, by breaking it down. If you are developing a workshop on interviewing skills, you might break it down into these categories: preparation, rapport, questions, listening, taking notes and following up. Develop a few points in each category.
- **Prepare a tip sheet.** Develop a handout for the workshop, summarizing important points of the knowledge and skills you want to cover. The tip sheet will be a valuable addition to your presentation. In addition, preparing the handout will help you organize your thoughts.
- **Consider timing of the handout.** Decide whether you want to distribute the handout at the beginning of your presentation. For instance, if you have an exercise where people might be writing on the handout, they must have it early.
- **Find supporting materials.** As you draw on books, articles, Web sites and material you have heard in lectures, attribute appropriately where you are quoting or paraphrasing other sources. Consider whether you should use (with permission and credit) copies of an article as a supplemental handout.
- **Consider your audience.** The experience, knowledge and interests of your audience will shape your presentation. For instance, you would plan differently for a group of reporters covering the same beat than you would for reporters who cover a variety of beats or for a group of editors.
- **Consider the scope of your presentation.** Learn how much time you will have for your presentation. If you are doing a brief presentation, you have to cut your scope down to size. How much overview do you need to cover?
- **Prepare notes.** Make some notes to help you during the workshop. The notes won't necessarily hit the same points as the handout. You might cover some points in the handout that you won't cover in the workshop unless someone raises a question on that topic. You might have some key workshop points that aren't going to be as effective in writing. Your notes should remind you of key points to cover and examples and exercises you will use.

[37] https://stevebuttry.wordpress.com/2010/03/18/preparing-and-delivering-workshops-and-presentations/

- **Plan examples and illustrations.** Think of anecdotes, web sites, newspaper stories, photos, videos, analogies and other devices to help participants understand the points you are making.
- **Gather materials.** Make a list of what you will need to present the workshop. If you are planning a demonstration, make sure you have everything you will need. Bring along any stories you will use as illustrations and any props or costuming you might use.
- **Consider setting.** Perhaps you will have some choice in the setting of your workshop. Consider what setting would best help participants learn the skills and information you will be covering. For some workshops, a classroom or conference room setting is ideal. Or a computer lab might be better. Or a field trip. Or some other setting. Whether you choose the setting or not, learn what you can about the setting.
- **Watch the time.** You or the organizers of your program will tell the participants how long it will last. Don't run overtime or people will start walking out before your powerful conclusion.
- **Rehearse.** Practice your workshop, at least the key points, especially the opening and closing. Time your closing so you know how much time to leave. Anticipate questions you might be asked and practice your answers.
- **Prepare yourself.** Get a good night's sleep before your presentation. Be sure to take any regular medications you use, especially allergy medicines. Eat a good dinner the night before and a good breakfast that morning. If it's an afternoon presentation, make sure you eat at least a light lunch. However, avoid anything that gives you gas or otherwise bothers you.

The Day of Your Presentation

- **Drink enough water** or non-alcoholic beverages at breakfast or lunch that your throat will not feel dry, but don't drink too much. Go to the restroom before your presentation. Place a glass or bottle of water nearby to sip when your mouth gets dry.

If you're really nervous, take some slow, deep breaths before you start. Joke a little with someone before you go on, to break the tension.

- **Grab their attention.** Develop an opening that grabs the group's attention. Some things you may want to achieve in the opening:

    - **Introduce yourself.** This may not be necessary if you are training colleagues who know you or if someone introduces you to the group. However, even in those cases, you might need some personal introduction that tells why you are addressing this issue and how you know about it. Sometimes the personal introduction works as a second or third item, after an introduction tied to the topic.
    - **Introduce your material.** Early in the workshop, you may want to outline some main points and tell participants what you will be discussing. This helps focus the participants' thoughts. It also might head off questions or comments that are off-point.
    - **Tease the participants.** You might grab the attention of the crowd with a tease, introducing a point or anecdote that you won't explore fully until later in the workshop. You might be able to use the tease to introduce your material or yourself.
    - **Involve the participants.** Consider an opening that involves the participants immediately. You might ask for a brief show of hands in answer to a question. Or you might seek oral responses that list issues relating to your topic.
    - **Use some drama.** Perhaps an anecdote or a video or music clip or a brief oral reading of a passage from a story will give you a dramatic opening that can lead into or immediately follow the introductory material.

- **Work on a strong delivery**

    - **Speak clearly.** If you are not used to public speaking, practice speaking in the setting where you will make your presentation, with a trusted colleague at the back of the room. Speak with and without a microphone.
    - **Vary your voice for effect.** A monotone will invite viewers to actually nod off or to let their minds wander. A compelling, engaged voice will hold attention. Vary your volume, inflection and speed to emphasize points, change moods, build to a crescendo or create a hush.
    - **Choose powerful words.** "Use positive, firm, assertive phrases and words whenever possible. Do not seem uncertain or uncaring," advises Alan Weiss, president of Summit Consulting Group. For instance, he says, instead of uncertain phrases such as "I think we should …" or "It might be a good idea to …" use "power speaking" phrases such as "We should …" or "It is a good idea to …"
    - **Maintain eye contact.** Make eye contact briefly and repeatedly with each member of the group, unless it's too large a group. Move your field of vision around so that

no one person feels that you are singling him or her out, but everyone in the group feels as if you were addressing him personally.

- **Move about comfortably.** Unless you have to speak from a stationary microphone, movement can enhance your delivery and help keep your audience's attention. Don't pace aimlessly. Move with purpose, to answer a person's question, to shift your focus to a different part of the group, to highlight points on a flip chart.
- **Gesture with purpose.** Gestures can underscore points and help engage the audience. They also can distract from or conflict with your message. If you pick up an item for a reason (such as a marker, a prop or a bottle of water), avoid fidgeting with it. Use it for its purpose, then put it down.
- **Keep your notes handy.** Don't hold onto your notes. Find a place to put them where you can see them comfortably and refer to them easily without them becoming a distraction.
- **Be careful about coarse language.** Never use offensive language referring to racial, ethnic or gender differences or sexual orientation.
- **Repeat important points.** "Repetition can be a powerful technique to build interest because the audience is systematically reminded of a key point," Weiss advises. "It is best accomplished with a single, simple sentence that the audience can easily remember." For instance, recall the powerful repetition of Martin Luther King's "I have a dream" speech.
- **Smile.** If you are nervous, you may look grim as you make your presentation. Consciously smile a few times. Perhaps you need to put a reminder in your notes occasionally. Use some humor, so that you smile and they smile, helping everyone relax.
- **Avoid nervous mannerisms.** If you are aware of nervous mannerisms you might have, be conscious to avoid them. Ask a trusted friend if you have any nervous mannerisms you might not be aware of. Nerves frequently show when you have something in your hand. Avoid holding anything (pens, paper clips, markers, water bottle) beyond the moment that you are using it. Videotape a presentation and you will see your nervous mannerisms right away.

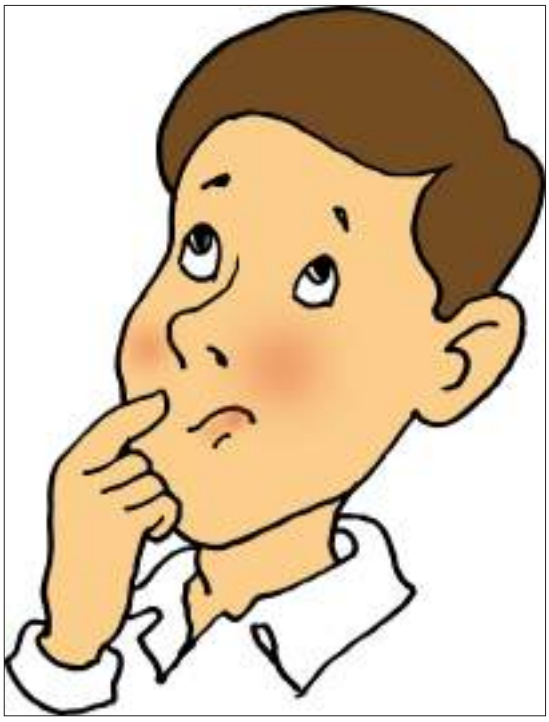
- **Reinforce points visually.** Think of ways to make your points visually as well as through your spoken words You can do this in several ways:

  - **Handouts.** As described above, develop a handout that will repeat the main points of the workshop. Your handout might also provide some supporting material beyond what you actually cover in the workshop. Depending on your material, your budget and the size of your audience, you could put handout material on a CD. Keep in mind, though, that more people will read the printed handout than will insert the CD into their computer and use the material there.

- **Flip charts, marker boards.** You can write down main points on a flip chart or marker board. When you write something down, that emphasizes it and makes participants more likely to write it down themselves.
- **PowerPoint.** You can make the same written points and more on a PowerPoint presentation. PowerPoint offers advantages: You can make all the material legible. You can prepare it in advance so you don't distract the participants by turning away from them to write. You can check your spelling. You can use graphics and illustrations. You can highlight important material effectively. You can print out your slides as ahandout and/or embed them in your blog.
- **Props, costumes.** Consider whether a prop or a piece of clothing (I use a cap in one of my presentations) might help participants remember a point. They might add a bit of humor or interest to a presentation. Or they may become a visual symbol that reminds participants of a point of your presentation.

- **Graphics, illustrations.** Consider ways that graphics and other illustrations might help participants understand material or remember points. Numbers are usually best presented graphically, especially if you are using a PowerPoint presentation.
- **Video.** A video clip might help make a point. However, keep the clip short. Music also might help you make a point. In both cases, be sure to prepare so you have the necessary equipment available, with the volume set appropriately for the room and the video or CD cued to the selection you want.

- **Involve the participants early.** Audience involvement requires more than an invitation to ask questions. Invite questions and you may get painful silence and blank stares. Actively involve people early in the workshop and the audience turns into participants.
- **Introductions can involve the participants.** Early in the presentation, you can involve the group by introductions of themselves or the material or both. With a small group, you can ask people to give their name, where they're from and one other piece of information.
- **Respond to questions.** Unsolicited questions may interrupt your flow, but they are essential participation that you must address. If the questioner raises an issue you hadn't planned to cover and aren't prepared to address in detail, you should address it at least briefly before returning to your planned presentation.



- **Use the group's experience.** Ask the participants if they have examples. Be sure to ask about techniques used, or point out the technique after the participant provides the example. You want other participants to see how the examples can help them.
- **Exercises help lessons stick.** Doing helps people learn better than hearing or reading. Develop some exercises to help people practice at least part of what you are teaching.
- **Involve the audience with each other.** You foster group discussion and group learning by having people work in groups of two or more.
- **Try role-playing.** Role playing can help participants practice various skills such as interviewing and coaching. Limit role-playing exercises to just a few minutes and tell the group when it's time to switch roles.
- **Remember rewards.** A bag of candy or some silly gifts can add to the fun and heighten participation.
- **Focus on the future.** You can heighten the value of your workshop if you focus exercises on the immediate future.
- **Leave them thinking.** You want a strong closing that emphasizes your main point or points. Don't let your presentation peter out with a simple "That's all, folks!"
- **Summarize.** If you don't have a clever or creative way to end your workshop, a summary is effective. Review your main points briefly, reminding participants of possible applications. If you choose another method to wrap up the program, it's wise to lead into the conclusion with a summary.
- **Thank the participants.** However you close, thank the group for their attention and participation.
- **Follow up.** Try to help your participants take their new knowledge or skills back to the job. You can continue the learning of the workshop by a variety of techniques:

    - **Invite feedback.** Give participants your phone number and e-mail address, so they can consult with you as they try to apply their lessons.
    - **Send reminders.** Gather e-mail addresses of participants who want follow-up communication (you can just pass a legal pad around the room). Send out a few follow-up messages, reminding them of points in the workshop and asking them how they are applying their news skills.
    - **Refer to resources.** On your handout and/or in your discussion, recommend Web sites, books, articles and other resources that might help participants continue their learning on the subject.

Lesson 7. Maximum Action Plan

Next Steps/Take Away: Writing your Maximum Action Plan

Specific Areas to Improve yourself as a Trainer	Details of Specific Actions to do	Identify Mentor/ Coach or Somebody who can help you	Target Dates
Example: writing the learning goals, objectives and outcomes	Practice writing training goal, objective and outcome	Supervisor Officemate	

[38] http://www.intrahealth.org/tol/actionplan.html

Module 2

Nutrition, Healthy Diet, Healthy Body[1]

[1]The contents of Module 2 mostly come from two sources:

1. *Healthy Harvest, a Training Manual for community workers in good nutrition, and the growing, preparing and processing of healthy food.* Healthy Harvest is published by the Food and Nutrition Council of Zimbabwe, the Food and Agricuture Organization (FAO), and the United Nations Children's Fund (UNICEF) with funding from the Humanitarian Aid Department of th European Commission (ECHO) and the United States Agency for International Development OFfice of Foreign Disaster Assitance (USAID OFDA).

2. *Vegetables and Nutrition in Bangladesh.* This booklet is published by the World Vegetable Center for a joint project with the International Potato Center (CIP) titled, *Improving incomes, nutrition, and health in Bangladesh through potato, sweet potato and vegetables*. Funding was provided by the United States Agency for Internatinal Development (Usaid).

Module 2: Nutrition, Healthy Diet, Healthy Body

The overall Learning Goal for Module 2 is to equip extension workers with knowledge and skills on the importance of Healthy Diet towards achieving Healthy Bodies.

Introduction

As fuel makes a plane fly, have you ever thought about what makes our body function well?

This Module 2 contains lessons that will make the connection between a healthy diet and a healthy body.

If you have the passion to Train Trainers on Healthy Diet and Healthy Body, and the dedication to create awareness on how to have a healthy body through healthy eating behavior, this Module is for you. Module 2 explores the basic principles of good nutrition and how it links to enabling people to live healthy and productive lives.

The Learning Goal for this Module is for you to understand the connection between good nutrition and a healthy body, and with this understanding, move you to share what you learn here to others who would also be willing to disciple others about how good nutrition fuels you to live healthy and productive lives.

By the end of this training module you will be able to:

- Define good nutrition vs. malnutrition
- Understand the connection between nutrition(Principles) and health
- Recognise the basic symptoms of malnutrition
- Explain the main causes of malnutrition and develop some ways to address these causes.
- Identify and describe the different food groups, their basic functions and what they comprise; and
- Describe the proportions of food that need to be consumed during the day by different age groups;

Module 2 contains 5 lessons, each with an accompanying set of instructions for learning tasks and visual aids that can be found in Module 5.

- **Lesson 1** defines nutrition, malnutrition and related terms. It discusses the basic principles of nutrition, how the body uses food, and what happens when the body is

either malnourished or overnourished. It gives a brief context on why there is so much malnutrition worldwide.

- **Lesson 2** looks at healthy and balanced diet for family and members of different ages. It discusses what healthy eating will do for you, sketches background information on the food pyramid, healthy eating plate, importance of vegetables in the diet and related topics.
- **Lesson 3** details the special diets and nutritional requirements for breastfeeding mothers, infants, children, adults, the elderly and the sick.
- **Lesson 4** suggests ways of preparing healthy ingredients and takes you to some healthy recipes that are affordable and easy to prepare. It explains how families can eat healthy meals that do not take too much time or money to prepare.
- **Lesson 5** describes the WASH Principles as an important feature of this Healthy Diet, Healthy Body Training Manual. Here, you will be briefed about why you need to integrate the basic WASH concepts and practices into the community's nutrition programme.

Lesson 1. Basic Principles of Nutrition

Objectives

At the end of this Lesson, you will be able to:

1. Define in your own words what these terms mean: nutrition, malnutrition, undernutrition, overnutrition (double burden)
2. Compare and contrast good nutrition from malnutrition, undernutrition, and overnutrition
3. Discuss the reasons behind the malnutrition problem
4. List the different kinds of food our bodies need to function properly and discuss the effects of malnutrition, undernutrition, and overnutrition.
5. Make a list of the 5 food groups, and write at least 3 foods belonging to each food group.
6. Outline how a human body uses the different food groups
7. In the context of the community setting where you live (income and level of education, etc.) recommend a framework and a set of actions on which the basic nutrition principles discussed in this Module will be put to use by the local government office and adopted by the households to improve their diets and health.

Lesson 1.1. Overview and definitions

What we eat is what we are. In many ways, this is an adage that spells out a lot of truth. The food we eat in relation to what our body needs to make it functionally healthy is what nutrition means.

Nutrition

"Nutrition is the intake of food considered in relation to the body's dietary needs." Good nutrition means an adequate, well-balanced diet combined with regular physical activity; this in essence is the cornerstone of good health (WHO, undated)[2].

When does malnutrition occur? We are malnourished when we eat very little, or eat foods that are either too sugary or too fatty, and our body is deprived of the right kind and amount of nutrients.

[2] http://www.who.int/topics/nutrition/en

Likewise, we become malnourished when we cannot fully use the food we eat because we are sick. But even if we get enough food to eat, we also become malnourished if the food we eat does not provide the proper amounts of micronutrients, vitamins and minerals, to meet daily nutritional requirements[3].

Double Burden

Malnutrition, however, does not only mean that we are undernourished, it also means overnutrition or overnourished when we eat foods containing too much calories[4] .

As poorer countries move into the upper ladder of development, and as populations gain higher incomes through more job opportunities, household diets also evolve from cereal-based, low protein and low-fat diets to high energy diets. Paired with physical inactivity, more people are becoming overweight and develop diseases related to a high-fat diet, such as cardiovascular diseases, diabetes and obesity. Yet malnutrition remains a major issue for more than half of the population. Thus, nutritional issues from both undernutrition and overnutrition exist at the same time[5].

Globally, micronutrient deficiencies or "hidden hunger" affect around 2 billion people throughout the world; an estimated 161 Million are stunted because of chronic malnutrition. On the other side of the scale, obesity affects around half a billion adults. The consequences of malnutrition range from increased risk of death, increased prevalence of diet-related non-communicable diseases and serious chronic health condition (**Fig. 1, 2**)[6].

Connections between healthy diet and good health

Do you know that 80% of all deaths worldwide are caused by four non-communicable diseases (NCDs) – cancers, cardiovascular diseases, respiratory diseases and diabetes?

And do you also know that a third of these deaths can be prevented by eating a heathy diet, maintaining a normal weight, and taking a regular physical activity (**Fig. 3**)[7]?

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[3] https://www.wfp.org/hunger/malnutrition
[4] http://www.unicef.org/progressforchildren/2006n4/malnutritiondefinition.html
[5] Luoh JVV, Ahmad S. Ahmed, R. Nurujjman M., Hanson R. Yang R.Y. 2014. Vegetables and Nutrition in Bangladesh. AVRDC – The World Vegetable Center. AVRDC Publication. Number 14-783. 80p.
[6] Food and agriculture Organization of the United Nations (2014) http://www.fao.org/assets/infographics/FAO-Infographic-Nutrition-en.pdf
[7] Food and agriculture Organization of the United Nations (2014) http://www.fao.org/assets/infographics/FAO-Infographic-Nutrition-en.pdf

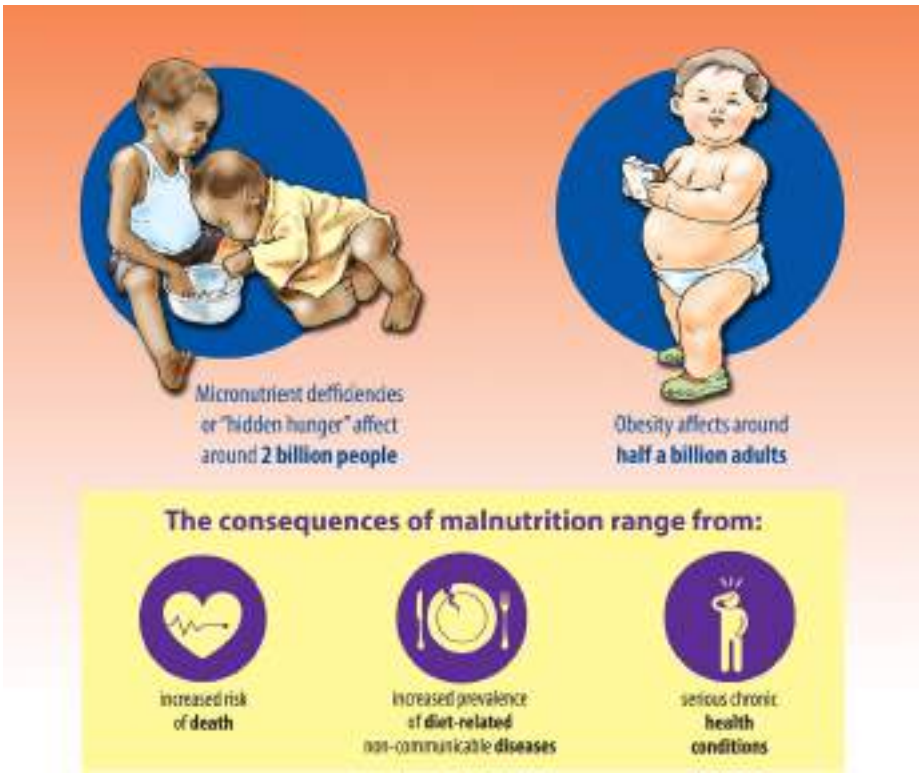


Fig. 1. The Consequences of Malnutrition

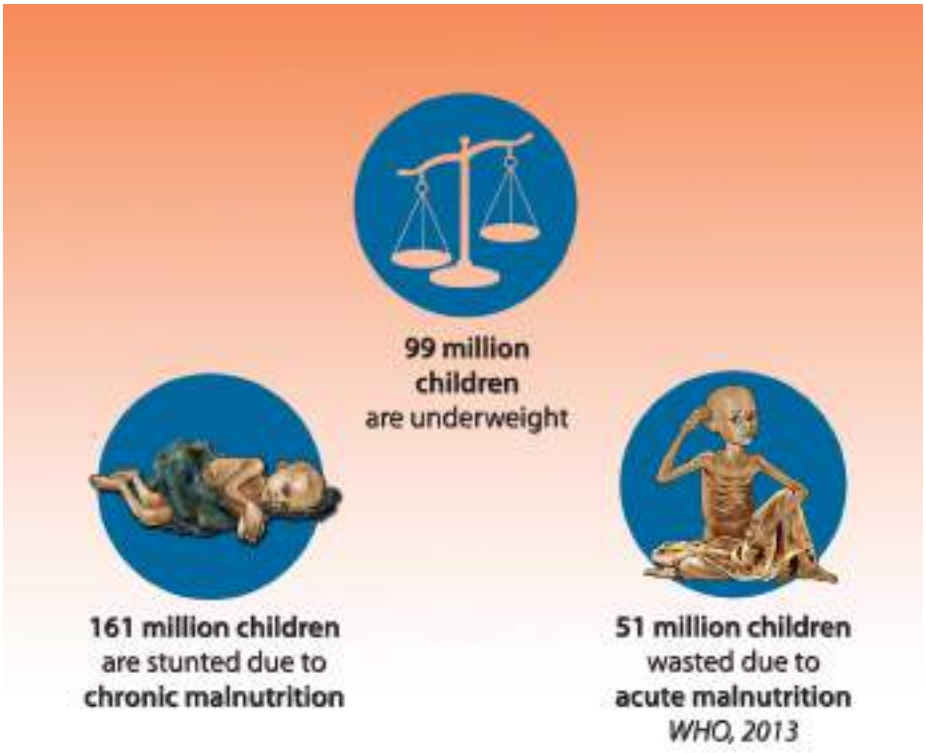


Fig. 2. Children are the most affected by malnutrition.

Creating awareness about these things is the first step towards reduction of deaths caused by NCDs [8]. The next steps will include a behavioral change on healthy eating lifestyle by educating communities on good nutrition and healthy diets.

Why Malnutrition?

Why do people living in towns and cities eat an unhealthy diet and become malnourished?

Nutritious foods such as meat, milk, dairy products and fruit cost a lot of money. Eating more carbohydrates than healthy ingredients may be cheaper, but this puts the family's health at risk. In the long run the family may end up spending more money on medicines because family members get sick more often.

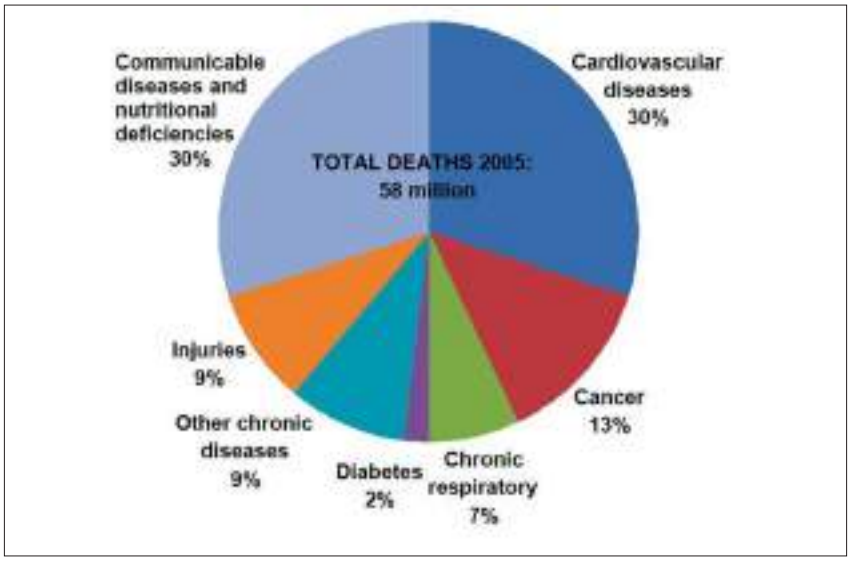


Fig. 3. Projected main causes of all deaths worldwide for all ages, 2005 (modified from WHO 2005)

Malnutrition is caused by many factors. The most striking, and perhaps, the root of malnutrition stems from poverty. For example, statistics shows that children born into poverty are almost twice as likely to die before the age of five as those from wealthier families[9].

Other contributing factors include the political and economic situation(high food prices and food distribution), the level of education and sanitation, the season and climate conditions, food production (food shortages mainly caused by a lack of technology needed for higher yields found in modern agriculture), cultural and religious food customs, breast-feeding habits (in some parts of the world mothers still believe that bottle feeding is better for the child), prevalence of infectious diseases, the existence and effectiveness of nutrition programs and the availability and quality of health services [10-11].

[8] http://www.wcrf.org/int/link-between-lifestyle-cancer-risk
[9] http://www.un.org/sustainabledevelopment/health/
[10] Muller, O. and M. Krawinkel. 2005. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1180662/
[11] http://www.medicalnewstoday.com/articles/179316.php?page=2

Malnutrition in the Family and Community

When we are hungry our bodies tell us that we need to eat, but they do not tell us what we need to eat. Malnutrition results from not getting enough food or not getting the right type of nutrients from our food.

Groups at Risk. Children, pregnant and breastfeeding mothers and people with HIV and AIDS are the people most vulnerable to malnutrition. Malnutrition is one of the major causes of child mortality. Because of poor nutrition during pregnancy, over 10% of babies in sub-Saharan Africa have a low birth weight (under 2.5 kg).

Consequences of Malnutrition

Many illnesses, including diarrhoea, measles, TB, and HIV/AIDS, can make the effects of malnutrition worse and vice versa. They stop the body from absorbing important nutrients and they also increase the body's needs for more nutrients in the diet.

People who are malnourished are more susceptible to diseases and infections. This is called the malnutrition – infection cycle. People who are ill need special diets. The main dietary causes of malnutrition are lack of protein, carbohydrate and fruit and vegetable containing vitamin A, iron and iodine. Lack of protein, energy foods is called Protein-Energy Malnutrition (PEM).

Symptoms of Malnutrition

Stunted growth. If a pregnant woman eats a healthy diet, her baby is more likely to have a good birth weight. If the mother has a good diet while she is breastfeeding for at least the first six months, she will improve the baby's chances of growing and developing properly

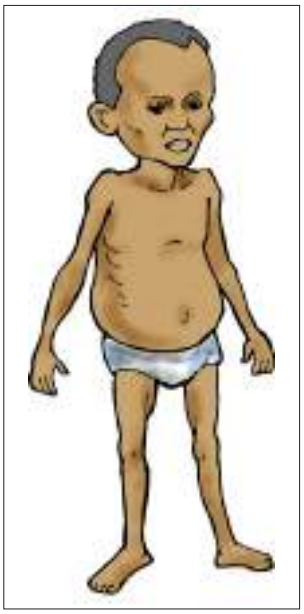
If the mother and baby do not get proper nutrition at these important stage the baby could suffer from low birth weight, poor growth and high risk from disease and illness.

Mothers must monitor their babies' growth from birth by taking them to the local clinic as often as the clinic recommends until they are over four years old. They must be weighed and have their growth plotted on a growth chart. This helps families and health workers to make sure that the baby is growing properly. Children should be given three healthy balanced meals a day with snacks in between.

PEM can have the following symptoms:

- *Marasmus* **-** When children do not get enough energy-giving food their bodies become thin and they feel weak. Children with marasmus look old and wrinkled. Their skin is dry

and their faces are thin with sunken cheeks and large eyes. Their abdomen looks swollen. Childen with marasmus often cry a lot and are liale to infections.



- *Kwashiorkor* - When children do not get enough of the right kind of food, for example, when they eat only meal porridge, their bodies (especially their stomoachs and legs) swell so that they look fat. Sores develop on their skin and it starts to peel off. Their skin becomes pale and they get sores at the corner of their mouths. Sometimes this weakness and other symptoms can affect their behaviour.

  Kwashiorkor children are very irritable. They cry a lot and do not want to eat. They often get diarrhoea. Marasmus and kwashiorkor can be combined. These conditions need to be treated medically and with a well-balanced, high-energy diet. A child suffering from these conditions need to be referred immediately to a health clinic.

Vitamin A deficiency. Vitamin A deficiency can occur when people do not eat enough foods containing vitamin A or fat. Vitamin A deficiency can cause night blindness and permanent damage to the eyes, blindness and even death. People at risk from vitamin A deficiency are mostly pregnant and breastfeeding mothers and children.

Breastfeeding mothers should eat food that is rich in vitamin A to ensure that their babies get a good supply. Families must also make sure that they get an adequate source of fat and oil. Good sources of these that can be grown at home include sunflower oil, nuts and seeds (groundnuts, roundnuts, sunflower seeds, pumpkin seeds), peanut butter and avocado.

Iodine deficiency. For communities that are from from the sea, they suffer from lack of iodine in their diet. Iodine is found in fishes that live in the sea. Iodine deficiency can cause growth problems in children and problems with brain development. Thus there is a need for these communities to use iodised salt.

Iron deficiency. When people do not get enough iron in their diet, their blood becomes weak and cannot carry enough oxygen around the body. Iron deficiency is also called anaemia.

Anaemia affects women and children in particular, as well as adolescents and the elderly. It makes people feel weak and slows down learning in children. Anaemia increases the risk of problems for mother and baby during and after delivery. Signs of anaemia include a pale tongue and inside of the lips, tiredness and breathlessness. Everyone should eat plenty of dark

green leafy vegetables, offal (liver, kidney, heart), red meat, chicken and fish, legumes and cereals to treat and avoid anaemia.

Intestinal worms. Infections with worms, especially roundworm and hookworm, can cause poor appetite, poor digestion and absorption of nutrients. This may result in PEM, anaemia, Vitamin A deficiency and other malnutrition problems. Children should be treated with deworming drugs every few months.

Where are the Most Undernourished?

An estimated 276 Million of the most undernourished people are found in Southern Asia (**Figure 4. FAO**)

Fig. 4. Southern Asia tops the list of where the most undernourished people are found.

Lesson 1.2. How our body uses food

Food contains nutrients – substances which the body uses for growing and functioning. Food gives us energy to move, think and work. Food also contains important substances which keep our bodies strong and healthy, help to boost our immune system and protect us from infections.

When we eat, our bodies absorb useful nutrients into the blood where they are transported to areas where they are needed. These include the bones, the muscles, the brain and the organs. The waste material is removed from the body when we go to the toilet.

There are four groups of nutrients that nourish our body:

- **Carbohydrates -** These include starch and sugar. These foods give our bodies energy to move, work and think. They keep us warm. We get most carbohydrates from grain crops such as wheat, maize, sorgum, millet and rice and root crops such as potatoes, sweet potatoes and cassava.

  Carbohydrate that is not used immediately by our bodies is stored as fat. Too much stored fat can be unhealthy for the body.

  Eating large amounts of refined carbohydrate such as refined maize meal, white bread, white rice is not healthy since most of the important fibre, protein, minerals and vitamins these foods naturally contain are gone. It is much better to eat unrefined staple foods with every meal as a cheap, healthy source of energy and fibre, as well as some protein, vitamins and minerals.

  Unfortunately, the refining process removes most of the important fibre, protein, minerals and vitamis these foods naturally contain. It is much better to eat unrefined staple foods with every meal as a cheap, healthy source of energy and fibre, as well as some protein, vitamins and minerals.

- **Fat -** Fats can come from animal products such as milk (butter) meat and fish or processed plant products such as seeds and nuts (sunflower oil and peanut butter). They provide the body with energy.

- **Proteins -** These help our bodies grow, maintain and repair themselves. Also called body-building foods, they come from plants (beans and other legumes), processed plant products (peanut butter and soya mince), processed animal products (cheese, sour milk and yoghurt) and animals (eggs, meat, milk).

- **Vitamins and minerals -** Vitamins and minerals are also called micronutrients. Our bodies need small amounts of these substances to help different parts such as the blood, eyes,

bones, skin and hair work properly. Many of these substances help to strengthen the body's immune system and keep us strong and healthy so that we resist infection. We get most vitamins and minerals from eating fresh fruit and vegetables.
Some vitamins (A, D, E and K) are fat- soluble, so the body needs fat in order to absorb them. Vitamin A is an important immune system booster. Most of the B and C vitamins cannot be stored by the body because they are water-soluble, so we need to eat foods that contain these vitamins every day.

Fibre

Apart from nutrients in food our body also needs other substances. Among these is fibre, also called roughage. Fresh fruit, vegetables and unrefined grains and legumes contain fibre. It is important for helping our bodies to digest food and remove waste. It is important to eat fibre with plenty of water.

Energy from food

Remember that foods contain a mixture of different nutrients. Our bodies can get energy from carbohydrates, fats and proteins. For example, milk is a source of protein, fat, calcium and several vitamins. Millet is rich in energy, protein, vitamins and minerals.

Water

Our bodies contain more water than any other substance. All chemical processes and body functions use water. We need to drink at least eight glasses of fresh, clean water every day to stay healthy.

Lesson 1.3. Summary definitions of nutrition and related terms[12]

- Malnutrition refers to all forms of nutrition disorders caused by a complex array of factors, including dietary inadequacy (deficiencies, excesses or imbalances in macronutrients or micronutrients), and includes both undernutrition and overnutrition and diet-related noncommunicable diseases.

- Undernutrition occurs when the body's requirements for nutrients are unmet as a result of underconsumption or impaired absorption and use of nutrients. Undernutrition commonly refers to a deficit in energy intake from macronutrients (fats, carbohydrates and proteins) and/or to deficiencies in specific micronutrients (vitamins and minerals). It can be either acute or chronic (WHO, 2013b).

- Indicators of nutritional status:

  Anthropometric indicators (height and/or weight for a given age and sex) are commonly used to measure child growth and nutritional status. Indicators of undernutrition include stunting, wasting and underweight:

  - Stunting (low height-for-age) is an indicator of chronic undernutrition and often reflects general poor health and more distal economic and social factors.
  - Wasting (low weight-for-height) is an indicator of acute undernutrition and is associated with increased mortality.
  - Underweight (low weight-for-age) reflects both chronic and acute undernutrition.

Other indicators of nutritional status are deficiencies in micronutrients (e.g. iron, vitamin A, zinc, iodine), which are measured through biomarkers, requiring blood and/or urine samples. Finally, measuring dietary intake over time provides a direct measure of nutrient intake and complementary information to the outcome indicators.

12 footnote

Lesson 2. Healthy and Balanced Diet

At the end of this lesson, you will be able to:

1. Recall the basic 5 food groups in the Food Pyramid that make up a balanced diet/ healthy food for the family,
2. Identify the types of vegetables available in the community as major ingredient to a healthy diet,
3. Discuss the importance of eating vegetables in relation to the phytonutrients they contain and their impact to a healthy body, and
4. Make a banner/poster for your community about what Healthy Eating can do for you and present the poster in a regular community meeting or event.

Lesson 2.1. Food and the family

Our bodies need many different types of nutrients: proteins, carbohydrates, fats, vitamins and minerals. Fortunately these important nutrients are found in different quantities in the plants we grow, the ingredients we prepare and the dishes we make. The way we grow, harvest and prepare foods also affects the amount of nutrients that we get from the food we eat.

Lesson 2.2. Healthy and balanced diet

The amount we eat depends on our age, sex and time of life. A healthy meal should contain no more than 50% carbohydrates (rice, potatoes, bread), 15% protein (beans, meat, eggs), and the rest vitamins and minerals – vegetables and fruits. People need to eat at least five different types of fruit and vegetables everyday. Each person needs at least eight glasses of water.

Eating a healthy and balanced diet can provide the body with necessary nutrients to maintain body functions and stay strong and healthy. Without good nutrition, people easily become sick and suffer from diseases, infections, fatigue, and poor/slow performance while working. A poor diet can impede growth and development in children. The majority of nutritional problems can be solved by eating enough healthy foods.

We need at least 12 different vitamins and seven different minerals to stay healthy. We find these in different foods. If meat is unavailable we can get protein from plant sources such as beans. Because plant proteins lack some important nutrients we must eat a range of carbohydrates including sorghum, millet, wheat and rice, rather than just maize.

Lesson 2.3. Food pyramid

A balanced diet means eating from the different food groups. The food groups in the Food Pyramid are: rice, bread & other cereals; vegetables; fruits; fish, meat and eggs; pulses (and nuts); and milk & milk products.

- **Rice, Bread & Cereals.** Cereals and grains are staple foods that are the main source of complex carbohydrates needed by the body to produce energy. However, many people consume more carbohydrates than their bodies require. Extra carbohydrate can be stored as fat in the body and can cause unnecessary weight gain **(Table 1)**.

  Nowadays, cereals are mostly refined, such as white rice or wheat flour. The process of refining and bleachign cereals can cause them to lose valuable nutrients found in the outer layers of the grain. When choosing staple foods, wholegrain cereals are the most nutritious.

- **Vegetables.** Vegetables are the main sources of essential vitamins and minerals. Every vegetable provides different kinds of nutrients; therefore it is important to eat a variety of vegetables in different colors and shapes everyday. Eating vegetables can help prevent many diseases caused by vitamin and mineral dificiencies.

  Vegetables are low in calories and good for health. There is no limit in the amount of vegetables a person can eat each day.

- **Fruits.** Fruts are especially rich in vitamins, but high in sugar. They make nutritious and tasty snacks. For the most nutritional benefit, choose fresh fruits that are in season.

- **Fish, Meat & Eggs.** Fish, meat and eggs are animal sources of protein, which are essential for the proper development of the muscle and brain.

  Meat can be separated into red meat and white meat. Red meat includes beef, veal, lamb, goat, mutton and buffalo. These are especially high in fat, but are also good sources of iron, important for producing red blood cells in the body. White meat includes fish, seafoods and poultry.

Table 1. The carbohydrate nutrition needs of different people.

Daily food requirements	Maize flour	Beans	Greens	Cooking oil
Family member	cups	cups	(teaspoonful)	(teaspoonful)
Child 2–3 years	1	½	16	6
Child 5–6 years	1¼	¾	20	6
Child 10–12 years	1½	1	20	6
Child 14–16 years	2	1¼	24	6
Woman (childbearing age)	2½	¾	20	8
Woman (pregnant)	2½	¾	22	8
Woman (breastfeeding)	2½	1	32	8
Elderly people	2	¾	22	8
Man (10–60)	3½	1½	22	8

- **Pulses.** Pulses are plant sources of protein and have lower fat and oil content than meat. They can provide plenty of good nutrients and are a good alternative to meat.

