EDCI 569 Assignment 1

Learners, Context and Learning Objectives

Linda Vervynckt Smith/Kaiser
5/18/2014
Project Background

The purpose of this E-Learning is to provide information and instruction to those learners actively seeking to grow an organic garden with the definition of organic being: planting and cultivating soil without the use of synthetic fertilizer or pesticides while attending to the symbiosis of the entire natural system involved in the growth cycle.

Diet related illnesses are on the rise in the United States. (Centers for Disease Control and Prevention, 2014). Children especially are vulnerable to poor eating habits and chemical exposure in healthy foods like fruits and vegetables (Lu, Schneck, Pearson & Wong, 2010). Years of damaging farm soil with chemicals has caused a dependence upon chemicals to grow crops (Food and Agricultural organization of the United Nations, 2014) These chemicals are absorbed into our food, flow into our water systems and ingested by the animals we eat. Chemicals used in fertilization and pest control are known to cause cancer (Sustainable Table, 2014). Children who grow up in areas where pesticides are used have a higher incidence of leukemia (Ferreira & Couto, 2013). Lawn fertilizers have been shown to cause reproductive health issues in cows and humans (Woodruff, Carlson, Schwartz & Giudice). As our Earth becomes more and more fragile we must find more sustainable ways to grow produce without dependence on chemicals.

Scope

The learning process will include researching various topics and interactive lessons that will guide the learner through the steps needed to successfully build an organic vegetable/fruit garden. This entails using pH measures to test soil, measuring and plotting out space, using calculations to determine amount of soil needed, soil cultivation with compost, pest control, and
using the best regional specimens for optimal growth. Self-evaluations will be given at the beginning of the course to get a base score of how much the learners know about the organic gardening process and then learners will take a reassessment after the course to compare results and determine their readiness to build a garden. Assessment activities will be given during each lesson to help the learner recall the knowledge they acquired in the module. These activities will be in the form of interactive tests and puzzles. The instruction will be in the format of videos, step-by-step instruction with examples or photos. Participants will also learn by researching entomology and regional growing websites to become aware of the insects and plants that grow the best in their own climate/region of the country/world. The course is self-paced but can be completed in one to two hours. The content in this E-Learning can also be adapted for container gardens.

**Front End Analysis**

Participants in this online stand-alone E-Learning are ages 21 and up. The learners will be self-motivated, conscientious about dangers of environmental food toxins and actively seeking to learn how to grow an organic garden. Learners will need an 8th grade reading level and the ability to use measuring and gardening tools such as a yard stick or tape, trowel, shovel, wheelbarrow and rake and perform simple mathematical manipulations using addition, multiplication, subtraction and division. Learners will need access to an internet connected device to view the learning. The course will be available through an organic gardening website. While this E-Learning will be accessible to all levels, some individuals with movement constraints may need to find someone to help them with the labor portion of building a garden plot. Container gardens may be a better choice for these learners.
The benefit of the instruction is to empower learners to take control of their health and safety by growing their own produce. The awareness will also extend to becoming more conscientious of choices they make in the grocery store. Organic gardening has the overall health benefits of eliminating the food chemical contents that are health risks, promoting exercise thorough regular garden maintenance.

**Learning Objectives-Horton (2010)**

Primary Objective: Identify one fruit, one vegetable and one age-group that are most vulnerable to pesticides.

Secondary Objective: Learners will become empowered to commit to a healthier life with fewer ingested toxins.

**Primary Objective:** Identify common helpful and harmful garden insects and discover natural remedies to eradicate the harmful ones.

Secondary Objective: To succeed learners must believe that not all garden insects are bad.

**Primary Objective:** Create a garden soil mixture that will provide nutrients to garden plants by adding compost and testing pH.

Secondary Objective: Learners will have confidence to use pH chemical testing solutions and to add the right amount of organic compost to stabilize pH.

**Primary Objective:** Mark and measure the layout of a garden space to determine the amount of soil needed for a garden plot.
Secondary Objective: Learners will be able to use a measuring stick or measuring tape and calculate square footage

Primary Objective: Research and determine the right plant varieties that grow best in a region of interest to increase the chance of crop success.

Secondary Objective: Given resources the learner will know how to efficiently look up information regarding growing plants in their own region.

Primary Objective: Teach someone else the steps to plant and grow a successful garden that will enrich lives and build a path to better nutrition.

Secondary Objective: The learner will be able to recall the steps necessary for growing a successful organic garden suited for their region of the country

Resources:


Retrieved date: 5/10/14.


EDCI 569 LEARNERS, CONTEXT AND LEARNING OBJECTIVES

EDCI 569 Assignment 1

Learners, Context and Learning Objectives

Linda Vervynckt Smith/Kaiser

5/18/2014
How to Build an Organic Garden

Project Background

The purpose of this E-Learning is to provide information and instruction to those learners actively seeking to grow an organic garden with the definition of organic being: planting and cultivating soil without the use of synthetic fertilizer or pesticides while attending to the symbiosis of the entire natural system involved in the growth cycle.

Diet related illnesses are on the rise in the United States (Centers for Disease Control and Prevention, 2014). Children especially are vulnerable to poor eating habits and chemical exposure in healthy foods like fruits and vegetables (Lu, Schneck, Pearson & Wong, 2010). Years of damaging farm soil with chemicals has caused a dependence upon chemicals to grow crops (Food and Agricultural organization of the United Nations, 2014) These chemicals are absorbed into our food, flow into our water systems and ingested by the animals we eat. Chemicals used in fertilization and pest control are known to cause cancer (Sustainable Table, 2014). Children who grow up in areas where pesticides are used have a higher incidence of leukemia (Ferreira & Couto, 2013). Lawn fertilizers have been shown to cause reproductive health issues in cows and humans (Woodruff, Carlson, Schwartz & Giudice). As our Earth becomes more and more fragile we must find more sustainable ways to grow produce without dependence on chemicals.

Scope

The learning process will include researching various topics and interactive lessons that will guide the learner through the steps needed to successfully build an organic vegetable/fruit garden. This
entails using pH measures to test soil, measuring and plotting out space, using calculations to determine amount of soil needed, soil cultivation with compost, pest control, and using the best regional specimens for optimal growth. Self-evaluations will be given at the beginning of the course to get a base score of how much the learners know about the organic gardening process and then learners will take a reassessment after the course to compare results and determine their readiness to build a garden. Assessment activities will be given during each lesson to help the learner recall the knowledge they acquired in the module. These activities will be in the form of interactive tests and puzzles. The instruction will be in the format of videos, step-by-step instruction with examples or photos. Participants will also learn by researching entomology and regional growing websites to become aware of the insects and plants that grow the best in their own climate/region of the country/world. The course is self-paced but can be completed in one to two hours. The content in this E-Learning can also be adapted for container gardens.

Front End Analysis

Participants in this online stand-alone E-Learning are ages 21 and up. The learners will be self-motivated, conscientious about dangers of environmental food toxins and actively seeking to learn how to grow an organic garden. Learners will need an 8th grade reading level and the ability to use measuring and gardening tools such as a yard stick or tape, trowel, shovel, wheelbarrow and rake and perform simple mathematical manipulations using addition, multiplication, subtraction and division. Learners will need access to an internet connected device to view the learning. The course will be available through an organic gardening website and will be developed using Articulate Storyline™. While this E-Learning will be accessible to all levels, some individuals
with movement constraints may need to find someone to help them with the labor portion of building a garden plot. Container gardens may be a better choice for these learners. There will be a voice over for learners of all visual ability and the wording complete on each slide for learners of all hearing ability.

