



SNAP-Ed

WASHINGTON STATE UNIVERSITY  
EXTENSION

# Energize Your Life

*Gardening for a Healthier You*

Nutrition education for adults in a garden setting.



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***Energize Your Life – Gardening  
for a Healthier You!***

***Authors***

**Linda Olivas Mathews**

SNAP-Ed Project Manager, WSU Extension - Pierce Co.

**Kathleen Manenica**

Program Coordinator Specialist, WSU Extension SNAP-Ed

**Carol Miles**

Horticulture Professor, WSU Extension

2<sup>nd</sup> Edition,  
April 2017

# ***Acknowledgements***

## *Graphic Design*

**Andrew Mack**

WSU Extension Research & Extension Center, Puyallup

## *Reviewers*

**Nicole Martini**

State Program Leader, Master Gardeners

**Stephanie Smith**

Consumer Food Safety Specialist, WSU Extension

## *Contributors*

**WSU Extension Pierce County SNAP-Ed**

**WSU Extension – Mason County SNAP-Ed**

## *Photo credits*

**Jeanne Rehwaldt**

Cover Photos: Row2, photo3; Row3, photo1

## *And, thank you to...*

**Christa Albice**

Formatting and Editing

**Shirley Broughton Calodich & Sue Butkus**

Co-authors of *Gardening for a Healthy You!* 1<sup>st</sup> edition (2006)

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### Other Optional Resources

#### *Fresh from the Farm* Brochures

- <sup>1</sup> Peas
- <sup>2</sup> Hardy Greens
- <sup>3</sup> Beets
- <sup>4</sup> Carrots
- <sup>5</sup> Summer Squash
- <sup>6</sup> Peppers
- <sup>7</sup> Green Beans
- <sup>8</sup> Winter Squash

#### *Make a Fit Ball*

Garden Planting Records (3 types)

#### *Garden Mosaics*

- <sup>1</sup> Water
- <sup>2</sup> Peppers
- <sup>3</sup> Tomatoes

*What to Feed Your Worms?* Chart





# *Section 1* Curriculum Overview



## **I. Introduction**

Current guidance for SNAP-Education programming emphasizes efforts in public health approaches, specifically environmental change. This, when coupled with growing community interest in home and community food gardening, served as impetus to update the 2006 *Energize Your Life – Garden for a Healthy You*. Diets high in fruits and vegetables help to improve human health and reduce the risk of many diseases such as cancer, heart disease, diabetes and high blood pressure. Gardening increases access to fresh produce and presents an opportunity for increased physical activity – both behavioral objectives of the SNAP-Education program.

## **II. Curriculum Overview**

**Goal:** The *Gardening for a Healthier You (GFHY)* curriculum is designed to support nutrition educators who teach adults with limited resources the importance of gardening as part of a healthy lifestyle. Through the five lessons, participants will understand the nutrition and physical activity benefits of gardening. Participants will increase their skill, motivation and self-efficacy to incorporate gardening into their daily routine to help achieve a healthy lifestyle.

### **Objectives**

**By the end of the lesson series, participants will be able to:**

1. Understand basic, key gardening concepts and their applications
2. Recognize nutritional benefits of growing produce with high nutritional value
3. Practice new skills to successfully develop and maintain a food garden
4. Explore personal food preferences for fruits and vegetables as a way to enhance motivation and increase access and appeal of produce in personal environments
5. Increase consumption of fruits and vegetables
6. Increase regular physical activity
7. Promote and share their experience with food gardening as part of a healthy lifestyle

*GFHY* includes lessons with themes that reflect the process of successful food gardening from the beginning to the end of the local growing season. The first two lessons need to be taught in sequence, but the remaining lessons can be taught in the order that makes sense to the educator/leader for the local geographical region, e.g. time of year, climate and length of growing season. Each lesson is designed to be completed in 60-90 minutes. The lessons are intended to offer adults who may not have any food gardening experience the time and support needed to develop the basic skills and experience in each stage of growing a food garden. This approach will more likely improve the personal capacity and competence of the new gardener to sustain their efforts in the future.

Based on evidence-based learning theory, these lessons use a mix of learning formats including small and large group discussions, brainstorming, planning, learning how to access resources, and gardening and food activities. All of these activities are intended to create discussion, encourage problem-solving, establish social support and develop and practice

skills to support participants' success as they plant, grow, maintain, harvest and enjoy the fruits of their labor.

## The Lessons

Each lesson folder has the following components:

- A. *Preparation and Teaching Outline*. The Preparation Outline defines the topic, learning objectives, supplies and resources needed along with references. The Teaching Outline presents a semi-scripted timed sequence of activities and applications on the lesson topic. Bolded and underlined terms may be new to participants. The easy to understand definitions are included on pages 13-14 of this document.
- B. *Lesson Recipe*. Recipes that accompany the lesson reinforces the subject matter of the lesson. For instance, in Lesson 1, the learner is introduced to growing food from seed and related activities. The Recipe is "Seed Salad" which can be prepared in class; or if time is short, can be prepared prior to class and brought in to taste.
- C. *Educator's Background Information Sheets*. This information provides the class leader with added detailed information that is not contained in the lesson itself, but serves to inform the educator of science-based information related to the lesson topic. The number of background sheets vary with each lesson.
- D. *Teaching Tools*. These are visual aids that provide the educator with graphics that enhance the learning experience.