- **Milk & Milk Products.** Milk and milk products are especially good sources of calcium, Vitamin D, and other essential nutrients. These are important for maintaining strong bones. Often, they are also high in fat; therefore, it is best to choose low-fat or fat-free cheese, milk and yogurt.

Sugar, Fats & Oils

Natural sugars can be found in fruit and milk. Table sugars and syrups are sources of added sugar. Foods with added sugar such as soft drinks, desserts, ice cream, or sweetened milk should be eaten sparingly, as they have low nutrient contributions and can cause extra weight gain and high blood sugar levels.

Oils should also be used sparingly. Low-fat foods and good oils, such as olive oil and other vegetable oils, are healthier options to fats from red meat, butter or lard. Avoid foods that have been deep-fried in oil because they contain a large number of empty calories.

Foods to Avoid

To maintain a balanced diet and a healthy weight, these foods should be avoided:

- alcohol
- high cholesterol foods (such as red meat and products from animal/dairy foods)

- refined grains
- solid and saturated fats
- added salt
- added sugar

Lesson 2.4. Healthy eating plate

Food guides are dietary guidelines that provide the general public with information on how to eat a balanced diet and keep a healthy lifestyle. The guides outline the amount and types of foods that a person should eat everday.

The healthy eating pyramid indicates that food groups on the bottom should be eaten in larger quantities and those at the higher, smaller top should be eaten sparingly.

Consumers can think of the Healthy Eating Pyramid as a grocery list[13]: Vegetables, fruits, whole grains, healthy oils, and healthy proteins like nuts, beans, fish and chicken should make it into the shopping cart every week, along with a little yogurt or milk if desired.

The Healthy Eating Pyramid also addresses other aspects of a healthy lifestyle—exercise, weight control, vitamin D, and multivitamin supplements, and moderation in alcohol for people who drink—so it's a useful tool for health professionals and health educators.

The Healthy Eating Plate (**Fig. 5**) and the companion Healthy Eating Pyramid summarize the best dietary information available today. They aren't set in stone, though, because nutrition researchers will undoubtedly turn up new information in the years ahead. Actual food groups in a healthy eating plate and recommended portions per day (**Fig. 6–7**).

Lessson 2.5. Vegetables in the diet

Vegetables are an important part of a healthy diet and provide numerous health benefits. They are especially rich in fiber, vitamins, minerals and other health-promoting plant compounds called phytochemicals. Eating a variety of vegetables can supply a good mix of essential nutrients the body needs each day.

As vegetables are naturally low in fat and calories, they are good foods for managing healthy weight. Moreover, plant foods contain plant sterols (phytosterols) rather than cholesterol, reducing the risk of heart disease from overconsumption of cholesterol.

[13] https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/

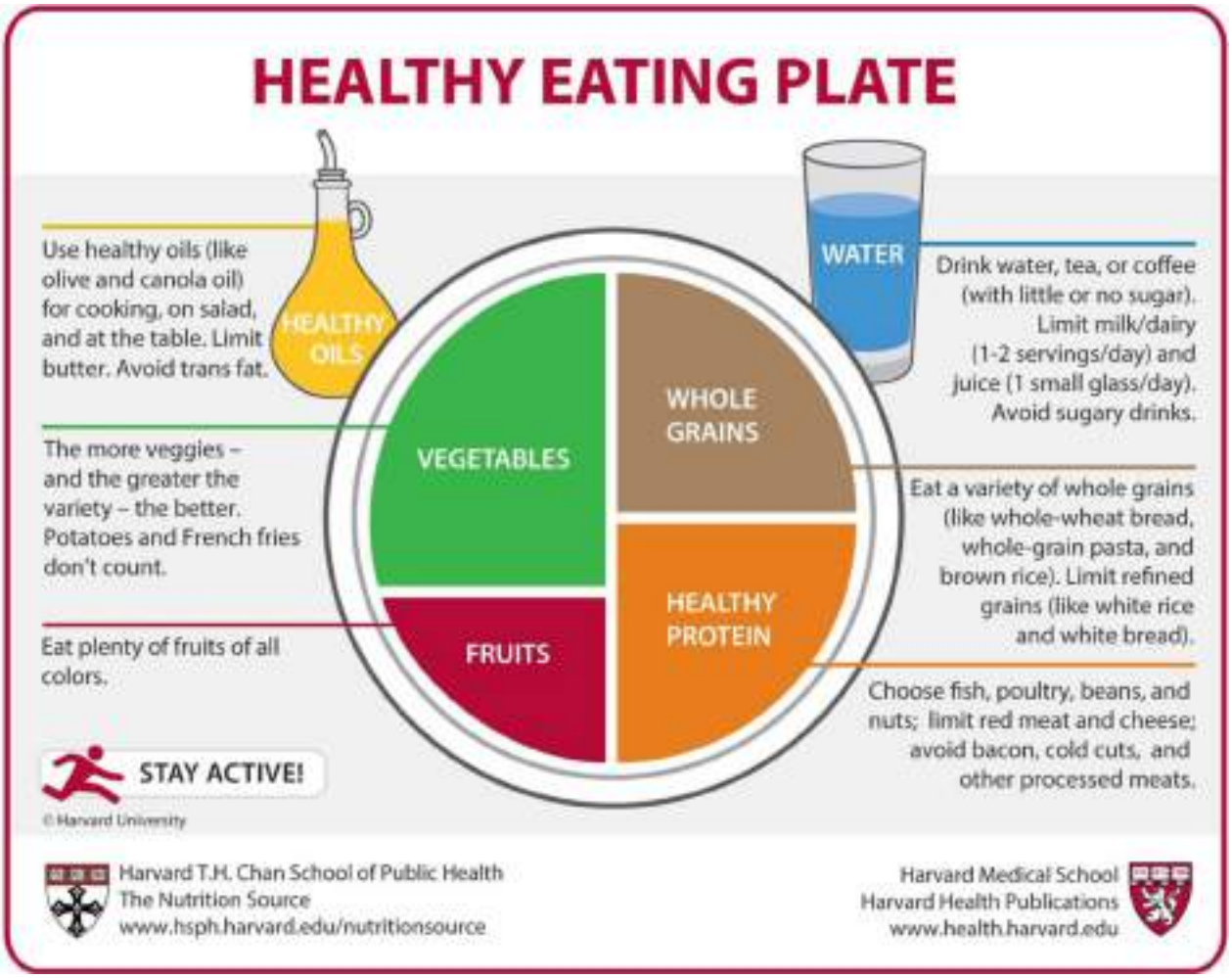


Fig 5. Food Pyramid[14]

Vegetables as well as fruits contain high amounts of antioxidants. Antioxidants are a group of compounds that help protect the body from free radicals that can damage healthy cells in the body. Free radicals are formed from exposure to sunlight and pollution, and are by-products of body processes. Alcohol, cigarette smoke, stress and poor diet can increase the amount of free radicals, while consuming high antioxidant foods such as fruit and vegetables can prevent and eliminate free radicals in the body.

Vitamins and minerals that are considered antioxidants include vitamin A (beta-carotene), vitamin C, vitamin E, and selenium. Other phytochemicals with antioxidant properties found in vegetables are carotenoids, flavanoids, phytoestrogens, capsaicin and anthocyanins.

[14] https://cdn1.sph.harvard.edu/wp-content/uploads/sites/30/2012/10/WebMedium-1024x950.jpg

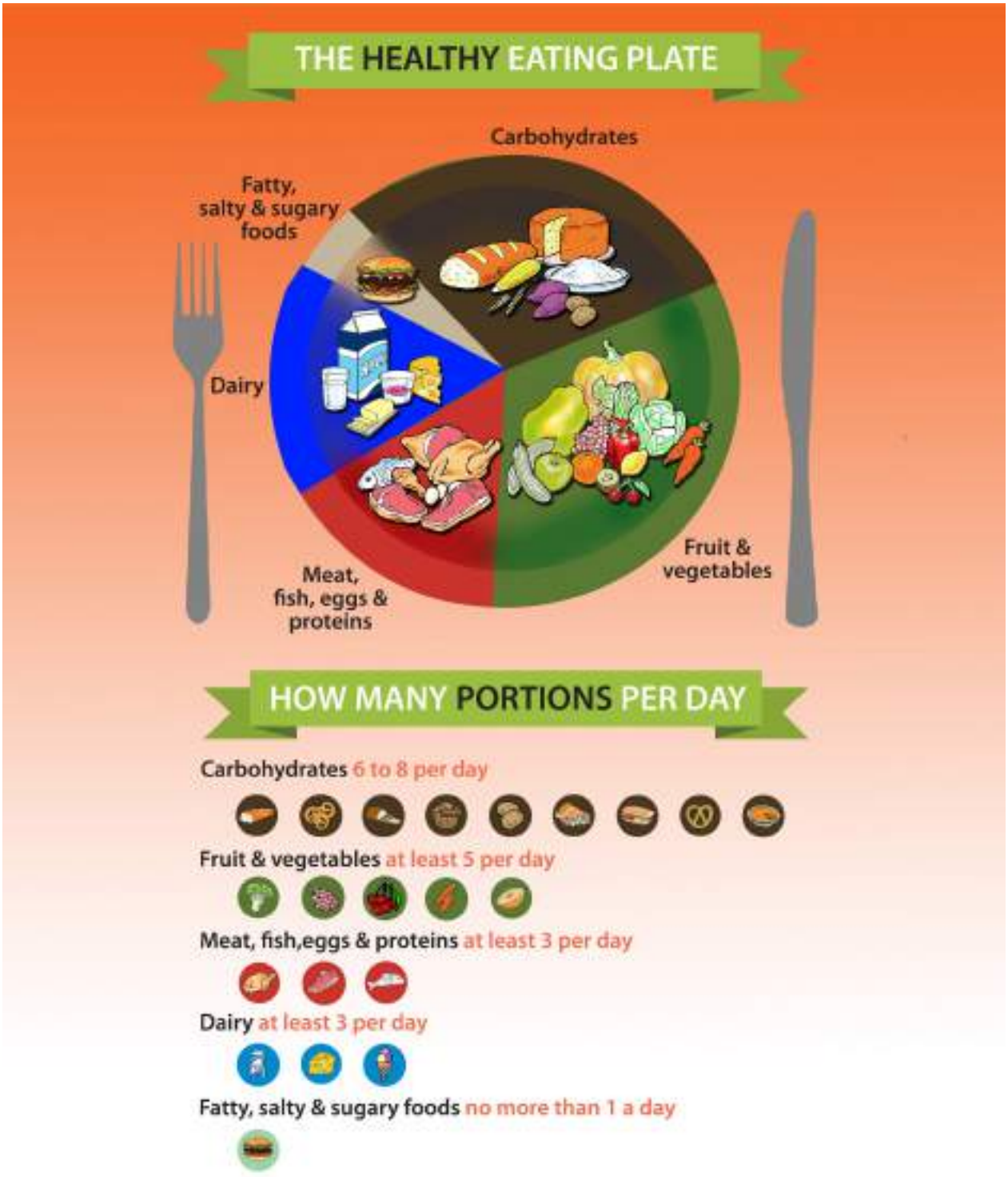


Fig. 6. Healthy Eating Plate.

Fig. 7. Proportion of food groups in My Healthy Plate[15]

Phytochemicals with anticancer activities include sulfides, saponins, phenols, capsaicin, and tannins. Overall, vegetables are known to reduce health risks such as high blood pressure, high blood glucose or diabetes, heat and cardiovascular diseases, obesity, certain cancers, eye and digestive complications, and to promote maintenance of healthy body functions.

[15] United States MyPlate icon (USDA, 2014) cited in Vegetables and Nutrition in Bangladesh. AVRDC 2014. Taiwan.

How much vegetables should I eat?

Since vegetables are low in sugar and fat, eating more than 5-7 servings a day is encouraged. The World Health Organization suggests consumption of at least 200 g of vegetables and 200 g of fruits per day. An easy way to estimate serving size is using the adult fist. One serving of cooked vegetables or raw, leafy greens similar to the size of a fist would be considered one serving size **(Table 2)**.

Table 2. Portion size for 1 serving of vegetable.

1 serving of vegetable is equivalent to 75-80 g of vegetables *1 cup = 250 ml		
OR	**1 cup* of raw leafy vegetables**	
OR	**1/2 cup* of non-leafy vegetables**	
OR	**1/2 cup* of cooked or canned vegetables**	
OR	**1/2 cup* of vegetable juice**	
OR	**Vegetables the size of an adult fist**	

What type of vegetables should I eat?

When selecting vegetables, it is important to choose vegetables that are fresh and in season. While each vegetable provides different amounts of nutrients, different types and colors such as dark leafy greens, bright orange, red, yellow and dark purple vegetables can add diverse nutrients to your plate **(Fig. 8)**.

Eating one single type or color of vegetable will not help meet daily nutrient needs. It is important to eat many types of vegetables everyday or during the week. Figures 8 & 9, respectively, tell us the benefits we get from leafy vegetables and from multi-colored fruits and vegetables.

For example, yellow-and orange-colored vegetables (such as carrot) are especially rich in vitamin A and carotenoids such as α and β carotenes, zeaxanthins and cryptoxanthins that are antioxidants, are especially good for the eyes. Red-colored vegetables such as tomatoes and red peppers are especially high in lycopene and capsanthin contents, respectively. Dark green vegetables are good sources of folate, minerals, phenols and flavanoids and anthocyanins. All these nutrients have protective effects on many important body organs such as the eyes, heart, lungs, liver and digestive system.

Lesson 2.6. The 7 colors of phytonutrients

Phytonutrients are plant (phyto, Greek work meaning plants)-based nutrients that give fruits and vegetables their intense colors. These nutrients create healthier tissues and organ systems, detoxify our bodies from foreign substances, and strengthen our immune system and muscles[16]. The **7** colors of phytonutrients in fruits and vegetables (**Figure 9a & 9b**)[17] [18] include the following:

- **Red Benefits -** Support prostate, urinary tract and DNA health. Protect agains cancer and heart disease.
- **Purple Benefits -** Good for the heart, brain, bone, arteries and cognitive health. Fight cancer and supports healthy aging.
- **Green Benefits -** Support eye health, arterial funchtion, lung health, liver function, and cell health. Help wound healing and gum health.
- **White Benefits -** Support healthy bones, circulatory system and arterial function. Fight heart disease and cancer.
- **Yellow Benefits -** Good for eye health, healthy immune function, and health growth and development.
- **Blue Benefits -** Flowers of butterfly pea contain anthocyanins and other flavanoids providing the beautiful colors that prevent our body from oxidative damage and reduce the risk of heart diseases.
- **Orange Benefits -** Good for eye health, healthy immune function.

At least, we need to eat two foods from each color group daily.

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[16] http://breakingmuscle.com/nutrition/why-you-need-phytonutrients-and-the-4-best-places-to-get-them

[17] NaturalHealthyConcepts.com.

[18] The World Vegetable Center.

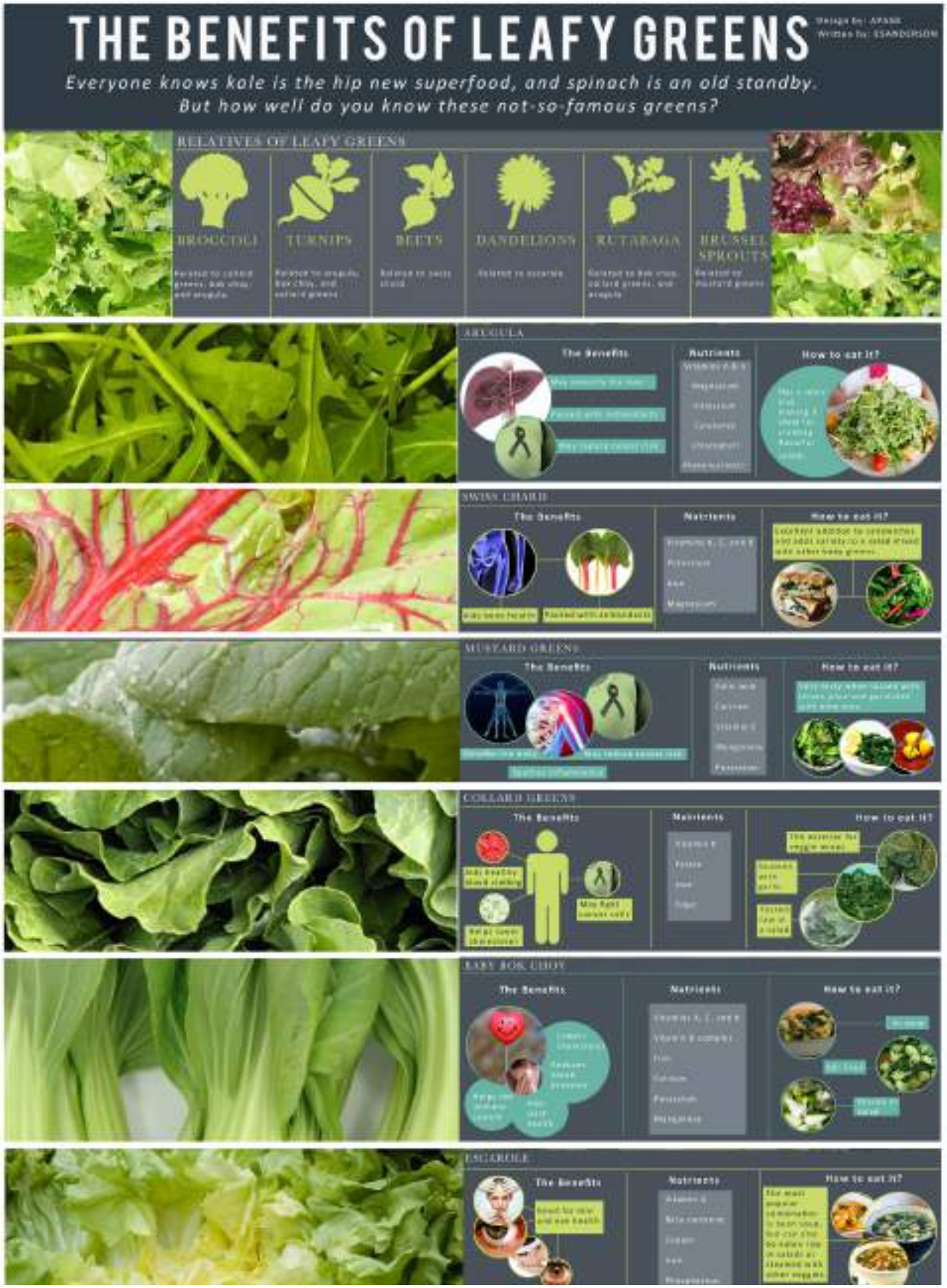

Fig. 8. The benefits of leafy greens.

Lesson 2.7. The 12 phytonutrients from fruits and vegetables

Below is a summary list of **12** phytonutrients from fruits and vegetables and how they protect our body from diseases and help our body function well.

1. **Flavonoids** are most famous for their antioxidant and anti-inflammatory health benefits, as well as their contribution of vibrant colors to the foods we eat. (http://www.whfoods. com/genpage.php?tname=nutrient&dbid=119).

2. **Lutein** and zeaxanthins are antioxidants located in the eye which filter harmful high-energy blue wavelengths of light and help protect and maintain healthy cells in the eyes (http://www.aoa.org/patients-and-public/caring-for-your-vision/diet-and-nutrition/lutein?sso=y).

3. **Isoflavones** are phytoestrogens produced mainly by legumes that are best consumed in the form of soy. They protect against hormone-related disorders such as breast cancer and prostate cancers (http://www.vitaenaturals.com/content/health-benefits-isoflavones).

4. **Epigallocatechin Gallate** (EGCG) is an anti-oxidant polyphenol found mostly in green tea. It may have health benefits as a nutritional supplement for cancer, atherosclerosis, blood sugar control, HPV virus infection, and neurodegenerative diseases (http://www.raysahelian.com/egcg.html)

5. **Indoles** are some of the most potent phytonutrients present in vegetables and plants. Indoles are widely used for the beneficial effects on cancer and other disorders (http://www.steadyhealth.com/articles/indoles-most-potent-phytonutrients-with-anti-cancer-antioxidant-and-anti-atherogenic-properties).

6. **Isothiocyanates** can be found in cruciferous vegetables such as broccoli, cauliflower, kale, turnips, collards, Brussels sprouts, cabbage, radish, turnip and watercress. Studies have shown that isothiocyanates help to prevent lung cancer and esophageal cancer. Isothiocyanates can also lower the risk of other cancers, including gastrointestinal cancer (http://www.phytochemicals.info/phytochemicals/isothiocyanates.php).

7. **Sulforaphane** is a chemical found in certain kinds of vegetables such as broccoli, cabbage and cauliflower. Sulforaphane is used for the prevention of prostate cancer and other types of cancer. Sulforaphane may increase the death of cancer cells (http://www.webmd.com/vitamins-supplements/ingredientmono-1070-sulforaphane.aspx?activeingredientid=1070&activeingredientname=sulforaphane).

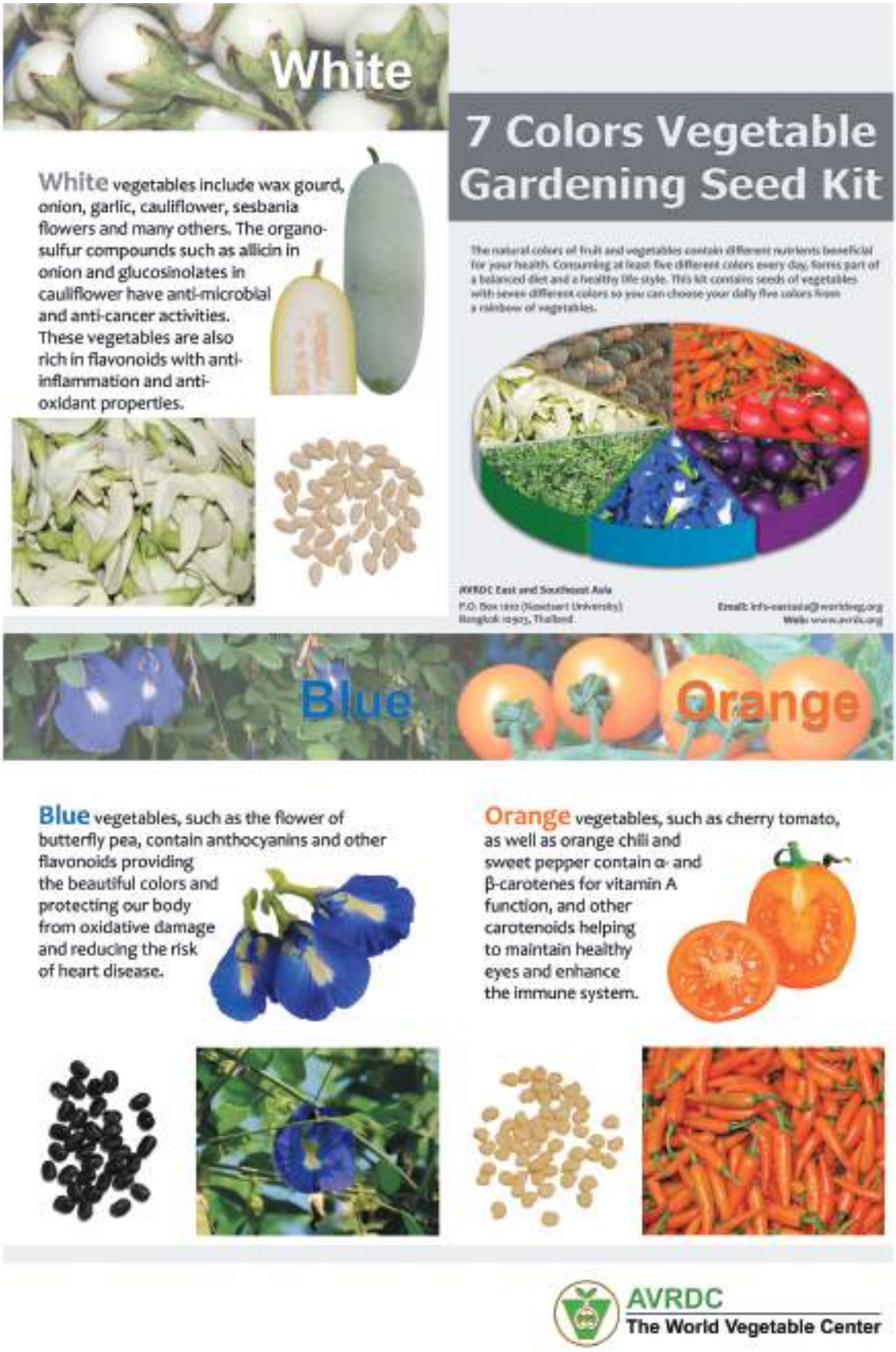

Fig. 9a. 7 Colors Vegetable gardening seed kit.

Fig. 9b. Various colors mean various phytonutrients.

8. **Allicin** makes the odor of garlic pungent. It has antibacterial, antifungal and antiviral properties although it is not advisable to use it to self-treat any condition (http://www.livestrong.com/article/329968-what-are-the-health-benefits-of-allicin/).

9. **Glucosinolates** are sulfur-containing compounds found in cruciferous vegetables that give vegetables their bitter flavor and pungent aroma. Epidemiological studies show that eating a diet high in cruciferous vegetables is associated with having a lower risk of certain types of cancer. This may be due to the two of the compounds formed from glucosinolates –isothiocyanates and indoles –that have shown anti-cancer properties in several laboratory studies (https://www.verywell.com/what-are-glucosinolates-and-why-are-they-good-for-me-2505908).

10. **Alpha-carotene** contains flavonoids, which are antioxidant substances that give color and flavor to many orange- and red-colored fruits and vegetables (carrots, sweet potatoes, squash, broccoli, kale, cantaloupe, brussels sprouts, kiwi, spinach, mangos, squash, spinach, etc). Alpha-carotene may also help prevent cancer by stimulating cell-to-cell communication, a process which researchers now believe is necessary to ensure proper cell division (http://www.vitaminstuff.com/alphacarotene-2.html).

11. **Beta-carotene** is a carotenoid and an antioxidant that is found as a red/orange pigment in many fresh fruits and vegetables (onions, carrots, peas, spinach, squash, etc). It might help older people retain their lung strength as they age (http://www.medicalnewstoday.com/articles/252758.php).

12. **The phytochemical beta-cryptoxanthin** belongs to the class of carotenoids and can be found in many vegetables and fruits (papaya, mango, peaches, oranges, tangerines, bell peppers, corn and watermelon), and also found in some yellow coloured animal products such as egg yolk and butter. It seems to reduce the risk of lung cancer, colon cancer, and the risk for rheumatoid arthritis (http://www.phytochemicals.info/phytochemicals/beta-cryptoxanthin.php).

Lesson 2.8. How do I use vegetables?

Clean vegetables thoroughly before cutting or cooking. Eat vegetables raw, blended in juices or cooked in any family dishes.

Before cooking or eating, it is important to handle fresh vegetables safely. Be sure to wash the vegetables thoroughly with clean water to remove any dust, bacteria and pesticide residues. Only scrub vegetables with a tough outer skin (for example, carrots, cucumber, and pumpkins) that do not bruise easily.

Use a clean chopping board to cut vegetables. If possible, use a separate chopping board for fruits and vegetables and another one for raw meats.

Vegetables could be prepared with any suitable cooking methods such as boiling, steaming, stir-frying, stewing and braising (**Fig. 10**). To maximize the nutrient content of vegetables, it is recommended not to cook for a long period of time at a high temperature. It is advisable to avoid adding too much salt, sugar and cooking oil.

Generally, raw vegetables are highly nutritious, as cooking can reduce the nutrient content. However, adding a small amount of cooking oil, preferably vegetable oil, when eating and cooking can increase the absorption of fat-soluble vitamins (vitamins A, D, E and K) in vegetables. Water-soluble vitamins (vita B and C) are easily lost through heat, and leached into the water when boiled. Minerals that are resistant to heat can be lost in cooking water. Therefore, the cooking water or left-over broth should be saved for use in soups, juices and sauces to maximize the nutritional benefits of vegetables.

Lesson 2.9. Fortifying food

Micronutrient deficiency can be addressed by fortifying or biofortifying foods. However, a more sustainble way is to increase dietary diversification through increased availability and consumption of micronutrient-rich crops such as vegetables and sweet potatoes.

Lesson 2.10. Vegetable supply gap

According to the World Health Organization, each person should eat at least 200 grams of vegetables everyday. In developing countries, the average person eats less than the amount of vegetables available. Overall, the consumption of vegetables in these countries are insufficient to meet the daily recommendations.

Lesson 2.11. What healthy eating can do for you?

To get the right vitamins and minerals, eat (Fig. 10):

- Vitamin A – squash, hot chilli peppers, red pepper, turnip
- Vitamin B6 – avocado, carrot, potato
- Vitamin C – cabbage, broccoli, radish, kale, onion
- Vitamin D - mushrooms
- Vitamin B12 – grains and pulses
- Vitamin E – grains and pulses, nut oils, spinach, corn
- Folic acid – green leafy vegetables, mushroom, broccoli
- Iron – green leafy vegetables, also spinach, kale, broccoli
- Zinc – mushroom, green leafy vegetables
- Potassium – avocado, mushroom, broccoli
- Magnesium – avocado, green leafy vegetables

To give you a healthy body, take note of the following (Fig. 11):

- Improved brain power – Omega 3 fatty acids, Vitamins E, B6, C, B12, D and folic acid
- Healthy heart - Omega 3 fatty acids, Vitamins B6, C, D, E
- Stable blood pressure – Vitamins C, Calcium, D, Potassium, and Magnesium
- Healthy cholesterol level – Fiber, Vitamins C, E, Omega 3 fatty acids, and Carotenoids

Fig. 10. Healthy eating can improve your health.

Fig 11. Sources of Vitamins and minerals.

Table 3. Functions and sources of main nutrients present in vegetables

Nutrient	Role/Function	Vegetable Sources
Fiber Bitter Gourd 	**Aids proper digestion of foods and maintains healthy stomach and intestines** **Makes the food bulkier and gives the feeling of fullness** **Absorbs water and makes the stools soft, which prevents constipation and other gut-related diseases such as diverticulitis** **Reduces cholesterol and glucose absorption, lowering the risk of heart diseases and diabetes** **Promotes good gut bacteria that aids in digestion and absorption of nutrients**	**Almost all vegetables Examples: Gourds such as ash gourd and bitter gourd, green leafy vegetables such as pumpkin leaves, aroid leaves, spinach, kohlrabi, and beans**
Minerals		
Calcium Moringa 	**Helps build strong bones and teeth** **Maintains normal heart and muscle Functions** **Helps blood clotting and regulation of blood pressure** **Important in immune functions**	**Most green leafy vegetables Examples: Amaranth (green and red), moringa, aroid leaves**

Nutrient	Role/Function	Vegetable Sources
Iron Redroot Amaranth 	**Makes red blood cells** **Helps brain and immune functions** **Plant-based iron is not as efficiently absorbed as animal-based iron Maintains healthy immune system** **Helps synthesize DNA** **Promotes healthy growth during childhood** **Aids wound healing**	**Almost all vegetables Most dark green leafy vegetables Examples: Amaranth (green and red), pumpkin leaves, ridge gourd leaves, spinach and aroid leaves, moringa** **Dark green or colored leafy vegetable Example: Amaranth (green and red)**
Vitamins		
Vitamin A Pumpkin 	**Beta-carotene is found in high amounts in orange and yellow vegetables** **In the body beta-carotene is converted to vitamin A** **Essential for maintaining healthy skin, immune system, vision and promote normal growth and development** **Fat soluble vitamin** **Eating or cooking orange and vegetables with a small amount of oil can promote absorption of vitamin**	**Orange colored vegetables Examples: carrot, pumpkin Dark green leafy vegetables Examples: Indian spinach, moringa, amaranth, ridge•** **gourd leaves, spinach, aroid leaves**

Nutrient	Role/Function	Vegetable Sources
Vitamin C Indian spinach (red) 	**Helps heal cuts and wounds and keeps teeth and gums healthy** **Aids in iron absorption and uses calcium and other nutrients in building the body** **Water soluble vitamin, can easily be lost when food is cut, heated or boiled for a period of time**	**Most vegetables Example: Amaranth (green and red), bitter gourd, cauliflower, Indian spinach, kohlrabi, moringa, okra, pointed gourd, ridge gourd leaves, aroid leaves, and teasel gourd**
Vitamin E Snap Bean 	**Strong antioxidant** **Protects against heart disease, cancer, and age related eye damage** **Fat soluble vitamin**	**Beans and moringa leaves**
Folate (Folic acid) Spinach 	**Helps body form red blood cells and other cells** **Reduces the risk of central nervous system in developing fetus such as neural tube defects, spina bifida, and anencephaly**	**Beans and leafy vegetables Example: Amaranth, bitter gourd, Indian spinach, moringa, snap bean, spinach, aroid leaves, and yardlong bean**

Lesson 3. Special Diets for Breastfeeding Mothers, Infants, Children, Adult, Elderly and the Sick[19, 20, 21, 22]

Objectives:

At the end of this Lesson, you will be able to:

- Record the different ages (from infant to the elderly) and the health condition of all the members in your family
- List the different nutritious meals that fit their requirements
- Write your own nutritious meal recipes with their related ingredients for each of the members of different ages in your family
- Prepare a list of recipes for the sick with ingredients that are locally available
- Plan an awareness meeting with all the mothers in your community on the benefits of eating healthy foods and on how to prepare healthy food for the sick.

Lesson 3.1. Diet for pregnant and breastfeeding women[23]

Pregnant and breastfeeding women are at risk from malnutrition because their body needs more nutrients during pregnancy and lactation. An unhealthy diet will not only threaten the health of these women but also put their babies at risk. Pregnant women need more body-building food and more protective food, especially vitamin A and iron, than men. Teenage girls who become pregnant need special rich, balanced diets, because they themselves are still growing and can become malnourished.

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[18] The contents of Lesson 3 mainly comes from the Nutrition Blended Learning Module for the Health Extension Programme Federal Democratic Republic of Ethiopia Ministry of Health Health Education and Training (HEAT) in Africa with funding from the Ethiopian Office of UNICEF (the United Nations Children's Emergency Fund), the Open University UK, the Alan and NestaFerguson Foundation Trust UK, and AMREF (the African Medical and Research Foundation).

[19] http://www.open.edu/openlearnworks/course/view.php?id=20

[20] http://www.open.edu/openlearnworks/pluginfile.php/4923/mod_resource/content/1/Nutrition_Final_Print-ready_April_2011_.pdf

[21] http://www.open.edu/openlearnworks/mod/oucontent/view.php?id=316&printable=1&extra=thumbnail_idp60408656

[22] The contents of Lesson 3 mainly comes from the Nutrition Blended Learning Module for the Health Extension Programme Federal Democratic Republic of Ethiopia Ministry of Health Health Education and Training (HEAT) in Africa with funding from the Ethiopian Office of UNICEF (the United Nations Children's Emergency Fund), the Open University UK, the Alan and NestaFerguson Foundation Trust UK, and AMREF (the African Medical and Research Foundation).

[23] http://www.open.edu/openlearnworks/course/view.php?id=20

Pregnant women and those who have recently given birth are at risk from anaemia (iron deficiency). Pregnant women should eat foods which are rich in iron such as liver, meat, fish and legumes, especially cowpeas and roundnuts. Vitamin C is needed to absorb the iron, so fruit and dark green vegetables should also be eaten. Health facilities give iron supplements to pregnant women during antenatal care.

Pregnant and breastfeeding mothers are also at risk from vitamin A deficiency. These women should eat a wide range of dark green, leafy vegetables and yellow and orange fruit and vegetables. They should take foods containing fat or oil to help the body absorb vitamin A. Health facilities should give lactating women vitamin A capsules within six weeks after delivery. In addition to extra meals, a breastfeeding woman also needs:

- Iodised salt in her diet
- At least one litre of water per day
- Vitamin A rich foods (such as papaya, mango, tomato, carrot and green leafy vegetables) and animal foods (such as fish and liver).

To grow properly an **unborn child** needs a healthy and well-nourished mother. Therefore, a mother needs to gain weight during pregnancy to help nourish her growing baby. Women who do not gain enough weight often have babies that weigh too little (low birth weight). A baby weighing less than 2.5 kg has an increased chance of both physical and mental health problems. It may also suffer more from infection and malnutrition compared with babies of normal weight. Women should gain at least 11 kg during pregnancy (Figure __). If the mother gains less than this, the baby's chance of survival and health declines. If a mother is overweight, she still needs to gain for her baby's health. She should not try to lose weight while she is pregnant.

Increased requirements: energy, protein, essential fatty acids, vitamin A, vitamin C, B vitamins (B1, B2, B3, B5, B6, B12, folate), calcium, phosphorus, iron, zinc, copper and iodine.

Eating during pregnancy

Women's nutrition during pregnancy and lactation should focus on the three micronutrients (vitamin A, iron and iodine) and extra energy intake/reduction of energy expenditure. Therefore the following are essential nutrition actions related to maternal nutrition:

- A pregnant or breastfeeding woman needs extra foods, especially those that are good sources of iron.
- Pregnant women need at least one additional meal (200 Kcal) per day during the pregnancy.
- A pregnant woman needs to cut down her energy expenditure. She should reduce her involvement in strenuous household tasks that lead to higher energy expenditure.

- Pregnant women should take vitamin A rich foods (such as papaya, mango, tomato, carrot, and green leafy vegetable) and animal foods (such as fish and liver).
- In the malarious areas, pregnant women should sleep under an insecticide-treated bed net.
- Pregnant women need a well-balanced diet containing mixture of foods. This should include as far as possible food from the different food groups (animal products, fruits, vegetables, cereals and legumes).

Remember, there is no need for high-priced foods! A pregnant or lactating woman can get extra foods by eating a little more of ordinary meals. She should increase the amount of nourishment at one or two meals, not every meal.

Nutrition during lactation (breastfeeding)

If all babies were to be healthy and grow well, they must be breasfed. When a baby sucks at the nipple, this causes the milk to come into the breast and continue to flow. Breastmilk is food produced by the mother's body especially for the baby, and it contains all the nutrients (nourishment) a healthy baby needs.

A lactating woman needs at least two extra meals (550 Kcal) of whatever is available at home. In addition a dose of vitamin A (200,000IU) should be given once between delivery and six weeks after delivery. This will enable the baby to get an adequate supply of vitamin A for the first six months. During the first six months, the best way of feeding the baby is for the mother to breastfeed exclusively.

Lesson 3.2 Infant feeding: Benefits of breastfeeding

Experts agree that there are many benefits of exclusive breastfeeding for the first six months of an infant's life.

The benefits include:

- Nutrients in breast milk perfectly match a baby's nutrient requirement for the first six months of life
- Breast milk provides immunological protection from disease and helps build up immunity against infections
- There is bonding between mother and baby
- If the mother is exclusively breastfeeding on demand, there is a substantial contraceptive effect

For babies of HIV – positive women who know their status, there is need for infant feeding counseling by a trained health worker. In the context of HIV, there is a need to counsel women on using exclusively any one of the following options:

- Exclusive breastfeeding for the first six months of life
- Commercial infant formula
- Modified animal (goat or cow) milk
- Heat-treated expressed breast milk

Solids and other liquids should only be introduced from 6 months onwards. Mothers who are HIV–negative or who do not know their status should continue to breastfeed up to 24 months or beyond unless counselled otherwise by a trained health worker.

Complementary Feeding

Requirements for macronutrients (proteins, carbohydrates and fats) and micronutrients are higher on a per kilogram basis during infancy and childhood than at any other developmental stage. These needs are influenced by the rapid cell division occurring during growth, which requires protein, energy and fat. Increased needs for these nutrients are reflected in daily requirements for these age groups .

Complementary foods are foods that are gradually added to a baby's diet from 6 months onwards. Complementary foods can be modified from the family pot and prepared in such a way that they are easy for the baby to chew and swallow. They have to be rich in proteins, energy, vitamins and minerals to meet the baby's increasing nutrient requirements. Children aged six months to five years should receive vitamin A supplements from their nearest health facilities once every six months to prevent vitamin A deficiency.