The benefit of the instruction is to empower learners to take control of their health and safety by growing their own produce. The awareness will also extend to becoming more conscientious of choices they make in the grocery store. Organic gardening has the overall health benefits of eliminating the food chemical contents that are health risks and promoting exercise thorough regular garden maintenance.

Objectives


Primary Objective: Identify one fruit, one vegetable and one age-group that are most vulnerable to pesticides.

Secondary Objective: Learners will become empowered to commit to a healthier life with fewer ingested toxins.

Primary Objective: Identify common helpful and harmful garden insects and discover natural remedies to eradicate the harmful ones.

Secondary Objective: To succeed learners must believe that not all garden insects are bad.

Primary Objective: Create a garden soil mixture that will provide nutrients to garden plants by adding compost and testing pH.
Secondary Objective: Learners will have confidence to use pH chemical testing solutions and to add the right amount of organic compost to stabilize pH.

Primary Objective: Mark and measure the layout of a garden space to determine the amount of soil needed for a garden plot.

Secondary Objective: Learners will be able to use a measuring stick or measuring tape and calculate square footage.

Primary Objective: Research and determine the right plant varieties that grow best in a region of interest to increase the chance of crop success.

Secondary Objective: Given resources the learner will know how to efficiently look up information regarding growing plants in their own region.

Primary Objective: Teach someone else the steps to plant and grow a successful garden that will enrich lives and build a path to better nutrition.

Secondary Objective: The learner will be able to recall the steps necessary for growing a successful organic garden suited for their region of the country.

Navigation

The E-Learning will have a menu on the left hand side of each slide that learners can use to navigate through the E-Learning. This menu will allow the learner to skip ahead or go back to review the various modules. The menu navigation will be as follows:
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Begin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Instructions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Objective</td>
<td></td>
<td>3.1 Objective</td>
<td>4.1 Objective</td>
<td>5.1 Objective</td>
<td>6.1 Objective</td>
<td>7.1 Objective</td>
</tr>
<tr>
<td>2.2 Who is Vulnerable</td>
<td></td>
<td>3.2 Grow anywhere</td>
<td>4.2 Learn Tools Task</td>
<td></td>
<td>6.2 Learn Tools Task</td>
<td>7.2 Learn Tools Task</td>
</tr>
<tr>
<td>2.3 Children</td>
<td></td>
<td>3.3 Learn Tools Task</td>
<td>4.3 Acid Tolerance</td>
<td></td>
<td>6.3 Quiz</td>
<td>7.3 Summary</td>
</tr>
<tr>
<td>2.4 Pesticide Related Illness</td>
<td></td>
<td>4.4 Soil Chart</td>
<td>4.5 Summary</td>
<td></td>
<td>6.4 Quiz</td>
<td>7.4 Quiz</td>
</tr>
<tr>
<td>2.5 Sustainability</td>
<td></td>
<td>4.6 Quiz</td>
<td>4.7 Q1</td>
<td></td>
<td>6.5 Quiz</td>
<td>7.5 Q1</td>
</tr>
<tr>
<td>2.6 Journal Assignment</td>
<td></td>
<td>4.8 Q2</td>
<td>4.9 Q3</td>
<td></td>
<td>6.6 Result</td>
<td>7.6 Q2</td>
</tr>
<tr>
<td>2.7 Quiz</td>
<td></td>
<td>4.10 Result</td>
<td>4.11 Move on</td>
<td></td>
<td>6.7 Move on</td>
<td>7.7 Result</td>
</tr>
<tr>
<td>2.8 Q1</td>
<td></td>
<td>4.11 Move on</td>
<td>4.12 Move on</td>
<td></td>
<td>6.8 End/Summary</td>
<td></td>
</tr>
<tr>
<td>2.9 Q2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10 Q3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.11 Result</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.12 Move on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6 Quiz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.4 Quiz</td>
<td>6.4 Quiz</td>
</tr>
<tr>
<td>3.7 Q1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.5 Q1</td>
<td>6.5 Quiz</td>
</tr>
<tr>
<td>3.8 Q2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.6 Q2</td>
<td>6.6 Result</td>
</tr>
<tr>
<td>3.9 Q3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.7 Q3</td>
<td></td>
</tr>
<tr>
<td>3.10 Result</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.8 Result</td>
<td></td>
</tr>
<tr>
<td>3.11 Move on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.9 Move on</td>
<td></td>
</tr>
<tr>
<td>3.12 Move on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.4 Tips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5 Summary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1 Objective</td>
<td></td>
<td>5.2 Learn Tools Task</td>
<td>4.1 Objective</td>
<td></td>
<td>5.3 Summary</td>
<td></td>
</tr>
<tr>
<td>5.2 Learn Tools Task</td>
<td></td>
<td>5.3 Summary</td>
<td>4.1 Objective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3 Summary</td>
<td></td>
<td></td>
<td>4.1 Objective</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Welcome! This E-Learning will provide instruction on building an organic garden; provide information on how pesticide in food affects our lives and our earth and how we can take control in our own back yards.
Instructions

To move through this E-Learning click on the NEXT button in the lower right corner.

To review slides click on PREV.

If at any time you need to leave this E-Learning before it completion, click the X in the top right corner of the screen.

When you return you will be asked if you would like to start from where you left off.

Choose yes to continue and no to start from the beginning.

Objectives

Identify one fruit, one vegetable and one age-group that are most vulnerable to pesticides.

Mark and measure the layout of a garden space to determine the amount of soil needed for a garden plot.

Create a garden soil mixture that will provide nutrients to garden plants by adding compost and testing pH.

Identify common helpful and harmful garden insects and discover natural remedies to eradicate the harmful ones.

Research and determine the right plant varieties that grow best in a region of interest to increase the chance of crop success.

Teach someone else the steps to plant and grow a successful garden that will enrich lives and build a path to better nutrition.
Living Organic

Module 1 Story Board and Navigation

The objective for this module is:
Identify one fruit, one vegetable and one age-group that are most vulnerable to pesticides.

In this module you will:

Watch a short video of the Dr. Oz show where he and a guest talk about why you should eat organic

Learn about the hazards of ingesting pesticides

Learn how chemicals are affecting farmland soil

Learn who is most vulnerable to pesticide toxins

Video Transcript:

Dr. Oz: Today we’re talking about pesticides in your food and I believe that eating organic fruits and vegetables is one of the best ways to avoid them. And I believe it is the best way to avoid it. Now to prove it we conducted a very simple experiment, went to a grocery store and bought conventional and organic and had a lab test them for pesticides. Here’s what the lab found. We started with celery. This is an example of what vegetables might be in our lives. We bought both organic and conventional celery and we tested both for pesticides. In the organic celery we found no detectable residues from pesticides. The conventional or non-organic celery we found residues from 3 pesticides. Three different types of pesticides were found. Which means that these vegetables even after being picked and shipped and processed still have toxins in them. Your bringing this into your home. Now for fruits, we chose peaches which is a notoriously dirty fruit which means that pesticides get into it all the time. In the organic peaches we found residue from two pesticides but at very low levels. They’re still there but at very low levels. In the conventional peach sample, not organic, are you guys ready for this? Seven pesticides.