## Resources

These resources are for the class leader and are considered optional for use. They may lend added value for questions that arise in class or from individual participants.

- A. *Fresh from the Farm (FFF) Brochures*. Selected from a series, these optional handouts provide a snapshot of specific crop growing calendar, nutrient benefits, fun facts; crop selection, preparation and storage tips; and 3 recipes. The back panel space allows local agencies to add their own agency identifier (as fillable pdf/stamp/sticker) so participants can track the distribution source.
- B. *Make a Fit Ball*
- C. *Garden Planting Records*
- D. *Select Garden Mosaics* science series' are relevant topics and can supplement the content of lessons as determined by the group facilitator.
- E. *What to Feed Your Worms*

## Participant Workbook

This workbook compiles all handouts, worksheets, references and lesson recipes. They can be printed individually or as a booklet. The latter is better-suited for keeping learning resources organized and contained, as many are used in more than one lesson. The lessons themselves will reference the name or page numbers of these 'handouts' to minimize locating them in the activities. The workbook has three sections: Gardening Resources; Nutrition Resources including lesson recipes; and Community Resources.

### III. Using Evidence-based Theories & Approaches for Teaching Adults

Choosing a proven framework for teaching a target group helps to assure the likelihood that the intervention will be effective. *GFHY!* applies the constructs of two learning theories that support adult learning and a teaching approach that supports those theoretical constructs.

#### **Social Cognitive Theory (SCT)**

This learning theory puts forward that our actions are the result of personal, behavioral and environmental factors that influence each other in an interactive way. It further proposes that although an individual's personal environments can influence behavior, so too does an individual's capacity to modulate that influence through their own self-reflection and self-regulation processes such as thinking, discussing, planning ahead, and setting goals. (Contento, 2011)

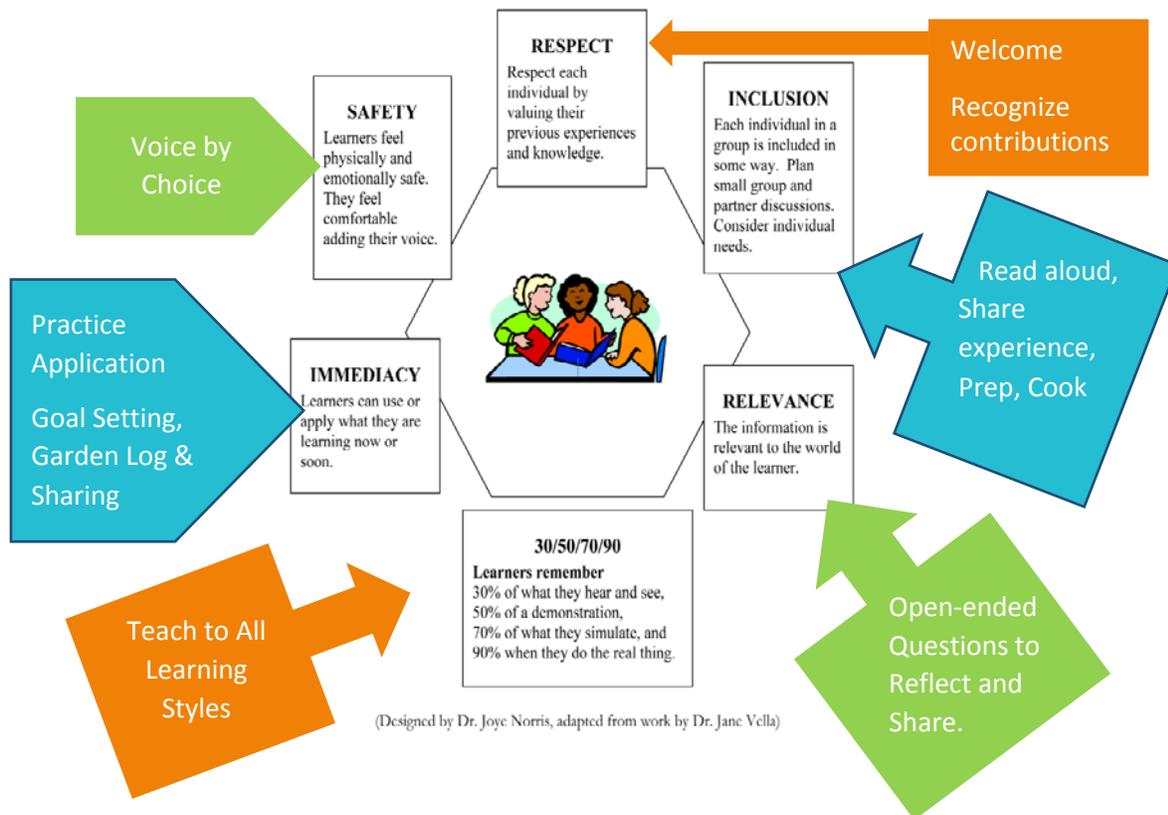
*The GFHY!* curriculum applies the concepts of the SCT through its lesson structure and recommended time frame for teaching this curriculum. *Outcome expectations* and *reinforcement* are applied through activities and the perceived benefits of growing your own food such as saving money, improved health, increased access of fresh food, and the enjoyment of eating and sharing the fruits of one's labor. In adding new information on health benefits and gardening techniques, participants gain knowledge, understanding and the skills needed to support behavior change (*behavioral capability*). The peer-to-peer lesson activities and life-experience shared by others bring social support and peer-sharing that reinforces *observational learning* through peer modeling. Lastly, the amount of time suggested (~3 months) to teach this series, allows participants time to experience success. They can realize challenges, and use positive problem-solving skills and strategies that build *self-regulation, self-efficacy, and overcome barriers*.