Lesson 3.3. Healthy first foods

Once babies have got used to the idea of solids and are still being breastfed they can be introduced to a wider range of food. Here are some examples:

- **Enriched porridge -** Make this from flour such as maize or sorghum and enrich it with peanut butter. Serve it with sour milk for babies over 12 months old.
- **Rice and pumpkin -** Mix cooked brown rice with mashed bean and cooked pumpkin. For babies under 12-months old remove or mash the bean skin and mash the rice to make sure the baby does not choke.
- **Vegetable mash -** Use mashed potato or sweet potato as an energy-rich base. Mix mashed vegetables such as pumpkin or squash and add peanut butter.

- **Fruit mash -** Mash bananas and mix them with mashed pawpaw (English term please) , guava or mango.
- **Healthy drinks -** Healthy drinks for abies include homemade fruit juice, sour milk. Avoid sugary drinks; these are bad for babies and young children.

Food for older babies and toddlers

By 12 months the baby can be eating the same food as the rest of the family members. As babies get older, mothers can introduce finger food and foods that are mashed less.

Examples of food that the baby can hold and snack on include sweet potatoes, squash and cassava.

Food for 3–5-year olds

Children of this age group do not need to eat as often as babies but they must have at least three meals a day, preferably with two snacks in between. Children need a healthy, balanced diet that is rich in energy food, body-building food and protective food.

Children need plenty of vitamin A, iron and vitamin C so they should eat dark green vegetables, fruit and yellow and orange vegetables.

Food for school children

Children over the age of five are at less risk of malnutrition than babies and toddlers but they still need a healthy, balanced diet and at least three meals per day. A good diet helps school-aged children to:

- Grow and develop properly and become healthy adults;
- Concentrate on their school work;
- Be happy and healthy; and
- Learn about the importance of good food by seeing the good examples of their parents.

School-aged children need two-to-three healthy mixed meals per day. Snacks beween meals are healthy for teenagers (between the ages of 11 and 16) who are growing fast.

Lesson 4. Three Meals, Nutritional Requirements, Meals for the Sick

Objectives:

At the end of this Lesson, you will be able to:

- Learn the importance of the three different meals;
- Understand the nutritional requirements for people who are old, sick, and/or those with special needs
- Understand how illness affect people and how poor nutrition affect illness

Lesson 4.1. The three meals

- **The morning meal -** Before they go to school or work, children must eat a good meal, such as porridge with peanut butter, margarine and sour milk or an egg and homemade bread. If they are given food which is left over from the previous day it must be heated up until the middle of the food is boiling hot.

  If there is not enough time to cook a morning meal the children should be given fruit such as mangos, guavas or bananas, a jar of groundnuts or cold food such as cassava, pumpkin, squash or sweet potatoes.

- **The midday meal -** If children are going to be away from home at lunchtime then they must take a healthy snack to school or work, rather than money to spend on sweets or drinks.

  Prepare healthy snacks for busy people at work and school. Many children and some adults suffer from a poor diet because they are away from home during important meal times. Buns, fizzy drinks or "freezits" become meals for many peoples at work or school.

- **The evening meal -** In the evening children need a healthy evening meal containing carbohydrate (such as porridge or rice), protein (such as beans, soya mince, fish or meat) and different vegetables (such as tomatoes, onions, green leafy vegetables and pumpkin), preferably cooked with peanut butter.

Lesson 4.2. Adolescence

Increased requirements of energy, protein, calcium, phosphorus and zinc.

Nutritional requirements during adulthood

The nutritional needs in adults of 19–50 years of age differ slightly according to gender. Males require more of vitamins C, K, B1, B2 and B3, and zinc. Females require more iron, compared with males of similar age.

You have already seen that pregnant women and lactating mothers have particular nutrient requirements that are necessary for their own health as well as the health of their baby.

Lesson 4.3. Nutritional requirements during later years

Elderly people are especially vulnerable to nutritional problems due to age-related changes in their body (impaired physiological and anatomical capacity). Possible nutritional issues in old age include the following:

- Problems of procuring and preparing foods
- Psychosocial problems
- Digestion problems
- Nutrient absorption problems
- Renal changes
- Memory loss (senile dementia), which may include forgetting to eat
- Sensory changes
- Physical problems like weakness, gouty arthritis and painful joints.

Specific nutrient requirements in old age

An elderly person requires less energy than a younger individual due to reductions in muscle mass and physical activity. Some daily requirements for elderly people differ from those of younger adults.

For example, in order to reduce the risk for age-related bone loss and fracture, the requirement for vitamin D is increased from 200 IU/day to 400 in individuals of 51–70 years of age and to 600 IU/day for those over 70 years of age.

Suggested iron intake is reduced, however, from 18 mg per day in women aged 19–50 to 8

mg/day after age 50, due to better iron conservation and decreased losses in postmenopausal women compared with younger women.

Some elderly people have difficulty getting adequate nutrition because of age or disease related impairments in chewing, swallowing, digesting and absorbing nutrients. Their nutrient status may also be affected by decreased production of chemicals to digest food (digestive enzymes), changes in the cells of the bowel surface and drug–nutrient interactions.

Some elderly people demonstrate selenium deficiency, a mineral important for immune function. Impaired immune function affects susceptibility to infections and tumours (malignancies). Vitamin B6 helps to boost selenium levels, so a higher intake for people aged 51–70 is recommended.

Nutritional interventions should first emphasise healthy foods, with supplements playing a secondary role. Although modest supplementary doses of micronutrients can both prevent deficiency and support immune functions, very high dose supplementation (example, high dose zinc) may have the opposite effect and result in immune-suppression. Therefore, elderly people also need special attention with regard to nutritional care.

Lesson 4.4. Special meals for people who are sick

Good nutrition is a foundation for health. It does not replace medical treatment. Many illnesses such as TB and HIV/AIDS require professional care. Most of the information in this session is adapted from: *FAO, 2002, SAFAids, 2004, Ministry of Health and Child Welfare, 2005 and The Body (n.d.)*.

How illness affects nutrition and how poor nutrition affects illness

People who are malnourished get sick more easily. This is because their bodies are weak because they are not getting enough energy. Their immune systems are weak because they are not getting enough protective food. Their bodies cannot repair the damage caused by infection because they are not getting enough body-building food. If families keep eating healthy, balanced diets their bodies can fight illness and recover quickly afterwards.

Many illnesses, such as TB, diarrhoea, measles and HIV/AIDS reduce the body's ability to absorb food, so even if people are eating normally, their bodies do not get enough food. This can lead to "wasting", where the body stops putting on weight and the sufferer becomes very thin and weak.

Many illnesses, including those mentioned above, change the way the body functions, making it need more nutrients. Sick people must have a healthy, balanced diet with carbohydrate, fat, protein, vitamins and minerals. They should drink plenty of liquids each day.

Sickness in babies and children

Babies who are breastfed for over a year and children who have balanced diets grow strong and healthy, get sick less often and recover quickly when they do get sick. Healthy, well-nourished mothers will have more healthy babies.

Digestive problems

Loss of appetite

Many sick people do not want to eat because they may feel nauseous, they may have a sore stomach from diarrhoea, they may have sores in their mouth, they may feel weak or depressed or they may be taking medicine which reduces the appetite. Families or carers can help people suffering from loss of appetite by:

- Sitting with the sick person when they are eating, so that they still feel part of the family.
- Helping them to sit upright in bed when eating.
- Preparing their food for them.
- Offering them their favourite foods and new things to eat with different flavours, such as spices like ginger and garlic and sour fruit like masau, tomato, orange and pineapple.
- Giving them small, light meals and snacks throughout the day.
- Making sure they get lots of fluids between meals but not during or just before meals.
- Making them herb teas such as basil tea and mint tea, which stimulate the appetite.
- Avoiding giving them fizzy drinks, cabbage, beans, beer and junk food.
- Discouraging them from smoking
- Encouraging them to brush their teeth after a meal.
- Helping them to get light exercise and fresh air.

Diarrhoea and vomiting

Diarrhoea is a very dangerous condition for babies and children. The most important treatment is to give the child as many drinks and liquid-based foods as possible to prevent dehydration (which means not enough liquid in the body).

Signs of dehydration:

- Great thirst
- Less urine, which is dark in colour
- Dry mouth
- Sunken eyes
- A sunken fontanel (the soft spot on the top of a baby's head)

- When the skin is pinched it goes back slowly
- When a child is unhappy, weak and sleepy
- When a child is breathing fast

Families or caregivers can help people suffering diarrhoea and vomiting by:

- Giving them oral rehydration solution made from half a teaspoon of salt and 6 teaspoons sugar mixed in 750 ml water. Give babies under two years ¼–½ a cup every time they pass a loose stool. Give older children with loose stools ½–1 cup. Recommending that mothers whose babies have diarrhoea or are vomiting continue breastfeeding as much as possible. Make sure sufferers do not skip meals even if they don't feel like eating.
- Give sufferers food that is high in potassium such as avodado, groundnuts, bananas, potatoes, fish and meat.
- Reducing fat by using less cooking oil or removing fat from meat (peanut butter and avocado are healthy fats).
- Avoid spicy, salty or sour foods.

When someone has diarrhoea they lose large quantities of zinc. Zinc decreases the length and severity of diarrhoea. Zinc is important for the immune system and helps reduce the recurrence of diarrhoea during the following 2-3 months after treatment. Zinc improves appetite and growth. Children under 6 months should receive 10 mg per day for 10-14 days. Children over 6 months should receive 20mg per day for 10–14 days.

Foods which are high in zinc include meat especially liver, chicken, fish, milk, egg yolks, garlic, leafy green vegetables, nuts, pumpkin seeds, wholegrain cereals, especially sorghum and millet and legumes (such as cowpeas, groundnuts, roundnuts, pigeon peas, sugar beans, green beans) and breastmilk [24].

The sufferer must also eat food such as:

- Soups made from mashed vegetables in water
- Fruit juice mixed with water
- Watery porridge
- Soft mashed foods such as fruit mash, sweet potatoe and pumpkin mash.
- Refined foods – white bread, white maize meal, white rice.

If the baby or child's condition does not improve quickly, the baby must be taken to the hospital as soon as possible.

[24] Source: WHO, UNICEF joint statement 2004.

Nausea and vomiting

This condition can also lead to dehydration and appetite loss. Families or carers can help by:

- Helping the sufferer person to sit up while eating and for one to two hours afterwards. If they cannot sit up, make sure their head is propped up at least 10 cm higher than their feet.
- Making sure the sufferer does not skip meals.
- Giving them plenty of fluids to drink after, but not during, meals.
- Preparing food for the sick person.
- Helping the sick person to drink small amounts of water, soups and herb or spice tea, especially mint or ginger.
- Giving them small amounts of food often, every two to three hours.
- Giving them soft foods.
- Giving them fresh orange or lemon peel to sniff.
- Giving them dry salty foods and snacks.
- Avoiding fatty greasy, sweet foods. Find out what makes them feel sick and do not give it to them.

Constipation, bloating and gas

Some medicines, such as antibiotics and painkillers, can cause digestive problems. Families or carers can help by:

- Getting the sick person to eat slowly and chew each piece of food several times before swallowing.
- Adding chopped pawpaw (English term) to meat dishes.
- Giving them fermented food such as sour milk, mahewu and yogurt, plus plenty of fresh vegetables, raw fruit and salads.
- Avoiding cabbage, onions and beans and refined foods.
- Getting them to eat plenty of fibre. encouraging them to exercise after eating to help their digestion.

Coughs, colds and flu

Families and caregivers can help by:

- Giving them plenty of water and other liquids to drink.
- Preparing herbal teas with ginger, thyme, garlic, lemon and honey or guava or zumbani leaves.

- Making them an inhalation.
- Making them a home-made cough syrup.
- Giving them fermented food such as sour milk, mahewu (English term) and yogurt, plus plenty of fresh vegetables, raw fruit and salads.
- Avoiding cabbage, onions and beans and refined foods.
- Getting them plenty of fibre to eat.
- Encouraging them to exercise after eating to help their digestion.

Fever

Recommendations for people who are sick:

- Drink plenty of fluids.
- Have a warm bath or ask your carer to wash you by using a cloth.
- Try herbal remedies such as a lavender or thyme inhalation.

HIV and AIDS

People living with HIV and AIDS should make sure they have a good source of minerals such as selenium, zinc, calcium, magnesium, iron and iodine, and vitamins; vitamins A, C, E, B, folic acid. These micronutrients help to boost the immune system.

The World Health Organisation (WHO) in 2003 reports that "The HIV/AIDS epidemic has had a devastating impact on health, nutrition, food security and overall socioeconomic development in countries that have been highly affected by the disease".

It is clear that poor nutrition can worsen the effects of diseases and reduce the ability of the body to fight disease. Doctors and scientists are finding that an improved diet "can enhance the health and prolong the life of HIV-infected adults and children."

The report recommends promoting good nutrition as "a fundamental component of HIV prevention, care and treatment of people living with HIV/AIDS (WHO, 2003).

The WHO consultation on nutrition and HIV/AIDS in Africa in 2005 concluded that HIV infected adults and children who are not experiencing symptoms need to increase their energy intake by 10 per cent. Adults suffering from more advanced symptoms of the disease need to increase their energy intake by 20–30 per cent. HIV-infected children experiencing weight loss need too increase their energy intake by 50–100 per cent.

People infected with HIV/AIDS do not need to increase their protein intake but should improve their intake of vitamins and minerals by eating a wide range of fresh fruit and vegetables.

Good nutrition of HIV-positive mothers during pregnancy and breastfeeding increases

their weight gain and helps improve their pregnancy and birth outcomes (WHO, 2005).

Special needs for HIV positive people

People living with HIV and AIDS who are sick may not get enough food because:

- Some medicines they take reduce their appetite .
- Some of their infections may cause a sore mouth, nausea and vomiting.
- Some of their illnesses may cause abdominal pain.
- Some of the symptoms of illness reduce their absorption of food.
- They may experience tiredness, loneliness and depression, which may reduce their appetite.
- They cannot afford to buy food, seeds or agricultural inputs to grow food.
- They may not have the energy to grow their own food.

HIV-positive people can stay strong by making sure that they have a balanced diet. HIV-positive people who are not ill should follow a normal healthy, balanced diet with three good meals a day (FAO, 2002).

Having a healthy diet can help people with symptoms of AIDS to feel better. It may also slow down the illness. However, it is important to explain to participants that no food has been proven to cure HIV or AIDS.

For management of complications of HIV and AIDS, see the section below:

- **People who are losing weight.** People losing weight can try the following:

  - Eat more energy-giving foods, such as maize, millet, sweet potatoes, rice, bread and pulses, meat and dairy products.
  - Eat more protein-rich food, such as beans, cow peas, groundnuts, meat, fish, eggs, insects.
  - Add powdered milk or peanut butter to porridge, sauces and mashed potatoes.
  - Use herbal teas to improve the appetite.
  - Eat even when you are not hungry.
  - Eat soya products, peanut products, sunflower and pumpkin seeds and fruit, especially bananas and avocados.
  - Eat bigger meals and have nutritious snacks between meals, including nuts, boiled eggs, peanut butter snacks, fruit, sweet potatoes, yam and cassava.
  - Slowly increase the fat content of foods, unless diarrhoea occurs.

Please note: eating sugar can worsen thrush. Avoid sugary foods, fizzy drinks jam or honey.

- **Tuberculosis (TB).** HIV-positive people have a high risk of contracting TB. A TB infection can make a person sick and lose weight. The TB drugs can have side effects. Good nutrition can help to reduce weight loss, boost the immune system and reduce the side effects of drugs. Patients are recommended to:

  - Take your full course of TB treatment (6–8 months). Do not stop taking the medicine, even if you are feeling better. Take the TB drugs half an hour after eating a proper meal, such as sadza and relish. This helps prevent vomiting.
  - Eat plenty of fermented foods, such as sour milk, *mahewu* or unsweetened yogurt, with every meal. This will help counteract the side-effects of the antibiotics.
  - Avoid alcohol, which can make the burning feeling of the skin worse.
  - Eat food rich in vitamin B6, such as wholewheat bread, bananas, beans, peas, potatoes, avocados, mangoes and liver.
  - Cut an onion and leave it by your bedside when you sleep. This helps relieve the cough (see also tips under "Coughs, colds and 'flu" above).
  - Use garlic (unless your are taking anti-retrovirals) and ginger in your food. Drink home-made ginger tea.
  - Make a hot compress with ginger. Boil a tablespoon of chopped ginger in 2 cups of water. Soak a small towel in the hot liquid. Squeeze out the towel. When it is cool enough not to burn you, lie down for 30 minutes with the towel on your chest. Dip the towel in the hot liquid whenever it cools down. Do this twice a day.

- **Irritating infections**

  - *Skin problems.* The following are some recommendations for caregivers:

    + Encourage the sufferers to eat food rich in vitamin A and B, such as garlic, liver, egg yolk, orange and green vegetables and fruit, millet, seeds, nuts, beans and wholegrains, including wheat, rice, sorghum.
    + Eat oats porridge to suppress herpes zoster.
    + Apply aloe vera or bulbanella to the skin to sooth symptoms.

  - People with a sore throat and mouth. The following are some recommendations for caregivers:

    + Give sufferers soft mashed foods such as porridge, mashed fruit such as mango, guava, pawpaw or avocado, and mashed vegetable dishes such as pumpkin with

sweet potato mash.

+ Mix sour milk or peanut butter in their food for added protein.
+ Make healthy soups for them, such as butternut soup.
+ Moisten the food to help it slide down more easily.
+ Help them to drink with a straw.
+ Try tilting their head backwards or forwards to make swallowing easier.
+ Give them sour milk or yoghurt to eat.
+ Give them small pieces of green mango or pawpaw to chew to relieve pain.
+ Make herbal teas for them, such as thyme and garlic tea.
+ Use bicarbonate of soda mixed with water as mouthwash instead of cleaning their teeth.
+ Avoid food or drinks that are too hot or cold, sour, salty or spicy, very dry, hard to chew or sticky or containing sugar or honey.
+ Rinse their mouth with thyme tea to give a fresher taste.

Lesson 5. Herbs

Objectives

In recent years, many have turned to traditional remedies and other exotic herbs to treat illness. At the end of this Lesson, you will be able to:

- Learn the advantages and disadvantages of herbal remedies;
- Know edible and safe to use parts of some herbs

Lesson 5.1. Advantages of herbal remedies

They help families to feel empowered because they are doing something to treat sick members of their family when they do not have access to conventional medicine. Herbal remedies give carers and sick people hope and help them to feel positive about their illness.

Some herbs contain nutrients which contribute to the diet and, soothe the symptoms of uncomfortable or irritating infections.

Lesson 5.2. Disadvantages of herbal remedies

- There is a lack of accurate research and reliable information about the action, dosage and application of herbal remedies. This can lead to mistakes in identifying and using herbs.
- Some people make false claims about herbs, stating that they can cure illnesses and conditions including malaria, TB, diabetes and AIDS.
- Some people who could get access to helpful medicines think that herbal remedies are more natural and have fewer side effects.

Lesson 5.3. Important things to note about herbs

Table 4 presents some herbs that edible and safe to use in food such as mint, parsley, thyme, *zumbani*, sage, rosemary, lemon grass, ginger and chives. Herbs such as *zumbani*, thyme, garlic, ginger, basil, mint and lemon grass are are good for making tea. However, herbs such as rue, wormwood and comfrey could be dangerous if taken in large quantities.

If someone is taking anti-retroviral drugs they must ask their doctor before using garlic, as it might interfere with the drugs. Herbs should not be taken internally (anally, vaginally or inserted into the ears, eyes or nose) except when they are eaten or drunk as tea, if they are edible.

Remember that herbal remedies can be used to help ease the symptoms of illnesses, but they do not cure any illnesses (such as AIDS) or conditions (such as high blood pressure). Like any medicine, they must be taken in small doses, as prescribed by a herbalist. If you are seriously ill you should always consult a doctor and tell him or her which herbs you want to use.

Table 4. Herbs.

Name	Edible part	Name	Edible part
basil	leaves	marjoram	leaves
borage	leaves, flowers	mint	leaves
burnet	leaves	nasturtium	all part
calendula	flowers	oregano	leaves
chamomile	flowers	parsley	leaves
chervil	leaves	rosemary	leaves
chilli	fruit	rue	leaves
chives	leaves	sage	leaves
coriander	leaves, seeds	tansy	leaves, flowers
dill	leaves, seeds	tarragon	leaves
fennel	leaves, seeds	thyme	leaves
garlic	bulb	verbena	leaves
lemon balm	leaves	zumbani	leaves
lemon grass	leaves		

Lesson 6. Cooking Nutritious Family Meals for Healthy and Sick Family Members

Objectives

At the end of this Lesson, you will be able to:

- Identify healthy foods for different ages of household members
- List recipes and their ingredients that are healthy for pregnant and breastfeeding mothers, babies, children, adults, and elderly
- List recipes and their ingredients that are healthy for the elderly and the sick family members
- Cook at least one menu in the class
- Teach pregnant and breastfeeding mothers in the community about cooking healthy diets for them and for their children

Lesson 6.1. Cooking carbohydrate dishes

This lesson aims to give participants experience in preparing and eating other sources of carbohydrate.

Millet or sorghum samp

Eating millet and sorghum is a healthy alternative to maize, as they contain more protein, fibre and vitamins and minerals.

Ingredients

1 cup husked millet or sorghum grain
4 tablespoons peanut butter
water

Method

Wash the rice and boil on a low heat to avoid burning. Add salt. When cooked add peanut butter and mix well. Simmer for 5–10 minutes. Serve with tea or roasted meat.

Brown rice (mupunga)

Brown rice used to be grown widely in wetlands around this country. These days it mainly comes from Mozambique or Malawi.

Ingredients

1 cup rice
4 tablespoons peanut butter water

Method

Wash the rice and boil on a low heat to avoid burning. Add salt. When cooked add peanut butter and mix well. Simmer for 5–10 minutes. Serve with tea or roasted meat.

Brown rice meal porridge

Ingredients

2 cups of rice meal
4 tablespoons peanut butter
water

Method

Boil the rice meal until cooked. Add peanut butter and salt. Leave for a few minutes before serving. Serve with chicken stew.

To get a healthy diet we need to eat many different types of food each day including fruit and vegetables, grains, roots, beans, nuts and animal products. We can grow many of these things in our gardens. It is not healthy to eat the same food with the same ingredients every day.

Lesson 6.2. Cooking protein dishes

Recipes for soya, mopane worms, and dried fish

Aim: To give participants practice in cooking a variety of healthy protein dishes.
Materials needed: Ingredients, cooking utensils, source of heat for cooking, hot box cooker.
Time needed: Soak beans overnight, then cook for five hours in hot box cooker.

(Name of the dish)

Ingredients

packet soya mince
small onions, chopped
1 medium tomato, sliced
oil

Method

Soak the soya mince for about 30 minutes in clean water. Drain and reserve the water for soup. Meanwhile fry the onions and tomatoes. Add the drained soya mince. Cook for 3–5 minutes.

Mopane worms (madora)

Ingredients

mopane worms
peanut
butter
water
pinch of salt

Method

Boil the madora with salt until they are soft. Drain, then dry roast. Alternatively, add onions, tomatoes and peanut butter and fry .

Dried Fish (Matemba)

Ingredients

dried fish (kapenta)
peanut butter
tomatoes
onions

Method

Fry the onions and tomatoes, then add the peanut butter. Boil for five minutes, then add the kapenta. Simmer for two minutes. Be careful not to overcook. Serve with sadza.

Recipes for infants and toddlers

Aim: To give participants practical experience of making infant and toddler foods.
Materials needed: ingredients (depending on the dishes you would like to prepare), cooking utensils, including a knife and board for chopping and a potato masher or a fork, a fire or a cooker for cooking the meal.
Time needed: at least one hour, according to the food type.

Before handling the food discuss the importance of hygiene in food preparation. Ask the participants what they should do to preserve the nutrients in the food during cooking. Review the reasons why babies and toddlers need different kinds of food to older children and adults.

Pumpkin cooked in peanut butter (nhopi)

Ingredients

pumpkin (nhanga or shamba) or butternut peanut butter
½ cup of water
maize meal or cooked mashed sweet potatoes to thicken

Method

Wash and peel the pumpkin. Cut into cubes. Boil until soft. Add maize meal to thicken if the pumpkin is watery. Add peanut butter. Simmer for 20 minutes. Serve as a snack in between meals, without sadza, or hot, with sadza.

Sweet potatoes (mbambaira)

Ingredients

4 large sweet potatoes (yellow sweet potatoes contain more vitamins than pale ones).

Method

Wash or wipe the potatoes clean but leave the skin on. Boil the sweet potatoes whole until soft.

Squash (mapudzi)

Prepare in the same way as sweet potatoes. Remember to keep the skin on.

Yam (madhumbe)

As for sweet potatoes. Eat with the skin on unless it is very rough or dirty.

Avocado dip

Avocados are an extremely nutritious fruit. They can be eaten fresh or mashed and spread on bread. You can enhance the taste by mixing it with lemon juice, pepper and peanut butter.

Lesson 6.3. Preparing morning meals

Morning meal recipes

Aim: To give participants practice in preparing morning meals.
Materials needed: cooking utensils, ingredients and a heat source for cooking.
Time needed: at least one hour

Sorghum or maize meal porridge and sour milk

Ingredients

cup of sorghum or maize meal water
sour milk

Method

Cook porridge to a soft constituency. Add sour milk for extra flavour, protein, vitamins and minerals.

Sour mealie meal porridge

Ingredients

1 cup maize meal water

Method

Mix maize flour with water. Leave to ferment overnight. Cook into a porridge the next morning for a healthy, tasty start to the day.

Recipes for Breads and Biscuits

Aim: To give participants practice in preparing snacks.
Materials: cooking utensils, ingredients and heat source for cooking.
Time needed: at least one hour

African soda bread – chimodho

Ingredients

wholegrain flour
¼ cup of maize meal
a teaspoonful baking soda
a pinch of salt and sugar (optional) egg (optional)
a little milk (optional) water

Method

Mix all the ingredients in a bowl, adding enough water or milk to make a soft, sticky constituency. Leave the mixture to ferment for 20–30 minutes. Cook in a covered pan on a fire or bake in an oven of 25–30 minutes. Serve with herb tea.

Peanut Biscuits

Ingredients

4 cups wholemeal flour
1 cup crushed groundnuts
2 level teaspoons baking powder or one teaspoon of baking soda
½ cup of margarine 3 eggs
½ cup of sugar

Method

Cream the margarine and sugar until light and fluffy. Add one egg at a time, beating well. Combine the flour, groundnuts, salt and baking powder or baking soda in a bowl. Add the flour mixture to the margarine mixture. Knead the dough with clean hands. Roll out the dough onto a clean, floured surface and roll it to a thickness of 0.5 cm. Cut into rounds by using a cup. Cook the biscuits on hot charcoal in a greased frying pan with a tight-fitting lid. Put some charcoal on the lid. Serve with tea or mahewu.

Source: A Zimbabwe Cookbook: Recipes for local foods: Care International in Zimbabwe

Sweet potato powder

Ingredients

4–6 medium sweet potatoes

Method

Boil the water and add a pinch of salt. Wash the sweet potatoes and cut out any rotten parts. Cover the sweet potatoes in a pot of boiling water for one minute. Drain the water and allow the sweet potatoes to cool. Peel the sweet potatoes and cut into 1 cm thick rings. Dry in a solar dryer or in the sun until completely dry. Roast the potato rings in a pan over a medium heat until light brown on both sides. Set aside to cool. Pound in a clean mortar to a fine powder. Sift, using a sieve. Store in a clean, dry container. Use the powder to thicken relishes or stews, add to porridge or make into biscuits.

Sweet potato biscuits

Ingredients

3 cups wholegrain flour
1 cup sweet potato powder
2 level teaspoons baking powder or one teaspoon baking soda
½ cup margarine 3 eggs
honey or sugar a pinch of salt
sunflower seeds or crushed groundnuts

Method

Cream the margarine and sugar until light and fluffy. Add an egg at a time, beating well between each addition. Combine the flour, sweet potato powder, salt and baking powder or baking soda in a bowl.

Add the flour mixture to the margarine mixture. Kneed the dough with clean hands. Role out the dough onto a clean, floured surface and roll to a thickness of 0.5 cm. Cut into rounds using a cup. Decorate with shelled sunflower seeds or crushed groundnuts. Cook the biscuits on hot charcoal in a greased frying pan with a tight-fitting lid. Put some charcoal on the lid. Serve with tea or mahewu.

Maize biscuits with peanut butter, (makeve)

Ingredients

2 cups maize meal
2 tablespoons peanut butter 1 level tablespoon sugar

Method

Mix the meal, sugar and salt. Add enough water to make a dough of fairly medium consistency. Add the peanut butter and mix well. Bake over charcoal, as in the previous recipe.

Source: A Zimbabwe Cookbook: Recipes for local foods: Care International in Zimbabwe

Roasted groundnuts (mutetenerwa)

Ingredients

1 cup groundnuts (dry)

Method

Roast the groundnuts and add a little water and salt. Shake them until dry. Serve with sadza or as a snack. Alternatively roast pumpkin seeds or sunflower seeds.

Popcorn (*maputi*)

Ingredients

½ cup whole maize kernels, cut off the cob and dried.

Method

Roast the maize dry (without oil) in a covered pan over a hot fire.

Some healthy snacks

- sweet potatoes
- cassava
- yam
- pumpkin or squash (mapudzi)
- popcorn (maputi)
- roasted maize
- mutakura
- fresh fruit
- caterpillars
- mahewu
- homemade bread
- sweet potato biscuits

Lesson 6.4. Healthy eating as we age

As we age, healthy eating can make a difference in our health, help to improve how we feel, and encourage a sense of well-being. Eating healthy (Fig 15) has benefits that can help older adults:

Nutrients

- Obtain nutrients needed by the body such as potassium, calcium, vitamin D, vitamin B12, minerals, and fiber.
- Lose weight or maintain a healthy weight
- Reduce the risk of developing chronic diseases such as high blood pressure, diabetes, hypertension, and heart disease.If you have a chronic disease, eating well can help to manage the disease.
- Meet individual calorie and nutrition needs.
- Help to maintain energy levels.

Lesson 6.5. Special nutrition concerns for older adults

Our daily eating habits change as our bodies get older. Make small adjustments to help you enjoy the foods and beverages you eat and drink.

- Add flavor to foods with spices and herbs instead of salt and look for low-sodium packaged foods.
- Add sliced fruits and vegetable to your meals and snacks. Look for pre-sliced fruits and vegetables on sale if slicing and chopping is a challenge.
- Ask your doctor to suggest other options if the medications you take affect your appetite or change your desire to eat.
- Drink 3 cups of fat-free or low-fat milk throughout the day. If you cannot tolerate milk try small amounts of yogurt, butter milk, hard cheese or lactose-free foods. Drink water instead of sugary drinks.
- Consume foods fortified with vitamin B12, such as fortified cereals.

Be Active Your Way

Focus on maintaining a healthy body weight. Being physically active can help you stay strong and independent as you grow older. If you are overweight or obese, weight loss can improve your quality of life and reduce the risk of disease and disability.

- Adults at any age need at least 2 ½ hours or 150 minutes of moderate-intensity physical activity each week. Being active at least 3 days a week is a good goal.
- Find an activity that is appropriate for your fitness level. If you are not active, start by walking or riding a stationary bike. Strive for at least 10 minutes of exercise at a time and be as active as possible.
- Include activities that improve balance and reduce your risk of falling such as lifting small weights. Add strength building activities at least 2 times per week.
- Being active will make it easier to enjoy other activities such as shopping, playing a sport, or gardening.
- If you are not sure about your level of fitness, check with your doctor before starting an intense exercise program or vigorous physical activity.

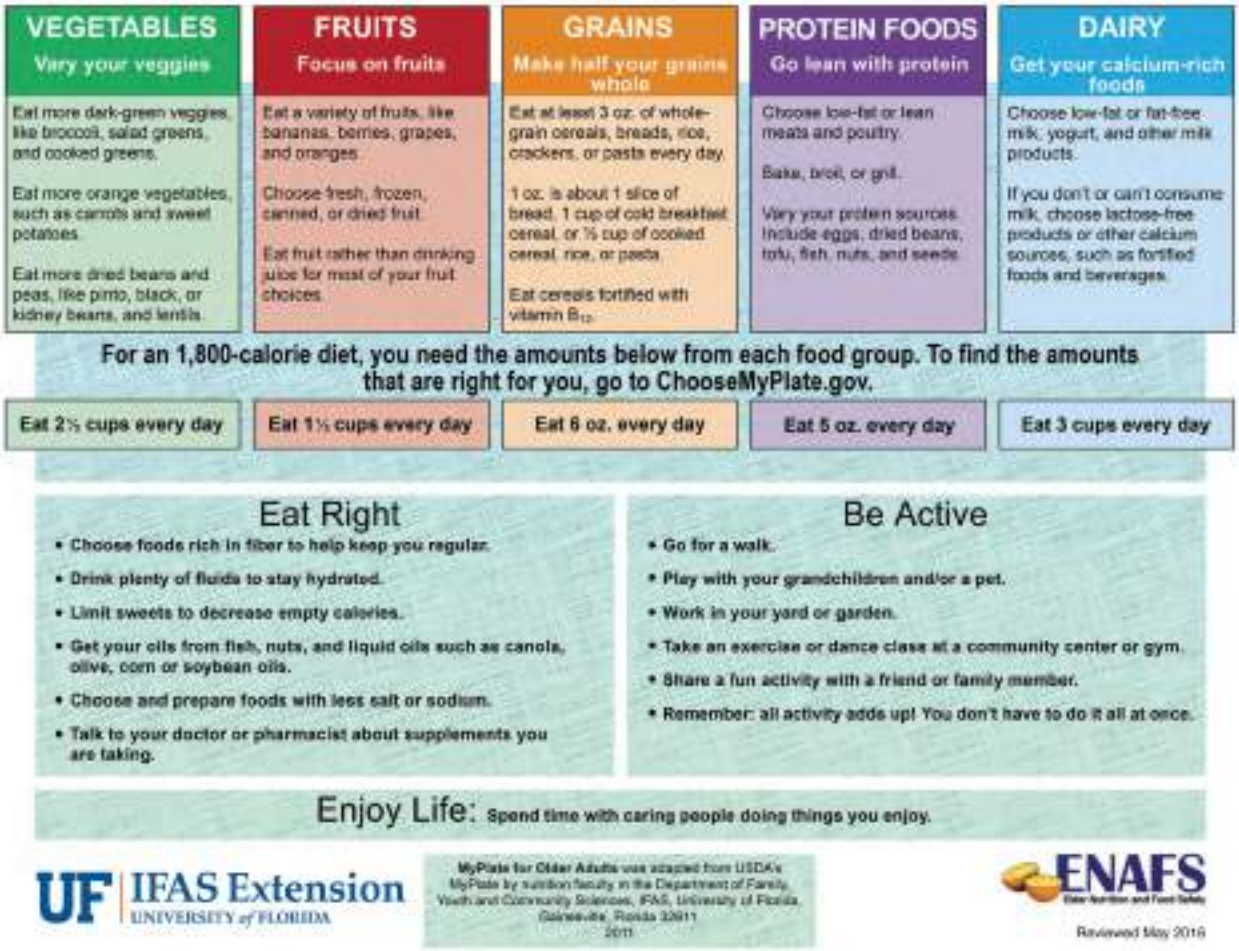


Fig. 12. Healthy Meals for Older Adults

Lesson 7. WASH Principles as Part of Healthy Diet, Healthy Body

Objectives

At the end of this Lesson, you will be able to:

- Understand the basic concepts of WASH,
- Discuss the nutritional gains when WASH is integrated into the programme
- List WASH practices that can be included in any community nutriton programme.
- Promote WASH principles in your own community's nutrition program

Lesson 7.1. What is WASH[31]?

WASH refers to activities aimed at improving access to and use of safe drinking water and sanitation as well as promoting good hygiene practices (e.g. handwashing with soap at critical times).

Interventions are generally categorized as follows:

- **Water quantity:** Provision of facilities and services that increase the amount of water available for drinking, cooking and maintaining good hygiene practices within households, health care facilities or schools; and reduce the time and effort required to collect the water.
- **Water quality:** Improvement and protection of the microbiological (or chemical, such as arsenic) quality of drinking-water through water treatment and safe storage or by improving existing water sources to protect them from outside contamination. Improved water sources include:

  - Piped water on-site,
  - Public taps or standpipes,
  - Tubewells or boreholes,
  - Protected dug wells,
  - Protected springs and rainwater (WHO/UNICEF, 2015).

[31] http://www.unicef.org/wash/index_43084.html

- **Sanitation:** Provision and use of facilities and services that safely dispose of human urine and faeces, thereby preventing contamination of the environment. Improved sanitation facilities include :
  - Flush or pour-flush toilets to piped sewer systems,
  - Septic tanks or pits,
  - Ventilated improved pit latrines,
  - Pit latrines with slab, and composting toilets (WHO/UNICEF, 2015).

- Hygiene: Practice of handwashing with soap after defecation and disposal of child faeces, prior to preparing and handling food, before eating, and, in health care facilities, before and after examining patients and conducting medical procedures. Hygiene also refers to interventions such as:

  - Food hygiene (safe food handling, including preparation, storage and serving) and
  - Environmental hygiene, such as safely disposing of household solid waste (Adams, Bartram & Chartier, 2008).

Wash Practices, Nutrition Interventions and Example Delivery Channels for Health Care Facilities, Communities and Households[32] .

Lesson 7.2.Wash practices

- Wash hands with soap before feeding child, after defecation, after cleaning child
- Keep food safe (e.g. reheating food before serving infants, storing food safely in containers)
- Treat drinking water before giving it to infant
- Build and use hygienic latrines
- Safely dispose of infant faeces
- Remove faeces from child's environment

Lesson 7.3. Nutrition interventions

- Improving nutrition of pregnant and lactating women
- Early initiation of breastfeeding within 1 hour of birth
- Exclusive breastfeeding for the first 6 months
- Counselling and support for continued breastfeeding along with appropriate complementary feeding from 6 months up to 2 years and beyond

[32] http://apps.who.int/iris/bitstream/10665/193991/1/9789241565103_eng.pdf

- Fortification, when needed
- Micronutrient supplementation to women of reproductive age, pregnant women and children
- Management of moderate and severe acute malnutrition
- Nutritional care and support for children and women in difficult circumstances (e.g., emergencies, human immunodeficiency virus [HIV]/acquired immunodeficiency syndrome [AIDS])

Table 5. Wash Practices Integrated with Nutrition.

Examples of Wash Practices for Integration	**Examples of Nutrition-specifications**	**Illustrative actitivies**[33]	**How to integrate Wash into Nutrition Programmes**[34]
• Wash hands before food preparation and feeding • Handle food safely (e.g. reheat food before serving infants) • Treat and safely store water for all individuals and especially for young children who eat complementary foods and drink water • Remove animal and human faeces from environment (e.g. dispose of infant faeces safely)	• Counselling and support to improve nutritional status of pregnant and lactating women • Counselling and support for appropriate breastfeeding and complementary feeding practices • Micronutrient supplementation to women, including pregnant women, and children • Dietary diversification • Dietary modification • Fortification, when needed	HEALTH CARE FACILITY LEVEL • In-patient care for severe acute malnutrition • Counselling during -Sick child visit- Immunization/ health days/ deworming -Antenatal care- Growth monitoring and promotion	HEALTH CARE FACILITY LEVEL • Strengthen competencies/train facilitystaff to negotiate improved WASH practices while also negotiating nutrition-specific practices • Assess availabilityof supplies at institutional levels (latrine availability, water shortages through enabling technologies/ tippy tap[35], rainwater catchment) • Promote behavioural change during counselling

[33] Most are relevant to emergency and no-emergency non-emergency settings
[34] Many of these suggestions will require technical and financial support from WASH actors.
[35] A tippy tap is a locally made handwashing device that utilizes low-cost, easily accessible materials such as plastic jugs, rope and sticks.

Table 5. continued...