Residues from seven pesticides. That means seven different types of toxins were found in peaches. So Dr. Greene, analyze this for us. What does this mean?

Dr. Greene: Well the results are clear. When you choose organic you’re choosing fewer pesticides. Your results are very consistent with what the USDA
finds, and other labs around the world find again and again. When you choose organic you are getting a smaller number of pesticides and every bite of food is an investment in our bodies or, and or is a debt we are taking on that we will have to repay some how. Organic is a good investment when it comes to reducing pesticides.

**Dr. Oz:** How do you explain that there were still two residues from pesticides even in the organic peaches?

**Dr. Greene:** Yes that’s a great question. Yes there are. There at low levels and for a couple of reasons. One is there are some natural pesticides that are allowed in organic agriculture. The other is that organic farms don’t exist in isolation. The conventional farms that are around them will sometimes have pesticides that get into the air and drift or into the water. So organic is not part of the problem its part of the solution.

**Dr. Oz:** I want to be clear about this. What I am hearing from Dr. Greene is that no matter what we eat there’s still a pretty good chance there could be some contamination of pesticides because we live in a globe that’s all connected. I also want to be clear that the levels of pesticides we found in the food here, they tested below the levels that the government allows.

**D. Greene:** Right.

**Dr. Oz:** So, your…that’s ok your in the safe zone. Key question is, is that good enough for you and your family. Dr. Greene your thoughts.

**Dr. Greene:** I can’t look a person in the eye and say that those levels are safe. We just don’t know enough. At real world exposure levels we have real health concerns and questions that are still out there. I think that some of the levels should be changed, and there are some pesticides like organophosphates that I don’t think we need to be using anymore. Why add unnecessary toxins to the food, that’s becoming part of our bodies?
**Dr. Oz:** Diana, let me ask that question of you if you don’t mind. Earlier on you said that pesticides really weren’t on your radar screen.

**Diana:** Uh huh.

**Dr. Oz:** How has this discussion influenced that radar screen image?

**Diana:** You know, I can’t help but think that I grew up eating all the same fruits and vegetables that I’m feeding to my kids and pesticides weren’t even an issue, and I grew up healthy and fine. So I probably, honestly, I may make some changes, but I am probably not going to go radical and change my children’s entire diet.

**Dr. Oz:** So, I gotta say and then I’ll speak to your point, as physicians we just don’t know. And I don’t want to panic anybody but we are at the very beginning of knowing the true health impact of these chemicals. And let me make this clear to everybody who has kids, their little bodies are developing very rapidly. There’s some very tentative times there. Their livers which is where all the detoxing occurs are very sensitive and they process toxins differently than adults. Their underdeveloped immune systems, provide far less protection than an adult immune system. And frankly I am worried about all their organs but especially their brains. Because they are vulnerable at this critical moment of growth at this young age. So Dr. Greene even the EPA is a moving target. They’re changing their opinions on how much pesticide we can allow in our diet.

**Dr. Greene:** Yes the EPA is making this a major issue. I am really glad. They’ve already lowered the the levels allowed on set pesticides and I believe they’ll push that bar forward. Pesticides may turn out to be the next lead. We used to all think, when I was growing up, that lead was fine, it wasn’t affecting us. Then we learned it was affecting the brains, we got rid of it in gasoline, and everyone’s IQ went up a little bit.

**Dr. Oz:** Did it really?
Dr. Greene: Yah.

Dr. Oz: Can you imagine that? Are we making the kids dumb? Maybe? With pesticide exposure?

Dr. Greene: Maybe.

Dr. Oz: Let me give you the good news because there are things you can do to make a difference, it turns out that kids who have previously had high levels of pesticide residue in their urine, saw that level drop significantly after just five days of eating organic food. Five days folks. Well while we’re all figuring out the data, we’ve got some action steps and I think you kids, all of our kids deserve, to be better than a national chemistry experiment. I don’t anyone thinking that you need to eat less fruits and vegetables, you made that point really clearly. Uh but I do think you can get your kids to eat healthier one way or the other by choosing the right foods that are made organic. So I am saying it clearly now, I want you to eat organic foods and when we come back I am going to tell you which ones to start with.

Diet related illnesses are on the rise in the United States. Children, especially, are vulnerable to poor eating habits and chemical exposure from pesticides in healthy foods like fruits and vegetables. (image of child and peach)

Years of chemical treatments of crops has damaged soil and caused a dependence upon chemicals to grow much of the produce we buy in grocery stores.

Fleshy fruits and leafy vegetables are the greatest carriers of pesticide residue. Any fruits without a peel are very vulnerable to residue from pesticides. Most
vegetables do not have peels making them very susceptible to absorbing pesticide one the tests positive is celery. (image of tractor spraying pesticide)

Chemicals used in pesticides are known to cause cancer and children who are exposed to pesticides where they live, have a higher incidence of leukemia. (image of chemo-child)

As our earth becomes more and more fragile, we must find more conservative ways to grow produce without dependence on chemicals. (image of earth in hands)

Your assignment is to keep a garden journal. Use your journal to write about the assignments you will do in the following modules, take notes, draw pictures and record your calculations. By the end of this course you will have written a book on your own personal gardening experience to share with others.

Click the NEXT button to test your knowledge on Living Organic

Q1. (Multiple answer question with check box) Dr. Oz talked about a fruit that, even though it was organic, still had pesticide toxins. Name the fruit and the reason given for it having tested positive to pesticides. Choices: orange, banana, peach, It is a "fleshy" fruit and vulnerable to pesticides that may be used on other crops close by, It is a fruit that produces toxins when exposed to pesticides, The fruit was not actually organic. Answer: peach, It is a "fleshy" fruit and vulnerable to pesticides that may be used on other crops on conventional farms close by

Q2. (Multiple choice with radio buttons) Whose body systems are the most affected by toxins from pesticides? Choices: Children (age 0-12), Elderly (age 75 and older), Adults (age 20-74), Teenagers (age 13-19) Answer: Children (age 0-12)

Q3. (True/False) Celery is a vegetable that easily absorbs pesticide toxins. Answer: True
Results slide will give assessment feedback to learner. Learner will be able to retry the quiz if they fail. They must pass with 100%. Results slide will show the learners % score, what score they need to pass and a retry button if they fail. There will be a review quiz button to revisit their test and answers the user chose.

module you learned:
That you may be ingesting toxins even if the fruit is labeled organic
About the hazards of ingesting pesticides
How chemicals are affecting farmland soil
Who is most vulnerable to pesticide toxins
Click the NEXT button to begin your garden adventure!
The objective for this module is to:

Mark and measure the layout of a garden space to determine the amount of soil needed for a garden plot by using measuring tools and solving a soil needs calculation.

You should already know how:

To use a measuring stick or measuring tape

To use simple multiplication and division or how to use a calculator

To use an internet search engine like Google if needed
You don't need a big back yard to grow an organic garden. You can grow fresh produce in a small plot and even in containers.

The Learn, Tools, Task slide has three tabs which should be navigated in the order of learn, tools, tasks.

The Learn Tab content is as follows:
You will use various tools to mark out your plot and work a simple multiplication and division equation.

