iGrow: Developing a Curriculum to Increase Gardening Skills, Culinary Competence, and Family Meal Time in Youth and Their Caregiver

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iGrow: Developing a Curriculum to Increase Gardening Skills, Culinary Competence, and Family Meal Time in Youth and Their Caregiver

Jade Alana White

Thesis submitted to the Davis College of Agriculture, Natural Resources and Design at West Virginia University in partial fulfillment of requirements for the degree of Master of Science in Nutrition and Food

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Key words: Youth, Gardening, Cooking, Curriculum Development, Youth-Caregiver Dyad Pair, Promoting Fruit and Vegetable Intake

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Abstract

iGrow: Developing a Curriculum to Increase Gardening Skills, Culinary Competence, and Family Meal Time in Youth and Their Caregiver

Jade Alana White

Objective: To develop a curriculum using evidence based programs to increase gardening skills, cooking competence, and family mealtime for youth (pre and early adolescent years) and their caregiver (dyad pair) using community-based participatory research.

Methods:
Using the Social Cognitive Theory, an inter-disciplinary team (N=3) including child development, nutrition and horticulture expertise: a curriculum was developed by integrating evidence-based curricula from iCook 4-H, Junior Masters Gardener curriculum Health and Nutrition from the Garden and Essential Elements of 4-H Youth Development Programs, with additional resources from USDA's My Plate, and garden-based recipes. The community based participatory research approach and process was utilized by inviting expert reviewers (N=11) to provide feedback on the curriculum content, lesson structure, dosage, age appropriateness and balance of the three focused areas which include gardening, cooking, and family meal time. Expert review feedback was collected in a survey of closed-ended and open-ended questions using Qualtrics ©. Focus groups with family dyads (youth n=6 and adults n=5) were also collected to elicit understanding of need, interest, barriers and potential engagement of the program based on the three focused areas.

Results:
A 10 week curriculum was developed and titled: iGrow. The approach is a hands-on, learn by doing and having fun through five, 2-hour sessions for a family dyad pair (youth and parent), which includes: gardening, cooking, and family conversation and interaction. A leader guide was developed that included handouts, recipes, and activities for each session with a goal to further develop a workbook. Weekly goal sheets were designed for youth and the primary food preparer caregiver to use for reinforcement of specific lesson objectives. The expert reviews and focus group feedback was analyzed and incorporated into the iGrow curriculum in order to meet both expert-level content and family dyad lessons and activities.

Conclusions and Implications:
Feedback from content and development expert review guided the revisions of the curriculum along with feedback from focus group dyad pairs from target audience which further enhanced the approach and balance of the curriculum content. Focus group feedback supported the appropriateness, dosage, learning objectives and content depth. Providing knowledge of gardening followed by culinary skills using the harvest that would be taken from the plant is expected to lead to increase consumption of fruit and vegetables, increase family time together focused on skill building to impact healthy goals in the family unit. Future research will pilot test the delivery of the iGrow curriculum on the target population.
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Abbreviations

ORL- Olfert Research Lab
CBPR- Community Based Participatory Research
BMI- Body Mass Index
IRB- Institutional Review Board
Min- Minimum
Max- Maximum
Std- Standard deviation
SCT- Social Cognitive Theory
Introduction

i. Problem

Adolescents, in America, are not meeting the recommended (4-5 servings/day) servings of fruits and vegetables per day. It is estimated that only 45% of adolescents report eating the recommended two or more daily servings of fruit and only 17% report eating the daily-recommended servings of vegetables\(^1\). Having adequate intake of fruits and vegetables has been seen to be a preventative factor against obesity\(^2\), cancer, cardiovascular disease, and diabetes\(^3\). In order to combat the problem, of low intake of fruits and vegetables, research methods have focused on increasing factors that are correlated with adolescents eating fruits and vegetables such as increasing taste preferences, availability\(^4\), and parental consumption\(^5\). When there is low availability of fruits and vegetables in the household, exposure to these foods are decreased which can result in a lower taste preference of fruits and vegetables\(^6\), and this has been seen to be associated with a lower intake\(^6\). One method that has been used to increase these predictive factors has been gardening and cooking curriculums incorporated into the school environment and in some cases required curriculum. While these programs have been seen to increase exposure to fruits and vegetables, they have not been successful at increasing consumption to meet the recommend daily intake values\(^{16,17,18,22,23,24,25}\). One reason for this may be that the caregiver of the child has not been included in the intervention.