Examples of Wash Practices for Integration	Examples of Nutrition-specifications	Illustrative actitivies[33]	How to integrate Wash into Nutrition Programmes[34]
• Build and use latrines, engaging with WASH actors for technical support	• Managementof moderate and severe acute malnutrition	COMMUNITY/ HOUSEHOLD LEVEL • Community-basedoutreach visits through health care workers • Care Group model • Counselling during -Immunization days -Health days, deworming, micronutrient supplementation • Growth monitoring and promotion • Community integrated management of child Illness Treatment of moderate and severe acute malnutrition through community-based management approaches• Support groups (mothers,grand-mothers) • Social mobilization (mass media, folk theatre) • General food distributions or cash transfers for at-risk groups	COMMUNITY/HOUSEHOLD LEVEL • Conduct demonstrationson water treatmentand/ or handwashing • Model child-friendly latrines,potties, handwashing Stations • Trigger communities to collectively eliminate open Defecation • Build competencies of community outreach workers to negotiate improved WASH practices and appropriate treatment of sick children, recuperative feeding/catch-up • Assess availabilityof supplies (deal with water shortages through enabling technologies/ tippy tap, soap, latrines)• Promote behavioural change during outreach visits • Promote use of and increase access to soap for handwashing and water treatment technologies • Support latrine construction and promote use • Provide water treatment products • Provide water supply infrastructures and establish system for operation and maintenance

a- Most are relevant to emergency and no-emergency non-emergency settings
b- many of these suggestions will require technical and financial support from WASH actors.

Module 3

Grow Your Own Vegetable Garden

Module 3: Grow Your Own Home Vegetable Garden

The overall Learning Goal for Module 3 is to equip you with knowledge and skills on growing your own home or school/ community vegetable garden.

Introduction

Home gardening is an old traditional practice among poor households in developing countries. Basically, home gardens are situated very near homes and are used to meet family needs (e.g. food, fuel, fiber, etc.).

Says one of the women from Uhanga village in Dhaleswar, Suchitra Mallik, " I am a mother of two. Everyday, I make sure my kids eat leafy vegetables from my home garden. Leafy vegetables are essential for my family's health and nutrition. I have learnt that they contain iron supplements and vitamins."

Like Suchitra, many indigenous women are inspiring their neighbors to grow, eat, and sell their own home-grown vegetables to improve both health and income of their families[1] . This story showcases the benefits of growing your own home vegetable garden.

By the end of this training module you will be able to:

- Discuss the benefits of growing your own home veggie garden
- List nutritious healthy crops which you can grow in different areas
- List the basic steps in growing your own home veggie garden
- Assess the resources you currently have and what you need for your own home vegg garden
- Write your own home veggie garden goal
- Create your own home vegetable garden map
- Make an action plan after you create your veggie garden map
- Share your home vegetable garden map action plan to your neighbors

Module 3 is designed for Trainers like you who are willing to teach potential trainers on how to grow your own home vegetable garden. There are 4 Lessons in this Module:

[1]The World Vegetable Center (AVRDC) video clip file (November 2015), accessed 16July 2016.

- **Lesson 1** discusses the benefits of growing your own home vegetable garden and shares the success stories of women and men who have used home vegetable gardens as a channel in not only improving the health of their families, but also of their incomes.
- **Lesson 2** details the different vegetables that can be easily grown in your home garden and their specific contributions to possessing healthy bodies.
- **Lesson 3** describes the steps from site and vegetable crop selection to seedling management
- **Lesson 4** discusses the basics of creating an action plan and leads the participants and instructs participants how to make a stakeholder matrix analysis as a preparation on engaging different groups in the community to establish a community vegetable garden

Lesson 1. Benefits of a Vegetable Garden

Objectives:

At the end of this lesson, you will be able to:

- Appreciate the benefits of growing your own home vegetable garden,
- Recall and be inspired by the success stories of women and men who have engaged in home vegetable gardening and gained good health and income for their families and their communities.
- Make a list of people in your community who have home vegetable gardens and write your observations about what benefits they are enjoying from their garden.

Lesson 1.1. The Benefits of Growing Your Own Home Vegetable Garden

Success Stories

1. **Success Story 1 (story by Ralph Roothaert, AVRDC Eastern and Souther Africa, Arusha, Tanzania[2])**

Robina Nasozi is a farmer who participated in the training and received a seed kit with seven different types of vegetables. She planted all of them, but she particularly liked nakati (leaves of African eggplant) and dodo (amaranth).

"I like these leafy vegetables very much," she said. "They are tastier than the ones we collect from the wild, not so bitter. When the plants in the home garden started flowering, I let them mature and I collected their seeds. I then prepared more seed beds and I now have many plots as you can see.

The vegetables are also very marketable, they sell at Ugsh 1000 (USD 0.30) for a small bunch of 5 cuttings. During Easter I was able to sell nakati worth Ugsh 20,000 (USD 6). Last year I earned Ugsh 50,000 with the proceeds of vegetable sales, which I used to pay the school bills of my grandchild, who stays with me."

Robina is a well-respected person in Katogo village of Mukono District. She runs a primary school with 84 students. She was selected by her community to be their leader in

[2] http://avrdc.org/home-gardens-healthy-children-happy-parents/)

the USAID Homegarden Scaling Project. She has taught many other farmers simple but effective methods of seed bed preparation, sowing, harvesting, and cooking.

"Members of the farmer groups I teach all got their seed kits from the World Vegetable Center, but there are many other people who ask me for seeds," Robina said. "So I not only preserve seeds for myself, but I also share my seeds with others."

To illustrate her point, Robina guided visitors to the fields of neighbors who established home gardens with nakati, spider plant, and amaranth, and to her school, where several classes were in session…Robina said she uses the vegetables she grows to prepare school lunches for the students.

The experience of Robina and her neighbors in Katogo shows that even though farmers have access to local vegetables from the wild, the careful selection, evaluation and breeding of those lines by the World Vegetable Center has resulted in types that are even more appreciated by farmers and are now in high demand. Working with innovative and influential farmers such as Robina increases the impact of the seed kit distribution initiative, because she multiplies the seeds and distributes them to other farmers. The combination of providing improved seeds, training of farmers, and education of children is a powerful way of tackling malnutrition in Uganda.

2. Success Story 2 (story by Ralph Roothaert, AVRDC Eastern and Southern Africa, Arusha, Tanzania)

When the Kyalo family learned how to grow traditional vegetables, their dull daily diet of maize, beans and cabbage was transformed into a feast of flavor and nutrition

Festus Kyalo[3] is a farmer in Katulani village in Machakos, Kenya. He is married and has a son, and he wants to feed his family well. His wife **Anastasia** used to buy whatever vegetable she could find in the market—most of the time only cabbage. She could only

shop once a week, because the fare to travel to the market in Matuu was expensive. If she bought more vegetables, there was a risk that they would spoil at home because the family has no electricity or refrigerator.

Six months ago, a farmer group in which the Kyalos are members was invited by the local administration to participate in a meeting of the Homegarden Scaling Project, a joint initiative of the World Vegetable Center, Farm Concern *International and Jomo Kenyatta University of Agriculture and Technology (JKUAT)* funded by the United States Agency for International Development (USAID). During the meeting, the group learned about the perils of malnutrition, and ways of overcoming it by growing traditional African vegetables in home gardens. The project needed a few farmers who could train other farmers, and Festus was nominated by his group members for the role.

They told him: "Get education for us." He received training in good agronomic practices for vegetable production, such as seed selection, use of improved of varieties, land preparation from seed bed to planting, weeding, spacing, manure application, and disease management.

After the training he set aside a 10 m x 20 m plot on his farm and planted seed of kale, pumpkin, cowpea, and two varieties of amaranth, which he received through the project. He followed the instructions for proper spacing. His first harvest came from the thinning of amaranth plants. The family was thrilled about the good taste of the improved varieties.

Anastasia said: "I wish I had known this earlier. I used to collect amaranth from the wild, I didn't know about these improved varieties and that they could be grown in plots." The other vegetables also have grown well and she now harvests a different vegetable every day. The family meals have become more varied and nutritious, with larger portions of vegetables and smaller portions of maize.

"I don't have to buy vegetables anymore," said Anastasia. "My household spending has reduced, I only need to buy oil." Festus appreciates the fact that he is sure of the quality and safety of the food his family now consumes. He is sure his food is free of agrochemical residues because the vegetables are home-grown (Photo: Festus with his wife Anastasia).

[3] http://avrdc.org/monotony-to-diversity/

"The vegetables people buy in the market are often unsafe because of those residues," he said. "You can't tell the safe ones from the contaminated ones." Now that he has realized the potential of growing his own vegetables, Festus has stepped up his game. "I have a dream: I want to supply the whole Matuu market with vegetables," he said. "I want to set aside one acre of my farm for growing vegetables to achieve this. Vegetables are in high demand—neighbors are coming to my farm and asking if they can buy some. I have already sold some vegetables from the amaranth plot, which produces a lot. What I need to improve now is my water harvesting system, so that I can irrigate the vegetables during the dry spells."

Over the past two years, Festus has dug a well on his farm that is now 47 feet deep. Whenever he has time he digs it a bit deeper. In addition, he and a friend have dug channels in his farm and a big pit to direct rainwater from his farm into a big pond. It fills up completely after two or three days of good rain. He has decided to double the depth of the pond so that he can double the amount of water for irrigation.

Today, Festus has become a community trainer and teaches other group members, as well as other famers in the village. He says other farmers sometimes approach him with a problem. They complain that they were given vegetable seed kits by the project, but the amount of

seed is not sufficient to grow large plots. He advised them to grow and save their own seeds, and multiply seeds every season. If they become good at it, they can even sell seeds to other farmers. Growing an acre of vegetables should be possible for everyone, as long as you are committed.

3. Success Story No. 3 (Story by Ralph Roothaert, AVRDC Eastern and Southern Africa, Arusha, Tanzania)[4]

Lilian's children wouldn't eat the food she cooked. Now she grows vegetables that aren't bitter, changed her cooking style, and has the kids eating healthy leafy greens every day (http://avrdc.org/they-like-it/).

Lilian Nabangi from Bungoma County in Kenya is married with three children. She had a problem: her children didn't like the food she cooked, and sometimes refused to eat.

As a result her children were often ill; she took them to the clinic every two months in search of a cure. Lilian went to secondary school, but dropped out at form 3, a year before the final exam. Her parents couldn't afford the registration fee for the exams. She is very bright and charismatic; apart from her mother tongue Kiluhya, she speaks fluent English, Kiswahili and Luo. People in the village area aware of her leadership skills, and have elected her as the secretary of two different women's groups.

Six months ago she went to the local government office because she was in need of fertilizer for her farm. Entrepreneurial as she is, she also enquired about any new initiatives the authorities were planning for her village.

When she heard about the Home garden Scaling Project of the World Vegetable Center, she convinced the government to come and work with her groups. Project partner Farm Concern International also recognized her leadership potential and trained her to train other farmers, along with staff from Jomo Kenyatta University of Agriculture and Technology (JKUAT). Lilian learned about the use of improved varieties of traditional African

[4] http://avrdc.org/they-like-it/

vegetables, their nutritive value and taste, planting methods, cultivation techniques, thinning, harvesting, storage and cooking.

She also learned how to establish a demonstration plot and how to teach other farmers of improved agronomic practices. Her demonstration plot is one of the best in the County, displaying impressive crops of slender leaf, nightshade, cowpea, spider plant and kale.

She cleverly positioned it near a busy road to attract curious passersby, who, when they ask her, also receive an abbreviated training session on the advantages of traditional vegetables and how to grow them.

"Some of these vegetables we knew already and we have been cooking them," she said. "But after the training on nutrition and using new recipes, I realized that our traditional way of cooking destroyed most of the nutrients. I used to collect a big amount of spider plant and cook it for a long time, adding a bit of milk. I served it with maize porridge. During dinner, a lot of it would remain, which I would save and cook again the next day, while adding a bit more milk."

She repeated the practice for a whole week, until the vegetables were finally finished. "In the end we were just eating fibers without much nutritive value," she said. "Now I use new recipes. For example, I fry a bit of onion and tomato, add the vegetables and cook them only for five minutes. In that way all nutrients are preserved and it tastes delicious. " The new varieties are sweet and don't have the bitterness of the local varieties.

"My children love it," Lilian said with delight. "And I don't need to take them to the doctor anymore. "Apart from the demonstration plot she manages, she has established her own vegetable home garden by using the same improved varieties and techniques. She harvests a lot of vegetables and now cooks a different type of vegetable every day. She even has enough to sell some to customers and with the money she earns, she buys small things like soap and sugar. "These vegetables have helped our community and our immune systems," she said. "The prices of different vegetables in the market are very high for small bundles, and they go up every day." She is planning to increase her plot to half an acre, to ensure plenty of vegetables for home consumption and to increase her income.

Do you have your own success story to tell? Is there a person in your community whom you vividly remember as having a vegetable garden in his/her home? Take a moment to share now to your seatmate and write a summary about the benefits that the person got from his/her home garden.

Now that you have read these success stories, we can move on to summarizing the benefits of growing home vegetable gardens.

Lesson 1.2. Summary of benefits of growing your own home vegetable garden

Home gardens are developed with the following benefits: [5, 6]

1. Supplies nutritious food and some staple foods all year **(Fig. 1** [7]**)**;
2. Generates income from the sale of garden produce **(Fig. 2)**;
3. Provides good opportunity for family members to strengthen ties by working together **(Fig. 3)**.
4. Provides healthy, comfortable and beautiful environment safe recycling of household wastes through composting or as animal feed.
5. Offers privacy, shade and flowers for a family and their visitors to enjoy.

Fig. 1.

[5]Midmore, D. J., V. Ninez, Venkataraman. 1991. Household gardening projects in Asia: Past experiences and future directions. The World Vegetable Center (AVRDC). Technical Bulletin No. 19 pdf.
[6]http://www.fao.org/docrep/006/y5112e/y5112e03.htm
[7]Villareal, R. S. Shanmugasundaram, M.L. Chadha. 1993. A primer on vegetable gardening. Asian Vegetable Research and Development Center, Shanhua, Tainan, Taiwan.

Fig. 2.

Fig. 3.

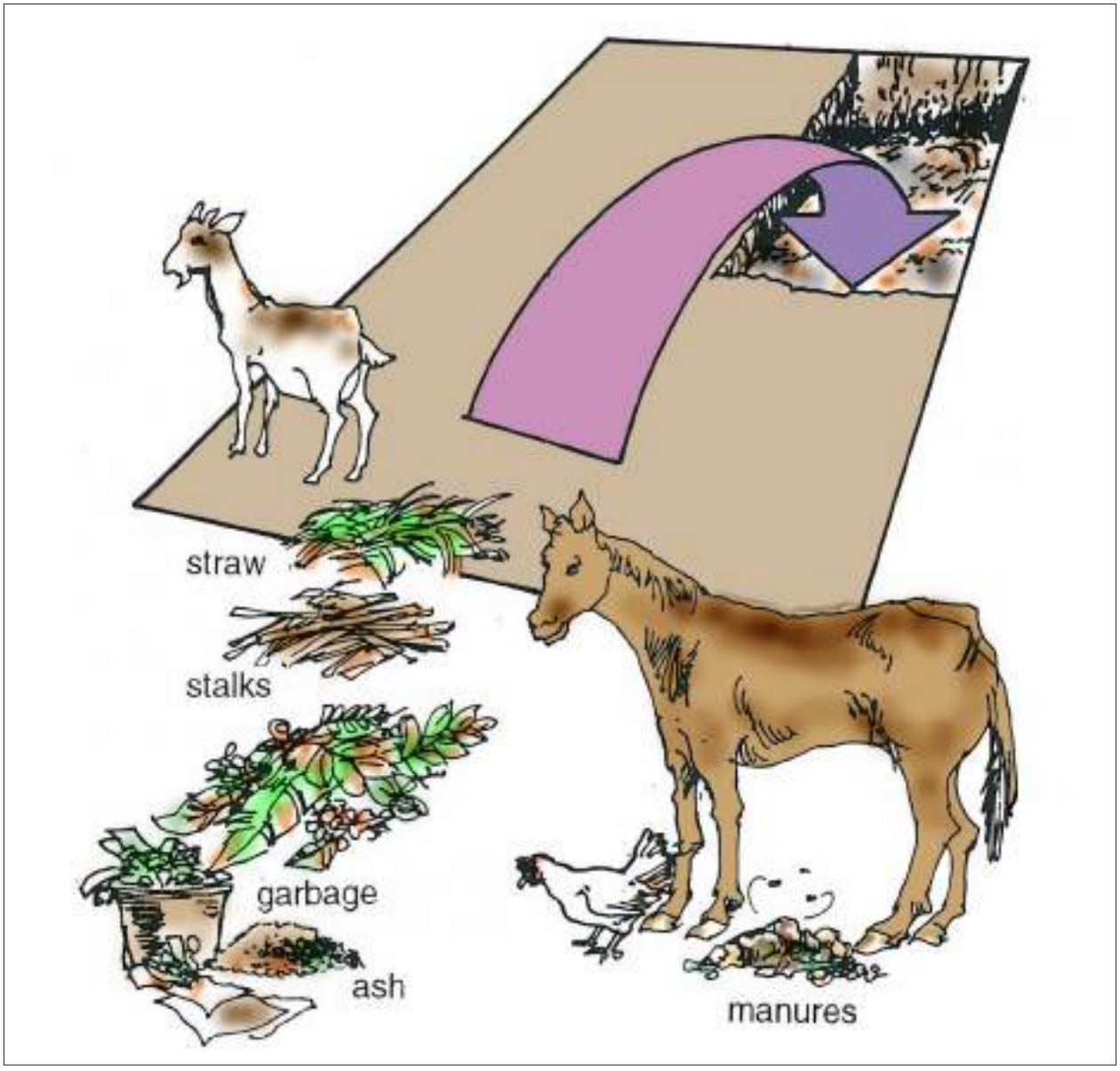


Fig. 4. Recycling by composting animal and plant wastes and using compost as organic fertilizer.

Additional benefits:

6. Reduces food losses

The location of the garden close to the home reduces the risk of food losses from foraging wild animals and from theft. In the household farming system, most staple foods are usually supplied by one or more fields of a crop. Such fields are typically at a distance from the home, and a family member may have to stay there overnight in a makeshift hut in order to protect it at harvest times.

7. Makes more - and better - food available at all times

Gardens assure households of food availability even during off-season production. In all but the coldest and driest climates, vegetables can be planted and harvested for most of the year.

Trees often bear fruit or nuts at different times of the year compared to staple food crops. In tropical climates, papaya (*Carica papaya*) and banana (*Musa paradisiaca L.*) may be harvested almost year round. In subtropical areas, fruits from South America, such as feijoa (*Feijoa sellowiana*) and avocado (*Persea americana*), and from Asia, such as mandarins (*Citrus sinensis*) and jujube (*Ziziphus jujuba*) are harvested from late summer into winter, when few other fruits are available.

Livestock and aquaculture are integral parts of many home garden systems, whether the climate is humid or dry. In a home garden, terrestrial and aquatic animal production can generate high levels of output and income and improve family nutrition while contributing to waste management and water and nutrient recycling.

Lesson 2. Vegetables of Various Colors and Nutrients

Objectives

At the end of this lesson, you will be able to:

- List the different vegetables that you can easily grow in your home garden
- Recall the nutrients from each vegetable and how these nutrients contribute to a healthy body
- Make your own list of vegetables that you commit to eat daily

Lesson 2.1. Grow a mix of veggies of various colors and nutrients[8]

Choosing the right crops . By planting many different crops for harvesting at different times of year you will have a garden all year round. If you include plants that live for more than one year, such as moringa, pigeon pea, cassava and fruit trees, then your food security will be improved.

Moringa is a tough, fast-growing tree that produces very nutritious edible leaves and pods. It can also be used for live fencing. The seeds can be used to purify water.

Pigeon pea is a tough bush which lives for about four years. It produces nutritious seeds and the plant helps to improve the soil. Cassava is a tough bush which can live for two to four years. The roots and leaves may be eaten.

Before thinking of what veggies to grow in your garden, here is a catalogue of vegetables of various colors.

Lesson 2.2. Herbs

Herbs can be useful for soothing the symptoms of illness. They can also be used in the garden as many strong-smelling plants repel pests and can be made into repellent sprays or powders.

Plant large herbs which take up a lot of space around the edge of the garden. Examples of these are lavender, rosemary, lemon grass, zumbani and rue.

[8] Luoh, J.W., R.Y. Yang and M. Meccozi (undated). Garden, Nutrition and Health: Teaching Material for Primary School Teachers and Students. II. Vegetables and Nutrition for Schools in Nepal. The World Vegetable Center. Tainan, Taiwan.

Vegetables of Various Colors

Amaranth

Ash (wax) gourd

Asparagus

Asparagus (winged) bean

Balsam apple

Banana (blossoms)

Beetroot

Bitter gourd

Bottle gourd

Broad bean

Broad Leaf Mustard

Broccoli

Buckwheat (leaf)

Cabbage

Carrot

Cauliflower

Chayote (fruit/shoots)

Chili

Chinese leek

Coriander

Cucumber

Dill

Eggplant

Elephant foot yam

Fenugreek (leaf)

Fiddlehead Fern

Garden cress

Garden pea (pod/vine

Garlic (leaf/clove)

Green onion

Hyacinth bean

Indian rape

Knolkhol (Kohlrabi)

Lamb's-quarter

Lettuce

Malabar spinach

Okra

Onion

Pointed gourd

Pumpkin (fruit/shoots)

Radish (leaf/root)

Shallot

Snake gourd

Spinach

Sponge/ridged gourd

Squash

Stinging nettle

Sweet pepper

Sweet potato

Sword bean

Taro (leaf/stalk/corm)

Tomato

Turnip (leaf/root)

Vegetable soybean

Velvet bean

Yam

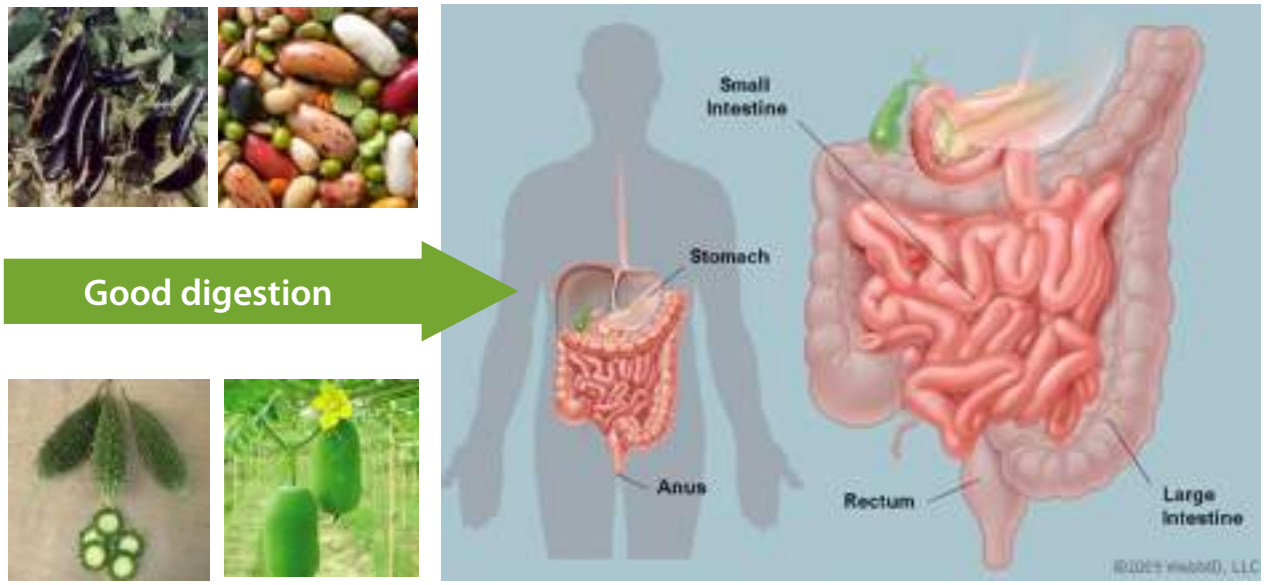
Small herbs such as basil, thyme, chives, parsley and sage can be included in the vegetable beds (see also module three).

Lesson 2.3. The nutrients in vegetables

- Fiber – for good stomach and colon cleansing
- Protein – for strong muscles (arms and legs)
- Calcium – for strong bones, teeth, nails
- Iron – for healthy blood
- Vitamin – for healthy eyes

1. **Fiber in vegetables helps good DIGESTION for healthy stomachs. Almost all vegetables are good sources of fiber.**

    - Ash gourd
    - Bitter gourd
    - Eggplant
    - Beans



2. Protein in vegetables builds MUSCLES that help our arms, legs, and body move.

- Drumstick
- Peas and
- Beans

Drumstick

Peas and beans

3. Calcium in vegetables builds healthy BONES, TEETH and NAILS. Dark green leafy vegetables are good sources of calcium.

Amaranth

Spinach

Drumstick

4. Iron in vegetables is good for our BLOOD and protect against ANEMIA. Dark green leafy vegetables are good sources of iron.

Amaranth

Pumpkin leaves

Ridge gourd leaves

Spinach

5. Vitamin A in vegetables keeps our EYES healthy and prevents NIGHT BLINDNESS.
Orange-colored vegetables and dark green leafy vegetables are good sources of Vitamin A.


Carrot


Pumpkin


Sweet potato


Malabar spinach


Amaranth


Spinach

Table 1. Nutrients Found in Vegetables

	Nutrient in 100 g vegetable				
	Energy	**Protein**	**Fat**	**Carbohydrate**	**Fiber**
	kcal	**g**	**g**	**g**	**g**
Amaranth	45	4	1	6	1
Ash (wax) gourd	10	0	0	2	1
Asparagus	25	3	0	3	1
Asparagus (winged) bean	45	3	34	8	2
Balsam apple	-	-	-	-	-
Banana (blossoms)	-	2	0	-	-
Beetroot	43	2	0	9	1
Bitter gourd	25	2	0	4	1
Bottle gourd	12	0	0	3	1
Broad bean	48	5	0	7	2
Broad Leaf Mustard	34	4	1	3	1
Broccoli	50	5	0	7	1
Buckwheat (leaf)	31	4	0	4	1

Table 1. Continued...

	Nutrient in 100 g vegetable				
	Energy	**Protein**	**Fat**	**Carbohydrate**	**Fiber**
	kcal	**g**	**g**	**g**	**g**
Cabbage	27	2	0	5	1
Carrot	48	1	0	11	1
Cauliflower	30	3	0	4	1
Chayote (fruit)	19	1	0	5	2
Chili	53	4	1	8	1
Chinese leek	23	2	0	2	3
Coriander	44	3	1	6	1
Cucumber	13	0	0	3	0
Dill	43	3	1	7	2
Eggplant	24	1	0	4	1
Elephant foot yam	79	1	0	18	1
Fenugreek (leaf)	49	4	1	6	1
Garden cress	67	6	1	9	1
Garden pea	93	7	0	46	4
Garlic	76	2	1	15	2
Green onion	41	1	0	9	2
Hyacinth bean	46	2	0	9	3
Indian rape	27	3	0	5	3
Kohlrabi	27	2	0	6	5
Lamb's-quarter	30	4	0	3	1
Lettuce	21	2	0	3	1
Malabar spinach	32	3	0	4	
Okra	35	2	0	6	1
Onion	47	1	0	10	1
Pointed gourd	20	2	0	2	3
Pumpkin (leaf)	53	5	1	7	2
Radish (root)	32	1	0	7	1
Shallot	72	3	0	17	3
Snake gourd	18	1	0	3	1
Spinach	26	2	1	3	1
Sponge/ridged gourd	26	1	0	5	0
Squash (pumpkin)	25	1	0	11	1
Stinging nettle	53	7	0	5	2
Sweet pepper (yellow)	73	1	0	17	0

Table 1. Continued...

	Nutrient in 100 g vegetable				
	Energy	**Protein**	**Fat**	**Carbohydrate**	**Fiber**
	kcal	**g**	**g**	**g**	**g**
Sweet pepper (yellow)	73	1	0	17	0
Sweet potato (red)	126	1	1	29	1
Sword bean	44	3	0	8	2
Taro (leaf/stalk/corm)	56	4	2	7	3
Tomato	21	1	0	4	1
Turnip (leaf)	67	4	2	9	1
Velvet bean	-	-	-	-	-

Lesson 3. Steps in Growing Vegetables[9]

Objectives

At the end of Lesson 3, you will be able to:

- Draw a process flow on the different steps in growing your own home vegetable garden
- Define each process in the diagram
- List the steps and skills that you need to learn in growing your own home vegetable garden

Lesson 3.1. Select site

Location is very important. Consider the following:

- Should be near the house, school building or community center (Fig. 1).
- Can be at the front, side or back of the house depending on available space.
- Near a water source
- Area exposed to good sunlight (at least for half a day of sunlight)
- Fairly level ground with well-drained soil.

Lesson 3.2. Determine size

Consider the following when determining the size of your garden (Fig. 2):

- Number of family members – the bigger, the more labor available for gardening
- Available land/space
- Available time

Lesson 3.3. Select vegetables

When selecting which vegetables to grow, ask yourself the following questions:

[9] A vegetable garden for all. Manual 5th Edition. Food and Agriculture Organization of the United Nations. http://www.fao.org/3/a-i3556e.pdf

Fig. 1. Should be near the house or school

- What vegetables do your family members usually prefer to eat?
- What nutritional value would you want?
- Which vegetables are commonly eaten/bought by and well-known in your community
- What time (seasons) are these vegetables planted and/or harvested ?
- Where can you get the seeds for these vegetables?
- With whom can you consult with to teach you more about planting vegetables

Lesson 3.4. Lay-out a home garden vegetable map

The garden can be a school, church, or a community garden. Considering the following factors in designing the map:

- Where will you plant each of the vegetables you have selected?
- When do you want to plant/harvest them? – if you need a year-round supply of

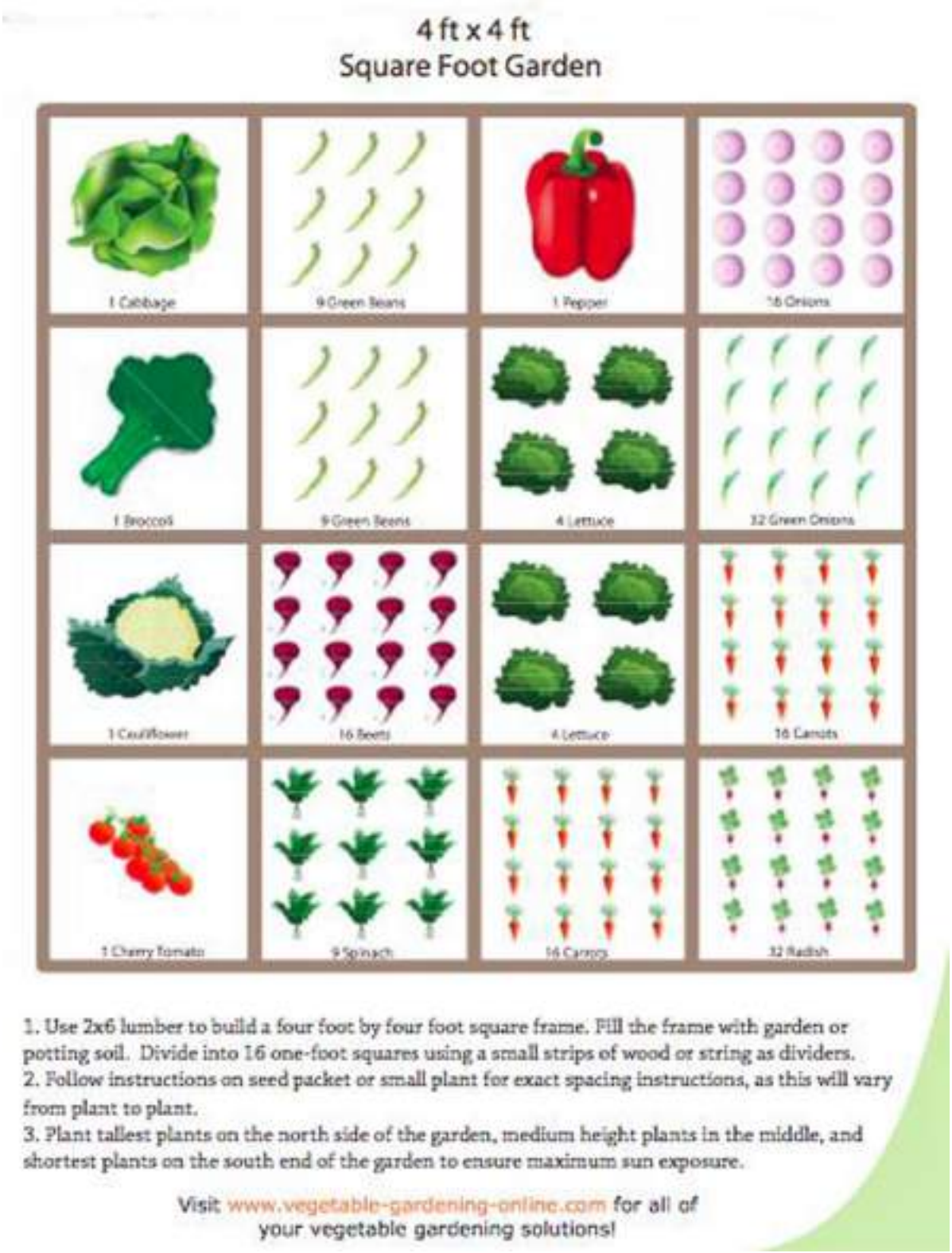


Fig. 2. Home garden vegetable map.

vegetables, determine when you will plant your vegetable. See sample calendar here.

- How do you want your vegetable garden to be integrated with your animal/ poultry/fishpond/fruit tree production?

Lesson 3.5. Make a year-round vegetable planting calendar

Figure 3 and Tables 2–9 provide samples of round-year planting and calendar for plain areas, and mid hills at various elevation.

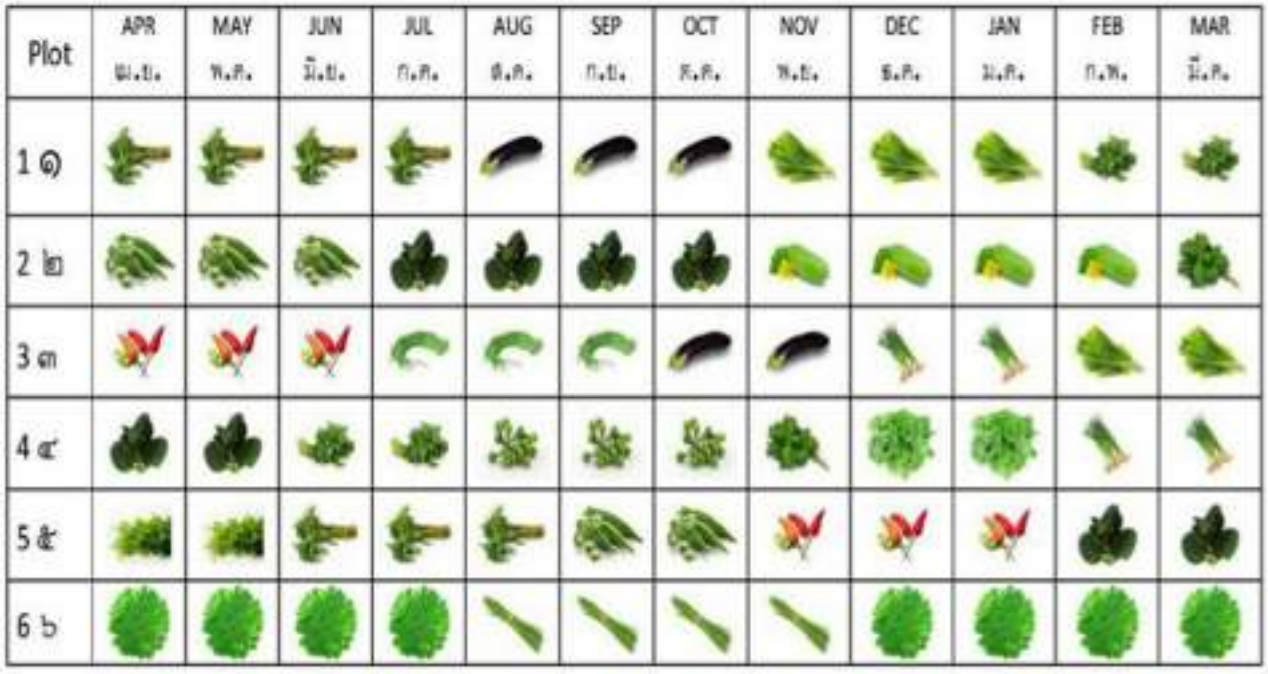


Figure 3. Sample round-year planting.

Table 2. Year-round vegetable planting calendar.

Year	Plot 1	Plot 2	Plot 3	Plot 4
1	Legumes	Leaves/flowers	Fruits	Roots
2	Leaves/flowers	Fruits	Roots	Legumes
3	Fruits	Roots	Legumes	Leaves/flowers
4	Roots	Legumes	Leaves/flowers	Fruits

[10] www.vegetable-gardening-online.com

Table 3. Planting calendar

Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
												
												

Table 4. Planting calendar in Plain Areas Lower than 500m above sea level

	Winter		Summer			Rainy Season				Winter		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beetroot												
Bitter gourd												
Bottle gourd												
Broad bean												
Broadleaf mustard												
Broccoli												
Buckwheat												
Cabbage												
Carrot												
Cauliflower												
Chili												
Coriander												
Cucumber												
Eggplant												
Fenugreek												
Garden cress												
Garden pea												
Garlic												
Hyacinth bean												
Indian rape												
Kohlrabi												
Lettuce												
Malabar spinach												
Okra												
Onion												
Pumpkin												
Radish												
Shallot												
Spinach												

Table 5. Planting calendar in Plain Areas Lower than 500m above sea level

	Winter		Summer			Rainy Season				Winter		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sponge (ridged) gourd		■	■	■								
Sweet pepper				■	■							
Sweet potato									■	■		
Sword bean									■	■		
Tomato									■	■		
Turnip										■	■	
Vegetable soybean			■	■	■	■	■					
Velvet bean									■	■		

Planting Time

■

Table 6. Mid-Hills, 600 – 1500m above sea level.

	Winter		Summer			Rainy Season				Winter		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Amaranth			■	■								
Asparagus			■	■	■	■	■	■				
Asparagus (winged bean)			■		■							
Balsam apple			■	■								
Banana					■	■						
Beetroot									■	■	■	■
Bitter gourd			■	■	■							
Bottle gourd			■	■	■							
Broad bean								■	■			
Broadleaf mustard									■	■	■	
Broccoli								■	■	■		
Buckwheat												■
Cabbage								■	■			
Carrot								■	■	■	■	
Cauliflower								■	■			
Chayote		■	■									
Chili		■	■									
Chinese leek								■	■	■		
Coriander	■	■	■	■	■	■	■	■	■	■	■	■
Cucumber			■	■								
Dill			■	■								

Table 7. Mid-Hills, 600 – 1500m above sea level.

	Winter		Summer			Rainy Season				Winter		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Eggplant												
Elephant foot yam												
Fenugreek												
Fiddlehead fern (wild)												
Garden cress												
Garden pea												
Garlic												
Green onion												
Hyacinth bean												
Indian rape												
Kohlrabi												
Lamb's quarter												
Lettuce												
Malabar spinach												
Okra												
Onion												
Pumpkin												
Radish												
Shallot												
Snake gourd												
Spinach												
Sponge (ridged) gourd												
Squash												
Stinging nettle (wild)												
Sweet pepper												
Sweet potato												
Sword bean												
Taro												
Tomato												
Turnip												
Vegetable soybean												
Velvet bean												
Yam												

Planting Time

Table 8. Mid-Hills, 1500 – 2500m above sea level.