You will use this equation to find how much soil you will need for your plot:

\[ \text{Length in inches} \times \text{Width in inches} \times \text{Soil depth in inches} / 12 \text{ cubed} \]

Your garden should be in a spot that is exposed to at least 6 hours of sunshine per day.

The Tools Tab content is as follows:
- You will need the following tools to accomplish your first task:
  - A Measuring Tape (image of a measuring tape)
  - Twine (image of twine)
  - 4 to 6 Wood Garden Stakes (image of stakes)
  - Pencil (image of pencil)
  - Paper (image of paper)
- You may also want a calculator or calculator phone app to solve your soil needs equation (image of a calculator)

The Task Tab Content is as follows:
(The top of the slide includes a rectangle with four squares, representing garden stakes, one on each corner. Lines connect the four squares representing twine. A legend of the garden stakes and twine is on the left of the large rectangle. There is a double headed arrow on the below the rectangle and another on the right)
Use garden stakes to create a plot shape in the place you have chosen for your garden.

Measure both the length and width and write these on the piece of paper.

Use twine to make a straight line from stake to stake.

Your garden should have a soil depth of at least 8 inches. Use the equation:

\[
\text{Length in inches} \times \text{Width in inches} \times \text{Soil Depth in inches} / 12 \text{ cubed}
\]

to find the amount of soil you need. For this example:

\[
72 \times 36 \times 8 / 1728 = 12 \text{ cubic feet.} \quad \text{Divide 12 cubic feet by 27 to find total cubic yards of soil.} \quad 12 / 27 = 0.444 \text{ cubic yards}
\]

**Tips Contents are as follows:**

You may want to use a raised garden boarder like the one you see here. They are sold as kits at garden centers or easily built from scratch with wooden planks (image of raised garden bed).

For an online soil calculator visit:

[http://www.gardeners.com/how-to/soil-calculator/7558.html](http://www.gardeners.com/how-to/soil-calculator/7558.html) or google garden soil calculator to find many other choices.

**Summary**

You learned:

How to measure a plot for a new garden using twine and garden stakes

How to use the equation-Length X Width X Soil Depth/ 1728 (cubed Feet) to find how many cubic feet of soil you need for your plot

How to divide that cubic feet number by 27 to find cubic yards of soil
Vegetable gardens need at least 6 hours of sun per day.

You can use various websites to find soil calculators.

You can buy a raised bed garden kit or build one yourself.

Click the NEXT button to test your knowledge on Plotting Your Spot.

Plotting Your Spot Assessment

Q1. Anthony is staking out a garden. He would like his garden to be 108 inches in length and 72 inches in width. He would like a soil depth of 10 inches. How much soil will he need in cubic yards to create his dream garden? Round up to the nearest whole number. (Use fill in the blank answer) Answer: 2

Q2. You should choose a spot for your garden that receives at least how much sunshine daily? (Use multiple choice radio buttons for the answer). Choices: 8, 6, 10, afternoon sun only. Answer: 6

Q3. What tools should you use when you are staking out your garden plot? Choose all that apply. (Use multiple answer check boxes). Choices: wheelbarrow, garden stakes, yard stick, pencil and paper, measuring tape, twine, wooden boards, rake, calculator Answers: garden stakes, yard stick, pencil and paper, measuring tape, twine, rake, calculator

Feedback

Results slide will give assessment feedback to learner. Learner will be able to retry the quiz if they fail. They must pass with 100%. Results slide will show the learners % score, what score they need to pass and a retry button if they fail. There will be a review quiz button to revisit they test and answers the user chose.

Congratulations and Move on (this slide alerts learner they have finished the module and may move on to the next)
You have successfully completed the module on *Good Soil is Worth the Toil*. Please click next to move on to the next module *Helpful and Harmful Garden Insects*.

Space left intentionally blank to keep following storyline together.
Soil Composition

Module 3

Title: Good Soil is Worth the Toil

The objective of this module is to:

Create a garden soil mixture that will provide nutrients to garden plants by evaluating soil composition, adding compost and testing pH.

You need appropriate skills to:
Be able to purchase a soil pH test kit and follow instructions to use it

Have your plot measured and if needed cleared of sod so that only soil is left

Be able to perform a simple soil composition test by putting water and a handful of your soil into a jar

Make a mixture of soil and compost that is best suited for a vegetable garden

There are 3 Tabs to this view: Learn, Tools and Tasks

The Learn Tab content is as follows:
You will use various techniques to test the composition of your current garden soil.

You will decide whether to order your soil or pick it up in bags from the garden center.

You will decide how much nutrient material in the form of compost you want to add to your garden soil.

The Tools Tab content is as follows:
You will need the following tools to accomplish your second task:
Top Soil (image of soil), Composted Cow Manure (image of bagged compost), An Empty Glass Jar (image of jar), A pH Soil Kit (image of pH soil kit), A Wheelbarrow (image of wheelbarrow), A Rake and Shovel (image of rake and shovel)

The Task Tab contains 3 Tasks with content as follows (tabs are visible in each task pane):

Task 1- (learners will perform a soil composition test)
You will perform a soil composition test:

Use a large empty clear glass jar.

Fill it half with current garden soil and fill the rest of jar with water. Put a lid on the jar and shake vigorously until mixed.

Let the jar sit undisturbed for 24 hours so the contents may settle.

Soil is composed of sand, clay, silt and organic material. Your jar will settle with sand on the bottom, silt in the middle and clay on top and organic matter floats on the very top (Image of three types of soil).

(Image of a jar with settled soil layers and graphics to indicate what the layers are and an equation to find percentage of each soil composition)

Calculate the % of soil composition=height of soil type/total height of contents X 100%

(Link to a graphic of a soil chart and closer image of the layered jar) Click here to match results of your equation to a soil chart.

**Task-2**-(learner will learn about pH and perform test)

Optimal growth of plants requires a proper pH. This measured on a scale of 1-14 where below 7 is neutral, above 7 is acidic and below 7 is basic.

Use a pH kit to discover the pH of your soil. Follow the kit instructions.

(include image of the kit)

**The optimal pH for your soil is 6.0 to 6.5. Vegetable plants do not grow well in pH below 5.5 or above 7.5**
If your soil is not in the range of 5.5 to 7.5:

Add limestone to the soil to make it less acidic.

Add compost and manure regularly to keep soil from becoming alkaline.

Or, use raised beds with well-amended topsoil or choose native plants that thrive in the soil pH where you are.

Task 3-(Learner will work with compost)

Compost is organic matter that contains rich minerals and other nutrients that provide vegetable plants the food they need to thrive and produce good yield. Compost can be mixed with aerating materials to provide loam or water holding ability. Compost mixed with peat or dead grass clippings helps provide loam.

After testing the pH of the soil:

Add a compost mixture of cow manure and peat or dead grass clippings into a wheelbarrow.

Mix well.

Add the mixture to the top of your garden plot soil and use a rake and shovel to mix the compost in with the soil.

Depending on your soil composition test you may need to add sand to the mixture as well. Do not add too much sand because sandy soils will not hold water. Keep your soil mix close to 45% sand, 25% silt and 25% clay. Keep organic matter content at 5%.

Click Next to go to Summary Slide

Learner will click to view Vegetable Acid Tolerance Table (The contents for the table follows.).