Parental modeling has also been seen to impact adolescents’ intake of fruits and vegetables; in that dietary habits are common within families and if parents are consuming fruits and vegetables then their child is more likely to also consume these foods\(^8\). In order
to increase youth’s intake of fruits and vegetables intervention methods may need to include a caregiver component because of the influence they have over their child’s fruit and vegetable intake and in order for the eating behavior to be transferred into the home environment. These programs also need to be easily and accurately replicated.

Another issue that arises when trying to increase healthy habits of youth and families is the lack of evidence based curriculums. An evidence based curriculum is one in which the methods of been tested and seen to be successful. Using evidence based curriculums increases the likelihood that the program will be successful in modifying behavior and because of this it is important to understand how to take existing evidence based curriculums and modify them in order to fit the needs of the target health behavior and the audience.

ii. Hypothesis and Objectives

Increasing fruit and vegetable intake is a complex issue in which there are multiple influencers and predictive factors. In order to increase fruit and vegetable intake programs have to be designed that are multifaceted, need to include the caregiver, and be needed in a community. It is hypothesized that a curriculum developed, using three evidence-based programs, will meet the criteria of experts in the health related fields and cover the health needs which are identified by stake-holders in the community.

In order to test the hypothesis the objectives were to:

1. Develop the gardening, cooking, and nutrition education curriculum using three evidence-based programs.

2. Obtain feedback from experts in multi-disciplinary health, education, youth development and horticulture related fields of the developed curriculum.
3. Identify barriers, knowledge, interest and balance of gardening at home, cooking as a family, and eating as a family from the perspective of youth and caregivers utilizing a focus group approach with stakeholders in the community.

iii. Limitations

Limitations were experienced during the curriculum development process. The sample of both the experts and focus group participants were based on a convenience sample. The expert reviews of the development were not equal in all disciplines with some limited amount of reviewers in certain expert fields. Although (n=3) experts were invited from each of the main topic areas (gardening, cooking/nutrition, and family/youth programming) there was a total of 11 experts and there was seen to be an unequal response rate with feedback to form the developing curriculum. Ideally the sample size of experts in each field would be larger in order to be able to determine more saturated expertise feedback in the different focused areas of the curriculum.

Focus group methodology forces certain limitations on a study. Members of the focus group may have potentially been influenced by other participants’ demographics, personality, and/or physical characteristics. It is possible that members of the focus group were influenced by each other and shared feedback that they thought would be congruent with the norms of the group. In order to decrease this phenomenon from happening focus group participants were reminded at the beginning and during the session that they should feel free to share and be open with their opinion. Another limitation was number of participants in the youth and parent focus group. A small percentage (20%) of individuals invited to participate followed through and came to the focus group with each focus group
replicated twice because of limited subjects. Overall, results from both the expert review and focus group were not meant to be generalized for the entire population.