#### **Adult Learning Theory (ALT)**

Figure 1 below summarizes the six principles of adult learning: those concepts that when incorporated into the learning process helps to engage adults in the learning process. In adult education, it is important to *respect* the vast life experience and knowledge that bring "added value" to class discussions, as well as contributes to the social support of other adult learners. *Personal safety* in a new learning environment is essential to bring all learners to the table for interactive exchange. Some may feel comfortable expressing themselves or their experiences without reservation; others may hesitate due to learned trust issues or shyness. Applying the "Voice by Choice" concept (Norris, 2003) allows individuals to speak when they are ready – or are comfortable in their learning environment. This essential concept of feeling safe reduces personal stress of being in class, and may lower barriers so individuals return to subsequent sessions. Lesson topics must be *relevant* to the learner. In the structure of the lessons, the use of open-ended questions (i.e. asking questions that lead to more than a 'yes' or 'no' answer) supports lesson relevancy, enriches discussion through sharing of life experience and stories, and builds social support.

How adults learn best varies from person to person. We learn from our senses...what we see (Visual learners), hear (Auditory learners), smell, taste and touch (Kinesthetic learners or learn by doing). Individuals may have a dominant learning style, but the other styles also help reinforce learning. The lesson design incorporates the 30/50/70/90 principle by using varied modalities such as verbal interaction, teaching visuals, demonstration, modeling, and practices. The ALT principle of *Immediacy* is integrated into the lesson by applying the information, for example: entries into their garden diaries, applying new knowledge and practicing new skills during the class period.

**FIGURE 1: Using a Facilitated Dialogue Approach to Apply Adult Learning Principles**



The ALT principle of *inclusion* requires that each participant be actively involved in class learning in some way. The use of small groups or peer-to-peer helps to facilitate this, especially for those who are hesitant to express themselves in the larger group. *Inclusion* is also applied by having participants volunteer to read seed packets or recipe information aloud, discuss their view on an open-ended question with a peer (one-to-one); or help prepare the lesson recipe. *GFHY!* lessons are designed to integrate these principles to effect success for all types of its adult learners.

**Setting the Context of the Lessons:** The learner-centered approach

The *Gardening for a Healthier You!* (*GFHY!*) uses a learner-centered approach to promote food gardening and physical activity that takes into account adult learning styles, life experiences and learning needs, and participation using the “4A” design. This design encompasses what we know about adult learning, delivering new information with an

opportunity to utilize the information in a safe environment and time to reflect on how that information can be used in their lives. It provides the framework to deliver gardening education based on the six principles of adult learning.

### **The 4 As**

**Anchor:** The anchor serves as the warm up activity. The activity introduces the topic of the learning activity by building on previous experiences and knowledge. It helps the learner name what they know about the topic and gives them a place to put new information. These activities are often done in partners or small groups. This allows participants to get to know each other, helps create a safe learning environment and sets the foundation for what is coming next.

**Add:** The “Add” section of the lesson provides information that is related to the topic that the learners need to know before they can take action. This is intended to be brief. The goal of this segment is to engage learners with new information, and apply meaning as it relates to their lives.

**Apply:** This activity provides the learner opportunity to talk about the new information and practice using the information in a safe environment. These activities usually include hands-on activities, with participants working together in pairs or small groups, allowing learners to share ideas and practical tips to apply the new knowledge.

**Away:** The “Away” activity asks the learner, “What will you do with this information?” It provides the learner an opportunity to reflect on what they learned and how to apply new skills between lessons. The activity helps the learner take the information away with them, with concrete ideas on how to use the information outside of the learning setting.

## **IV. Helpful Hints for Facilitating Group Discussions**

The *GFHY!* lessons support participant learning by sharing new information, providing the opportunity to reflect on how this information relates to their lives and practice how they might use the new information once they leave the classroom. The design relies on providing a safe learning environment that supports this process. Consider these elements when leading your groups:

### **Review of Facilitations skills**

- Create a welcoming environment. Greet participants as they enter.
- Review the curriculum. Be clear on the main points and sequence of the lesson.
- Encourage dialogue. People learn by sharing their experiences, ask open-ended questions. Provide open and non-judgmental feedback.
- Encourage working in small groups. Some participants feel more comfortable sharing in small groups.
- At the end of the lesson, be sure to reflect back on the discussion, to help participants take the new knowledge and skills away to use in their lives.