Slight Tolerance (pH 6.8 to 6.0)- Asparagus Beets Broccoli Cauliflower Chinese Cabbage Lettuce Muskmelons New Zealand Spinach Okra Onions Peanuts
Spinach Swiss Chard

**Moderate Tolerance (pH 6.8 to 5.0):** Bean Brussells Sprouts Carrots Collards Corn

Cucumbers Eggplant English Peas Garlic Kale Kohlrabi

**High Tolerance (pH 6.8 to 5.0):** Irish Potatoes Sweet potatoes Watermelons

---

**Soil Chart Branch includes:**

(Above the image of the layered jar include the following)

To classify your soil:

Figure out the % content of sand, clay and silt

Graph the percentages on the soil chart

(Below the image of the soil chart add the following)

Example: Where 45% sand, 25% clay, and 25% silt intersect is the soil classification. This example is on the edge of Sandy Clay Loam (red lines on graph).

Learner will now click on Task 2 Tab.

---

**Summary**

The key component to a thriving garden is healthy, nutrient rich, soil.

**In this module you learned:**

How to find out the composition of your current garden soil by filling a clear jar half with water and half with soil, shaking and letting the soil settle into layers.

How to use a soil classification chart

How to find the pH of your garden soil by using a pH kit purchased from a local garden center.

That the optimal pH for a garden is 5.5 to 7.5 and that plant tolerance to acidic levels varies among different vegetable plants.
How to mix the soil in your garden with compost and manure to change the nutrient value of the existing soil

Click the NEXT button to test your knowledge on what you have learned about soil (Soil Composition Assessment).

Soil Composition Assessment

Assessment

Q.1 The best pH for your garden soil should be within what range? (answer with radio button multiple choice) 4.5-5.0, 5.5-7.5, 7.5-8.0, None of the above
Answer: 5.5-7.5

Q.2. What materials can you add to compost to help create soil "loam"? (answer with multiple answer click box) Dead grass, Orange peel, Peat, Styrofoam, Shredded paper Answer: Dead grass and Peat

Q3. (Graphic of jar with drag and drop option.) Recall that for a quick soil composition test, fill a jar half with your garden soil and half with water. Put a lid on the jar and shake vigorously. Let the contents settle for 24 hours.

What is the optimal amount for each soil type in your sample?

Drag and drop the appropriate soil type on to the correct layer in the jar. Click Submit when finished. Identify Sand Silt Clay and Organic.

Feedback

Results slide will give assessment feedback to learner. Learner will be able to retry the quiz if they fail. They must pass with 100%. Results slide will show the learners % score, what score they need to pass and a retry button if they fail. There will be a review quiz button to revisit they test and answers the user chose.
Congratulations and Move on (this slide alerts learner they have finished the module and may move on to the next)

You have successfully completed the module on Good Soil is Worth the Toil. Please click next to move on to the next module Helpful and Harmful Garden Insects

Helpful and Harmful Garden Insects

Module 4

Click NEXT to continue and PREV to return
Objective for this module is:

**Identify common helpful and harmful garden insects and discover natural remedies to eradicate the harmful ones.**

In this module you will:

- Identify insects that can harm your plants
- Identify natural remedies to rid a garden of harmful insects
- Identify helpful insects that help your garden thrive

Click NEXT

**There are 3 Tabs to this view: Learn, Tools and Tasks**

**The Learn Tab content is as follows:**

There are harmful as well as helpful insects that can either help or destroy your garden. For example garden slugs will eat anything tender and leafy and are extremely damaging (image of slug).

Other damaging insects are:

- Caterpillars and other larva type worms (image of caterpillar).
- Most beetle varieties like cucumber and Japanese beetles (image of Japanese and Cucumber Beetle)

If your soil is healthy you will have fewer pests to eradicate from your garden. For a true organic garden, no pesticides or detergents should be used for pest
control. **Pesticides are more damaging to your garden because they not only allow toxins to enter your vegetables but they kill the beneficial insects too. Some harmful insects have become resistant to pesticides due to its overuse.**

**Click on the Tools Tab**

The Tools Tab content is as follows: (list beneficial insects and the harmful garden insects they prey on)

Awesome Garden Avengers

**Green Lacewings**

Eats: ants, aphids, cut, boll, army, fruit and leaf worms, caterpillars, mealy bugs, scale insects, spider mites and white flies, **attracted to light, dill and other herb plants.**

(image of green lacewing)

**Lady Bug**

Eats: aphids, boll worms, potato beetles, leaf hoppers, leaf worms, mealy bugs, scale insects, thrips, **attracted to fern and marigolds, butterfly weed and queen ann's lace.**

(image of ladybug)

**Praying Mantis**

Eats: All insects. **Caution will eat lacewings and honey bees. Eggs are sold in garden centers.**

(image of praying mantis)

**Beneficial Nematodes**
Eats: white fly, weevils, grubs, termites, squash bugs, soil dwelling pests, saw flies, crickets, grubs, gnats, flies, fleas, cutworm, beetles, cinch bugs, cabbage worms, bill bugs, ants. **Buy them at your garden center.** (Image of nematode)

**Honey Bee**

Pollinates fruit and vegetable flowers. (Image of honey bee)

**Earth Worms**

Aerate soil and eat decaying vegetable matter, produce castings that enrich soil. (image of earth worm)

Click on the Tasks tab.

**The Tasks Tab content is as follows:**

Your task for this module is to find out more about the local insects in your area that are harmful and beneficial to your garden.

**There are many more beneficial garden insects than mentioned on the Tools page of this module.**

**Your assignment is:**

Take a trip to the library, garden center or internet and find information about the insects that live in you region of the country.

Create a "Good Bug-Bad Bug" table.

List the good bugs that can be found in your area and how to attract them to your garden.

List the harmful insects and get to know what they look like and list what your garden plants look like if they are being attacked by these insects. Keep the chart handy every time you go out to inspect your garden.
Click Next to continue.

Summary

Keeping a handle on pests is a very important step in organic gardening. There are natural ways to eradicate harmful insects while preserving beneficial insects by introducing the harmful insect's natural predators.

In this module you learned how to:

Identify insects that can harm your plants

Identify natural remedies to rid a garden of harmful insects

Identify helpful insects that help your garden thrive

Click NEXT button to test your knowledge on Helpful and Harmful Garden Insects Assessment

Helpful and Harmful Garden Insects Assessment

Q1. (This is a drag and drop assessment) Recall that there are good insects and bad insects that can invade your garden.

Identify the harmful bugs on this screen and drag and drop them into the harmful bug jar and drop the helpful bugs into the helpful bug jar click submit. Answer: Helpful insects are honey bee, beneficial nematode, praying mantis, ladybug, green lacewing. Harmful insects are slugs, cucumber beetle, Japanese beetle, caterpillar.
Q2. **Which is more harmful to your garden?** (Multiple choice radio buttons)
   Choices: vegetable plant eating insects, pesticides, ladybugs, none of the above.
   Answer: pesticides

Q3. **How do you attract beneficial insects to your garden?** (Multiple answer square check box)
   Choices: Bait them with insect traps, Grow vegetation they would like to eat (dill or marigolds), Buy eggs of the insect and put them in your garden to hatch, Put the harmful insects in your garden that helpful ones like to eat
   Answer: Grow vegetation they would like to eat (dill or marigolds), Buy eggs of the insect and put them in your garden to hatch.