**Review of the Literature**

**Promoting Higher Fruit and Vegetable Intake**

Research efforts have started to focus on developing interventions that promote higher fruit and vegetable intake in adolescents by providing opportunities for adolescents to be exposed to more fruits and vegetables and by manipulating the environment into a healthier one. School-based interventions, focused on health, are becoming more common because this is the environment in which adolescents spend the majority of their time and are getting half their daily energy intake, but because food intake is highly correlated with the home environment interventions may have to re-focus on the family as a whole. Past interventions have focused on nutrition education and cooking interventions that teach children how to prepare healthy meals and snacks. These interventions have been successful in increasing knowledge and self-efficacy of eating fruits and vegetables, but have limited success for increasing intake. Recently, in order to promote fruit and vegetable intake, intervention methods have focused on combining nutrition and cooking lessons with gardening programs. Gardening curriculums have started to be incorporated into school curriculums and in after school programs. Gardening curriculums aim to apply what adolescents are learning in the classroom while at the same time allowing for hands-on experience growing and producing fruits and vegetables, which allows for reinforcement of lesson objectives and an increase exposure of fruits and vegetables. School gardening curriculums may be the ideal strategy to increase fruit and vegetable
intake in adolescents because it allows for these hands-on opportunities and repeated exposure to the food. There is anecdotal evidence that supports the implementation of school gardens and their potential benefits to increase health, but the results of these interventions have been too widespread and diverse to make conclusions that a gardening curriculum will increase fruit and vegetable intake. The purpose of this review is to provide a clear definition about what has been done in gardening curriculums, the methods used, and significant results that have been seen. The studies reviewed focus on curriculums that incorporated nutrition education, cooking, and/or gardening education to adolescents, and the results found when all three of these variables are included in an intervention design.

**Nutrition Education in the School Environment**

It has been reported that nutrition and cooking education increases health knowledge in adolescents and can also reduce the risk of obesity. Nutrition education is a key element to promoting lifelong healthy eating and exercise behaviors and should start from early stages of life. McCaughrty et al. (2011) developed a nutrition education program for middle school, urban youth, that focused on increasing nutrition knowledge, self-efficacy, and health behaviors. The participants were divided into a control group (n=656) and an intervention group (n=1,476). The intervention grouped participated in a 6-week nutrition curriculum embedded within their class curriculum that focused on healthy eating. After the 6-week nutrition education, the intervention group showed significant improvements in nutrition knowledge (p<0.001) and self-efficacy of eating healthy (p<0.001), and a number of healthy behaviors compared to the control group which received no nutrition education. The authors concluded that educators should incorporate nutrition education into the school curriculum. Similar results were also
reported in elementary school children by Burke et al.\textsuperscript{14} when 40 elementary schools incorporated a nutrition education curriculum for all grades, K-5, that focused on increasing overall health, physical activity, and nutrition knowledge. All the participants (n=1,705) received the same health focused curriculum for the entire school year. The results showed that children significantly improved knowledge of nutrition and increased healthy self-reported behaviors ($P<0.0001$). Robinson O'Brien et al, (2009) concluded that although this program was successful at meeting their aims, future research needs to focus on what programs are the most impactful for encouraging a healthy lifestyle in youth. Participant reporting of increased knowledge and self-efficacy does not equate to increased health, and the authors did not measure anthropometrics, such as weight, to determine if any biomarkers for obesity (high BMI percentile, elevated blood pressure, high waist circumference), were reduced or changed.

Looking more specifically at physical changes that may occur from nutrition education, Fairclough et al.\textsuperscript{15} found in “The CHANGE!” intervention that a nutrition education curriculum can work to lower biomarkers for obesity. The study included six intervention sites comprised of children aged 8 to 11 years old (N=318). Participants participated in educational activities which were teacher led and focused on increased healthy eating, physical activity, and reduced sedentary time. Along with in class activities there was also homework assigned that focused on these healthy topics. The results showed that the participants in the intervention group had significant decreases in body mass index (BMI) ($P=0.04$) and waist circumferences ($P<0.001$) compared to the participants in the control group. More specifically, the intervention was the most effective for participants who were overweight and obese. The overweight/obese subgroup had a
significant decrease in waist circumference (P<0.001) compared to the control group. The authors concluded that the study was successful in reducing biomarkers for obesity, but effectiveness and sustainability of the program needs to be addressed for the long term.

The three studies reviewed have shown that with nutrition education interventions alone, there is an improvement in knowledge, self-efficacy, and evidence of reduced bio-markers for obesity, but the intervention methods are broad, the reasons for the changes in biomarkers was unknown, and there was no data on improved diet. In order to see long term improvements in diet adolescents need to be given education but also hands-on learning in order to master the skills that are needed to stay healthy throughout their lifespan.