## Setting Ground Rules

Ground Rules can help create the atmosphere you want to support participation and learning.

You may negotiate ground rules within in each group, or use established ground rules, allowing the group to add as needed. It is helpful to post the ground rules, in large clearly written type so all participants can see them. Review the ground rules at the beginning of each session. As the facilitator, demonstrate the ground rules by practicing them throughout the meeting yourself.

Here are some example of ground rules:

- **Everyone participates.** This assumes everyone will participate, at least mentally in each activity. This is a time to ask participants to turn off cell phones or other electronic devices that may be distracting to themselves and the group.
- **Everyone has a right to pass.** This protects participants from having to speak out, from revealing herself when s/he may not wish.
- **All opinions are honored.** Honoring each person's attitudes, opinions, and beliefs emphasizes their life experiences and personal validity. This rule affirms adult's ability to think and decide for themselves, and protects from group or program decision of right or wrong.
- **Leader will maintain group time.** Dialogue and sharing is important to learning. However to respect everyone's time commitment the facilitator will be the "group time keeper."

## V. What You Need to Know to Teach This Curriculum.

If there is one "best practice" for starting a new nutrition education and gardening series, it is to PLAN AHEAD. This supports minimizing costs of implementation, obtaining collaborative community partners, and maximizing a successful experience for the new food gardener.

### Who Should Teach This Curriculum?

The preferred educator to lead this series is one who has basic knowledge of nutrition and has done food gardening experience with some success. In addition, having an understanding of different adult learning styles will assist the leader to provide a better experience for the adult learner. Although formal training in adult education is not required, potential implementers should be acquainted with the introductory overview of the six principles of adult learning and the 4 A's (Anchor, Add, Apply, and Away) approach used in the lesson design. Using these encourages and sets the tone for learners to actively participate.

### Timeline

Establish a timeline for the five lessons in partnership with the host agency or collaborator that will allow time for participants to experience success between lessons. For example if

beginning the series in spring, allow time for some cool weather crops to germinate, grow and mature to harvest. If a minimum amount of time is available for the five lessons, choose crops and varieties that mature in the shortest amount of time. For example, radishes and lettuce will mature in 45-60 days in most places. Refer to seed packets and catalogs for this information.

The time from germination to harvest of all crops is based on crop variety. Some warm season crops can be planted as early as April or May in parts of the state. Days to harvest will depend upon the crop type, crop variety, and weather. Warm season crops such as cucumbers and summer squash may be ready for harvest in mid to late summer. Other warm season crops can take longer. For example, winter squash crops such as pumpkins or butternut may not be mature until October or even the first frost.

Once the first two lessons are completed, the following lessons can be taught in an order that corresponds to your region's growing season for either cool or warm season crops. Check the Region Maps (Table 1) in the Participant Workbook for planting to harvesting dates of cool and warm season crops. You may choose to start the series with a spring and early summer garden or a summer garden of warm season crops, and end the series with a fall garden of cool weather crops. In either case, once the skills from lessons 1 and 2 are learned, you may adjust which lessons follow based on the time of year and which crops you intend to grow. The length of time between lessons will also be dictated by the time it takes for a majority of your crops to germinate, grow and reach harvest or near harvest time. This will vary depending upon your location and the kinds of crops you choose to grow.

### **Crop Selection**

Guide participant choices of appropriate crops to select and grow in your location and weather conditions (always consider: space, growing season, and value of crop compared to the cost of purchasing the same food in a grocery store or market).

### **Audience**

Ideally, this curriculum is designed for groups of adults (5-15 participants) living in low-income community settings, and ideally where a community garden area is available for a SNAP-eligible audience to use. A minimum of five people per group is recommended, a nearby site is needed for hands-on lessons, and participants should be committed to the duration of lessons.

### **Community Locations**

Consider the following:

- Community. Food banks, low income housing sites, community centers, community gardens where there is nearby access to a classroom or other out building, and faith-based sites where a garden site is already in place and/or there is space for a garden.
- On-site versus off-site classrooms. Lessons can be taught at one central site or location accessible to participants. Garden sites may be in multiple locations, and/or one demo garden site is identified for participant hands-on experiential activities. If this is not possible, the educator will need to create and/or simulate a station or place at the

teaching site that will allow a combination of participant hands-on experience and/or educator demonstration of gardening practices and planting techniques.

- Classroom needs. If planning to include food preparation and sampling, or tasting the harvest, the meeting area will need both cold and warm running water available during the lessons.
- Garden needs. Sunlight with southern and western exposure is best for food gardens in the Pacific Northwest. This maximizes production during the growing season. The garden area needs good drainage for soil and a water source nearby.