**Feedback**
Results slide will give assessment feedback to learner. Learner will be able to retry the quiz if they fail. They must pass with 100%. Results slide will show the learners % score, what score they need to pass and a retry button if they fail. There will be a review quiz button to revisit they test and answers the user chose.

**Congratulations and Move on** (this slide alerts learner they have finished the module and may move on to the next)
You have successfully completed the module on *Helpful and Harmful Garden Insects*
Please click next to move on to the next module *Selecting the Best Vegetation for your Region.*
Selecting the Best Vegetation for Your Garden

Storyboard and Navigation Title: Selecting the Best Vegetation for Your Garden

Module 5

Storyboard images with numbered captions:
1. Introduction
2. Module details
3. Content
4. Summary
5. Conclusion

Click NEXT to continue and PREV to return

Question 1
Question 2
Results
Click NEXT to move to a new module
Selecting the Best Vegetation for Your Garden

The objective for this module is:

**Research and determine the right plant varieties that grow best in a region of interest to increase the chance of crop success.**

For this module you will:

Use given internet sites to research your zone and the best fruits and vegetables to grow in your zone.

Decide which vegetables and fruits you will plant in your garden.

Obtain seeds (bought or from veggies you have in the house) or started seedlings from a garden center.

Click NEXT to Continue

There are 3 Tabs to this view: Learn, Tools and Tasks

The Learn Tab content is as follows:

Choosing the plants you want for your garden is the easy part of gardening but you will need to know what USDA planting zone you live in or your "hardiness zone" and the types of garden plants that thrive in this zone.

For this module you will need to have access to the internet. Of course there are libraries and garden centers that may have this information but for the purpose of this module we will use trusted internet sites for our research.

Click on the Tools Tab
The Tools Tab content is as follows:

For this module you will need the following tools:

A computer or internet connected device. (Image of computer and devices)
A word editor like Microsoft word (Image of word logo) or
A pencil and paper (Image of pencil and paper)

Click on the Tasks tab.

The Tasks Tab content is as follows:

Your task for this module is to find out your "hardiness zone" and what vegetables and fruits grow best in your zone. You will then obtain your seeds or seedlings to plant in your garden.

Connect to the internet using your device or computer

Go to http://bonnieplants.com/library/find-your-gardening-zone/ and click on "Find your Hardiness Zone by Zip Code", in the middle of the page.

Enter your zip code and choose Find (image of the library page “enter zip” box)

Your zone will be returned with the average extreme temperature readings for the zone.

Next visit:

www.veggieharvest.com/calendars/index.html and click on the link to your zone. This link will display a planting calendar for vegetables that grow in this zone. Copy the information or set a bookmark. Visit www.gardening.cornell.edu/homegardening/ to find specific requirements for vegetable varieties.
Click NEXT to continue

After you have researched the variety of plants that grow in your Hardiness Zone, you will need to purchase seeds or seedlings to plant in your garden.

Be aware of the times for safe planting to avoid loss due to frost. If you start from seeds you may want to use small containers with some of your garden soil to start the seed. Note that using seed starter soils may expose your plants to synthetic fertilizers. Read packaging carefully if you want a truly organic garden.

Follow seed package directions for spacing seeds in your garden and seed depth. See the resource page for more information on planting.

Click NEXT to continue

Summary

In this module you learned:

How to find your Hardiness Zone and the vegetables that thrive there using sources from various websites.

About where you can find information at Cornell University's home gardening website, that will help you understand the conditions your favorite vegetables and fruits need to grow healthy and produce good yields.

Now go out and plant!

Click NEXT to test your knowledge of Selecting the Best Vegetation for Your Garden
Selecting the Best Vegetation for Your Garden Assessment

Q1. Hardiness Zone refers to:

- how hard the soil is
- which vegetables grow best in which North American zones
- an area where you can plant before the last frost
- a place where you should plot your garden

Answer: which vegetables grow best in which North American zones

Q2. Matching

Where I can find specific information about a certain vegetable I want to grow.

www.gardening.cornell.edu/homegardening/

Where I can find my Hardiness Zone.

www.bonnieplants.com/library/find-your-gardening-zone/

Where I can find which vegetables are best for growing in my zone.

www.veggieharves.com/calendars/index.html

Where I can find information if I don't have an internet connection.

Public library and local garden center.
Results slide will give assessment feedback to learner. Learner will be able to retry the quiz if they fail. They must pass with 100%. Results slide will show the learners % score, what score they need to pass and a retry button if they fail. There will be a review quiz button to revisit their test and answers the user chose.

**Congratulations and Move on** (this slide alerts learner they have finished the module and may move on to the next)

You have successfully completed the module on *Selecting the Best Vegetation for your Region*.

Please click next to move on to the next module *Teach Someone How to Plant an Organic Garden*.

Teach Someone How to Build an Organic Garden

Module 6
The objective for this module is:

**Teach someone else the steps to plant and grow a successful garden that will enrich lives and build a path to better nutrition by sharing what you have learned.**

In this module you will:

- Explore ways to share what you know about organic gardening
- Make a plan for starting an organic community garden in your area
- Share the benefits of good nutrition and health with others
There are 3 Tabs to this view: Learn, Tools and Tasks

The Learn Tab content is as follows:

For this last module you will want to get to know the ACGA or American Community Gardening Association. While teaching someone else does not mean you have to organize a community garden but if you do not have one in your neighborhood you might be missing out on an opportunity to change lives.

Gardens promote health by providing exercise, keeping you limber, decreasing your stress and boosting your mood.

Community gardens provide organic food to people who may not be able to afford it, decrease crime rates by taking over vacant lots that collect trash and loiterers. They give communities a bond and create friendships. They give elders in the community a chance to share their expertise and teach children about sustainability.

The Tools Tab content is as follows:

Tools for starting a community garden include:

Your gardening journal!

Organization-meet with interested people

Planning-form committees to tackle specific tasks

Resources-look for experts in the community

Sponsors-find donors

A Site-consider sunshine, water availability, test soil for possible pollutants

Preparation-form crews to clear the land

Distribute plots-divvy up the land between interested families

Determine Rules-develop a code of behavior

Foster Member Relationships-encourage good communication and participation
You have the rest of the knowledge to teach your gardeners about safe, gardening the organic way!

The Task Tab content is as follows:

Look through all of these websites and work on a plan for starting a community garden or joining one.

http://www.letsmove.gov/community-garden-checklist

https://communitygarden.org/resources/10-steps-to-starting-a-community-garden/


http://www.organicgardening.com/learn-and-grow/community-gardens

Write these in your garden journal then find other sites that share your enthusiasm!

Teach Someone How to Build an Organic Garden - Assessment

Q1. What is one of the best tools you have for teaching others to build an organic garden? Choices: An organic gardening website, Your Garden Journal, The American Community Garden Association, Your local garden center
Answer: Your Garden Journal

Q2. In the tools for starting a community garden, in which step would you develop a code of behavior for your gardening members?
**Choices:** resource, organizing, determine rules, distribute plots, sponsors, finding a site, foster member relationships Answer: determine rules

**Feedback**

Results slide will give assessment feedback to learner. Learner will be able to retry the quiz if they fail. They must pass with 100%. Results slide will show the learners % score, what score they need to pass and a retry button if they fail. There will be a review quiz button to revisit they test and answers the user chose.