	Winter		Summer			Rainy Season				Winter		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Amaranth			■	■	■							
Asparagus						■	■					
Balsam apple				■	■							
Beetroot			■	■								
Bitter gourd			■	■								
Bottle gourd			■	■								
Broad bean			■	■								
Broadleaf mustard			■	■	■							
Broccoli			■	■								
Buckwheat	■											■
Cabbage			■	■	■	■						
Carrot					■	■	■					
Cauliflower				■	■							
Chayote			■	■								
Chili			■	■								
Chinese leek			■	■								
Coriander				■	■	■	■	■	■			
Cucumber				■	■	■						
Eggplant			■	■								
Elephant foot yam		■	■									
Fenugreek			■	■								
Fiddlehead fern (wild)												
Garden cress			■	■								
Garden pea			■	■								
Garlic			■	■								
Green				■								
Hyacinth bean			■	■								
Indian rape		■	■									
Kohlrabi			■	■								
Lettuce			■	■	■	■	■					
Malabar spinach			■	■	■							
Okra				■	■							
Onion			■	■								
Pumpkin			■	■								
Radish			■	■	■	■	■	■				
Shallot			■	■								
Snake gourd				■	■	■						
Spinach			■	■	■	■						
Sponge gourd			■	■								
Squash				■	■	■						
Stinging nettle (wild)												
Sweet pepper				■	■							

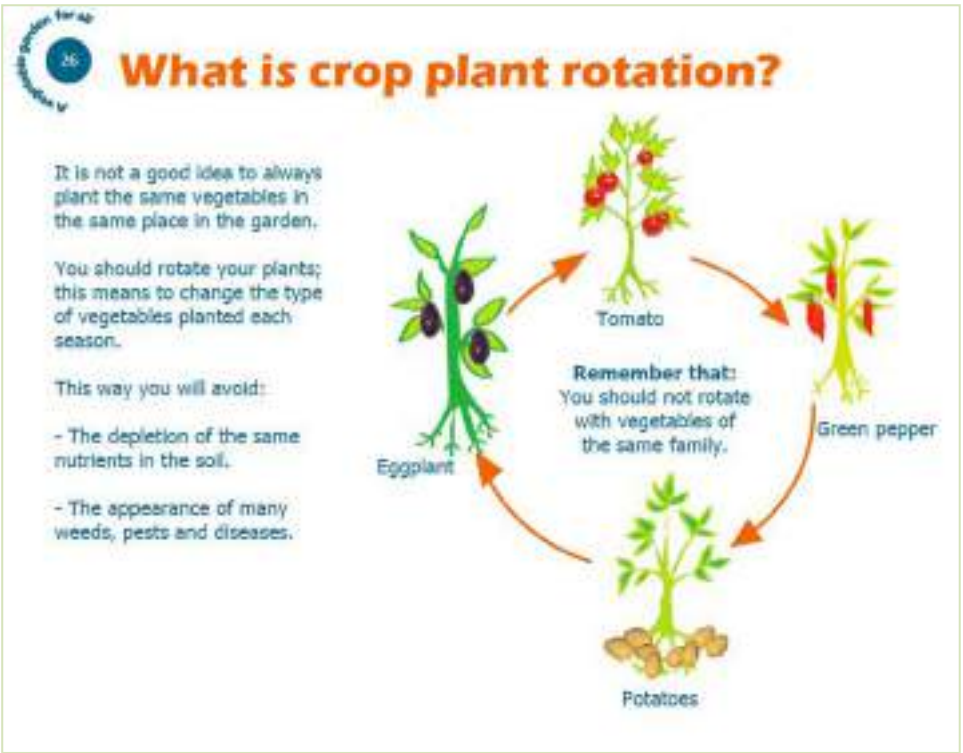
Table 9. Mid-Hills, 1500 – 2500m above sea level.

	Winter		Summer			Rainy Season				Winter		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sweet potato												
Sword bean												
Taro												
Tomato												
Turnip												
Vegetable soybean												
Velvet bean												
Yam												

Planting Time

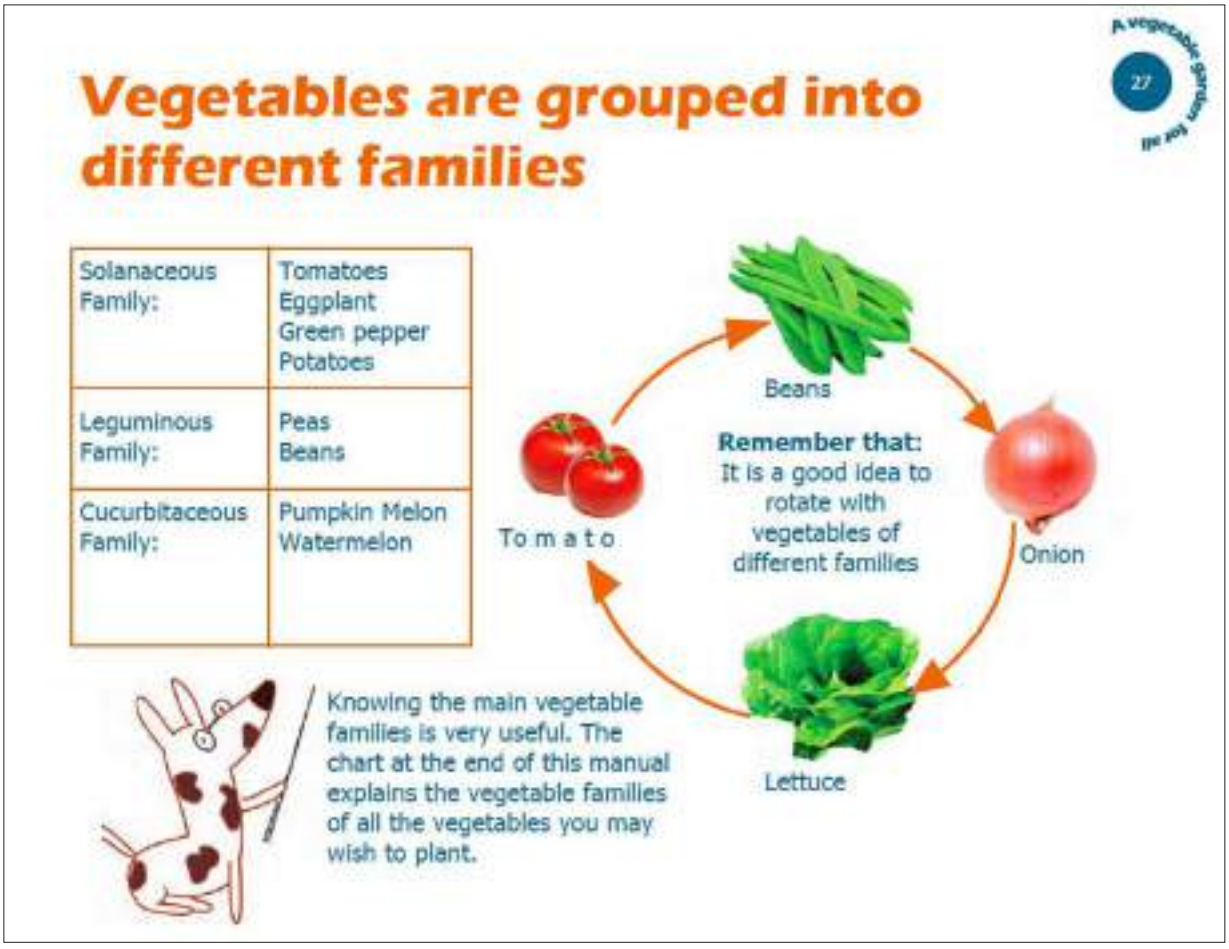
Lesson 3.6. Practice crop rotation

- **Crop rotation** – growing different crops continuously on the same land[11]. Rotating the crops minimizes diseases and insects, builds up organic matter and soil nutrients, balances soil makeup, and makes a garden healthy. Different plants take different nutrients out of the soil and add back other elements or enhance the soil in other ways.



[11] Lin, M. 2015. Site and vegetable crop selection for home garden. Powerpoint presentation on Training of Trainers Workshop on Home Gardening. Global Technology Dissemination, The World Vegetable Center. Shanhua, Tainan, Taiwan.

- How to plan a rotation? - group them by families.
- What are these families?
  - Cruciferae – mustard family (cabbage, broccoli
  - Umbelliferae – parsley family
  - Leguminous family – pease and beans
  - Cucurbitaceous family – pumpkin melon, watermelon, gourd
  - Solanaceous family – potato family



- How long should you rotate your crops? The longer, the better; normal length is 4 years, if not possible, at least 2 years.
- How to generally have healthy gardens?
  - for an all year-round nutrition, plant many different crops in your gardens (e.g., plant low-growing crops such as beans and carrots in between tall crops such as covo and tomatoes, the shorter crops will help to cover the soil, and reduce the need for weeding and saving on the amount of water that is needed)
  - intercrop vegetables with other plants in the same bed which can benefit the plants (e.g., intercropping strong smelling onions and garlic with other vegetables will help to repel pests; intercropping beans with other vegetables will help improve the soil).

Tips for getting started:

- Start small and expand gradually
- Protect garden with fences – if you have already chosen the best place to plant your vegetables, fence it to protect your vegetables from animals and thieves.
- When water is scarce, use wastewater and harvest rainwater to irrigate
- Plant only a little at a time but plant often to ensure continuous production
- Try to work the garden daily even just for a few minutes each day to help monitor the progress and identify problems early.

Lesson 3.7. Prepare seeds

Seeds do breathe, they require oxygen and produce water vapour, and hence this needs to be considered in storage. Seeds in storage have determined factors which need to be considered:

- type of seed cultivar;
- temperature;
- humidity; and
- length of storage period.

Depending on seed variety and species, with regard to temperature and humidity, the tolerance range for the two factors will change. Importantly constant moisture levels of seed in storage need to be kept. Seed damage can be caused by bad harvesting practices, temperature and moisture in storage that can cause fungal growth.

Seeds can be 'disinfected' by using fungicides, insecticides and fumigants. Storage of seeds needs to be done in a dry and cool location that is clean and is protected from possible insect and rodent attacks. Storage can also occur by using airtight methods[12] .

[12] http://www.fao.org/3/a-i0526e.pdf

Good quality seeds are:

- of the same type
- clean, free from dirt or weeds and other objects
- not infected
- able to germnate under suitable conditions fo temperature and moisture

How seeds are propagated?

There are two ways: 1. by seeds and 2. by stems

Can vegetable gardens produce seeds?

Yes. Some of these which you can get from your own garden are pumpkin, watermelon, zucchini. Choose the best plants with biggest fruits and free from diseases.

How to produce seeds from your garden?

- Dedicate a specific area for seed production.
- Isolate the plants
- Sow at least 4 plants per species

How to select seeds from flowers or plants?

- Select the best plant, the best flower or the best fruit
- Get the seeds
- Wash the seeds with clean water
- Dry the seeds for 2 to 3 days under the shade
- Sow them or store in a glass container for a short time

If you want to buy seeds, buy seeds which are in sealed and well-labeled packages: species name, variety name, production year (not more than one year old), germination ability, brand name or company.

Lesson 3.8. How do you raise healthy seedlings?[13]

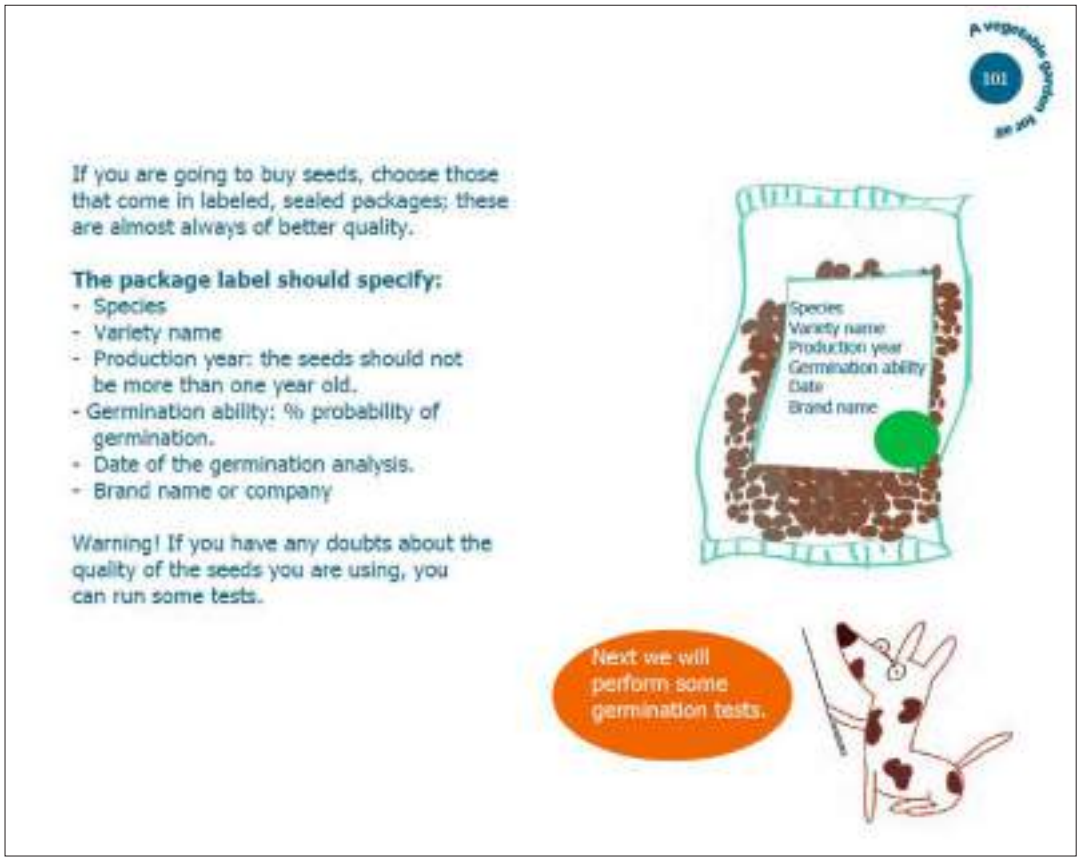
Use seed trays, plastic bags/ containers, fruit boxes, flower pots.

Seed trays

- Prepare clean potting mixtures
- Potting mixtures - soil : sand : husk : compost = 3:1:1:3
- Potting mixture must be clean
- Potting mixture can be sterilized if possible
- Potting Mixtures

[13] http://203.64.245.61/web_docs/media/background/home%20gardens_rev_June2013_web.pdf


A vegetable garden for all
100
Selecting seeds from flowers or plants
Select the best plant, the best flower or the best fruit.
Extract the seeds from the centre, if it is a fruit.
Take the seeds out carefully and wash them with clean water to remove residues of fruit or soil.
Place the seeds on newspaper and dry them for 2-3 days in the shade.
Finally, sow them, or keep them in paper bags, if they are to be stored for a short time; or in glass containers, if it is for a longer period.


A vegetable garden for all
101
If you are going to buy seeds, choose those that come in labeled, sealed packages; these are almost always of better quality.
The package label should specify:
- Species
- Variety name
- Production year: the seeds should not be more than one year old.
- Germination ability: % probability of germination.
- Date of the germination analysis.
- Brand name or company
Warning! If you have any doubts about the quality of the seeds you are using, you can run some tests.
Species
Variety name
Production year
Germination ability
Date
Brand name
Next we will perform some germination tests.

Potted seedlings in seed trays.

Lesson 3.9. How to manage seedlings?

- Sow one or two seeds per hole and set trays on benches under 50-mesh nylon nets
- Water right after sowing, water daily, early morning
- Usually, after 3 days, the seedling begin to sprout
- Remove 2nd or 3rd seedlings in one hole or cell. Leave only one seedling in one hole/cell
- Fertilize seedlings by using organic fertilizer

Lesson 3.10. How to improve the soil?

When you grow plants they take nutrients out of the soil. When you harvest crops you must put back into the soil what you have taken out in the form of nutrition for your family. Fertiliser is expensive and does not improve the soil structure or its ability to store nutrients. For long-term soil improvement the following ways are best:

- Intercrop vegetables and grains with legumes such as beans, groundnuts, roundnuts and cowpeas. Plant soil-improving trees such as sesbania, leucaena and pigeon pea around the garden.
- Make compost from weeds, grass, leaves and kitchen scraps. You do not have to have manure to make compost – you can use green leaves. Leaves of banana, amaranth, lantana, castor bean and comfrey can be added to compost if manure is not available. Apply compost on the surface of the soil.

- Make liquid manure for heavy feeding crops such as cabbage, rape, covo, tomatoes, potatoes, peppers, pumpkins, melons, cucumbers and maize.
- After 3 months, compost will be ready with the following characteristics:

  - Pleasant odor of soil and leaves
  - Very dark in colour
  - Is unrecognizable from the materials that had been placed in the heap

Lesson 3.11. How to control pests and diseases?

- Keep plants strong and healthy by giving them enough nutrients and water.
- Make windbreaks around gardens to help prevent pests and diseases (many of which are spread by the wind).
- Do not plant crops of the same family in the same bed such as rape, covo, cabbage and tsunga, or tomatoes and potatoes
- Intercrop with at least four different crops in each bed so pests and diseases do not build up
- Avoid using chemical sprays which kill beneficial insects such as spiders, ladybirds, preying mantises and bees; all of which are good for your garden.
- Use ash or spiky grass to mulch around plants.
- If plants are affected by pests:

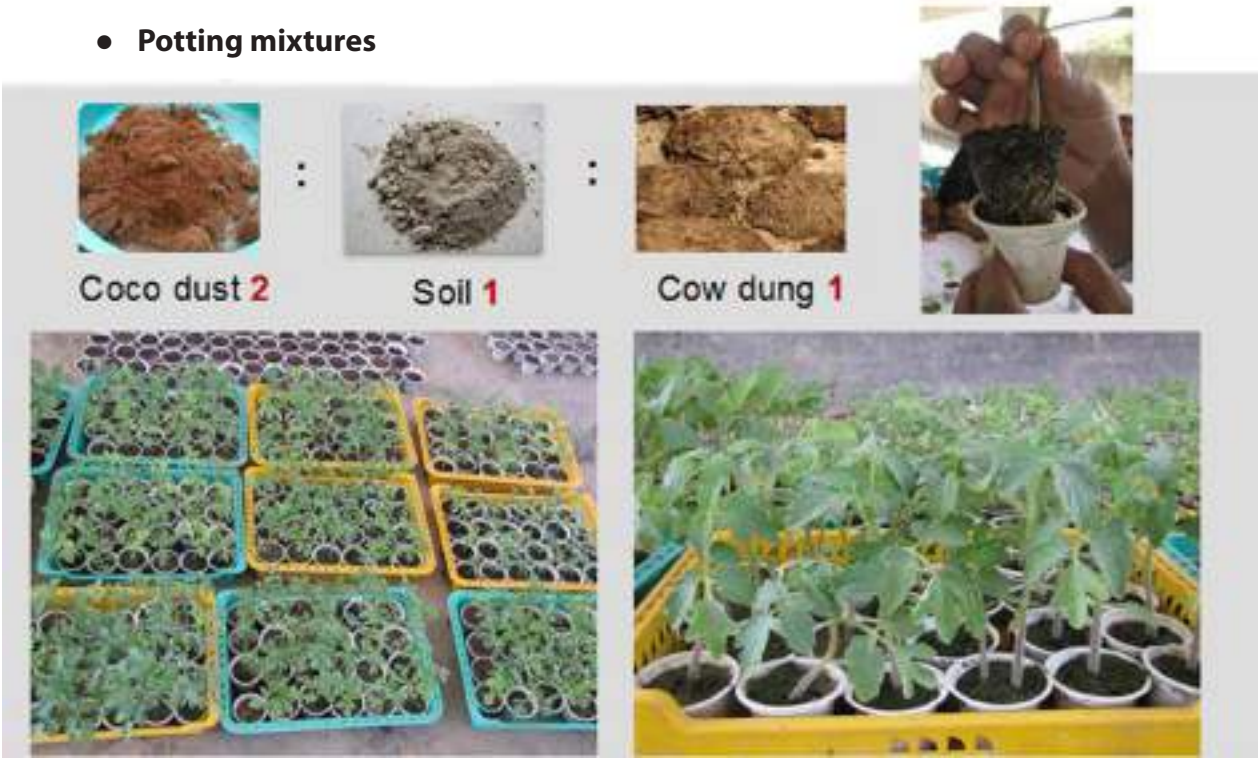
  - Cover the stalks of fruit trees and tall crops with Vaseline to stop pests climbing the stalks.
  - Make a spray out of chilli and garlic, castor bean leaves or pawpaw leaves. This kills most sucking pests. Pour a castor bean or pawpaw leaf spray on the soil to kill soil pests.
  - Make fruit-fly traps for pumpkins, butternuts and fruit trees.
  - Make beer traps for slugs and snails

Sterilizing Potting Mixtures

Potting mixtures

Tomato seedling preparation

- **Potting mixtures**

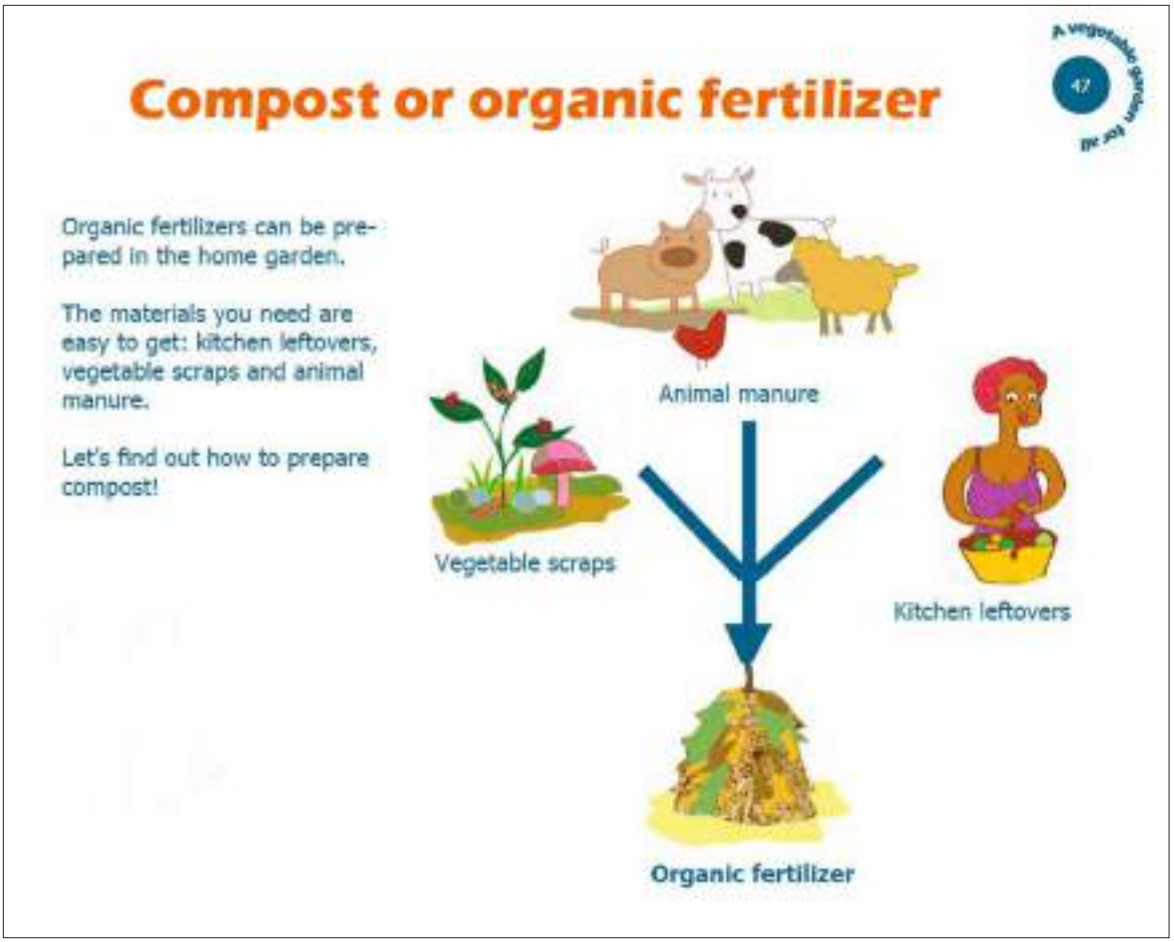


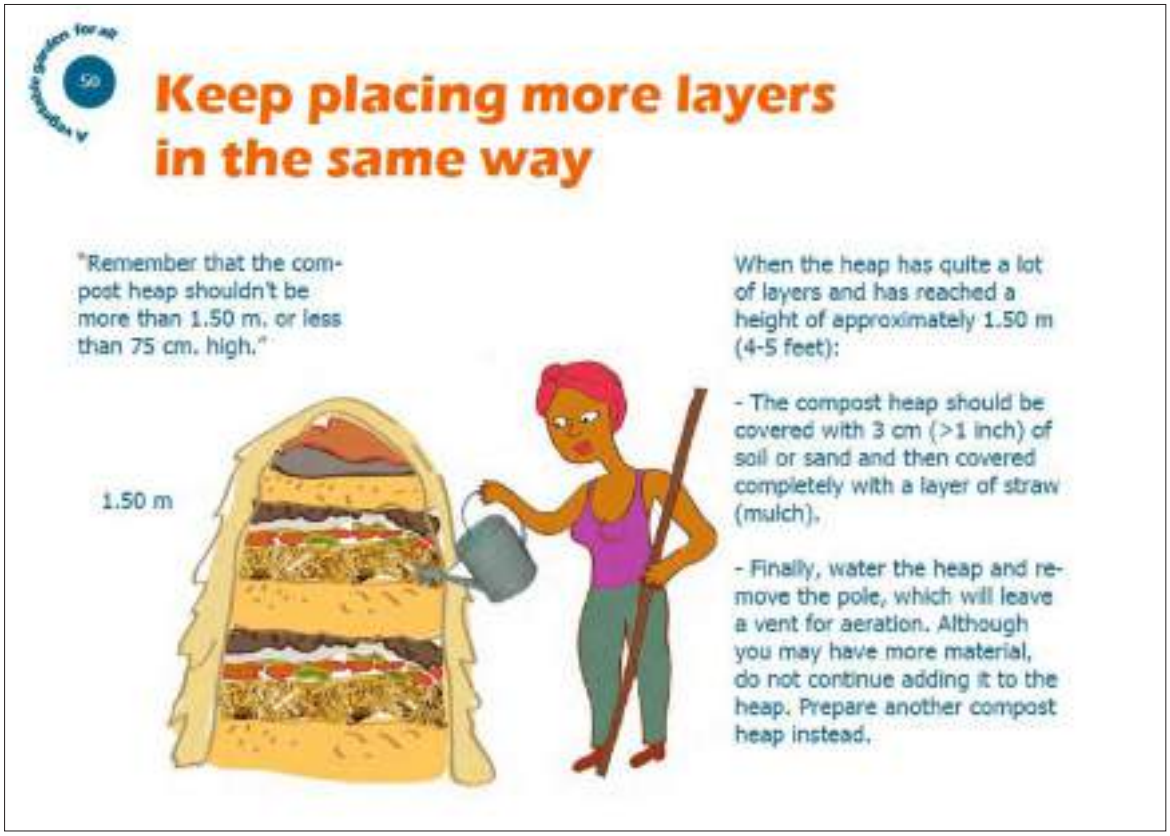
Healthy seedling preparation

- **Sowing the seeds** - One or two seeds per hole are sown and trays are set on benches under 50-mesh nylon nets

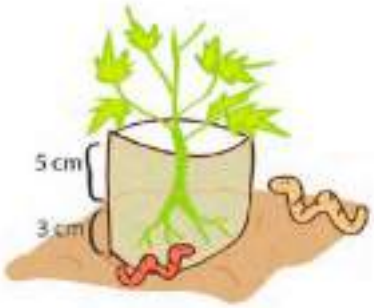
Thinning

When two cotyledons completely expanded, thin the seedlings to only one seedling per hole/cell


A vegetable garden for all
47
Compost or organic fertilizer
Organic fertilizers can be prepared in the home garden.
The materials you need are easy to get: kitchen leftovers, vegetable scraps and animal manure.
Let's find out how to prepare compost!
Animal manure
Vegetable scraps
Kitchen leftovers
Organic fertilizer


A vegetable garden for all
50
Keep placing more layers in the same way
"Remember that the compost heap shouldn't be more than 1.50 m. or less than 75 cm. high."
1.50 m
When the heap has quite a lot of layers and has reached a height of approximately 1.50 m (4-5 feet):
- The compost heap should be covered with 3 cm (>1 inch) of soil or sand and then covered completely with a layer of straw (mulch).
- Finally, water the heap and remove the pole, which will leave a vent for aeration. Although you may have more material, do not continue adding it to the heap. Prepare another compost heap instead.

- **Barriers:** You can prevent grubs from damaging small plants by placing rings made of cardboard around them.
When the plants grow and bypass the ring they are strong enough to resist the grub attacks.



- **Sprays:** There are some substances that do not damage plants or people yet help control infestations.

Example: Soap solution, to control aphids, spider mites and white flies. Mix 2 teaspoonful of detergent or liquid soap in 4 litres of water.
Use this liquid to spray plants completely. Wash off the soap with clean water.

Pest control methods

Traps: Traps are better for catching some pests.

- **Slugs:** Place boards on the soil between garden plants. During the day the slugs will hide under them where you can trap them easily.

- **White flies, aphids and thrips:** Paint the inside of a not too deep can a bright yellow. Half-fill the can with water then hang it on a pole. The insects will be attracted by the colour and will drown upon falling in the water.

Use concentrated soap solution. Apply with a sprayer to control aphids and small larvae.

Lesson 4. The Garden Action Plan

Objectives

After this Session, you should be able to:

- Discuss the importance of an action plan
- Explain what a stakeholder matrix is
- Develop your own goal for the action plan
- Define the responsibilities of each stakeholder
- Meet the community and do a participatory workshop in preparing a garden action plan
- Engage the community to establish a community vegetable garden

Lesson 4.1. The garden action plan

Action plans help families and communities to plan what activities to carry out in order to achieve their goals. Action plans are particularly important for groups working together, such as a nutrition club at a community centre or a group setting up a nutrition garden at a school (See **Table 9** Sample Garden Action Plan Template).

1. define your goal: For example:

    - The goal is for the community to acquire new knowledge and set of skills on establishing a community vegetable garden.
    - The goal is further subdivided into sub goals:

        - Create awareness among housewives on the important nutrients that we can get from vegetables
        - Teach mothers how to cook vegetables in a proper way.

Table 9. Sample Action Plan

Activity	Resources needed	Who is responsible	Time schedule											
			J	F	M	A	M	J	J	A	S	O	N	D
Make a list of nutritious crops we want to grow and when we want to plant them	Paper and pen													
Buy seeds	Money and transport													
Prepare beds	Hoe and compost													
Plant seeds for rainy season crops	Small hoe, mulch and water											X	X	X
Plant seeds for dry-season crops	Small hoe, mulch and water							X	X	X	X			
Transplant seedlings	Small hoe, mulch and water													
Harvest produce	Basket and sharp knife													
Make compost	Tools, leaves, grass, weeds, kitchen scraps, water													
Mulch beds	Dry grass, leaves or compost													

Lesson 4.2. The stakeholders' matrix

The matrix defines who are the persons who will take the lead role in implementing the activities to achieve a community vegetable garden.

Table 10. Stakeholders' Matrix

Community Members	Responsibilities	Time Frame and Resources Needed
Local Government/ Community Officers		
Leader of Women/Mothers		
Principal and Teachers of Schools		
Health Center Workers		
Religious Leader		
Police Officers		
Media		
others		

Module 4

Trainer Guide: Training Farmer-Leaders on Nutrition, Healthy Diet, Healthy Body

Module 4: Trainer's Guide: Training Farmer-Leaders on Nutrition, Healthy Diet, Healthy Body

Introduction

The ultimate Goal of Module 4 is to train the Trainer on how to use this Guide to train the farmers. This Guide aims to equip farmers with knowledge and skills that are important to acquiring healthy nutrition from vegetables as one of the keys to having a healthy body.

To aid the Trainer in training the Farmers, this Guide contains ready-to-use materials and instructions on the following:

- set of exercises/activities
- powerpoint
- visual aids (flip charts, flashcards)
- evaluation forms
- video clip
- evaluation activities embedded under the Debriefing Guide

At the end of this Module, the Trainer of Farmers will be able to:

- Familiarize themselves with the set of exercises/activities, powerpoint, visual aids (flip charts, flashcards), evaluation forms, and video clip
- Know when and how to use these visual aids
- Understand the basic principles on nutrition and overall content of the materials they are going to share to the participants
- Explore other face-to-face experential learning for the farmers, especially for those who do not know how to read and/or write
- Learn how to use the evaluation tools before, during, and after the sessions.

Opening Sessions

Session 1. Getting-to-know each other exercise

Activity Summary

Each participant gets a card with a photo of a vegetable or fruit that they most like. If there are many participants, they can be divided into small groups of 4 and in the small groups, each participant introduces himself/herself by explaining why he/she picked up the vegetable and how this vegetable represents him or her as a person

Objective/Purpose

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

Time: 30 minutes

Materials needed

Flash cards containing photos of fruits and vegetables

Steps

1. Flash cards of fruits/vegetables are laid on the floor for the participants to quickly see.
2. Instruct each participant to get one flash card containing the vegetable/fruit he/she likes, and share to the group why he/she chose that one to represent him or her self.
   a. Example: I am Lorna and I liken myself to an apple: sturdy, sweet, and medicinal: sturdy because as a person, I am strong in facing problems, sweet – I am thoughtful, and medicinal – I am helpful to those who have problems to lighten their burdens
3. After they introduce themselves, Debrief by telling them that the main topic they are going to discuss are vegetables and what nutrients they contain to make us healthy.
4. Collect the flash cards for other trainings.

Debriefing guide

1. What did the choice of vegetables tell you about the person?
2. From the vegetables/fruits chosen, what are new to you?
3. What are some similarities you discovered about the other trainees?
4. Who has some characteristics that you feel may be different from yours?

Session 2: Introducing the objectives

Activity Summary

The Trainer will read and explain the objectives of the Lessons (if participants have difficulty reading). If participants are able to read, ask them to read aloud together each objective. After reading the objectives together, ask them if they agree or disagree, or there are objectives they do not understand.

Flipchart 1 will be prepared by the Trainer before the Lesson, handwritten in the native tongue on a Wall Paper and Posted on the Classroom wall (**See Flipchart No. 1**)

Objective/Purpose

Brief the participants with the general outline of the topics they are going to learn and provide them the opportunity to ask questions about the topics to be covered

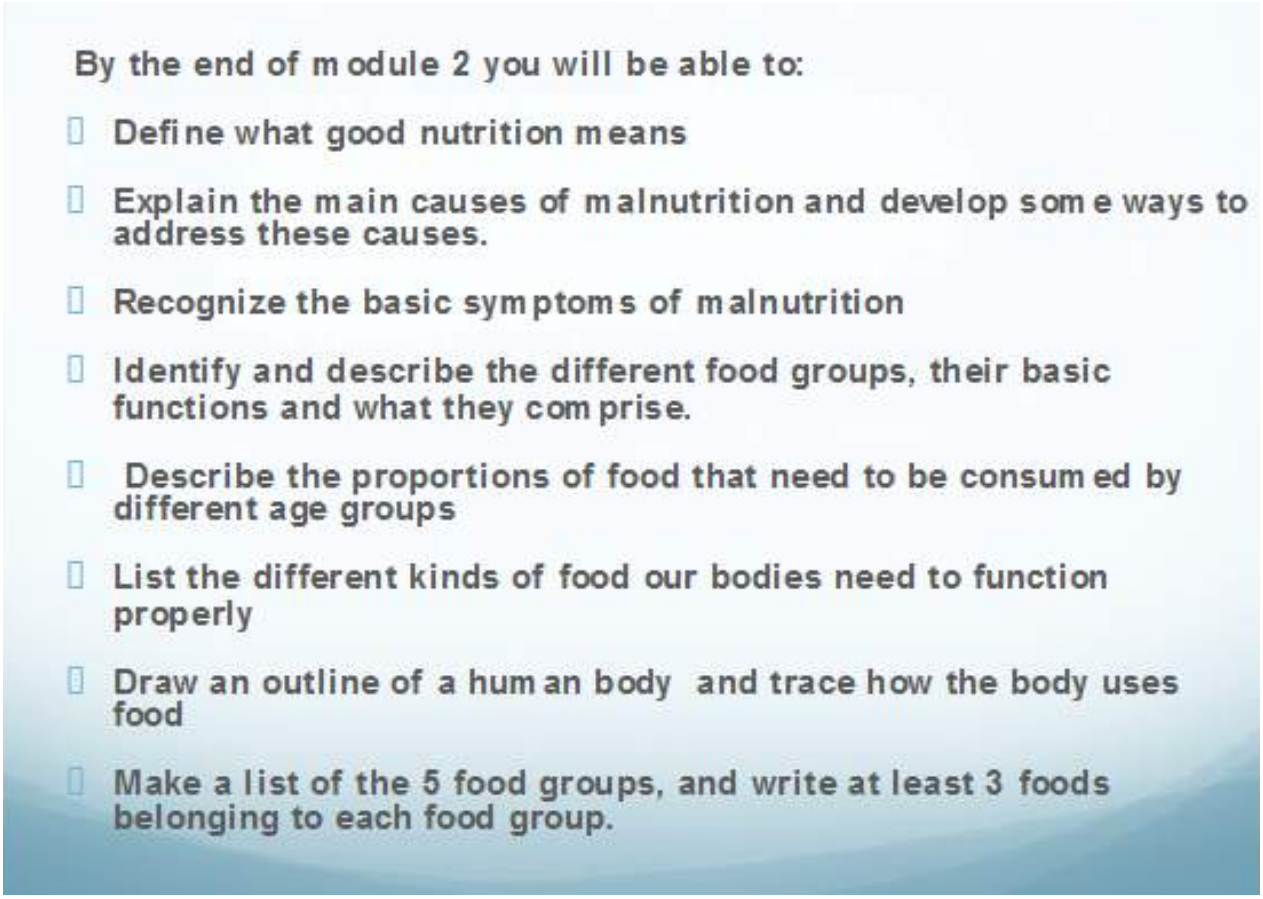
Time: 15 minutes

Materials needed

Flipchart No. 1: Objectives of the Training – These objectives are those of the farmer-participants

Steps

1. Flipchart No. 1: Objectives of the Training is posted on the wall.
2. Instruct the students to stand up and gather together in front of Flipchart No. 1.
3. If they can read well, let them read all together the Objectives
4. If they have difficulty reading, read and explain to them the Objectives
5. Ask questions about the topics to be covered


By the end of module 2 you will be able to:
Define what good nutrition means
Explain the main causes of malnutrition and develop some ways to address these causes.
Recognize the basic symptoms of malnutrition
Identify and describe the different food groups, their basic functions and what they comprise.
Describe the proportions of food that need to be consumed by different age groups
List the different kinds of food our bodies need to function properly
Draw an outline of a human body and trace how the body uses food
Make a list of the 5 food groups, and write at least 3 foods belonging to each food group.

Good Nutrition

Session 1. What Good Nutrition is and Why Many People in the Community Do not Have Good Nutrition

Activity Summary

Participants will form two groups and each group will be given flashcards containing different types of food (e.g. rice, fish, vegetables, oil, butter, fruits, cakes, etc.) which they can choose from and assemble all those which they think are healthy or nutritious to eat, and which are those that are not healthy to eat and therefore must be eaten sparingly.

Instruct each group to discuss what are the reasons why in their community, many people do not have good nutrition. Use this activity as an introduction and to help trainees think about what good nutrition is and why many people in the community do not have good nutrition.

Objective/purpose

The participants will list which foods are nutritious and which are not. They will write reasons why many people do not have good nutrition; and what are the results of not having good nutrition.

Time: 60 minutes

Materials Needed

Participants will work in groups. Each group will need a table to work on (or a floor). Flashcards containing photos of different foods will be given to them. If they know how to write, metacards or slips of paper and pentel pens will be given to them.

Flipcharts 2,3, 4 (to be posted on the Wall): The Consequences of Malnutrition, Understanding Hunger and Malnutrition, Where are the Most Undernourished People?

Steps

1. Have the participants form groups of 4 to 6. Give each group Flashcards containing photos of different foods.
2. From the photos, let them collectively choose which foods are healthy/nutritious for the body, and which are not. Let them lay the flashcards in two sets (healthy vs. not healthy for the body). Give each group slips of paper or metacards on which they can write their answers (key words only) on the questions: Why, based from their own experience in their respective community, many people do not have good nutrition/ food? and What are the results of not having good nutrition.