## Potential Cost or Expense

- Staff time = 1-1.5 hours of preparation time is needed for every 1-1.5 hours of teaching.
- Food sampling of approximately a 2-3 oz. portion per participant may be used at the educator's discretion.
- Printing of participant handouts:
  - Given the number of reference handouts for this skill-based curriculum, all required handouts are contained in the Participant Workbook. For efficiency, this booklet is designed to be printed on 11 x 17 paper, folded into a booklet with saddle stitched binding. Alternatively:
  - A Pocket Folder can be given out to each participant to store individual handouts. There are approximately 24-26 handouts to which participants will refer when planning and planting over the 5 lessons.
  - Lesson Tasting Recipes are contained in the last section of the Participant Workbook.
  - Selected *Fresh-from-the-Farm* Brochures are optional, but can also be distributed with each lesson.
  - Participants will be encouraged to keep a garden log. A sample master log entry page is provided in the workbook. This one was chosen as it encourages logging physical activity. Participants can use this reference to set up their log entries on blank paper or book, journal or tablet provided by the participant. Other formats can be used. There are three examples provided in the Resource Section.
  - Materials – see sections below for **Materials and Tools, and Seeds**

## Lesson Preparation

Read Educator Background Information in each lesson well in advance of teaching the lessons.

Before lessons complete these steps:

- Review teaching materials.
- Print and prepare handouts or workbook.
- Read any and all instructions for optional, special tools or materials such as water sensors or fertilizer applications.

## Curriculum Fidelity

Lessons are an average of 60-90 minutes, depending upon the length of time needed to travel to the garden area, the time spent on the physical activity break and whether the educator chooses to do food preparation and/or sampling. To minimize lesson time to 60 minutes, one or two of the following are recommended:

- Prepare the salad recipe in advance or eliminate the food sampling and provide the written recipe (in the Nutrition Section of the Participant Workbook) for participants to try at home. (15-20 minutes)
- Show visual examples, YouTube videos, graphs, photos or diagrams of planting techniques instead of a hands-on approach for participants. (Approx. 10 minutes)
- Demonstrate planting techniques in a controlled space or area, using seeding trays, pots or containers in a classroom setting or indoor garden or in a small garden space. (Approx. 10-15 minutes)
- Each lesson preparation outline has suggestions for minimizing lessons to 60 minutes.

## Local Resources

- Home and garden supply stores often will donate materials for community garden groups and/or offer small grants to support the construction of new gardens.
- Donations can sometimes be secured from local topsoil and compost companies.
- County resources may be available for free or low cost compost composed of bio-solids.
- Volunteers can often be found through horticulture teachers and their participants at high schools, community colleges and correction facilities where residents have chosen to work in a horticulture class or setting.
- Local WSU Master Gardeners (MG) often accept special projects as part of their training. Check your local WSU Extension website to submit applications for MG assistance.
- Lastly, educators should encourage participants to seek out co-op gardening efforts with neighbors and community groups. This saves time, effort and money and encourages community-building.

## Materials and Tools

Gather gardening materials in advance of teaching the session of 5 lessons.

- Gardening tools should be provided by the educator for demo purposes. All other items need to be obtained by participants and/or donated to the gardening group. See lesson outlines.
- Depending upon the teaching site, the cost will vary. Educators will need to seek out teaching tools listed in the lesson outlines and provide additional materials should they have to teach the lessons in a confined indoor area and simulate the “gardening experience.” Some of those materials will include: seeding trays, pots or other containers to demonstrate planting; potting soil or seeding mix and possibly grow lights if daylight is not available in the classroom setting.

- Edible seed crops, seed starting mixes or growing mediums, potting soil and small gardening hand tools are allowable SNAP-Ed expenses.

SNAP-ED Guidance page 77 - This is the most recent version of the Guidance published on-line. (<https://snaped.fns.usda.gov/snap/Guidance/FinalFY2016SNAP-EdGuidance.pdf> accessed 2/3/2017)

In the section called “Financial and Cost Policy Supplement”

A. Costs Associated with Program Efforts”

**GARDENING**

Food-based gardening is a beneficial activity that leads to the economical production and consumption of healthy and fresh food. Costs for the rental or purchase of garden equipment (tractors, etc.) or the purchase or rental of land for garden plots are not allowable. **The purchase of seeds, plants, and small gardening tools and supplies, such as fertilizer and potting soil, to assist in developing school and community food gardening projects are allowable SNAP-Ed costs.** Educational supplies, curricula, and staff salaries to teach food gardening concepts that reinforce the beneficial nutrition and physical activity aspects of food gardening are allowable costs. Staff salaries to establish and maintain community food gardens, i.e., in low-income housing projects or schools may be allowable but should be submitted to FNS for prior approval. Provision of time for food garden maintenance is an example of an opportunity for community participation in addition to SNAP-Ed funding. Participants may use program benefits to purchase seeds and plants for individual food gardening purposes. FNS encourages State agencies to coordinate with the Federal, State, local, and private initiatives that create sustainable food gardens as PSE efforts to benefit schools and communities through collaborative efforts. SNAP-Ed providers can play an instrumental role in community food gardening for the low-income population.