**Summary**

What you have learned in this E-Learning:

- You can take responsibility for your and your family's health by eating fresh organic fruits and vegetables.
- You can grow vegetables in any size plot, even in containers if you do not have land to use.
- Nutrient rich soil is the key to growing healthy vegetable plants that provide high yield.
- There are harmful and helpful garden insects and we want to keep the helpful insects around.
- If you have access to the internet you can find what vegetables grow the best in your area.
- You can teach someone what you know about organic gardening by reviewing your garden journal and starting or participating in a community garden project.

**Resources**

Thank you for participating in this E-Learning. Here is a list of some of the resources used in the making of this teaching tool.

**Mississippi Agricultural and Forestry Experimental Station**

www.msucares.com/lawn/garden/vegetables/soil/ph.html
Cornell University Home Gardening
www.gardening.cornell.edu/homegardening/

USDA Agricultural Resources Service
www.usda.gov

VeggieHarvest
www.veggieharvest.com

American Community Gardening Association
www.communitygarden.org

Garden Insects
www.gardeninsects.com

Organic Gardening
www.organicgardening.com
Resources:


EDCI 569 Assignment 1

Learners, Context and Learning Objectives

Linda Vervynckt Smith/Kaiser
5/18/2014
Digital prototype can be found at:

http://llsportfolio.net/garden_project/story.html

Planning

I developed my e-learning course based on an instructor led course I had previously designed. The first lesson I learned was it is not as easy as I thought it would be to transfer an instructor led course to an e-learning course. The instructor led course had many hands-on, real-life experience and guest speakers. Transferring this to an e-learning became very challenging. Even though I could use video recorded “guest speakers” it paled in comparison to the dynamic interaction I had planned between speakers and learners in the instructor led course.

Another issue I faced was the instructor led course lasted six weeks or approximately twelve hours of learning, instruction and interaction. The e-learning course is forty-five minutes long. Condensing twelve hours of material down to forty-five minutes was a bit excruciating at times. I felt my e-learning was a former shell of the original and was disappointed at the outcome. I have a real passion for organic gardening and eating and wanted to spread the enthusiasm to others with fun activities and opportunities to meet interesting people who shared my passion. With these highs and lows in mind I dove into creating an e-learning course that I hoped would be comparable to the face to face instructor lead course.

I began planning my course with, originally, five modules which represented each of my five objectives. We were then told we needed six objectives but I already had one in mind therefore the sixth module came together quickly. I wanted to have a step approach starting with the basic information on why organic gardening is important, the hazards of ingesting pesticides and the affects pesticides have on the earth, drinking water and also the animals we consume, and ending
with a real garden. The second module would be the beginning of building a garden which is finding a spot to build one and staking out the dimensions of the plot. The third module would cover the importance of good soil, the fourth module would discuss natural pest control, the fifth module would require researching the type of plants that grow the best in various regions, and the sixth is taking organic gardening “on the road” by starting or participating in a public community garden. I decided early on that the course would be best for ages 21 and older due to the possibility of using pH testing chemicals with at least a 9th grade reading level. However I later learned there at pH meters that do not require any chemicals for testing making the course user friendly for anyone 14 and over. Next I moved to the design phase.

Design

I actually started designing the background of my slides in Articulate Storyline™ right away. I created a series of backgrounds that had a lot of fun graphics. After reading Horton (2012), Chapter 14-Visual Design, I took a more minimalist approach. The page I started with was too busy. The page I ended with was simple yet conveyed the idea of planting something in soil and watching it grow carrying the theme of gardening. The content then provided the bulk of the topic. I feel this minimalist approach to slide background is going to be the new standard for all of my future e-learning courses.

Designing the slides first helped inspire me as to the content that would be placed within. I used a lot of graphics and spent a great deal of time finding images on a royalty paid subscription site that I use regularly in my work design. It was extremely time consuming to download the photos I wanted for my “tools” section that is a part of each module and photoshop them to create png files. I did a lot of research regarding organic gardening and found many helpful websites and
articles to add value to my course. Then I began deciphering what I needed based on my objectives, created topics and then developed content around this relationship. I feel this method worked very well for me because this is the way I like to conduct my research for e-learning courses I create at work. I like to know about the background so I do a lot of research and then consult with the SME if I find something I think will be beneficial to the content that the SME may not have included.

I consulted Merrill’s (2002) first principles in working through my content. There were some aspects of the principles that I could not easily integrate and feel that I need to further investigate how to make this integration productive in future e-learning course design. I evaluated my content using Merrill’s (2001), 5 Star Instructional Design Rating (Appendix A). Similar to the First Principle’s, I had some difficulty integrating the criterion into my e-learning course because I felt that total integration would have extended my course to several hours undermining the compact, on demand learning I was hoping for. I was able to incorporate the majority of the criterion, missing out only on two of them.

Putting it all together and especially the design of particular slides became much more work than I anticipated. I wanted my course to be accessible to persons of all abilities therefore it was important to me to have the course readable without having to hear, and audible for the weak-sighted. This entailed more work having to type the text for each slide and then presented difficulty in fitting everything onto one slide. Some of my slides had several layers so incorporating audio portions was tricky because I needed to set up several triggers in Storyline to make the audio work like I wanted it to. In the future I think I will create a transcript that will be linked as a document that can be downloaded for those that need it.
After adding the content and assessments to my course I moved on to the evaluation phase.

**Evaluation**

I created a formative evaluation form and had three learners test the course for me (Appendix B). The feedback was pretty consistent with my own evaluation however a few things stood out that moved me to make changes in the course design. One was a navigation feature. The user asked to have the module numbers on each slide to provide clarity of location during navigation. I do have titles at the top of the page but the user was not looking at the page title. This is somewhat contradictory to what Horton (2012) supplied in Chapter 15-Navigation, where he discussed having this feature on all pages to help the navigator know where they are in moving through the pages of a website. Below is a summary of the usability data.

**Usability Data for Three Users From a Formative Evaluation**

**User 1 Data and Comments**

“There is a lot of content but the voice over helped to take it all in.”

“I did not always know where I was. I suggest adding the module number to the page.”

“It was not always clear where I was in the course.”
User 2 Data and Comments

“I liked the simplicity of the design.”

“Lots of words.”

“I liked that the new module was introduced before it began but I would like to see a better way to identify the module.”

“Some of the next buttons the pages didn’t work.”

“Did not realize I could use the menu to access any slide.”

User 3 Data and Comments:

“Did not realize I could use the menu to access any slide.”

“Good, simple design with lots of white space.”

“There is a lot to read. It would be great if you could streamline some of the wording.”

“Sometimes the voice over said please click the next button and sometimes it did not.”

All 3 users combined data

Table 1: Usability Data from Formative Evaluation
Using this data I concluded that the average user felt there was too much text and that the modules needed to be better identified. I did not want to change the text option because of my preference for users of all abilities to view the course but I did add the module number to each new module and made the title of the slides more obvious.

In summary, I feel this was a very worthwhile experience. I learned that it is not easy to convert an instructor led course to an e-learning course. There are many issues to consider, especially if the instructor led course is very hands on and interactive. Guest speakers can be video recorded but there is a loss of interaction with the speaker if students have questions. I feel that e-learning can be dynamic but it requires a blended learning environment where there is a chance for active discussion between students. My course was instructional and fortunately there are many resources available on the web. In the future, it would be nice to have the course in a blended learning form where individuals could work in groups or discuss problems they may be having with the steps involved in building a garden.