3. Instruct each group to post their answers on the wall for a later reporting/discussion.
4. Ask each group to nominate a representative to present the group's answers to the two questions.
5. Tell the group there are no right or wrong answers. Appreciate all the participants for their answers.
6. Instruct the participants to stand and gather in front of the Flip Charts 2&3. (Understanding Hunger and Malnutrition & Consequences of Malnutrition).
7. Debrief.
8. Make a synthesis of all the answers.
9. Collect the flashcards for future training.

Debriefing guide

The Trainer may use ORID (Objective, Reflective, Interpretive, Decisional) as guide to Debriefing:

- Objective – the fact that the group knows/observes/recalls
- Reflective – how participants feel about the topics, what they liked and disliked
- Interpretive – what were the issues or challenges, difficulties, strengths, weaknesses
- Decisional – What is the one thing that you will do after the session?

Form a circle after the session, and ask each participant to give a one-word or two answer for each of the questions below. Ask No. 1 question for all to answer, and then proceed to No 2, until all have answered the same question one at a time up to the 4th question. Mentally note the answers of the participants and see which words are frequently mentioned and which are least mentioned. This will give you an idea which areas participants have high knowledge recall or positive response.

1. What one word or idea from the activity that struck you or recall the most? (**O**)
2. What one topic made you feel happy? What topic made you feel sad? Why? (**R**)
3. If you are a community official, what will be your number one problem on nutrition that you will solve in your community? **(I)**
4. After this session, what one thing would you want to do that is related to the lesson you just learned? (**D**)

Session 2. Healthy and Balanced Diet for Family Members: Basic Nutrition Principles

Activity Summary

Participants will watch a video clip about Planning for Good Eating (approximately 8 min). Basic concepts on what is a healthy meal and what a healthy meal does to the body will be shown in the video clip. The importance of vegetables in the diet is highlighted.

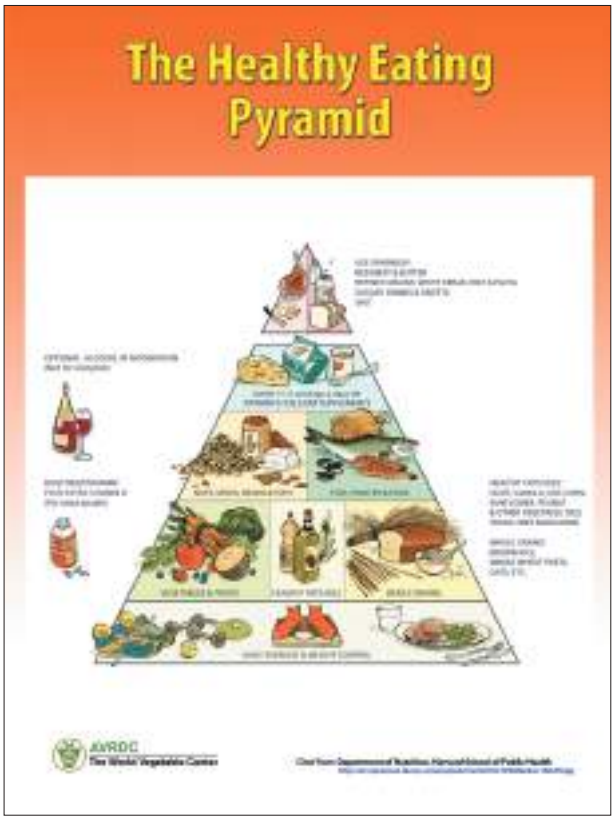
Topics to be covered

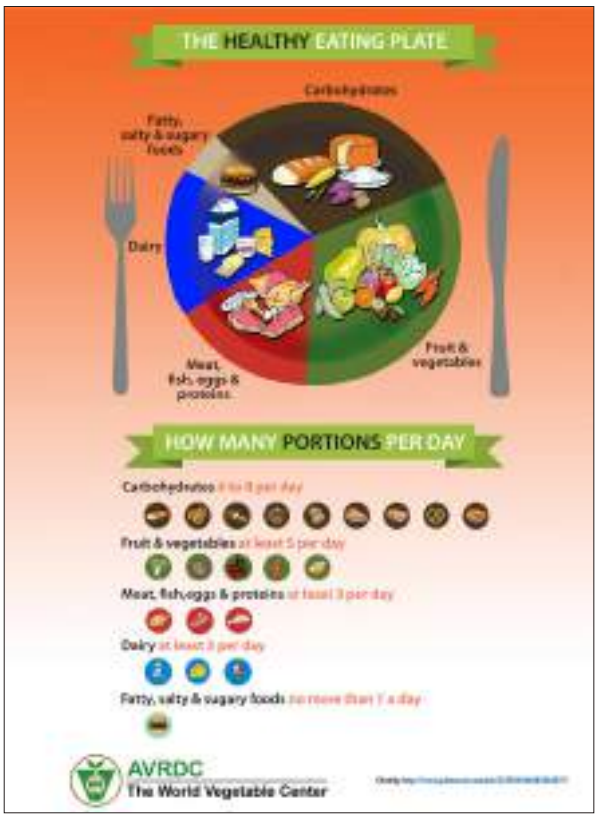
- Food Pyramid
  - 5 Food Groups
    + Rice, bread & other cereals
    + Vegetables
    + Fruits
    + Fish, meat and eggs
    + Pulses (and Nuts)
- Milk and milk products
- Basic 5 food groups in the Food Pyramid that make up a balanced diet/healthy food for the family
- Healthy Eating Plate
- Vegetables in the Diet
  - The Benefits of Eating Leafy Greens (Flip Chart)
  - Phytonutrients
  - 7 Colors of Phytonutrients (Flipchart)
  - What to Eat to Get the Right Vitamins and Minerals (Flipchart)
- What Healthy Eating Can Do for You

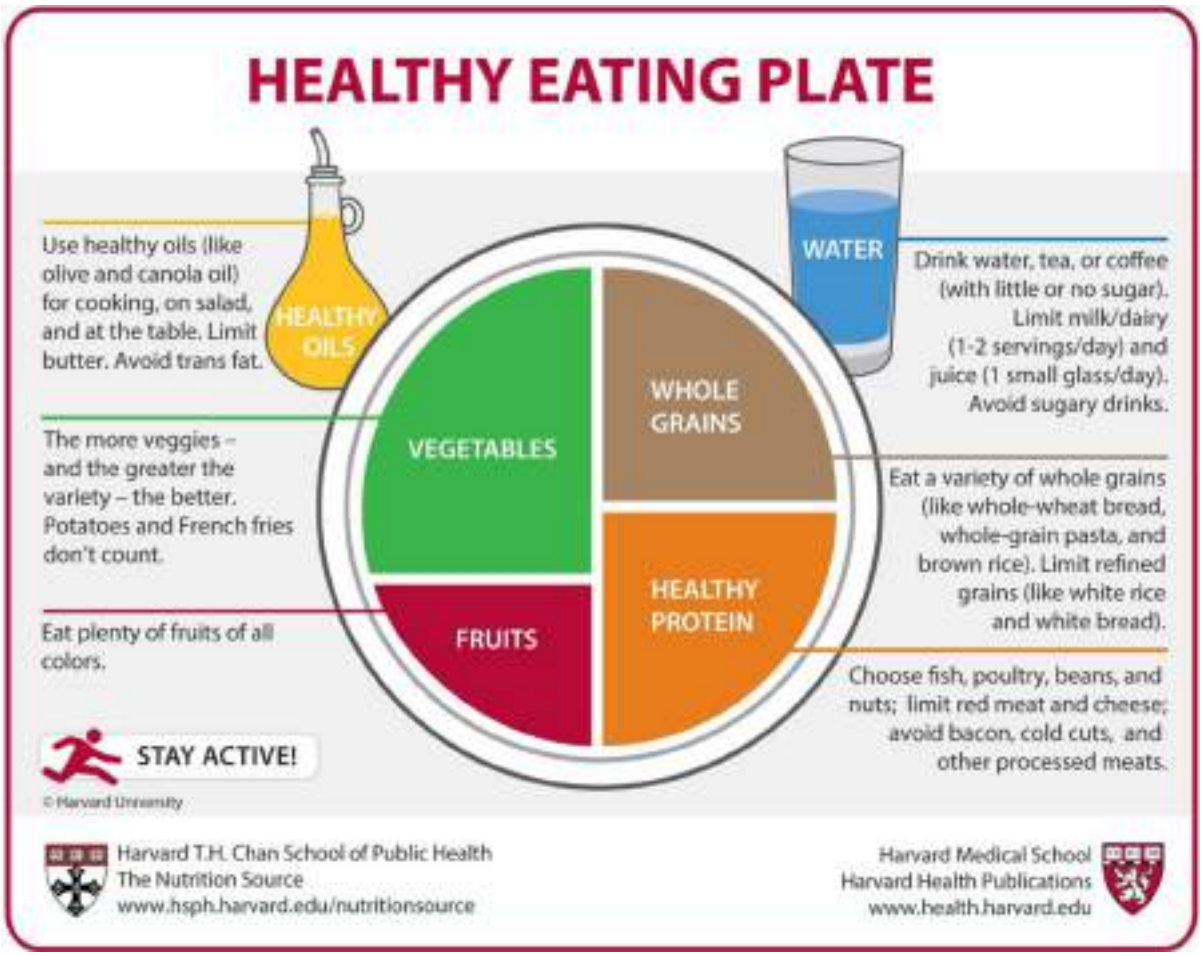
Objectives/Purpose

The participants will list the basic principles of nutrition. They will recall the foods they usually eat in a day for the past week and assess if they are eating a healthy balanced diet. If not, why, and what are their current problems with regard to eating a balanced diet. They will try to learn from each other during the training how they could eat a healthy balanced diet.

Time: 120 minutes (2 hours)


The Healthy Eating Pyramid
AVRDC
The World Vegetable Center


THE HEALTHY EATING PLATE
Carbohydrates
Fatty, salty & sugary foods
Dairy
Meat, fish, eggs & proteins
Fruit & vegetables
HOW MANY PORTIONS PER DAY
Carbohydrates
Fruit & vegetables
Meat, fish,eggs & proteins
Dairy
Fatty, salty & sugary foods
AVRDC
The World Vegetable Center


HEALTHY EATING PLATE
Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.
HEALTHY OILS
WATER
Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.
The more veggies – and the greater the variety – the better. Potatoes and French fries don't count.
VEGETABLES
WHOLE GRAINS
Eat a variety of whole grains (like whole-wheat bread, whole-grain pasta, and brown rice). Limit refined grains (like white rice and white bread).
Eat plenty of fruits of all colors.
FRUITS
HEALTHY PROTEIN
Choose fish, poultry, beans, and nuts; limit red meat and cheese; avoid bacon, cold cuts, and other processed meats.
STAY ACTIVE!
© Harvard University
Harvard T.H. Chan School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource
Harvard Medical School
Harvard Health Publications
www.health.harvard.edu

Materials Needed

- Flip Charts to be posted on the Classroom Wall.
- Daily Food Diary to be printed before the session begins, and distributed to the participants (if they know how to write), if not, Trainer will ask the question: **What are your usual problems that you face in the family that hinder you from eating a balanced diet?.**
- **Flash cards** with pictures of different food groups.

Daily Food Diary for One Day

(Instruct participants recall what they ate within the past 24 hours).

Day: Date:

Time of the Day	Amount (1 cup or more)	Carbohydrates (include sweets and sugary foods/dessert)	Fat	Proteins	Vitamins & Minerals	Fiber	Water & other liquids
a.m. 6-8 am							
9							
10							
11							
12:00							
1:00							
2:00							
3:00							
4:00							
5-7:00							
8-12:00 Mid-night							

Steps

1. To start the session, distribute the Daily Food Diary Form (if participants know how to read and write) and give them at least 10 min to answer for a one-day (latest date) recording of their food. Tell them their answers will be discussed in a later group discussion.
2. For introduction, if it is possible to play a video, start with the video clip about **Planning for Good Eating**[1] (approximately 8++min). If not, proceed to the next steps.
3. Divide the participants in small groups of 5 to 6. Give each a metacard or a writing paper for them to write their answers. Let them use key words only. They will answer the following questions:
   a. What one thing that you recall the most in the video clip?
   b. What one thing that you liked best in the story that we watched? What one thing that you liked least, why?
   c. What one thing that you feel will hinder (barrier/problem) a family to eat healthy food?
   d. What one thing would you do to make your family's daily food intake healthy?
4. Share to the group what you recorded in your food diary.
5. Let the participants post on the wall their food diary.
6. Tell the participants to gather in front of the posters (Healthy Eating Pyramid, Healthy Eating Plate, Actual Healthy Eating Plate with Specific Food Contents and Portions per Day, There is no Ideal Diet that is Right for Everyone. Emphasize on the following key points:
   a. Carbohydrates
   b. Fats
   c. Proteins
   d. Vitamins and minerals
   e. Fibre
   f. Water

[1] https://www.youtube.com/watch?v=58eFNxlLr5s

7. Discuss briefly key information or highlights on these Flip Charts. Remember, adults get bored with long lectures.
8. After discussing the **Healthy Eating Plate**, instruct the participants to go back to their respective groups and discuss what foods they recommend for their lunch or dinner that would fill up the healthy eating plate.
9. Debrief by playing the **Nutrient Group Game**

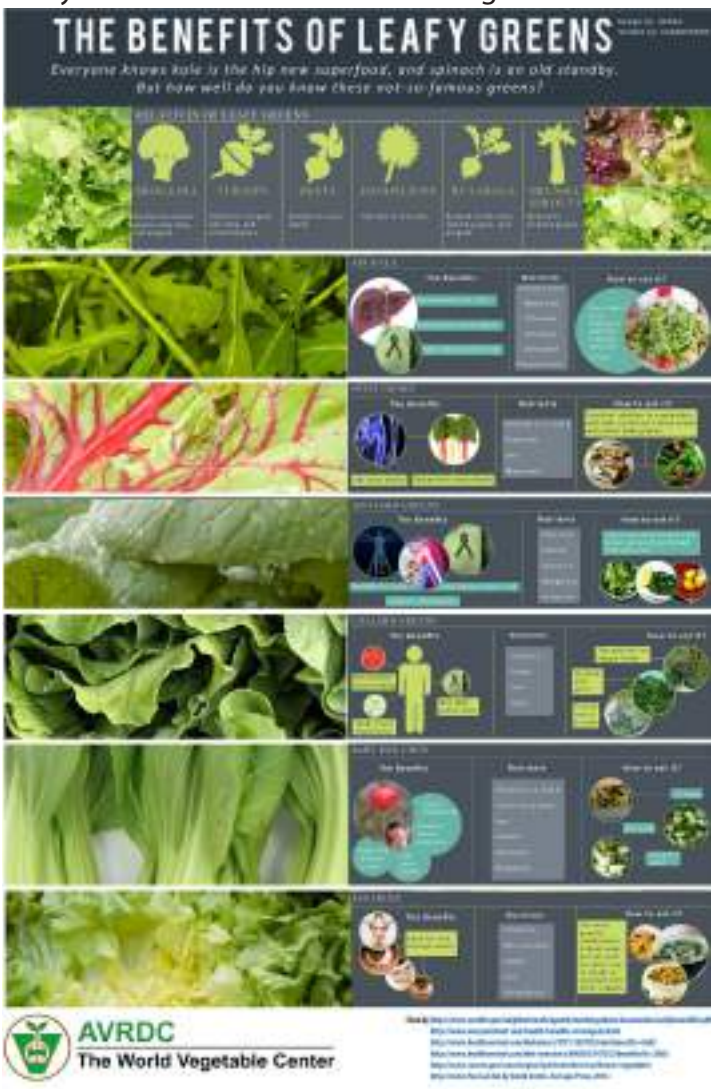
Debriefing guide

1. Give each participant two flashcards containing pictures of different kinds of food.
2. Find a space (floor or wall) where you can put a label of the different nutrient/food groups:
   a. Carbohydrates
   b. Fats
   c. Proteins
   d. Vitamins and minerals
   e. Fiber
3. Instruct the participants to place the flashcards given them in the correct nutrient/food groups mentioned above.
4. Check if they have correctly placed the flashcards on the right nutrient/food groups where these belong.
5. Ask participants how they felt during the activity.
6. Provide positive feedback.

Session 3: Vegetables in the Diet

Activity Summary

Participants will identify what they already know about the benefits of vegetables to the human health. At the end of the session, participants will make an awareness material, a banner/poster on the importance of vegetables as part of healthy eating and present this poster to their community in a regular community meeting or event.



Topics to be covered

- Vitamins and Minerals in Vegetables
- The Benefits of Eating Leafy Greens (Flip Chart)
- Phytonutrients
- 7 Colors of Phytonutrients (Flipchart)
- How Much Vegetables should I Eat?
- What to Eat to Get the Right Vitamins and Minerals (Flipchart
- What Healthy Eating Can Do for You

Objective/Purpose

Participants will recall their existing knowledge on the health benefits of vegetables to the human body.

Time: 120 minutes

Materials Needed

- Flipcharts to be posted on the Wall.
- Flash cards of nutrients from vegetables (leafy greens, various colors of vegetables).

Steps

1. Tell the participants that they are going to discover the many health benefits of vegetables.
2. Divide them into small groups of four and five. Assign each group to study one flipchart on the wall (the Benefits of Eating Leafy Greens, 7 Colors of Phytonutrients, and What to Eat to Get the Right Vitamins and Minerals, and What Healthy Eating Can Do for You)
3. Give each group pens and pieces of paper, and a poster paper for them to write key things that they learned from the flipcharts
4. Instruct them to prepare a 5-7-minuter (mini) lecture about the information they get from the flipchart. The mini lecture should contain the following:
   a. Title of the Mini Lecture
   b. Objective
   c. Key Information (Highlights) gathered from the Flipchart
   d. Conclusion
   e. Key Messages that will be captured in a poster format which the group will present to their community as an awareness poster material on good nutrition for a healthy body.

f. A question they want to ask for their co-participants to answer.
g. Each group will nominate a presenter of their mini lecture;
h. Draw lots for the presentation
i. Make a presentation for 5-7 minutes only of the lecture each group has prepared.

5. Debrief.
6. Summarize: Remind the participants the importance of good nutrition to a healthy body, and overall to making a healthy and productive community.

Debriefing Guide

1. What were some of the new easy concepts/new easy words that you have learned from the flipchart that you have studied?
2. What were some of the more difficult concepts/ difficult words that you have learned, but need more time and more information to study?
3. To make your learning more meaningful, what next steps will you do after this session?

1 serving of vegetable is equivalent to 75-80 g of vegetables *1 cup = 250 ml		
OR	**1 cup* of raw leafy vegetables**	
OR	**1/2 cup* of non-leafy vegetables**	
OR	**1/2 cup* of cooked or canned vegetables**	
OR	**1/2 cup* of vegetable juice**	
OR	**Vegetables the size of an adult fist**	

Session 4. Special Diets and Nutritional Requirements

Activity Summary

Trainees will put together a recipe booklet for special diets for healthy family members and friends with varied ages and/or those who are sick.

Topics to be covered

- pregnant and breastfeeding mothers
- infants
- children
- adults
- lderly
- the sick

Objective/Purpose

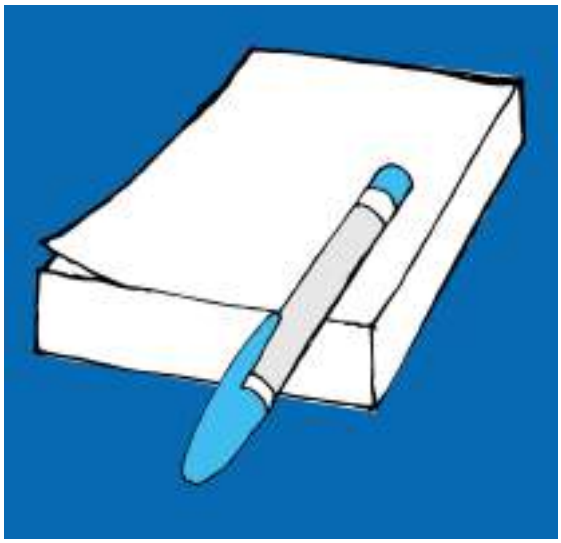
The participants will understand the importance of preparing special diets that meet the nutritional requirements of people with varied ages and/or who are sick.

Time: 60 minutes

Materials Needed

- Background Reference Material, one copy for each participant.
- Slips of paper and writing pens.
- Labels posted on the wall bearing the following phrases:
  a. pregnant and breastfeeding mothers
  b. infants
  c. children
  d. adults
  e. elderly
  f. sick
- Printing paper for the Recipe Booklet

Steps



1. Give all the participants a background material taken from this Manual, Module 2 on Special Diets and Nutritional Requirement to read (10-15 minutes).
2. Divide the participants in five small groups. Each group will come up with a balanced diet for one meal (either lunch or dinner meal) not found in this manual) for each of the following:
   a. pregnant and breastfeeding mothers
   b. infants
   c. children
   d. adults
   e. elderly
   f. sick
3. Post on the Wall 6 Labels: Pregnant and breastfeeding mothers, infants, children, adults, the elderly, the sick.
4. Instruct the participants to post their recipes/menus under these 6 labels.
5. Collect the recipes and have these encoded and lay-outed in a recipe booklet format.
6. If there is an artist in the class, let the artist draw some illustrations.
7. Give to the participants one copy each at the end of the Training.
8. Debrief

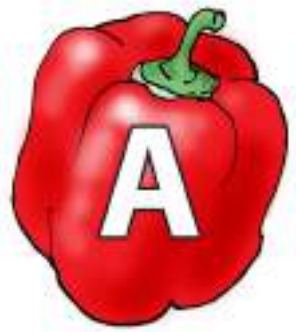
Debriefing Guide

1. What one thing that you enjoyed the most in this session?
2. What one thing that you least like in this session?
3. What one thing would you recommend to improve this session?
4. What one thing would you do after this session?

Session 5. Integrating the WASH Principles in Good Nutrition

Activity Summary

Participants, in small groups, will discuss and write a short interesting story and present a 5-to 7-minuter drama or role play before the class. The theme:
"Preparing safe and healthy food for the family."



Time: 60 minutes

Materials Needed

- A copy of the background material on WASH principles for each participant
- A reference reading material on how to create stories for drama and/or role play
- Paper and writing pens

Steps

1. Give all the participants a background material on WASH Principles taken from Module 2 of this Manual.
2. Instruct the participants to work in small groups, brainstorm on the story they want to dramatize or roleplay, and write the script for a 5- to 7-minuter drama. The theme of the Drama will focus on why and how to prepare clean food for our family.
3. Give tips for writing a drama.
4. Give the participants time to practice their drama.
5. Present the drama in front of the class.
6. Debrief

Debriefing Guidelines

1. Give one practice that you have learned from the WASH principles that you are already practicing even prior to this session.
2. Give one new practice that you have learned for this session.
3. What one practice in your community that you feel can be incorporated as part of the WASH practices?
4. What decision action will you do after this session?

Tips for Writing a Drama Plot[2]

The word "drama" is overused in much of entertainment today. Good drama is not obviously forced through overacting or exaggeration, nor does it scream This is drama, folks. That's what used to be called melodrama.

Let your drama come from good plotting and creative storytelling about engaging characters. The rest will fall into place as you write.

How to get to the place? Follow these top 10 tips to keep you on course:

1. **Find a Compelling Plot** - Have an interesting story to tell. Moving and engaging stories are easier to tell with a compelling plot. For commercial fiction, this plot should have broad enough appeal for your intended readership without dribbling into word-padding.

2. **Misunderstandings -** The knowledge base for each character should differ slightly, allowing for natural misunderstandings and levels of knowledge. This is a must for suspense and murder mysteries, but can be used in almost all genres.

3. **Mistakes -** Let mistakes lead your characters into the wrong direction at times. This happens more easily in some genres, like crime and mystery fiction, but can also be used to complicate most other fiction genres, too.

4. **Misinformation -** Obviously this is a must for murder and mystery genres, but it's also a strong tool in military fiction. Even romance fiction can use this. Shakespeare used it in his romantic comedies. George R.R. Martin uses it well in fantasy. In the latter example, the setting and times alone – medieval era fantasy – allows for faulty communication leading to grave military errors.

5. **Yes-Men and Supporting Characters -** You can add drama to your story with internal unrest. Use those characters closest to your main character to spark the what-if wonder. Does your character's right-hand man really have his back in that war story? Does the mistress really trust her ladies-in-waiting? Is there a traitor? A secret love interest? Does a Brutus wait in the wings?

[2]Stone, S. 2016. Ten steps to create drama in your fiction story. http://www.creativewritingsoftware101.com/articles/top-10-tips-to-create-drama-in-your-fiction-story.php

6. **Un-Easy Road to Romance -** Don't let everything fall right into place too easily for your characters, even in sweet romances. Add some conflict either from parents, peers, a rival, even the times or rules governing romantic interests. This is where secondary issues like war, arranged marriages, and scheming relatives can play important roles.

7. **Hidden Agendas -** This is an easy one in war stories, but it can heighten the drama in other genres, too. Maybe the real need for a little friendly competition among schools is too see how far another team is in their science experiments, or maybe there's only one crown to be worn among the three princes in line for the throne. Goals don't have to be obvious from the onset to the reader.

8. **Drama Versus Melodrama -** Drama for the sake of drama is sometimes seen as melodrama. The phrase used in current lingo as drama is generally melodrama – the over-exaggeration of a moment to emphasize an emotion (usually a contrived one). Melodrama can be used in your story, but don't make it the vehicle of choice; your careful plotting will yield enough true drama.

9. **The Unexpected -** Figure the last thing expected of your story or worst thing for your character to face at a moment, and see if it's something you should use. Why? Because if you don't see it coming or if it's a setback for your character, it might be what's needed to raise the impact of your storyline. Be sure to create any setups for this 'unexpected' turn earlier or it will look manufactured.

10. **Keep the Reader Wondering -** Think back on the moments when you read a book where those "Didn't see that coming" instances popped up. Were you surprised? Could you see the setups in previous scenes? Did it make sense, but still take you off-guard? If so, good. Don't write your storyline so exclusively that there is no room for wonder from the reader; this reads as pedestrian. Leave enough clues to tantalize the imagination.

Module 5

Guide on Training of Trainers

Module 5: Guide on Training of Trainers

Introduction

Module 5 is a Guide for the Trainer of Trainers. It aims to equip Trainers with knowledge and skills on how to become an effective Trainer. This Guide contains suggested Lesson Plans, Activities, Schedule of Topics, and Ready-to-use materials and instructions on Adult Learning, Good Nutrition, Healthy Diet and Healthy Body.

The ready-to-use materials and instructions include the following:

- set of exercises/activities
- powerpoint
- visual aids (flip charts, flashcards)
- evaluation forms
- video clip
- evaluation activities embedded under the **Debriefing Guide**

By the end of this Module, you as the Trainer of Trainers will be able to:

- Recall, understand, discuss the four major topics covered in this Manual.
- Evaluate and give a feedback each to at least 2 to 3 exercises/activities that you learned from this session.
- Suggest at least one improvement to any of the visual aids: the powerpoint, flip charts, flashcards, evaluation forms, and video clip that you used in this session
- Write your own lesson goal, lesson objective, and lesson outcome
- Make one lesson plan/session plan for this Guide to be echoed to the potential Trainers.
- Know when and how to use these visual aids
- Elaborate your lesson plan by developing it into a mini-training plan. Choose one from any of the topics covered in this Guide (from Adult Learning to Nutrition)
- Demonstrate to the class a training/facilitation skill learned from this Guide by using this skill in the mini-training plan that you have developed during your session.

Module 5 contains **4** Lessons and each lesson carries with it detailed instructions and their accompanying visual aids/support materials.

- **Lesson 1** discusses the Roll-Out Steps on Training the Trainers about the basic concepts/skills on Adult Learning, and how you can apply these learning principles in the classroom and in the field.

- **Lesson 2** discusses the Roll-Out Steps on how to design a Training Plan for the Training of Trainers.
- **Lesson 3** discusses the Roll-Out Session Steps on Nutrition, Healthy Diet and Healthy Body and their related concepts. The steps are spelled out for you to easily follow when you are presenting the lessons to the Trainees.
- **Lesson 4** discusses the Roll-Out Session Steps on the benefits of growing your own home vegetable garden and describes the steps from site and vegetable crop selection to seedling management.

Lesson 1. Basic Concepts on Adult Learning

Learning Objectives

- Discuss 4 core concepts on Adult Learning that are useful in developing a well-organized Training Plan;
- Explain in your own words the 5 key steps in developing a well-organized Training Plan;
- Create your own mini training plan containing any topic from this course that you feel most comfortable to discuss;

Activity Summary

Note: This activity summary is for the entire Adult Learning Training of Trainers. Each session under each topic has its separate activity summary.

Before the Training Activity

1. We assume that when you use Module 5, you have already read through and studied carefully the entire Training Manual and done your homework before the Training/ workshop begins.
2. We also assume that you are already in the classroom and ready to roll out this Training event with your respective trainees.
3. The skills in faciltating transformational learning of your Trainees are embedded in every lesson of this Module. Learn and practice these skills before and record your lessons learned after (what to repeat, what to add to enrich, or what to stop or shorten to fit to the dedicated workshop time) the end of your session.
4. Modify these Lessons and time exposure to customize to the learning needs of your Trainees. You can also enrich the activities suggested here, including the visual aids by incorporating the outputs of your Trainees after the session. The time suggested here can be either lengthened or shortened. Ideally, Lessons 1&2 will take at least two days each to roll out (about 14 to 16 hours), however, for time limitation, you can fit this into a one-day training only. Lessons 3&4 will take at least one day each. Overall, rolling-out this entire Manual from Modules 1 to 5 will take you about 6 days.
5. We assume that your Trainees can read and write, that you have equipment which you can use to project your powerpoint and/or play the video clips suggested here, and that you have translated the Lessons here in your own language before you roll out the training.
6. At the end of every Lesson, a Session/Lesson Plan (Topic, Time, Resources Needed, Accomplishments) is attached to facilitate your Training Preparation Time. Feel free to make your own Session Plan.

Objective/purpose

By the end of all the Sessions on Adult Learning, you will be able to:

- Develop your own Session Plan/Schedule and Activities on Adult Learning and customize it to suit your respective Trainees/Participants
- Apply the skills in your own Training event
- Create and implement your own Training of Trainers Plan

Time: approximately 2 days

Materials Needed

For this Training Session

a. Registration forms for participants to fill up (Improve your own)
b. IDs for participants (Adopt your own ID design)
c. Handwritten (in big letters) Training Objectives on a wall paper, each with a corresponding box to tick if accomplished at the end of the session (See Photo p 197)
d. Pretest and Post-test Questionnaire to determine participant's baseline awareness and knowledge on Adult Learning. May also be done weeks before the Training (Questionnaire in Box p 198)
e. Flipcharts on Adult Learning
f. Reading Materials (Box embedded)
g. Video Clip on Adult Learning (Embedded in the powerpoint)
h. Ice Breaker
i. Powerpoint Presentation on Adult Learning
j. Metacards, Pens, and Tapes, Scissors for the Gallery
k. Writing Tables/Workshop Breakout Rooms
l. Session agenda and schedules (Embedded here)

Steps

1. Before the Training Session begins, review all activities and be sure that all visual aids, including equipment are neatly placed/organized for the Trainer's easy access.
2. Prepare the room to make the Trainee's learning experience more meaningful. Post flipcharts and other visual aids in areas where Trainees can easily read them.
3. Place candies, clay dough, highlighter pens, crayons, scissors, metacards and other materials which the participants can use as needed; also with the objective of accommodating Kinesthetic learners.

4. Debrief after every session. Embedded in each session is a debriefing guide. Debriefing Guide: The Trainer may use ORID as guide to Debriefing (Objective, Reflective, Interpretive, Decisional)

   - **Objective** – the fact/idea/information that the each Trainee knows/observes/recalls
   - **Reflective** – how Trainees feel about the topics, what they liked and disliked
   - **Interpretive** – what were the issues or challenges, difficulties, strengths, weaknesses they encountered or will likely encounter in the future
   - **Decisional** – leads the Trainee to think of one action that he/she will do after the session.

Suggested Evaluation Activity

Form a circle after the session, and ask each participant to give a one-word or two answer for each of the questions below. Ask No. 1 question for all to answer, and then proceed to No 2, until all have answered the same question one at a time up to the 4th question. Mentally note the answers of the participants and see which words are frequently mentioned and which are least mentioned. This will give you an idea which areas participants have high knowledge recall or positive response.

1. What one word or idea from the activity that struck you or recall the most? (**O**)
2. What one topic made you feel happy? What topic made you feel sad? Why? (**R**)
3. To improve yourself as Trainer of Trainers on Adult Learning, what barrier(s) will you likely face to hinder you from being a better/more effective Trainer? (**I**)
4. After this session, what one thing would you want to do to help you become a more effective Trainer of Trainers on Adult Learning? (**D**)

Session 1: Opening Sessions

Activity Summary

Objective/purpose

At the end of the opening session, Trainees will be able to:

- Recall and discuss the overall objectives and key lessons contained in the Adult Learning Topic
- Write a summary of each of the learning strategies done during the day
- Evaluate the session (Trainer, visual aids and activities of the day)

ACTIVITY 1: GETTING-TO-KNOW EACH OTHER EXERCISE

Activity Summary

Participants will be grouped into two groups. Trainer will instruct each group to form a line, and arrange themselves by birthday months from January to December.

Objective/purpose

Participants will get to know each other and will make their environment comfortable and conducive to learning.

Time: 15 minutes

Materials Needed

None.

Steps

1. Divide the group into 2 small groups by counting 1&2 and assigning either 1 or 2 to each trainee.
2. Instruct all the number 1s to group together, and all the number 2s to do the same.
3. Tell each group to arrange themselves by chronologically lining up by

their respective birthdays by month, that is, from January to December.

4. When the groups have finally lined up by their birthdays, instruct them to introduce themselves, first, their name, which organization they are affiliated, and their birthday month.
5. Celebrate birthdays that fall within the day of your training or within the same month that the trainee's birthday falls.

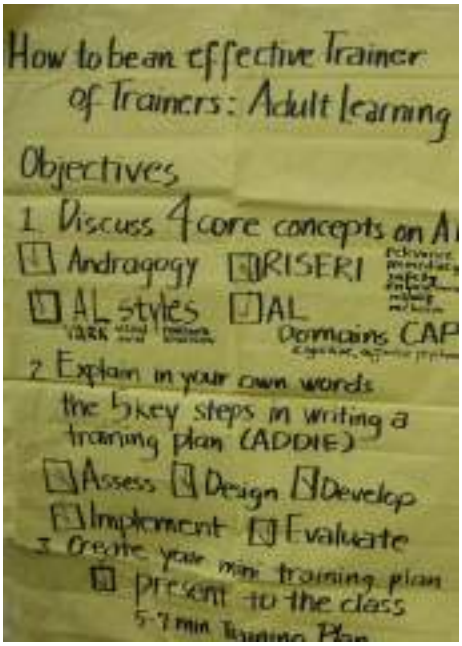
Debriefing Guide

1. Who has some birthmonths or birthdays that may be the same as yours?
2. How do you feel for those persons who have the same birthmonths?
3. Who are the persons in the group whom you are not familiar with and/or least familiar with? Take time to get to know them better before the Training ends.

ACTIVITY 2: PRESENTING THE TRAINING OBJECTIVES AND LEVELLING OFF

Activity Summary

Participants will read altogether the Objectives of the Training.



Objective/purpose

The participants will remember the aims and guideposts of the Training and will go through a Pretest assessment to determine their baseline knowledge and awareness about Adult Learning.

Time: 30 minutes

Materials Needed

- Poster paper containing the Objectives of the Training (See Sample)
- Pretest Questionnaire (one each for the participant, See & printQuestionnaire here)

Name of Trainee:
Name of Organization:
Position in the Organization
Gender : Female__ Male__
Date:

Pretest Questionnaire: Adult Learning

Answer the following questions by encircling the correct answer, after answering this form, exchange with your seatmates and check answers:

1. Adult learning
   a. assumes that adults learn do not learn well when the environment, where the adults are placed, contains certain conditions that facilitate learning. **True** **False**
   b. assumes that adults learn well when the environment, where the adults are placed, does not contain certain conditions that facilitate learning. **True** **False**
2. Andragogy
   a. Bloom postulated the 5 principles on the theory of Adult Learning **True** **False**
   b. Malcolm Knowles (1984) authored the original version of Learning Domains **True** **False**
3. Learning Styles
   a. There are four learning styles **True** **False**
   b. There are only two learning styles **True** **False**
4. Learning Principles
5. Learning Domains
6. There are 5 Key Steps in developing a Training Plan, one of them does not belong to the 5 steps
   a. Evaluating
   b. Analyzing
   c. Assessing
   d. Developing
   e. Designing
   f. Implementing
   g. Experimenting
7. Define what a Trainer is?
8. Define what a Facilitator is?

Steps

The Trainer will:

1. Instruct the Trainees to stand up and huddle together in front of the Poster on Objectives.
2. Instruct the Trainees to read together the Objectives.
3. Ask the Trainees to raise their questions if they need to be clarified about any of the objectives. In the Poster on Objectives, an empty box (See photo) that correspond to each objective will be placed. At the end of the session, the Trainer will make the participants huddle again to see if the objectives have been meet; if these are met, a check will be placed in the box, if not, an X will be placed and discussed why these were not met.
4. Distribute the Pretest Questionnaire to each participant.
5. Instruct the Trainee to answer the questionnaire and to exchange with his/her seatmate for checking the answers.
6. Read each question one by one and ask the Trainees their answer and confirm if their answer is correct for each question, if not, give them the correct answer.

Answers to the Pretest Questionnaire

1. a. False, b. False 2. a. False (Malcolm postulated this) b. False (Bloom authored it), 3. True b. False (there are more than 2), 4. Learning Principles: Relevance, Immediacy, Safety, Engagement, Respect, Inclusion. 5. Learning Domains: Cognitive, Affective, Psychomotor. 6. Experimenting, 7. Trainer is the expert of the subject matter 8. Facilitator is the expert of group dynamics/methods and strategies to engage learners
2. Ask Trainees who got perfect, those who got the most number of correct answers.
3. Encourage the Trainees by telling them that usually, the pretest scores are very low as it is assumed that the Topic of the Training is new to the Trainees.
4. The average score of the total number of participants will be your gauge on how much they know about the topic on Adult Learning.

Session 2. Four Concepts on Adult Learning

Activity Summary

Trainer will introduce the four concepts on adult learning. Participants will learn the four concepts on adult learning.

Objective/purpose

The participants will reflect on the concepts, principles, and ways on how adults learn and integrate these in designing their Lesson Plan for Training of Trainers.