- **California Fruit and Vegetable Photo Cards \$20-\$60**

California Department of Education

1430 N Street

Sacramento, CA 95814

<http://www.cde.ca.gov/ls/nu/he/nutredres.asp>

<https://www.amazon.com/Fresh-Fruit-Vegetable-Photo-Cards/dp/0801113652>

- **Fruit and Vegetable Photo Cards for Washington Fresh Fruit & Vegetable Program**

Pierce Co. Extension SNAP-Ed programming. Available for free download at:

<http://extension.wsu.edu/pierce/health/food-ense/fresh-fruit-and-vegetable-program/>

## Seeds

Some seed companies will donate seeds and have a place on their website to make a request. Many companies will donate seeds, if you pay for shipping. Seed catalogs are free by phone or written request. It is best to make requests after the first of the new year.

Old seed catalogs and seed packets have valuable teaching information about planting instructions, germination and harvest times. They can be reused for that purpose.

Most healthy seeds are viable and will sprout and grow for up to 3 years beyond the stamped date on the seed packet. To test seed viability, germinate a small selection of seeds from the packet in a damp paper towel (*be sure to keep the towel moist at all times*) or in a shallow seeding tray with a starting medium or seeding soil mix.

This list of seed sources is designed to help readers find seed. It is not meant to endorse any of these businesses or detract from any businesses not listed.

### Seed Companies:

#### *Burpee Seed Co*

*W. Atlee Burpee & Co*

300 Park Ave

Warminster, PA 18974

1-800-888-1447

Web: <http://www.burpee.com/>

#### *Ed Hume Seeds*

11504 58th Ave E

Puyallup, WA 98373

(253) 435-4897

Web: <http://www.humeseeds.com/>

#### *Irish Eyes Seed Co.*

5045 Robinson Canyon Rd.

Ellensburg WA 98926

509-933-7150 *press 1*

Web: [www.irisheyesgardenseeds.com](http://www.irisheyesgardenseeds.com)

Email (Retail):

[customerservice@irisheyesgardenseeds.com](mailto:customerservice@irisheyesgardenseeds.com)

Email (Wholesale):

[wholesale@irisheyesgardenseeds.com](mailto:wholesale@irisheyesgardenseeds.com)

<http://irisheyesgardenseeds.com/>

#### *Johnny's Seed Co.*

1-877-564-6697

Web: <http://www.johnnyseeds.com/>

#### *Seed Savers Exchange*

3094 North Winn Road

Decorah, Iowa 52101

(563)382-5990

Web:

<http://www.seedsavers.org/catalog?gclid=CIC05blh9ACFUpNfgodB8IAdg>

#### *Territorial Seed Co.*

PO Box 158

Cottage Grove, OR 97424

Phone: 800-626-0866

Fax: 888-657-3131

Customer Service/Gardening Questions: 541-942-9547

Toll Free: 800-626-0866

Customer Service Email:

[info@territorialseed.com](mailto:info@territorialseed.com)

Web: <http://www.territorialseed.com/>

Gardening and health terms used in this curriculum are summarized below. To the new food gardener, these terms may need clarification. The definitions below use language that is easy to understand.

## Lesson 1

- **Yield** - the amount of food produced by a single plant or the amount produced per area (e.g. per 10 ft. of row)
- **Germination time** – the time it takes for a seed to sprout once planted.
- **Easy to Grow** – For the new food gardener targeted in this curriculum, vegetables that fit into this category are crops that:
  - **Mature fairly quickly**- Approximately 45 – 90 days, given the optimum temperature required to mature in your growing region. This varies per crop and region. Check the Regional Maps for cool and warm season crops in the publication, *Home Vegetable Gardening in Washington* by Carol Miles (EM057E).
  - Are **fairly pest resistant** e.g. disease resistant hybrids or varieties, crops not prone to mold, moths, or aphids.
  - **Do not require a lot of extra care** such as specific fertilizing requirements at certain stages of growth, extensive pruning, or watering requiring equipment such as drip or other irrigation systems that have specific water pressure specifications of pounds per square inch (PSI).

### NW Crops that fit most or all of these conditions include:

- **Hardy greens:** kale, Asian greens, Bok or Pak choi varieties, collards, water cress, and mustard greens
- **Tender greens:** spinach, chard, salad greens and many varieties of loose leaf lettuce
- **Root crops:** carrots, beets, radishes, turnips, green onions or scallions, and parsnips
- **Fruits:** strawberries, cucumbers, summer squash, tomatillos, and winter squash
- **Legumes:** bush variety green beans, sugar snap peas and shelling peas
- **Herbs:** parsley, chives, cilantro, oregano, sage, thyme, arugula, and basil

**NOTE:** oregano, sage, thyme and chives are perennial type herbs and can spread quickly so it's best to grow them in containers.