**Nutrition and Cooking Education in the School Environment**

Healthy behavior changes have been seen when nutrition education lessons are accompanied with cooking lessons. Caraher et al.\textsuperscript{16} developed an intervention which linked professional chefs to local elementary schools. The participants were divided into a control group (n=86) and an intervention group (n=83). The participants in the intervention had a chef come into their classroom for two separate sessions that focused on food safety, nutrition education, and a cooking lesson. The control group received no nutrition or cooking lessons. The results showed that participants in the intervention significantly increased vegetable intake (P=0.002) and felt more confident asking for fruits and vegetables (P<0.001) compared to the control group. The authors concluded that the program was successful in increasing vegetable intake and healthy behavior, but would have to be evaluated again to see if the changes were sustained. This study had limitations based on the fact that it was a short term intervention that lasted two sessions and that the
participants were surveyed about vegetables ever eaten in order to measure preferences and did not report on servings per day.

Using long term intervention methods, Garcia et al.\textsuperscript{17} developed a longitudinal cooking intervention curriculum that aimed to increase self-efficacy of cooking and improve eating patterns by participating in cooking classes that focused on the basics of cooking and preparing a meal. Results immediately after, then one-year follow up results, showed that fruit intake increased from 5-6 times/week to 1 time/day (P<0.001) and vegetable intake increased from 5-6 times/week to 1 time/day (P<0.001) and vegetable intake increased from 5-6 times/week to 1 time/day (P<0.001). The authors stated that the intervention met their aim by increasing fruit and vegetable intake and these results were retained 1-year post intervention. This study did improve fruit and vegetable intake, but the participants were still not meeting the daily recommended intake of fruits and vegetables at the post-intervention assessment.

Similar results were seen from Brown and Hermann\textsuperscript{18} which had adolescents (n=229) participate in an eight-week cooking class that focused on fruit and vegetable based recipes. The results from this intervention showed that after completing the cooking intervention participants significantly increased their servings of fruit per day from 1.1 to 2.3 (P<0.0001) and vegetable intake from 1.4 to 2.4 servings per day (P<0.0001). The authors concluded that this intervention was successful at increasing fruit and vegetable intake because of the hands-on approach to learning.

These three studies resulted in increased intake and servings of fruit and vegetable in adolescents, but neither resulted in children meeting their daily requirement of 4-5 servings of fruit and 4-5 servings of vegetables a day. The limited awareness of food
literacy, cooking skills, and knowledge about how foods are grown and harvested can 
create barriers to consuming a healthy diet\textsuperscript{19}. Family involvement was also not part of the 
design in these interventions, which may have prevented the increased intake of fruits and 
vegetables. If these barriers are overcome by using a garden-based intervention then fruit 
and vegetable intake may be increased.

**Gardening and Nutrition Education in School Environment**

Gardening interventions have focused on providing adolescents increased access to 
fruits and vegetables and an increased knowledge, which aims to result in an increase of 
fruit and vegetable intake\textsuperscript{20}. School gardens have been reported to give adolescents the 
ability to have access to gardens, increased availability of fruits and vegetables at schools, 
and to offer both social and health benefits to children\textsuperscript{21}. It is thought that by increasing the 
access to fruits and vegetables, by access to a school garden, will result in an increased 
intake of these foods resulting in better health outcomes. The highest correlates of fruit and 
vegetable intake during adolescence are availability and taste preferences of fruits and 
vegetables, and if these two variables are increased then intake may be increased. In order 
to increase intake adolescents need to have increased access and opportunities to try fruits 
and vegetables.