Time: 120 minutes

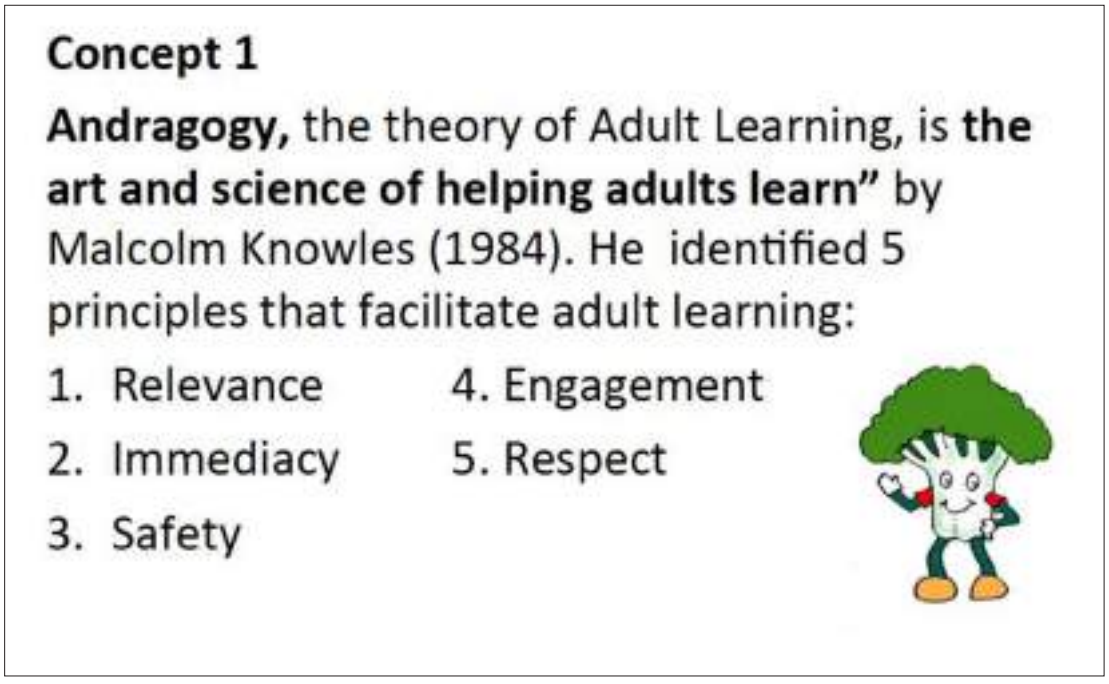
Materials Needed

- Flash cards (Embedded here)

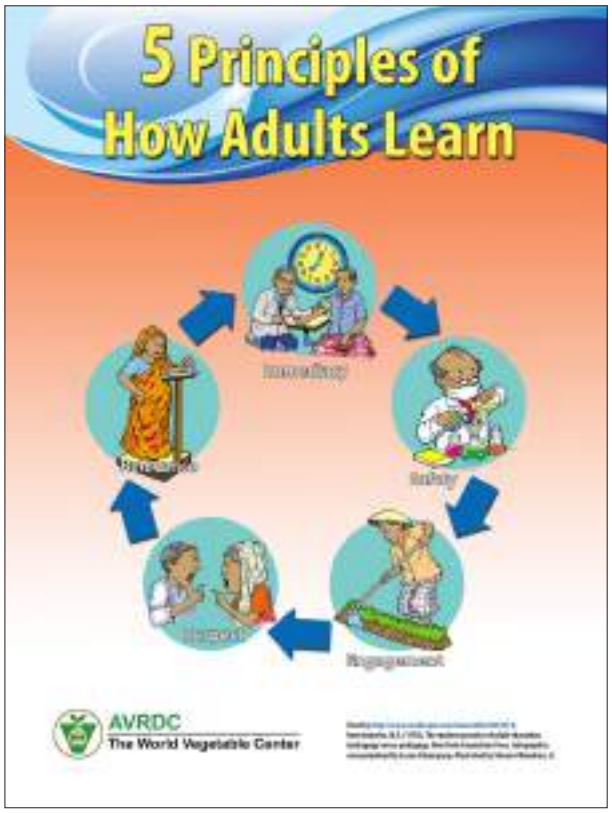
Steps:

1. Introduce the key concepts and personalities on Adult Learning:

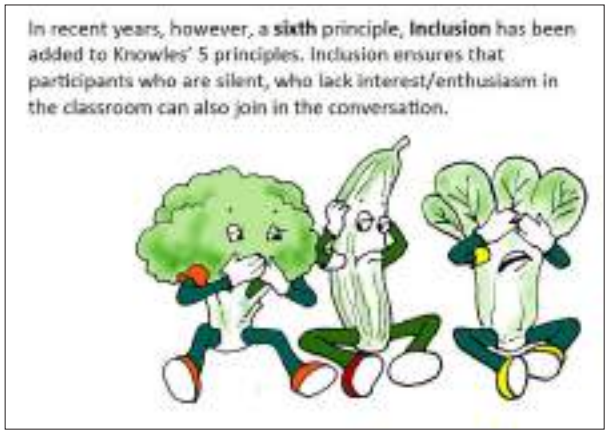
    a. **Concept 1: Andragogy** – define what the word means by showing the Word in a flashcard with definitions. Before showing the flashcard on Andragogy, ask for volunteer definitions from the participants. Asking questions from participants allows them to be engaged in the discussion.



b. Show this Flashcard to Trainees and quickly explain (See Module 1 for Reference):

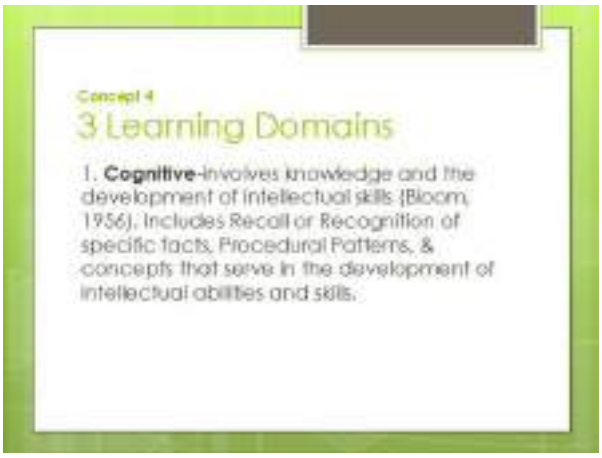


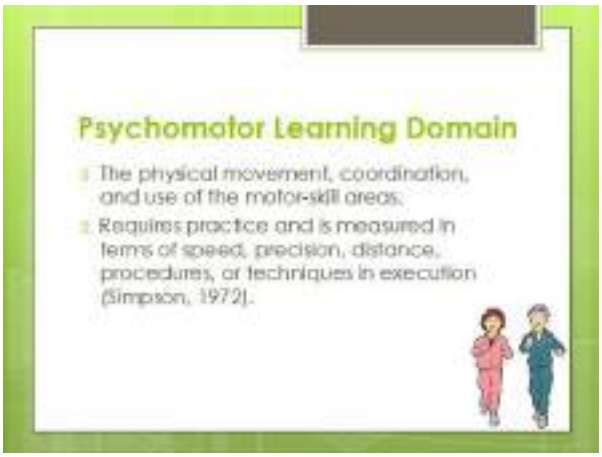
c. Introduce Flipchart on Concept 2: Five Principles of Adult Learning + Inclusion, the 6th Principle Relevance, Immediacy, Safety, Engagement, Respect, and Flashcard on Inclusion (RISERI). Instruct the Trainees to huddle in front of the Flipchart below as you explain briefly the 6 Principles according to Knowles.



2. Introduce Concept 3: Adult Learning Styles.

   a. Distribute the Learning Style Inventory for each Trainee to fill up to determine their dominant Learning Style (See Annex for the Questionnaire, print this before the workshop)
   b. Ask the Trainees to raise their hands to identify what type of Learning Style they have.
   c. Instruct to huddle in front of the Flipchart on Adult Learning Styles. For the Reading Materials, please see Manual, Module 1.
   d. Ask the Trainees, Why is it important for the Trainer of Trainers to know what Learning Styles do Trainees have?
   e. Distribute the following Reading Materials to each group:
      a. Visual, Auditory, Reading/writing, and Kinesthetic (VARK)
      b. Adult Learning Styles by Colb
3. Introduce Concept 4: Adult Learning Domains: Cognitive, Affective, Psychomotor (CAP)
4. Engage Trainees by simultaneously distributing to each group Reference Reading Materials on VARK, Colb and CAP
   a. Instruct them to read the topics in the Training Manual.
   b. Give time to each group to discuss, reflect, and summarize their insights in key words, write these keywords in the cards given to them, let them post these on the wall, and give them time to present and discuss what they learned.
5. Debrief.





6. Summarize: Let the participants explain in their own words the importance of the concepts they just learned and ask how they can apply these when they plan and implement their respective Training Plans.

Debriefing Guide

1. What were some of the new concepts that your learned in this session that will help you to become an effective Trainer of Trainers?
2. What are the difficult concepts/terms/words that you encountered that you need more time to learn?
3. As a prospective Trainer, what one thing you need to do to make you a more effective one?

Session 3. How to Write Learning Goals, Objectives and Outcomes

Note to the Trainer

Session 3 is a must session before Trainees go into the designing of a Training Plan.

Activity Summary

Trainer will prepare three labels for the Learning Domains: one each for Cognitive, Affective, and Psychomotor. Trainees will play a matching game. Each group will be given equal set/number of flashcards with the same verbs written on each falshcard. They will compete on who will place the verbs correctly under the right learning domains. Using the verbs associated under the three Learning Domains, Trainees will then proceed to writing their own Learning Goal, Objective, and Outcome .

Objective/Purpose

Trainees will learn to connect the verbs associated with the three learning domains (cognitive, affective, and psychomotor) and use these in writing their learning goals, objectives and outcomes.

At the end of this Session, the learner will:

1. Recall and Understand the connection between the verbs that fall under the 3 domains
2. See sample learning objectives
3. Correctly use these verbs according to the Learning Domain that is being directed at.
4. Write their own learning objectives until they master how to write them under the different learning domains

Time: 120 minutes

Materials Needed

- 10-minuter Powerpoint presentation
- 3 Labels, one label corresponding to the three Learning Domains: Cognitive, Affective, and Psychomotor

Flashcards with verbs written on each. Refer to the Manual (pp 13-15) here when you make the flashcards and when you check the correctness of the matching exercise. For further reading on expanded verbs to use when writing Learning Goal, Objective, and Outcome, go to http://www.personal.psu.edu/bxb11/Objectives/ActionVerbsforObjectives.pdf

Steps

1. Give a 5 minuter powerpoint presentation on the verbs associated
2. If equipment is not available, Trainer will give a lecturette by using the Manual (pp11-17) and give the importance of using these verbs based on the CAP Learning Domains (for the Trainer)
3. Trainer will divide the group into two groups
4. Trainer will distribute equal number of cards labelled each with verbs.
5. Instruct each group to discuss first among themselves which card goes under the Cognitive Learning Domain, which card goes under the Affective, and which card goes under the Psychomotor
6. Give the participants 5 minutes to place their cards under the right Learning Domain.
7. Check if the posting of the verbs are correct under each of the 3 domains
8. Ask volunteers how they felt during the exercise.
9. Connect the importance of knowing the verbs under the 3 Learning Domains by giving a 10-minuter powerpoint presentation on Learning Goal, Objective, and Outcome in preparing the Training Plan. Distribute Writing Objective Exercise Sheet for Step 10.
10. Engage Trainee by instructing them to practice writing their own Learning Objective, one objective each under Cognitive, Affective, and Psychomotor
11. Ask the Trainees to get a pair Trainee, share and discuss their 3 learning objectives that they have written. Debrief

Debriefing Guide

1. What new learning did you experience while matching the verbs with the correct Learning Domain?
2. What difficulty did you encounter as a group?
3. If you use this activity in the future for your own Training, what will you improve?

Session 4. How to Integrate the Learning Cycle and Learning Methods in Training of Trainers

Activity Summary

Trainees will work in pairs and share their most memorable learning moments (either in the classroom, at home, or anywhere) and how did they learn (method or in ways-from cognitive to psychomotor skills learning) that significantly changed their lives.

Objectives/Purpose

During the session, each Trainee will ask a question and write it down about how he/she learned something unforgettable which eventually made a meaningful impact on him/her.

Time: 30 minutes

Materials Needed

Steps

1. Trainer first shares his/her most memorable story on how he/she learned something (either an idea or a skill). Begin with yourself to share your story so that when you ask the Trainees later to share their most memorable learning story and the questions you asked to yourself, it will be easy for them to follow your example. I am sharing mine here as an example:
   a. I come from a musical family which means that either one sings or plays a musical instrument. I grew up surrounded by 8 siblings who learned how to play the guitar all by themselves. I also wanted to learn how to play the guitar, but when I asked my brothers and sisters, no one wanted to spend time teaching me. Besides, we only had one guitar, and it was always a fight on who got hold of the guitar first. Since eight of my siblings competed on who gets the guitar first, I usually ended up frustrated. I was only ten years old then, not strong enough to fight my way with my older siblings.
   b. Despite this difficulty, I managed to learn how to play the guitar. I made a plan. Everytime my brothers and sisters were not at home, I got the guitar and got the song book with guitar lessons which showed how certain chords like "C" or "G" woud be played, which fingers needed to press which strings together to make a tune. I spent countless times teaching myself with the guitar chord book, until one day I finally mastered almost all of the chords.
   c. The question I asked myself then was, "How would I manage to learn how to play guitar with nobody interested to teach me, with only one guitar where everyone had to fight to get hold of it? The guitar chord book was the material I used, I practiced a lot, and though it was difficult at first, I did not quit, I continued until such time that I mastered

playing the chord even without looking at the chord book or at the guitar frets where I would placed my fingers.

d. End your story by presenting four flashcards on Learning Cycle (Anchor, Add, Apply, Away)

2. Ask each Trainee to find a pair/partner.
3. Instruct them to share
   a. their most memorable learning event
   b. write their questions that they want to ask themselves about how best to learn
   c. discuss how did they learn in a way (method) or in ways (from cognitive to psychomotor skills learning)
4. Ask for volunteers to share to the group their questions and stories
5. Integrate methods shared in the stories of the Trainees and present flashcards on Learning Methods to make Trainees' Learning Experience Meaningful (See Flashcards on Learning Methods in Annex)
6. Debrief

Debriefing Guide

1. Based on the stories that you shared and discussed with your pair, what factors contribute to a memorable learning?
2. What one learning that you have gathered from this session that you will integrate in designing your own Training Plan?

Lesson 2. Designing a Training Plan

Activity Summary

Trainees will be divided in small groups and will come up with a mini Training Plan (See Annex Skeletal Plan Sheet) on any topic they learned from the day's session on Adult Learning following the ADDIE Model. They can also opt to develop a Training Plan which will focus on Good Nutrition and Vegetables. Each group will nominate a presenter to present the group's 5-minuter Mini Training Plan output.

Objective/Purpose

At the end of this session:

- Trainees will recall the 5-Step Model in designing a Training Plan
- They will share among their groups their unforgettable experience in any of the 5-step Model that they had previously encountered
- They will write their own mini Training Plan based on the principles they have learned from this session.
- They will make a 5-minuter presentation of their group's Mini Training Plan output

Time: 120 minutes

Materials Needed

- Flip chart: 5-step ADDIE Training Model
- Mini Training Plan Sheet
- Powerpoint presentation for the Trainer

Steps

1. Ask Trainees to huddle in front of the Flipchart on ADDIE Model.
2. Engage the Trainees by asking the following questions: In creating a Training Plan, what do the following words mean?
   a. Assess
   b. Design
   c. Develop
   d. Implement
   e. Evaluate.

3. Briefly explain those steps in the ADDIE Model where Trainees do not seem to have a solid grasp (Powerpoint for details and Reading Reference)
4. Divide the group into small groups
5. Instruct each group to come up with a collective mini Training Plan (See Annex Skeletal Plan Sheet) on any topic they learned from the day's session on Adult Learning following the ADDIE Model.
6. Each group can also opt to develop a Training Plan which will focus on Good Nutrition and Vegetables.
7. Each group will nominate a presenter to present the group's 5-minuter Mini Training Plan output.
8. Debrief.

Debriefing Guide

1. In this session, what new things have you discovered about creating a Training Plan?
2. What are the things that you have learned here that you find difficult to implement when you Train Trainers?
3. What is the one action that you want to do after this session?

Lesson 3. Good Nutrition, Healthy Diet and Healthy Body

Activity Summary Across all Sessions

Trainees will engage in experiential learning which means they will learn by doing the work of being a Trainer of Trainers. Based on all the key concepts they have learned from Adult Learning Sessions, including the Designing of a Training Plan, during this session, they will prepare a demonstrate a learning event on Nutrition, Healthy Diet and Healthy Body as the main content of their Training Plan.

Overall Objectives

At the end of the Sessions, Trainers will be able to do the following:

- Describe the key messages in terms of principles and concepts on good nutrition, healthy diet, and healthy body
- Develop a Maximum Action Plan (MAP; one month plan of activities) which they will implement as Trainer of Trainers when they return to their workplace and/or community.

Session 1: Opening Sessions

Note: If this has been already done in the previous Lessons, skip this session and proceed to next Session 2. However, use the Opening Session if you only plan to teach this Module alone.

ACTIVITY 1: GETTING-TO-KNOW EACH OTHER EXERCISE

Activity Summary

Each participant gets a card with a photo of a vegetable or fruit that they most like. If there are many participants, they can be divided into small groups of 4 and in the small groups, each participant introduces himself/herself by explaining why he/she picked up the vegetable

and how this vegetable represents him or her as a person. Begin this activity with you being the first one to introduce yourself.

Objective/Purpose

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

Time: 15 minutes

Materials needed

Flash cards containing photos of fruits and vegetables

Steps

1. Flash cards of fruits/vegetables are laid on the floor for the participants to quickly see.
2. Instruct each participant to get one flash card containing the vegetable/fruit he/she likes, and share to the group why he/she chose that one to represent him or her self.
   a. Example: I am Lorna and I liken myself to an apple: sturdy, sweet, and medicinal: sturdy because as a person, I am strong in facing problems, sweet – I am thoughtful, and medicinal – I am helpful to those who have problems to lighten their burdens
3. After they introduce themselves, Debrief by telling them that the main topic they are going to discuss are vegetables and what nutrients they contain to make us healthy.
4. Collect the flash cards for other trainings.

Debriefing Guide

1. What did the choice of vegetables tell you about the person?
2. From the vegetables/fruits chosen, what are new to you?
3. What are some similarities you discovered about the other trainees?
4. Who has some characteristics that you feel may be different from yours?

ACTIVITY 2 - PRESENTING THE TRAINING OBJECTIVES

Activity Summary

Trainees will be divided into small groups. Each group will write at least four objectives that they want to learn or accomplish in relation to the topic: Nutrition, Healthy Diet and Healthy Body.

Objective/Purpose

Introducing the experiential learning, Trainees will write their own objectives (what knowledge and skills they want to learn) for this Session.

Time: 30 minutes

Materials needed

- Poster paper for Trainees to write their objectives
- Poster containing Objectives of the Training that the Trainer has prepared beforehand
- Pens
- Wall to post Trainees' outputs

Steps

1. Tell the Trainees that in this session, you are going to introduce to them the Experiential (or learning by doing method) Learning. And as future Trainers, they will need to learn how to craft the objectives of the session they want to teach.
2. Divide the Trainees into 4 small groups. Ask each group to discuss among themselves what knowledge and skills they want to learn in relation to the topic and then write these into at least four objectives.
3. Trainees will post their group outputs
4. Instruct Trainees to stand and read all the groups' objectives.

5. After they have read all their objectives, post your prepared objectives and see which of the objectives written by the Trainees match with the objectives you have prepared.
6. If time permits, and there are objectives raised by the Trainees that are not covered by the your own prepared objectives, and if you know the content of what they need, include these also, if not, then tell them that this could not be covered in the session. (Note: this activity also will form part of the Levelling off of Expectations).

ACTIVITY 3 - PRETESTING

Activity Summary

Trainees' baseline awareness and knowledge on Nutrition will be determined by making them answer the Pretest questionnaire. Ideally, this activity is done days or weeks before the actual implementation of the Training. But if this is difficult to do, usually pretesting is done right before the Training begins.

Objective/Purpose

At the end of the session, the Trainees will be able to gauge how much they know about the subject matter. The results of the pretest will also guide the Trainer on which topics are totally not known by the Trainees and put emphasis on these as the training progresses.

Time: 30 minutes

Materials needed

- Pretest Questionnaire
- Pens

Steps

1. Trainer distributes the pretest questionnaire, one set for each Trainee.
2. Trainees answer the pretest.
3. When done answering, Trainees exchange their answered sheet with their seatmates.
4. Trainer asks theTrainees the correct answer for every question, and Trainee checks his/her seatmate's answer.
5. Trainer asks who among the Trainees got perfect or highest number of correct answers.
6. Debrief

Debriefing Guide

- As a prospective Trainer of Trainers, you will also be going to conduct this pretesting exercise in your Training events, what one thing can you suggest to make pretesting fun and meaningful to Trainees?

Session 2: Basic Concepts on Nutrition

ACTIVITY 1: DEFINITION OF TERMS

ACTIVITY 2: WHAT GOOD NUTRITION IS AND WHY MANY PEOPLE IN THE COMMUNITY DO NOT HAVE GOOD NUTRITION

Activity Summary

Participants will form two groups and each group will be given a set of parts of a Tree (Canopy, Stems, Leaves, Trunk, Fruits, Roots). Each group will make a **Problem Tree** – they identify the root causes why many people are not able to eat nutritious food. Then they identify what are the consequences and/or results of not eating the right food to the person's body, to the family, to the community, and to the entire nation. Each group will nominate a spokesperson to present the highlights of their discussion on why in their community, many people do not have good nutrition.

Objective/purpose:

At the end of this Session, the Trainees will be able to identify at least 3 key reasons why many people in their respective communities do not eat or have no access to proper nutrition. They will also identify 3 major consequences of not eating proper nutrition.

Time: 60 minutes

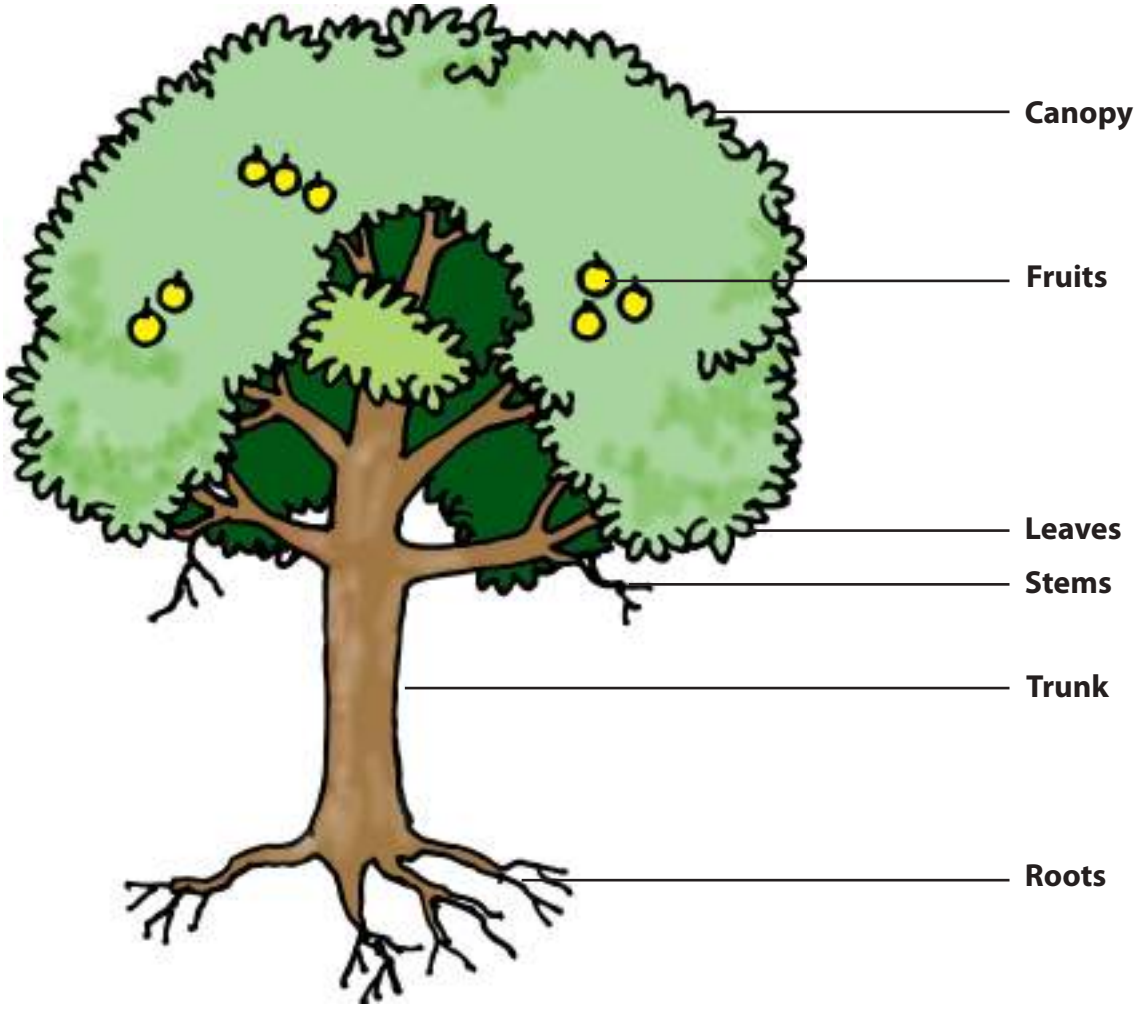
Materials Needed

- Working table, floor, or any dedicated space for each group to work on
- Parts of a tree (one set for each group)
- Paper and Pens
- Adhesives for posting group outputs

- Flipcharts: 1) Understanding Hunger and Malnutrition; 2) The Consequences of Malnutrition; 3) Where are the Most Undernourished People?

Steps

1. Trainer will divide the big group into small groups.
2. Participants will form two groups and each group will be given a set of parts of a Tree (Canopy, Stems, Leaves, Trunk, Fruits, Roots).
3. Each group will make a **Problem Tree** – they identify the root causes why many people are not able to eat nutritious food. Group will decide on what key words to write on the root part of the tree for the Causes.
4. Then they identify what are the consequences and/or results of not eating the right food to the person's body, to the family, to the community, and to the entire nation.
5. They also write key words on consequences on the fruit.
6. Each group will nominate a spokesperson to present the highlights of their discussion on why in their community, many people do not have good nutrition.
7. Trainer will then post the 3 Flipcharts (**embedded here**) and ask the Trainees to:
   a. Where are the Most Undernourished People?
   b. Understanding Hunger and Malnutrition; and
   c. The Consequences of Malnutrition



8. Distribute paper and pens to each group and instruct each group to comment (based on guide here) on the Flipcharts and let them compare their answers they made earlier when they were making the Problem Tree.
   a. What new words did they encounter when they worked on their Problem Tree.
   b. What emotions did they feel when they looked at the photos on the Flipcharts?
   c. Why do most malnourished populations live in countries mentioned in the Flipchart?
9. Debrief.

Debriefing Guide

1. What new information did they encounter from this session that surprised them?
2. What emotions were evoked in them while discussion issues on malnutrition?
3. If you are a nutritionist? What will be your number one problem on nutrition that you will solve in your community?
4. After this session, what one thing would you want to do that is related to the lesson you just learned?

Session 3: Healthy and Balanced Diet for Family Members: Basic Nutrition Principles

ACTIVITY 1. FOOD PYRAMID

Activity Summary

Participants will watch a video clip about Planning for Good Eating (approximately 8 min). If the video cannot be played for lack of equipment, Trainer will use the Flip Charts as content for the Session discussion.

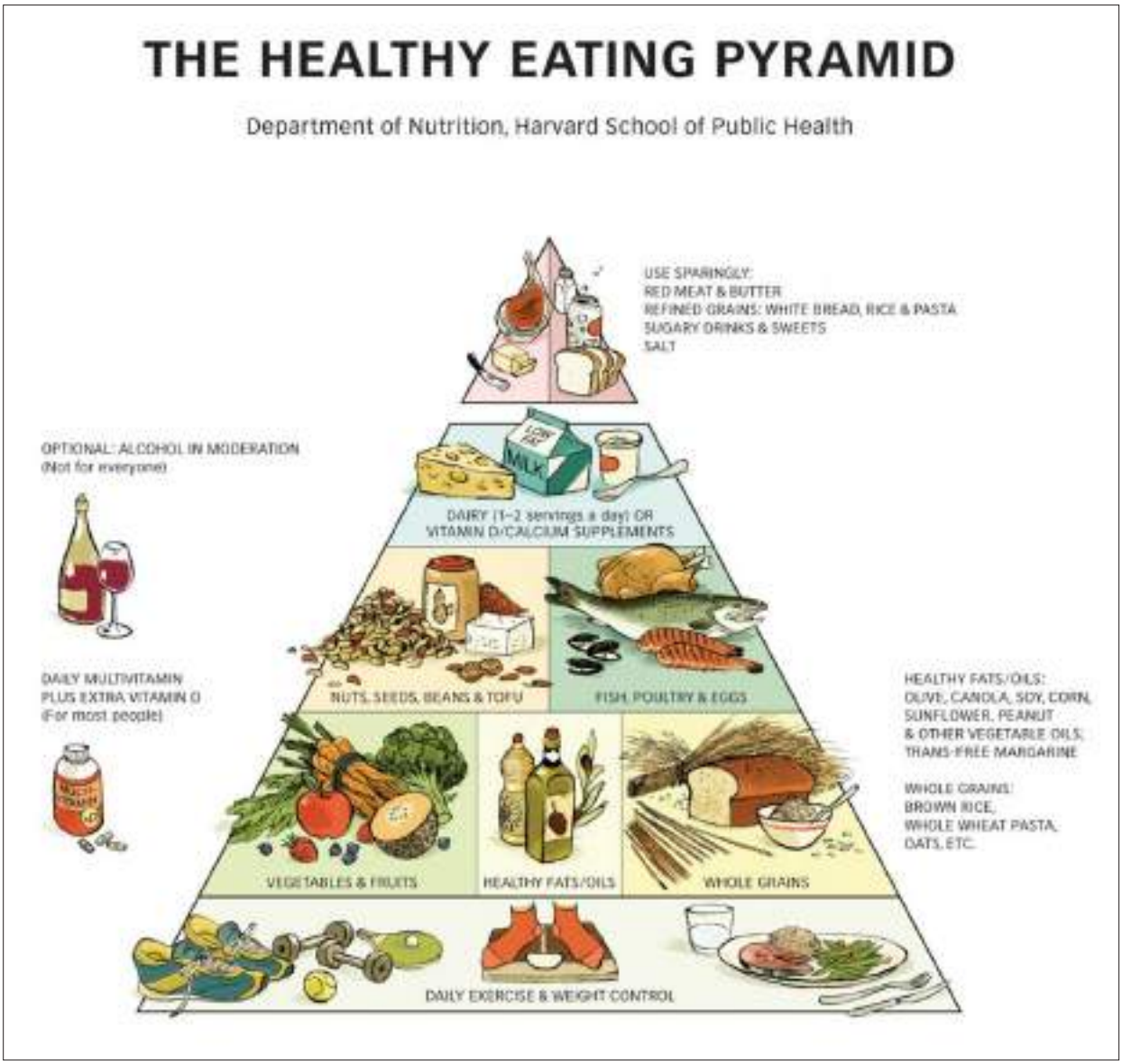
Objective/Purpose

At the end of the Session, Trainees will be able to list, define and explain the key messages that make up the basic principles of nutrition. For this Session, Trainees will recall the foods in the the Food Pyramid and how these help to make the human body function well. They will recall and assess if what they ate healthy are according to what they saw in the Food Pyramid.

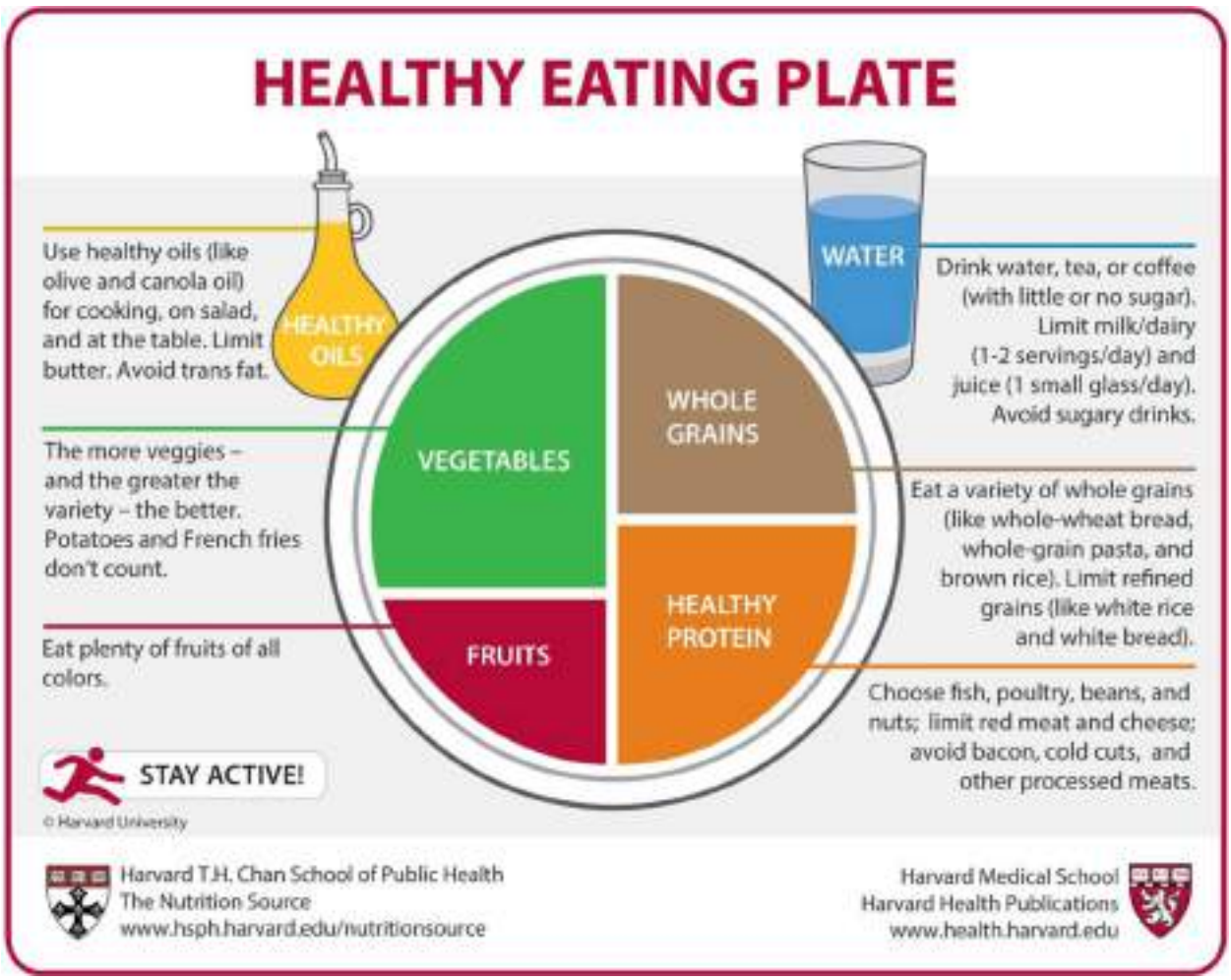
Time: 120 minutes (2 hours)

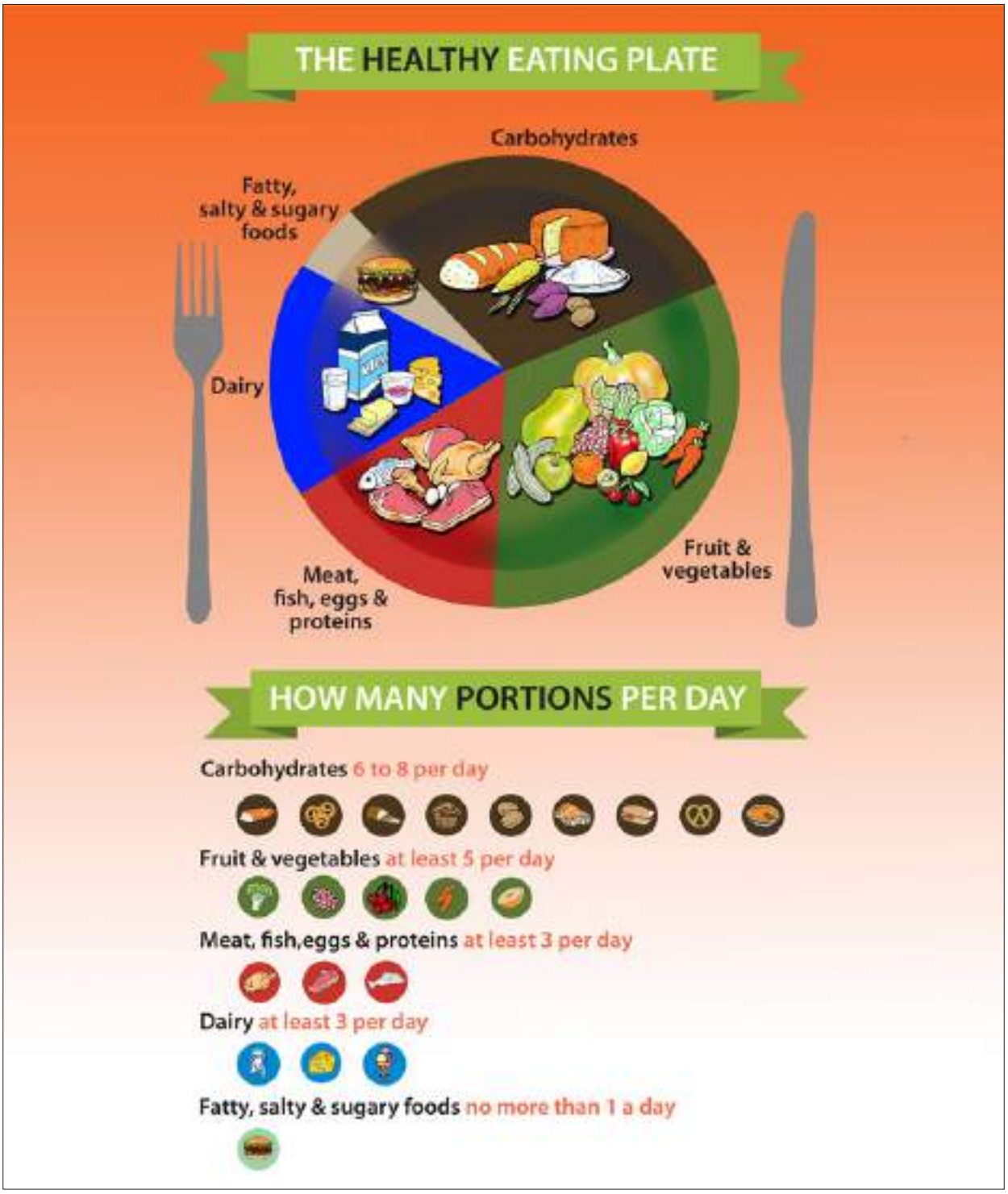
Materials Needed

- Video clip: Healthy Eating
- Human Body Form (Embedded here)
- Basic Nutrients (Embedded here)
- Flip Charts : 1. The Healthy Eating Pyramid; 2. Healthy Eating Plate; and 3. Healthy Eating Plate (illustrated) & with Portions; 4. There is No Ideal Diet that Is right for Everyone
- Daily Food Diary (1 sheet for each Trainee)

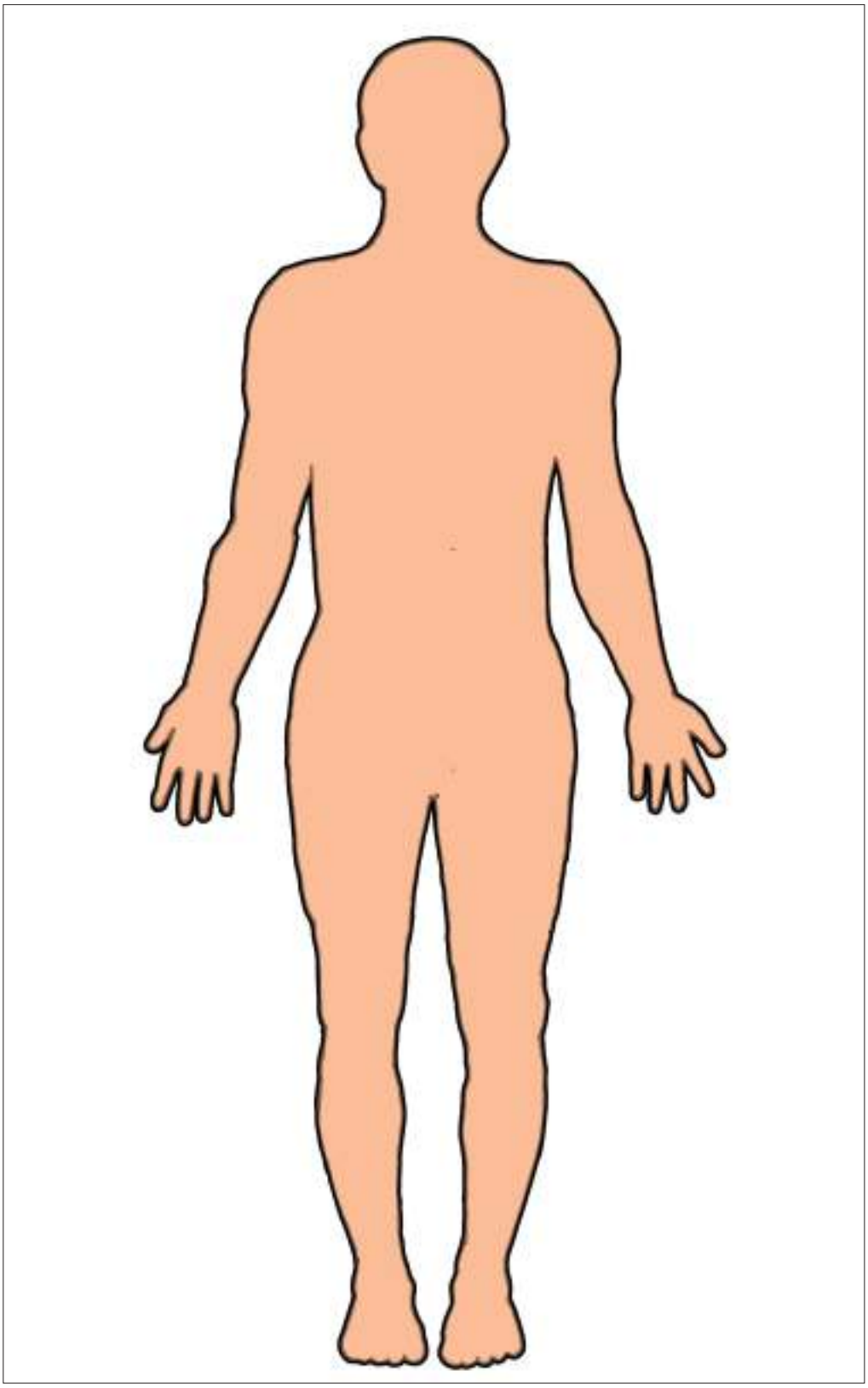

THE HEALTHY EATING PYRAMID
Department of Nutrition, Harvard School of Public Health
USE SPARINGLY:
RED MEAT & BUTTER
REFINED GRAINS: WHITE BREAD, RICE & PASTA
SUGARY DRINKS & SWEETS
SALT
OPTIONAL: ALCOHOL IN MODERATION
(Not for everyone)
DAILY MULTIVITAMIN
PLUS EXTRA VITAMIN D
(For most people)
DAIRY (1–2 servings a day) OR
VITAMIN D/CALCIUM SUPPLEMENTS
NUTS, SEEDS, BEANS & TOFU
FISH, POULTRY & EGGS
VEGETABLES & FRUITS
HEALTHY FATS/OILS
WHOLE GRAINS
DAILY EXERCISE & WEIGHT CONTROL
HEALTHY FATS/OILS:
OLIVE, CANOLA, SOY, CORN,
SUNFLOWER, PEANUT
& OTHER VEGETABLE OILS,
TRANS-FREE MARGARINE
WHOLE GRAINS:
BROWN RICE,
WHOLE WHEAT PASTA,
OATS, ETC.