## Lesson 2

- **Cool season crops** – These are plants that are adapted to cool climates. Most cool season crops prefer temperatures below 70°. When the temperature is greater in the spring or early summer, the crops tend to bolt, which means they produce a flower stalk. Cool season crops include hardy greens, Asian greens, salad greens such as most varieties of lettuce, spinach, radishes, sugar snap peas, and cilantro.

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- **Warm season crops** – These crops require both warm soil and high day temperatures to grow steadily and produce crops. They include traditional summer crops such as snap beans, corn, cucumbers, melons, peppers, tomatoes, and squash.
- **Direct seed** – The planting of vegetable seeds directly into the soil in a garden area as opposed to planting into a seeding tray and then transplanting the seedlings or sprouts into the garden area at a later date.

## Lesson 3

- **Cotyledon** – an embryonic leaf in seed-bearing plants, one or more of which are the first leaves to appear from a germinating seed
- **Hardening off** – The process of moving plants outdoors for a portion of the day to gradually introduce them to the direct sunlight, dry air, and cold nights. The process takes 3-7 days.
- **Moderate-intensity** physical activity pertains to physical movement or work that raises an individual's heart rate for a sustained time. Examples of gardening activities that fit this description include: digging, hoeing, and raking.
- **Warming up muscles** – Gently moving muscles to increase circulation and subsequent heat flow to muscle groups that will be exercised by specific more intensive activities.

## Lesson 4

- **Phytochemicals** – These are naturally occurring chemical compounds in plants. "Phyto" means "plant" in Greek. These substances provide sensory characteristics (visual, aromatic, taste, touch) to an individual experience. Examples would be the deep purple color (sight) of blueberries, or the smell of garlic. They have added human health benefits, but are not considered "nutrients."
- **Transplant** – The technique of moving a plant from one location to another. Most often this takes the form of starting a plant from seed in optimal conditions, such as in the house, a greenhouse, or a protected nursery bed, then replanting it in another, usually outdoor, growing location. It also pertains to purchased plant starts when transferred from pot to permanent growing site.
- **Compost** – Decayed organic material used as a plant fertilizer.

## Lesson 5

- **First hard frost** – Any day in the year that the temperature reaches 32°F or below.
- **Mulch** – A material (such as decaying leaves, straw, bark, or compost) spread on the surface of the soil and around a plant to control weeds, enrich or insulate the soil.
- **Fertilizer** – A chemical or natural substance added to soil or land to increase its fertility and supports continued growth of plants. The legal definition refers to soil amendments that guarantee the minimum percentages of nutrients (nitrogen, potash and phosphate).
- **Pests** – Any insect, plant, fungus, animal, or microscopic organism in a garden that causes harm to crops.
- **Soil Amendments** – Anything mixed into the soil; soil amendments are materials added to soil to improve its physical or chemical properties. Unlike fertilizers, the

exact ingredients and chemical composition of soil amendments vary among different sources. You can use soil amendments to improve the permeability and water retention characteristics of your soil, and fertility or the ability to provide nutrition for plants.

## VII. References by Lesson

### Lesson 1 Plan, Prep and Plant

*Washington Climate Factors Affecting Vegetable Production, Figure 1*

*Cool and Warm Season Crop Chart, Table 1*

*Vegetable Value Chart, Table 2*

*Vegetable Production Chart, Table 3*

*Vegetable Seeding Chart, Table 4*

- Home Vegetable Gardening In Washington EM057E, by Carol Miles, 2013;  
<http://cru.cahe.wsu.edu/CEPublications/EM057E/EM057E.pdf>

*Vegetables for Greater Nutrition, Table 9*

- FDA Standards of Industry (2013); ESHA Food Processor V11.3.23 (2016)

*Five Steps to Food Safe Fruit and Vegetable Home Gardening*

- University of New Hampshire Cooperative Extension, Sept., 2006; Project of the Universities of Rhode Island, New Hampshire Connecticut, Maine, New Hampshire and Vermont and funded by CSREES/USDA. Project 2003-5111001713);  
[https://extension.unh.edu/resources/files/Resource001094\\_Rep1367.pdf](https://extension.unh.edu/resources/files/Resource001094_Rep1367.pdf)

*Seed Salad Recipe*

- *Growing Healthy Habits*, Unit 6 Seed Magic, page 222, University of Maryland Extension ([http://eatsmart.umd.edu/sites/eatsmart.umd.edu/files/GHH\\_6\\_Seed%20Magic\\_516\\_Rev.pdf](http://eatsmart.umd.edu/sites/eatsmart.umd.edu/files/GHH_6_Seed%20Magic_516_Rev.pdf))

### Lesson 2 Weed Water and Wait

*Suggested Planting Calendars, Table 5*

*Rooting Depths for Common Vegetables, Table 6*

- *Home Vegetable Gardening In Washington* EM057E, by Carol Miles, 2013;  
<http://cru.cahe.wsu.edu/CEPublications/EM057E/EM057E.pdf>