One note on the Dr. Oz video; I am not a Dr. Oz fan however I decided to use the video because what he divulged regarding pesticides is backed up by literature. The main reason I chose him was because the average U.S. citizen probably has heard of him and some may actually watch his show, especially since he is Oprah endorsed. While I don’t feel he lends credibility I was keeping to my reading level criteria (9th grade).
Appendix A

Principle 1: Learning is promoted when learners are engaged in solving real world problems

The e-learning course entitled, “How to Build an Organic Garden”, is premised on a real-world problem, pesticide in healthy food. Eating for health is negated by our fruits and vegetables containing unnatural toxins that have been proven to cause illnesses in humans. One way to keep these toxins from entering our bodies is by not using them on our crops. While farmers have not invested in ways to do this, we have to rely on government intervention to tell us how much pesticide residue we can safely ingest. The real truth is, it is not known. Organic gardening, or growing plants and vegetables without harmful pesticides is a solution. In my e-learning, the goal is to engage learners by informing them of pesticide use and to empower them with a solution to this problem.

5 Star Instructional Design Rating

1. Does the courseware show learners the task they will be able to do or problem they will be able to solve as a result of completing the course?

   **Answer:** Yes. Learners will know how to plant and grow organic vegetables and fruits in a backyard or small plot garden. They will take what they know into the community to teach others and to create community gardens that will empower others to take control of their health.

2. Are students engaged at the problem or task level not just the operation or action levels?

   **Answer:** Yes. The first module informs learners of the dangers of pesticide ingestion but also
the effects on the more vulnerable child population. This should appeal to the urgency to purchase or grow organic food because it is safe and healthy for all of us.

3. Does the courseware involve a progression of problems rather than a single problem?
   
   **Answer:** Yes. The main problem is pesticide toxins in fruits and vegetables but each module has a problem to solve. Module 2 involves discerning where to put a garden and how large it should be. Module 3 creates a concern for the conditioning soil to be rich in nutrients and proper composition for water absorption and proper pH. Fruits and vegetables will thrive in these conditions without the use of synthetic fertilizers. Healthy soil can also be the first line of defense against insect infestation.

**Principle 2: Learning is promoted when existing knowledge is activated as a foundation for new knowledge.**

This elearning course is built to activate existing knowledge by providing prerequisite skills to accomplish the module tasks. Some of these skills are: being able to use the internet, being able to do a math equation involving multiplication and division, being able to use garden tools and equipment correctly among others.

**5 Star Instructional Design Rating**

1. Does the courseware direct learners to recall, relate, describe or apply knowledge from relevant past experience that can be used as a foundation for new knowledge?
   
   **Answer:** Yes. Learners must recall using a calculator or using math ability to multiply and divide. The new application is for creating a garden plot that will be large enough to plant the fruits and vegetables they envision for their garden. If the learner has never staked out a
garden they will be using wooden stakes and twine in a new way to square up a garden plot. They will then go teach others what they have learned.

2. Does the courseware provide relevant experience that can be used as a foundation for the new knowledge?

   Answer: Yes. Learners will do hands on projects that will teach them how to find soil composition, how to organically combat harmful garden insects, how to find plants that will grow the best in their local area and how to design a plan to put a community garden together. Throughout the course they will keep a garden journal or essentially write a book as they progress through the course.

3. If learners already know some of the content are they given an opportunity to demonstrate their previously acquired skill?

   Answer: No, not in real-time. However, learners are directed to a gardener’s forum where they can exchange information with other gardeners. They will also have the opportunity at the end of the module to start a community garden with their previous and newly acquired knowledge.

Principle 3: Learning is promoted when new knowledge is demonstrated to the learner.

I feel that, for the novice gardener, new knowledge flourishes within this e-learning course. The course directs the learner through various steps of building a garden providing sound reason for eating organic produce. It provides demonstrations in the form of videos, to help clarify the subject matter.

5 Star Instructional Design Rating

1. Are demonstrations consistent with the content being taught?
**Principle 4: Do learners have an opportunity to practice and apply their newly acquired knowledge or skill?**

Learners go through a series of modules that provide knowledge and practice to build an organic garden. There are short assessments after each module and learners are encouraged to keep a garden journal throughout the process of building their gardens. Learners are then encouraged to take their knowledge and teach someone else.

**5 Star Instructional Design Rating**

1. Are the application and the posttest consistent with the stated or implied objectives?

   **Answer:** Yes. Learners recall and practice what they have learned, they are asked to identify insects, build the garden in real-time as they watch the course on a mobile device, and to go out and teach others. It does not directly require learners to find faulted conditions or predict consequences.
2. Does the courseware require learners to use new knowledge or skill to solve a varied sequence of problems and do learners receive corrective feedback on their performance?

   **Answer:** Yes. Learners are asked to teach others and they do receive corrective feedback.

3. In most application or practice activities, are learners able to access context sensitive help or guidance when having difficulty with the instructional materials? Is this coaching gradually diminished as the instruction progresses?

   **Answer:** Learners are directed to materials they can use to build a garden. The coaching is diminished when the learner goes out on their own, to go out to create a community garden. It will be the learners' responsibility to equip themselves with the resources given to them.

**Principle 5: Learning is promoted when new knowledge is integrated into the learner’s world.**

Knowledge is integrated into the learner’s world because pesticide use affects all of us. We can choose to ignore it and believe government regulations will keep us healthy or we can choose to improve our health by eating produce that is pesticide free.

**5 Star Instructional Design Rating**

1. Does the courseware provide an opportunity for learners to publicly demonstrate their new knowledge or skill?

   **Answer:** Yes. Learners are encouraged to create a community garden which will involve them demonstrating their knowledge.

2. Does the courseware provide an opportunity for learners to reflect-on, discuss and defend their new knowledge or skill?

   **Answer:** Learners are encouraged to keep a garden journal in which they should reflect upon
the build process. There are no discussion forums but they are asked to navigate to a garden forum website and post a question or jump into a conversation about a gardening topic of their choosing.

3. Does the courseware provide an opportunity for learners to create, invent or explore new and personal ways to use their new knowledge or skill?

**Answer:** Yes. Learners get to research the plant varieties they would like to use for their gardens and are directed to websites that have expertise in the conditions needed for their plants to thrive. Learners also get the chance to be creative in choosing their plot. They can use containers or measure a space if they have land to use. Gardens do not have to be perfect rectangles or squares. They can be pentagonal or any type of polynomial. Gardening is an individual “sport”. You must create a living space for your fruits and veggies that will work well with your soil, your sun availability, the creatures that inhabit your garden space and the insects that may run amok. A garden can be as individual as its creator.

**Appendix B**

**Example Usability Table**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Comments (what would you like to see done differently, what would you like added or changed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Presentation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design appeal (the colors and layout were pleasing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy to read</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content is consistent and applicable to the module topic and overarching topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format was easy to navigate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media opened within slides</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructions were clear and easy to follow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyperlinks were all linked correctly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module transitions were clear</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content was applicable to the topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navigation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The course was easy to navigate (could easily find the buttons needed to send me to the next page)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can access any slide I want to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I could move around in the course without getting lost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Chart used in usability testing
Resources:


Merrill, M.D. (2002). First principles of instruction. ETR&D, Vol. 50, pp. 43-59