ACTIVITY 2: HEALTHY EATING PLATE




THE HEALTHY EATING PLATE
Carbohydrates
Fatty, salty & sugary foods
Dairy
Meat, fish, eggs & proteins
Fruit & vegetables
HOW MANY PORTIONS PER DAY
Carbohydrates 6 to 8 per day
Fruit & vegetables at least 5 per day
Meat, fish,eggs & proteins at least 3 per day
Dairy at least 3 per day
Fatty, salty & sugary foods no more than 1 a day

ACTIVITY 3: THE HUMAN BODY OUTLINE



The Basic Nutrients[3]

Nutrient	Nutrient Types	Food Sources	Contribution to Body
Carbohydrate	1. sugar	ripe fruits, vegetables, milk	provides energy; helps body to use protein
	2. starch	grain products, rice, legumes	
	3. cellulose	bran, whole-grain products, legumes, nuts, some raw vegetables and fruits	
Fat	1. saturated fats	butter, hard cheese, lard	provides energy
	2. unsaturated fats	vegetable oils	
Protein	1. nine essential amino acids	complete-protein foods such as meat, milk, fish	builds and repairs body cells; makes antibodies to fight infection; forms hormones; provides energy
	2. nonessential amino acids	none (The body produces these from the nine essential amino acids in food.)	
Vitamin	**A. water-soluble vitamins** 1. vitamin C (ascorbic acid)	citrus fruits, broccoli, cabbage	helps build teeth and bones; helps in blood formation; helps body to fight infection; aids in healing of cuts; forms collagen.
	2. vitamin B1	whole grains, pork, poultry, fish, dried beans	helps body use carbohydrates; helps digestion; promotes good appetite; keeps nerves healthy
	3. vitamin B2	eggs, meat, fish, dark-green vegetables	helps body use proteins and energy foods; helps eyes; maintains smooth skin.
	4. niacin	whole grains, dairy products, meat, fish, poultry, peanuts	helps maintain healthy nerves and digestion
	5. folic acid	deep-green, leafy vegetables; grains, meats, eggs	maintains health of red blood cells
Nutrient	**Nutrient Types**	**Foods Sources**	**Contribution to Body**
	B. fat-soluble vitamins 1. vitamin A	carrots, pumpkins, broccoli, dairy products, liver, eggs	helps growth and health of bones, teeth, skin, hair; maintains health of eyes; fights infection
	2. vitamin D	fortified milk	helps build strong bones and teeth
	3. vitamin E	oils, whole grains, eggs, milk, liver, green leafy vegetables	helps body use energy foods; protects body from too much oxygen
	4. vitamin K	dark-green, leafy vegetables; cabbage, cauliflower	aids in blood clotting

[3] http://www.uen.org/Lessonplan/preview.cgi?LPid=5027

The Basic Nutrients[3]

Nutrient	Nutrient Types	Food Sources	Contribution to Body
Mineral	1. calcium	dairy products, broccoli, turnip and mustard gree	helps to build and maintain strength of bones and teeth; helps blood clotting; aids heart and nervous system
	2. phosphorus	dairy products, whole grains, meats, dried beans, peas	helps to build and maintain strength of bones and teeth; helps body to produce energy and to use other nutrients
	3. magnesium	dairy products, eggs, organ meats, whole grains, nuts, leafy vegetables	helps muscles and nervous system; aids enzymes; aids use of carbohydrates and proteins; forms skeleton, soft tissues, and blood
	4. sodium	table salt, processed foods, pickled foods, cured foods	regulates body fluids; helps muscles, including heart; helps nerves
	5. chlorine	table salt	helps nutrients to enter
	6. potassium	citrus fruits, bananas, dried fruits, fish meats	cells and eliminate wastes
	7. iron	organ meats, eggs, meat, dried fruits and legumes, whole grains, dark leafy greens	with protein, makes hemoglobin; helps cells to use oxygen received from blood
	8. iodine	saltwater fish, iodized table salt	enables thyroid gland to regulate metabolism
	9. zinc	seafood, meat, eggs, dairy products, whole grains	helps body to use carbohydrates, fats and proteins; helps in healing wounds; protects against disease; aids growth and reproduction
Water		drinking water, soups, sauces, beverages, fruits, vegetables	makes up part of blood and digestive juices; regulates body temperature

ACTIVITY 4: DAILY FOOD DIARY FOR ONE DAY

Instruct participants to recall what they ate within the past 24 hours.

Steps:

1. For introduction, if it is possible to play a video, start with the video clip about Planning for Good Eating (approximately 8++min). If not, proceed to steps 3 and onwards.
2. Divide the participants in small groups of 5 to 6. Give each a metacard or a writing paper for them to write their answers. Let them use key words only. They will answer the following questions:
   a. What one thing that you recall the most in the video clip?
   b. What one thing that you liked best in the story that we watched? What one thing that you liked least, why?

c. What one thing that you feel will hinder (barrier/problem) a family to eat healthy food?
d. What one thing would you do to make your family's daily food intake healthy?

3. Distribute three forms, one form for each Trainee: the 1) Human Body Form Sheet, 2) Basic Nutrients sheet and the 3) Daily Food Diary Sheet
4. Tell the Trainees to read the 2-page Basic Nutrients sheet. Give them 5 minutes to read this.

Day: _____ **Date:** _____

Time of the Day	Amount (1 cup or more)	Carbohydrates (include sweets and sugary foods/dessert)	Fat	Proteins	Vitamins & Minerals	Fiber	Water & other liquids
6-8 am							
9							
10							
11							
12 noon							
1 pm							
2							
3							
4							
5-7							
8-12 mid-night							

5. From their reading, instruct the Trainees to match the 5 basic food groups' role and functions to the Human Body. Let the Trainees superimpose these functions to the specific parts of the Human Body.
6. Next, Introduce the next set of Flipcharts.
7. Divide the Trainees into two groups. Assign the first group to get Flip charts 1&4 (Healthy Eating Pyramid& There is No "Ideal" Diet that Is right for Everyone) and the second group, the Flip charts 2&3 (Healthy Eating Plate& Healthy Eating Plate, with Portions, illiustrated).
8. Give each group additional reference material to substantiate Flip chart information
9. Distribute the Daily Food Diary Form
10. Give Trainees at least 10 min to answer for a one-day (latest date) recording of their food.
11. Trainees will share their answers in their respective group.
12. Let the participants post on the wall their food diary
13. Instruct the Trainees to make a 5-minuter presentation on the information contained on the Flip charts that were assigned to them with the Guidelines below:
    a. Define the objective and purpose of their presentation (what they want the audience to learn after their presentation)
    b. Introduce a strategy to engage the audience in the process of reporting the information (Annex)
    c. Highlight at least two to three messages that they want to emphasize in their reporting
    d. Make use of a visual aid, in addition to the Flip charts which they have
    e. Summarize Take Away points they want their audience to do/apply at the end of the presentation
    f. Ask for feedback from the Trainees: How did they find their Learning Activity?
14. Debrief by playing the Nutrient/Food Pyramid Group Game

Debriefing Guide:

1. Give each participant two flashcards containing pictures of different kinds of food (Annex Flash cards).
2. Find a space (floor or wall) where you can put a label of the different nutrient/food groups:
    - Carbohydrates
    - Fats
    - Proteins
    - Vitamins and minerals
    - Fiber

3. Instruct the participants to place the flashcards given them in the correct nutrient/food groups mentioned above.
4. Check if they have correctly placed the flashcards on the right nutrient/food groups where these belong.
5. Ask participants how they felt during the activity.
6. Provide positive feedback.

Session 4: Vegetables in the Diet

ACTIVITY 1. DEVELOPING A MAXIMUM ACTION PLAN (MAP)

Activity Summary

At the end of the session, participants (group output if they belong to the same community or office) will make a MAP and an awareness material which they will present to the Class: For this Session, Trainees will create a 5-minuter powerpoint presentation on the importance of vitamins and minerals in fruits and vegetables as part of healthy eating. After the Training, they can further enrich the information and create a longer presentation for their respective community.

Objective/Purpose

At the end of the Session, the Trainees will enumerate and explain the role and function of vitamins and minerals in the body. They will be able to identify which foods contain these vitamins and minerals and discuss what happens to the body when there is on any of these micro nutrients.

Time: 120 minutes

Materials Needed

- MAP Sheet (Embedded here)

One-Month Maximum Action Plan Sheet (to be accomplished during the Training)

Objective	Action/ Activity	Target Dates	Resources Needed	Persons Responsible	Status
Example: **Create Awareness among 20 percent of the total population of housewives/mothers in my community on the importance of nutrition and healthy diet**	a.Create a 5-min ppt on Vitamins and Minerals	During the Training Session	5-min ppt on Vitamins and Minerals Awareness Campaign Plan tailored fit to the needs of the community	Trainees	Ongoing during group work
	Set a meeting with Health Clinic official in my community and present MAP	After the Training	Complete a one-month MAP on awareness campaign on proper nutrition and healthy diet for housewives/mothers in my community on the importance of Vitamins and Minerals	Trainees	Complete After workshop

- Write all your other planned activities

Steps

1. Distribute the following forms to each Trainee:
   a. One month Maximum Action Plan (MAP)
   b. Vegetables and Minerals Sheet
   c. Tips in Creating Powerpoint Presentation
2. Divide the Trainees into 4 groups. Assign each group to study one flipchart per group on the list below:
   a. 7 color-vegetables
   b. Benefits of leafy greens
   c. What healthy eating can do for you
   d. What to eat to get the right vitamins and minerals

   Note: All four groups will have also a copy of the Vegetables and Minerals Sheet (pp 228-230) as part of the reference. From these materials, proceed to Activity 2.

Vegetables and Minerals Sheet

Functions and sources of main nutrients present in vegetables

Nutrient	Role/Function	Vegetable Sources
Fiber  **Bitter Gourd**	Aids proper digestion of foods and maintains healthy stomach and intestines Makes the food bulkier and gives the feeling of fullness Absorbs water and makes the stools soft,which prevents constipation and other gut-related diseases such as diverticulitis Reduces cholesterol and glucose absorption, lowering the risk of heart diseases and diabetes Promotes good gut bacteria that aids in digestion and absorption of nutrients	Almost all vegetables Examples: Gourds such as ash gourd and bitter gourd,green leafy vegetables such as pumpkin leaves, aroid leaves, spinach, kohlrabi, and beans
Minerals		
Calcium  **Moringa**	Helps build strong bones and teeth Maintains normal heart and muscle Functions Helps blood clotting and regulation of blood pressure Important in immune functions	Most green leafy vegetables Examples: Amaranth (green and red), moringa, aroid leaves

Vegetables and Minerals Sheet

Functions and sources of main nutrients present in vegetables

Nutrient	Role/Function	Vegetable Sources
Iron	Makes red blood cells	Most dark green leafy vegetables Examples: Amaranth (green and red), pumpkin leaves, ridge gourd leaves, spinach and aroid leaves, moringa
 **Redroot Amaranth**	Helps brain and immune functions	
	Plant-based iron is not as efficiently absorbed as animal-based iron	
	Maintains healthy immune system	Dark green or colored leafy vegetable Example: Amaranth (green and red)
	Helps synthesize DNA	
	Promotes healthy growth during childhood	
	Aids wound healing	
Vitamins		
Vitamin A	Beta-carotene is found in high amounts in orange and yellow vegetables	Orange colored vegetables Examples: carrot, pumpkin Dark green leafy vegetables Examples: Indian spinach, moringa, amaranth, ridge•
 **Pumpkin**	In the body beta-carotene is converted to vitamin A	gourd leaves, spinach, aroid leaves
	Essential for maintaining healthy skin, immune system, vision and promote normal growth and development	
	Fat soluble vitamin	
	Eating or cooking orange and vegetables with a small amount of oil can promote absorption of vitamin	

Vegetables and Minerals Sheet

Functions and sources of main nutrients present in vegetables

Nutrient	Role/Function	Vegetable Sources
Vitamin C  **Indian Spinach (red)**	Helps heal cuts and wounds and keeps teeth and gums healthy Aids in iron absorption and uses calcium and other nutrients in building the body Water soluble vitamin, can easily be lost when food is cut, heated or boiled for a period of time	Most vegetables Example: Amaranth (green and red), bitter gourd, cauliflower, Indian spinach, kohlrabi, moringa, okra, pointed gourd, ridge gourd leaves, aroid leaves, and teasel gourd
Vitamin E  **Snap Bean**	Strong antioxidant Protects against heart disease, cancer, and age related eye damage Fat soluble vitamin	Beans and moringa leaves
Folate (Folic acid}  **Spinach**	Helps body form red blood cells and other cells Reduces the risk of central nervous system in developing fetus such as neural tube defects, spina bifida, and anencephaly	Beans and leafy vegetables Example: Amaranth, bitter gourd, Indian spinach, moringa, snap bean, spinach, aroid leaves, and yardlong bean

ACTIVITY 2. DEVELOPING A SESSION PLAN

1. Each group will create a Session Plan following the guide here:
   a. Session Title – 8 to 12 words only
   b. Activity Summary – gives a summary of what Trainees are expected to do during the Session (not more than 5 sentence-summary)
   c. Session Objective/Purpose – will state what is the knowledge/skill that you want your particpants to learn at the end of the session
   d. Time – describes the realistic time you will allot for the entire Session
   e. Materials Needed – lists all the resources/materials/equipment you will need to implement the Session
   f. Steps – describes in detail all the instructions that the participants will do, how they will be engaged or participate during the Session
   g. Debriefing Guide – lists the questions the Trainer needs to ask to evaluate how well the participants have been engaged during the session (questions can be cognitive: what they recall; affective: how they feel/respond; and psychomotor: what new skill they want to apply/do after the Training).
2. Each group will create a 5-minuter presentation on the topic (Flipchart) assigned to them following a 10-slide template here:
   a. Title of the Presentation (1st slide)
   b. Intended audience (may include the local government officers in the community, housewives/mothers); can be done in the language of the Trainee (2nd slide)
   c. Objectives (2nd slide)
   d. Session Plan (3rd slide)
   e. Body of the Presentation (4th to 8th slide)
   f. Exit Summary of the Presentation (9th slide)
   g. What Participants will take away after their presentation (10th slide)
6. Each group will present their Session plan, followed by their powerpoint for their respective assigned topic.


THE BENEFITS OF LEAFY GREENS
Everyone knows kale is the hip new superfood, and spinach is an old standby.
But how well do you know these not-so-famous greens?
RELATIVES OF LEAFY GREENS
BROCCOLI
TURNIPS
BEETS
DANDELIONS
RUTABAGA
BRUSSEL SPROUTS
ARUGULA
The Benefits
Nutrients
How to eat it?
SWISS CHARD
The Benefits
Nutrients
How to eat it?
MUSTARD GREENS
The Benefits
Nutrients
How to eat it?
COLLARD GREENS
The Benefits
Nutrients
How to eat it?
BABY BOK CHOY
The Benefits
Nutrients
How to eat it?
ESCAROLE
The Benefits
Nutrients
How to eat it?
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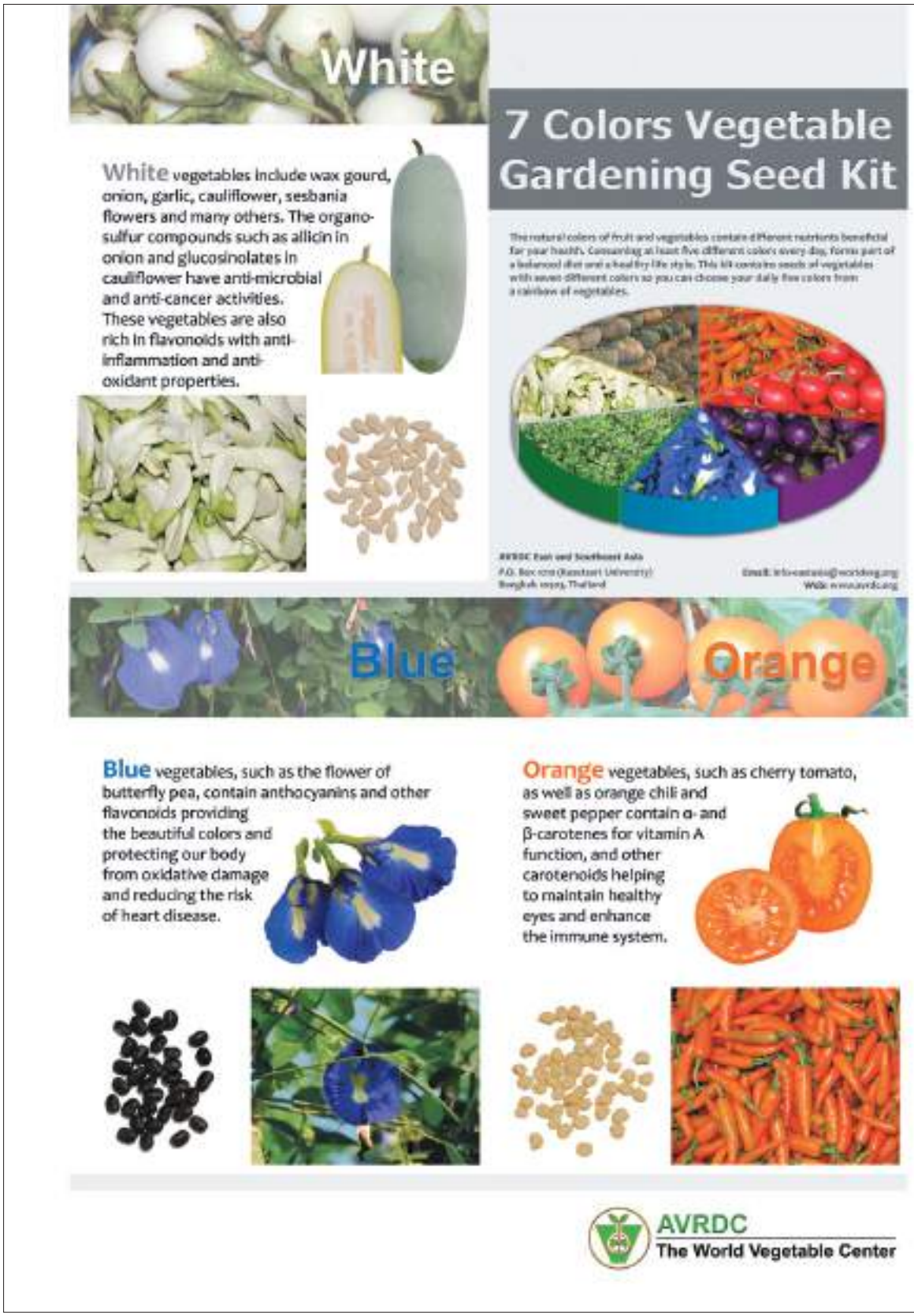
White
7 Colors Vegetable Gardening Seed Kit
White vegetables include wax gourd, onion, garlic, cauliflower, sesbania flowers and many others. The organo-sulfur compounds such as allicin in onion and glucosinolates in cauliflower have anti-microbial and anti-cancer activities. These vegetables are also rich in flavonoids with anti-inflammation and anti-oxidant properties.
Blue
Orange
Blue vegetables, such as the flower of butterfly pea, contain anthocyanins and other flavonoids providing the beautiful colors and protecting our body from oxidative damage and reducing the risk of heart disease.
Orange vegetables, such as cherry tomato, as well as orange chili and sweet pepper contain α- and β-carotenes for vitamin A function, and other carotenoids helping to maintain healthy eyes and enhance the immune system.
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Green vegetables, such as kangkong, okra, bitter gourd, and basil, contain chlorophyll giving the freshness green color, α- and β-carotenes converting to essential vitamin A for good immunity and body health, and other carotenoids such as lutein, important for eye health. They are also excellent sources of dietary fiber, folate, vitamin K, omega-3 fatty acids and minerals.

Yellow vegetables, such as pumpkin, cowslip creeper flowers as well as yellow chili and sweet pepper contain α- and β-carotenes for vitamin A function, and other carotenoids helping to maintain healthy eyes and enhance the immune system.

Red vegetables, such as chili, tomato, and roselle contain various red-pigmented bioactive compounds providing the delicious and attractive colors. Lycopene in tomato helps reduce the risk of prostate cancer; capsanthin, the major red carotene in chili, and anthocyanins in red leaves help protect cells from oxidations and have the potential in reducing the risk of certain cancers.

Purple vegetables, such as eggplant, and purple versions of okra, wing bean, malabar spinach, amaranth, and basella contain anthocyanins and other flavonoids providing the beautiful colors and protecting our body from oxidative damage and reducing the risk of heart disease.

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WHAT TO EAT TO GET THE RIGHT VITAMINS & MINERALS
Vitamin A
FRUITS
Apricots, mangoes, carrots, peaches, pumpkins
VEGETABLES
Hot chili peppers, sweet potatoes, spinach, red peppers, turnips, butternut squash
MEAT & DAIRY
Tuna, fish, eggs
Vitamin B6
FRUITS
Bananas
VEGETABLES
Avocados, carrots, potatoes
GRAINS & PULSES
Whole-grain cereals, brown rice, peanuts, walnuts, oats, sunflower seeds
MEAT & DAIRY
Chicken, beef, eggs, turkey & chicken
Vitamin C
FRUITS
Oranges, pink grapefruit, strawberries, kiwi fruit, orange juice, lemons, mangoes
VEGETABLES
Red and green peppers, Brussels sprouts, cabbage, cauliflower, broccoli, asparagus, kale, onions, radishes, watercress
Vitamin D
VEGETABLES
Mushrooms
GRAINS & PULSES
Fortified cereals
MEAT & DAIRY
Sardines, salmon, eggs, fortified milk, herring, liver, tuna, cod liver oil, margarine
Vitamin B12
MEAT & DAIRY
Salmon, tuna, liver, milk, shellfish, meat, cheese
GRAINS & PULSES
Fortified breakfast cereals
Vitamin E
GRAINS & PULSES
Vegetables & nut oils, including corn, spinach, whole grains, wheat germ, sunflower seeds & almonds
NUTS & SEEDS
Almonds, sunflower seeds hazelnuts
Folic Acid
FRUITS
Dates, oranges
VEGETABLES
Asparagus, spinach, broccoli, Brussels sprouts, green leafy vegetables, mushrooms
GRAINS & PULSES
Barley, bran, brown rice, pinto beans, split peas, whole grains, lentils
MEAT & DAIRY
Beef, cheese, chicken, lamb, liver, milk, pork, tuna
Iron
MEAT & DAIRY
Beef, chicken, liver, tofu & oyster
VEGETABLES
Green leafy vegetables including spinach, kale, cauliflower, broccoli
GRAINS & PULSES
Lentils, kidney beans, soy beans
Zinc
VEGETABLES
Mushrooms
GRAINS & PULSES
Whole grains, nuts, pecans, pumpkin & sunflower seeds, lentils
MEAT & DAIRY
Dark meat turkey, beef, lamb, eggs, yogurt, fish, liver, sardines
Calcium
FRUITS
Figs, oranges, rhubab raisins
VEGETABLES
Peas & beans, most dark, leafy greens, green cabbage, cauliflower, carrots
GRAINS & PULSES
Almonds, sesame seeds, chickpeas
MEAT & DAIRY
All dairy products except butter, mackerel, salmon, tofu, soy milk
Magnesium
FRUITS
Bananas, grapefruit, lemons apples, apricots
VEGETABLES
Avocados, spinach, broccoli, yogurt, baked potatoes, green leafy vegetables
GRAINS & PULSES
Brown rice, oatmeal, nuts, sesame seeds & wheat
MEAT & DAIRY
Haddock, tofu, salmon
Potassium
FRUITS
Bananas, raisins, apricots, oranges, dates, watermelon, prunes
VEGETABLES
Avocados, broccoli, spinach, carrots, potato, sweet potato, mushrooms, peas
GRAINS & PULSES
Lentils, peanuts
MEAT & DAIRY
Milk, yogurt & lean meats
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Cited by


WHAT HEALTHY EATING CAN DO FOR YOU
Improve your health, lose weight and feel great with healthy, balanced diet.
STRONG HAIR AND NAILS
Vitamin A, B complex, E, C, Folic Acid, Iron & Zinc
SHARP HEARING
Vitamin A, C, E, B12, Folic Acid & Biotin
STABLE BLOOD PRESSURE
Vitamin C & D, Calcium, Potassium & Magnesium
HEALTHY LUNGS
Vitamin D, C, E & A
HEALTHY LIVER
Vitamin B12 & A
STRONG IMMUNE SYSTEM
Vitamin A, C, E & Zinc
BETTER BLADDER & KIDNEY FUNCTION
Vitamin B6, Magnesium, Potassium & Sodium
IMPROVED FERTILITY
Omega 3 fatty acids, Zinc, Iron & Calcium
STRONG BONES
Vitamin D, Calcium, Magnesium, Phosphorus
IMPROVED BRAIN POWER
Omega 3 fatty acids, Vitamin E, B6, C, B12, D & Folic Acid
CLEAR EYESIGHT
Vitamin C, A, E & B12
HEALTHY HEART
Omega 3 fatty acids, Vitamin B6, E, C & D
HEALTHY CHOLESTEROL LEVELS
Fibre, Vitamins C, E, Omega 3 fatty acids & Carotenoids
HEALTHY DIGESTION
Fibre, Vitamin B12, C & Niacin
LEVEL BLOOD SUGAR
Vitamin C, D & B Complex
CLEAR SKIN
Vitamin A, C, E, D & Biotin
HEALTHY MUSCLE TISSUE
Vitamin B12, E, A & Iron
SUPPLE JOINTS
Calcium, Vitamins C, D & Omega 3 fatty acids
INCREASED ENERGY
Vitamin B complex & Iron
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Session 5: Special Diets and Nutritional Requirements

Activity Summary

There are two activities for this Session. The first one is for Trainees to recommend a healthy recipe and cook it in the class. The recipes should be affordable but nutritious, and ingredients should be easily available. The second activity is for them to put together a recipe booklet by assembling all the receipes they presented in the Class. These recipes may be prepared both for healthy family members and/or for those who are sick.

Topics to be covered

1. pregnant and breastfeeding mothers,
2. infants,
3. children,
4. adults,
5. the elderly and
6. the sick.

Objective/Purpose

The participants will understand the importance of preparing special diets that meet the nutritional requirements of healthy people with varied ages and/or those who are sick as well.

Time: 60 minutes

Materials Needed

- Background Reference Material(See Manual), one copy for each participant
- Slips of paper and writing pens
- Labels posted on the wall bearing the following phrases:
  a. pregnant and breastfeeding mothers
  b. infants
  c. children
  d. adults
  e. the elderly and
  f. the sick.
- Printing paper for the Recipe Booklet
- Printer
- Lay-out artist
- Encoder of participants' outputs

Steps:

1. Give all the participants a background material taken from this Manual, Module 2 on Special Diets and Nutritional Requirement to read and understand that different ages need different nutritional (10-15 minutes).
2. Divide the participants in five small groups. Each group will come up with a recipe for one meal (either lunch or dinner meal) not found in this manual) for any two of the following groups:
   a. pregnant and breastfeeding mothers
   b. healthy children
   c. healthy adults
   d. the elderly and
   e. sick adults
3. Post on the Wall 5 Labels: Pregnant and breastfeeding mothers, children, adults, the elderly, the sick.
4. Instruct the participants to post their recipes/menus under these 5 labels.
5. Collect the recipes and have these encoded and lay-outed in a recipe booklet format.
6. If there is an artist in the class, let the artist draw some illustrations.
7. Give to the participants one copy each at the end of the Training.
8. Debrief

Debriefing Guide:

1. What one thing that you enjoyed the most in this session?
2. What one thing that you least like in this session?
3. What one thing would you recommend to improve this session?
4. What one thing would you do after this session?

Session 6. Integrating the WASH Principles in Good Nutrition

Activity Summary

Participants, in small groups, will discuss and write a short interesting story and present a 5-to 7-minuter drama or role play before the class. The theme: "Preparing safe and healthy food for the family: Wash principles."

Objective/Purpose

In this Session, Trainees will be able to understand and explain in their own words five key Wash Principles[5]. Five keys include: (1) keep clean; (2) separate raw and cooked; (3) cook thoroughly; (4) keep food at safe temperatures; and (5) use safe water and raw materials.

Time: 60 minutes

Materials Needed

- A copy of the background material on WASH principles (See Manual) for each participant
- A reference reading material on how to create stories for drama and/or role play
- Paper and writing pens

Steps

1. Give all the participants a background material on WASH Principles taken from Module 2 of this Manual.
2. Instruct the participants to work in small groups, brainstorm on the story they want to dramatize or roleplay, and write the script for a 5- to 7-minuter drama. The theme of the Drama will focus on why and how to prepare clean food for our family.
3. Give the participants time to practice their drama.
4. Present the drama in front of the class.
5. Debrief

[5] Five keys include: (1) keep clean; (2) separate raw and cooked; (3) cook thoroughly; (4) keep food at safe temperatures; and (5) use safe water and raw materials. http://www.who.int/foodsafety/publications/consumer/manual_keys.pdf

Debriefing Guidelines

- Give one practice that you have learned from the WASH principles that you are already practicing even prior to this session.
- Give one new practice that you have learned from this session.
- What one practice in your community that you feel can be incorporated as part of the WASH practices?
- What decision/action will you do after this session?

Lesson 4. Creating a Vegetable Garden Map and a Maximum Action Plan

Session 1: Vegetable Garden Map and Plan

Activity Summary

At the end of the Sessions, trainees will deliver two outputs: 1) a Vegetable Garden Map (either for their home use, or for their community use) and 2) a Maximum Action Plan do-things list that they can present to their respective community leaders.

Objective/Purpose

At the end of the Sessions, Trainees will appreciate the benefits of establishing home-grown vegetables and learn the skill on how to engage their household and/or their respective communities in vegetable gardening from pre- to post-vegetable production.

Time: 60 minutes

Materials Needed

- Module 3 of this Manual as reference material
- Sample template of a Garden Map
- Sample template of an Action Plan
- Pens and poster papers

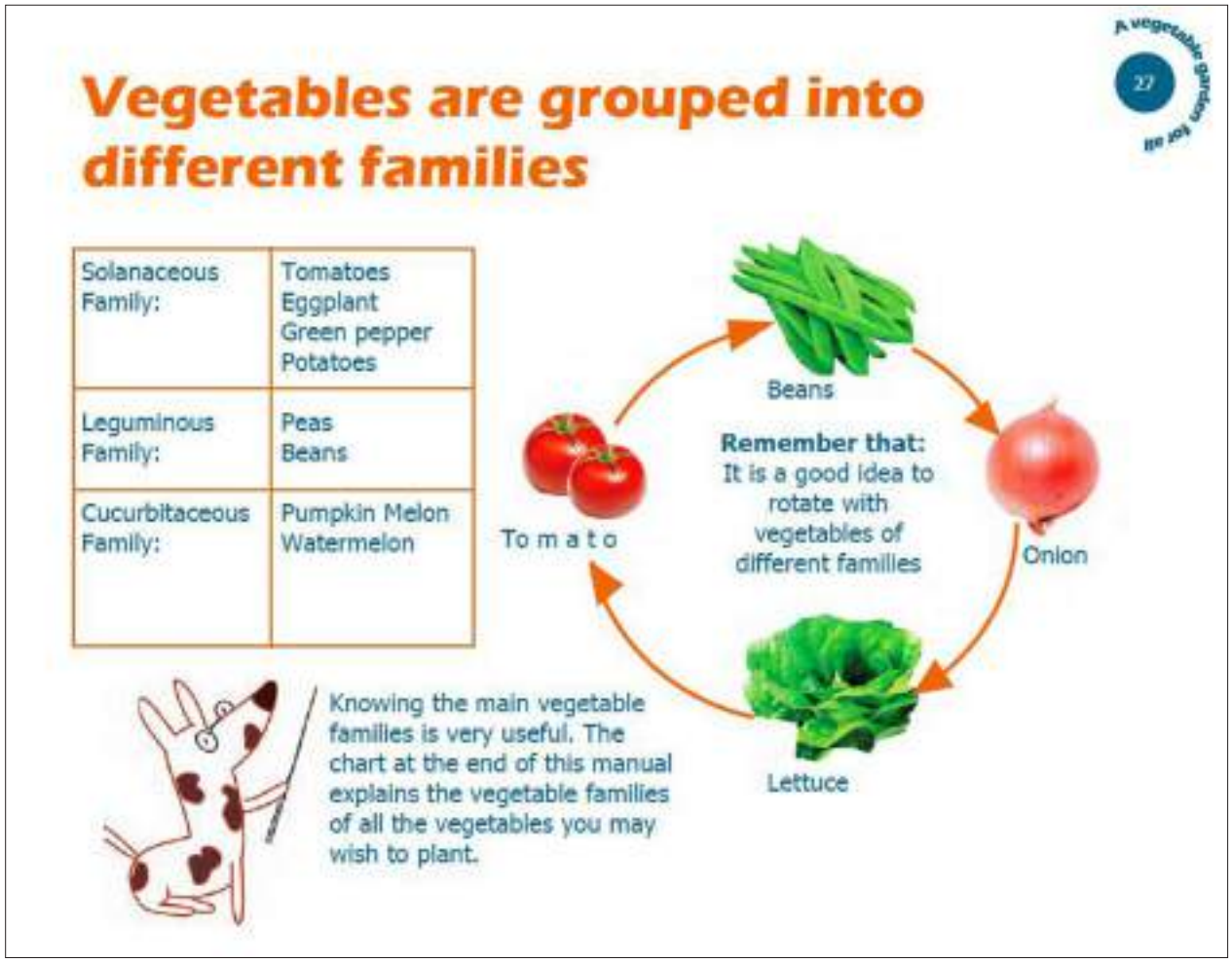
Steps

1. Divide the Trainees into 3 small groups of 4 or 5.
2. Members of each group will share/discuss their personal experience with the following:
   a. One or two households in their communities who are raising home garden vegetables and their observations on how these households have benefited from raising vegetables
   b. Assign a documenter in each group to document highlights/key benefits observed from households that are growing their own vegetables.
   c. Post on the wall these outputs (by group)
2. Each group will list the vegetables that are commonly found in their respective communities. From this list, Trainees will make a Garden Map (the group can agree either to make their own home garden map or propose a Community Garden Map.
3. After they make their Garden Map, each group will prepare a Maximum Action Plan (if they decide to make their own home-grown vegetable garden) they need to include in the plan the members of the family who will do which and what tasks and when. However, if they choose to propose a Community Garden Map, each group will need to include the different stakeholders of the community who are directly involved in approving the concept, planning, budgeting, planting, maintaining the plants, harvesting, etc.
4. Debrief

Debriefing Guide

- If you were to convince your household or your community to establish a home/community garden, what is the one most important information that you are going to tell the members so that they will be convinced by your idea?

Session 2 : Conducting a Stockholders' Mock Presentation of the proposed Vegetable Garden Maximum Action Plan



Activity Summary

The Trainees will prepare a Mock Presentation of the Proposed Community Vegetable Garden and convince the community to establish one vegetable garden. They will also present their Vegetable Garden Map and their Maximum Action Plan.

Objective/Purpose

At the end of this Session, the Trainees will be able to learn basic skills on how to effectively engage various groups of stakeholders through a simulated mock presentation of their proposed Community Vegetable Garden.

Steps

1. For a Mock Meeting of Stakeholders, Trainer will prepare pieces of paper labelled with the various stakeholders of the community that can be engaged in establishing a community vegetable garden. Stakeholders will include the following:

    a. Local government officials who will decide on the dedicated lot and budget;
    b. School principal and teachers who will teach the community members about the importance of good nutrition and vegetables;
    c. Housewives;
    d. Husbands;
    e. Pupils (children) and students (adolescents);
    f. Health Center Officers;
    g. Other stakeholders in the community.
2. Roll the pieces of paper labelled with different stakeholders (include a piece of paper labelled **Presenter** of the Proposed Community Vegetable Garden Action Plan)
3. Each group will draw lot by taking one rolled paper labelled with the stakeholders and with the assigned presenter. The group that draws the paper labelled Presenter will nominate the spokesperson to present the Proposed Community Vegetable Garden Maximum Action Plan. The the co-members of the group who will present, will take charge of answering the questions that will be asked by the other groups who are assigned to take the roles of the different stakeholder gorups.
4. Each group (that is not assigned as presenter) will prepare two questions relevant to the stakeholder which they drew from the lot and ask these questions during the Mock Meeting and Presentation.

    a. Ex. If one group has drawn the local government officers, they will think of what questions to ask to support the establishment of the community vegetable garden.
    b. If one group draws the paper with Teachers, they will ask questions that are related to how they can perform their role as teachers to support the community vegetable garden.
5. Debrief

Debriefing Guidelines:

- From the Mock Meeting with Stakeholders, what one difficult thing did you encounter?
- What one thing did you most enjoy?
- What one action/decision are you going to do when you go back to your respective community?

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