*Garden Planting Log*

- WSU Extension SNAP-Ed, 2016

*Plant Parts Diagram*

- *Growing with Plants*; WSU Extension

*Spring Greens with Vinaigrette Recipe*

- WSU Extension SNAP-Ed, 2016

## **Lesson 3 Food Fun and Fitness**

### **Plant Part Salad Recipe**

- *Growing Healthy Kids*, Lesson 2, Six Yummy Plant Parts, Oregon State University Extension Service [http://search.oregonstate.edu/?q=Plants+Part+Salad&client=default\\_frontend&x=0&y=0](http://search.oregonstate.edu/?q=Plants+Part+Salad&client=default_frontend&x=0&y=0)

### ***Educator Background Information - Vegetable Planting – Seeds & Irrigation***

- *Home Vegetable Gardening In Washington* EM057E, by Carol Miles, 2013; <http://cru.cahe.wsu.edu/CEPublications/EM057E/EM057E.pdf>

### ***Educator Background information – Weed Management***

- *Home Vegetable Gardening In Washington* EM057E, by Carol Miles, 2013; <http://cru.cahe.wsu.edu/CEPublications/EM057E/EM057E.pdf>; [https://www.researchgate.net/publication/299916139\\_Visual\\_Assessments\\_of\\_Biodegradable\\_Mulch\\_Deterioration\\_Are\\_Not\\_Indicative\\_of\\_Changes\\_in\\_Mechanical\\_Properties](https://www.researchgate.net/publication/299916139_Visual_Assessments_of_Biodegradable_Mulch_Deterioration_Are_Not_Indicative_of_Changes_in_Mechanical_Properties)

## **Lesson 4: Seed, Feed and Harvest**

### ***Herb Harvest Chart, Table 7***

- Puget Sound Fresh, Seattle Tilth <http://www.pugetsoundfresh.org/harvest-schedule?productID=39&productName=Squash%2C%20Winter&tid=4877>

### ***Common Herbs Chart, Table 8***

- WSU Spokane County Extension, Master Gardner Program <http://extension.wsu.edu/spokane/wp-content/uploads/sites/33/2015/02/C060-Herbs-09.pdf>

### **Spicy Panzanella Recipe**

- Washington State Farmers Market Association <https://www.facebook.com/WSFMA/posts/982138725179971>

### ***Compost Science***

- College of Agriculture and Life Sciences at Cornell University

### ***Educator Background information – Phytochemicals***

- Ohio State University Extension Fact sheet; <http://ohioline.osu.edu/factsheet/HYG-5581>
- Extension Issues, Innovation Impact; Health Benefits of Eating Fruits and Vegetables: <http://articles.extension.org/pages/27730/health-benefits-of-eating-fruits-vegetables>

### ***Educator Background information –Transplanting***

- *Home Vegetable Gardening In Washington* EM057E, by Carol Miles, 2013; <http://cru.cahe.wsu.edu/CEPublications/EM057E/EM057E.pdf>

### ***Educator Background information –Transplanting Options: Advanced Planning – Seed, Feed and Harvest***

- WSU Extension SNAP-Ed, 2016

## **Lesson 5: Healthy Soil for a Healthy Harvest**

### ***Vegetable and Fruit Storage Chart , Table 10***

- Storing Food for Safety and Quality; Sandra McCurdy, Joey Peutz and Grace Whittman, PNW 6, University of Idaho, Sept. 2009; pages 18-19 [http://extension.oregonstate.edu/fch/sites/default/files/documents/pnw\\_612\\_storingfoodforsafetyquality.pdf](http://extension.oregonstate.edu/fch/sites/default/files/documents/pnw_612_storingfoodforsafetyquality.pdf)

### ***Five Steps to Food Safe Fruit and Vegetable Home Gardening***

- Five Steps to Food Safe Fruit and Vegetable Home Gardening; (*University of New Hampshire Cooperative Extension, 9/2006; Project of the Universities of Rhode Island, Connecticut, Maine, New Hampshire and Vermont CSREES/USDA. Project 2003-5111001713*)

### ***Harvest Tips***

- *Home Vegetable Gardening In Washington* EM057E, by Carol Miles, 2013; <http://cru.cahe.wsu.edu/CEPublications/EM057E/EM057E.pdf>

### **Healthy Harvest Salad Recipe**

- WSU Extension SNAP-Ed, 2016

### ***Educator Background Information – Soil Management, Harvest and Storage***

- *Home Vegetable Gardening In Washington* EM057E, by Carol Miles, 2013; <http://cru.cahe.wsu.edu/CEPublications/EM057E/EM057E.pdf>

### ***Educator Background information –Soil Preparation, Management and Fertilizing***

- Home Gardener’s Guide to Soils and Fertilizers (Cogger 2005, EB1971E) <http://cru.cahe.wsu.edu/CEPublications/eb1971e/eb1971e.pdf>
- Gardening in Washington State <http://gardening.wsu.edu/category/vegetables/>
- Washington State University Extension, Gardening tips – Fertilizer <http://ext100.wsu.edu/gardentips/category/fertilizer/>
- Colorado State University – Fertilizing the Vegetable Garden <http://extension.colostate.edu/topic-areas/yard-garden/fertilizing-the-vegetable-garden-7-611/>