Researchers are now investigating whether gardening curriculums may be an 
avenue for which an increase in fruits and vegetable intake in adolescents may occur, and if 
this type of intervention is successful in increasing health during adolescence. Increased 
fruit and vegetable preferences have been observed through gardening interventions that 
include a nutrition education component. Lineberger and Zajicek (2000)\textsuperscript{22} designed an 
intervention in which five elementary schools (n=111) added gardening and nutrition
education into their fourth and fifth grade curriculums. The intervention lasted 10 weeks and aimed to teach about nutrition by using the hands on experience of gardening. The curriculum was largely focused on fruits and vegetables. Participants’ taste preferences were measured pre and post intervention, along with a 24-h diet recall journal. After the 10-week curriculum the results showed that the participants had increased their preferences for vegetables ($P=0.03$) and for eating fruits and vegetables for snacks ($P=0.009$). The results also showed that there were not significant increases of fruit and/or vegetable intake. The authors concluded that although the intervention did increase preferences additional programs may be needed to increase intake of fruits and vegetables, and long term data should be collected to determine if the results were sustained.

Looking at the long term healthy eating habits, Morris and Zidenber-Cherr (2002)\textsuperscript{23} included participation of three schools in a gardening intervention in which the schools were randomized into either a control or intervention site. The intervention site (n=81) consisted of nine nutrition lessons followed by a gardening lesson and the two control sites either had no nutrition education (n=61) or nutrition education only (n=71). Results immediately after showed that the sites that had nutrition education and nutrition education with a gardening component had significant higher scores in nutrition knowledge ($P<0.0005$) and preference scores for vegetables: carrots ($P<0.005$), broccoli ($P<0.01$) compared to the control site. The nutrition site with the gardening component also had significantly higher preference scores for snow peas ($P<0.005$) and zucchini ($P<0.0005$) compared to the nutrition site and the control site. At six month post-intervention, the results showed that the intervention site, with gardening and nutrition education, was the only site to retain significantly higher vegetable preference score when
compared to the two control sites ($P<0.01$). The authors concluded that the gardening class coupled with the nutrition curriculum was successful in increasing taste preferences for vegetables in adolescents, which can lead to a higher intake of vegetables. This study had limitations because the participants were not randomized into groups, the intervention group and control groups were unbalanced, and willingness to taste the vegetables did not significantly increase in any of the sites.

From these two studies there was an increase in preferences for fruits and vegetables but not significant increases in intake, which shows that gardening curriculums need to be coupled with other methods in order for fruit and vegetable intake to increase.

**Gardening, Cooking, and Nutrition Education**

Gardening curriculums have been reported to increase fruit and vegetable intake when combined with cooking and nutrition education. Heim et al. (2009) designed a 12-week intervention that aimed to promote fruit and vegetable intake in children grades fourth through sixth. The intervention was comprised of youth that were attending a YMCA summer camp (n=93) and was ran over a 12-week period. The curriculum consisted of taste testing different fruits and vegetables, cooking classes, and garden-based activities. The authors looked at pre and post survey data for significant changes in fruit and vegetable intake and preferences. The results showed that the participants reported an increase in the number of types of fruits and vegetables ever eaten ($P<0.002$), an increase in vegetable preferences ($P<0.001$), and an increase in asking behavior for fruits and vegetables at home ($P<0.002$). The authors concluded that the study was successful in increasing preference and willingness to try other fruits and vegetables which is correlated with higher intakes. This study was limited in that the participants did not report on daily
intake of fruits and vegetables, and only reported on the overall vegetables they have ever tried. The authors also stated that the home environment and parental influence should be measured in future studies, in order to understand the impact a gardening curriculum may have on increased availability of fruits and vegetables in the home.

Reported daily intakes of vegetables increased after adolescents participate in gardening, cooking, and nutrition education programs. Hermann et al. (2006) designed an intervention in which elementary aged children (n=43) participated in an after school curriculum that focused on increasing gardening, nutrition, and food preparation knowledge. The after-school program ran five days a week and lasted 90 minutes. The garden was used in order for the participants to have hands-on education that related to nutrition, food preparation, food safety, and physical activity. The after school program was evaluated pre and post intervention and measured whether the children ate vegetables every day. The results showed a significant increase in the number of children who reported eating vegetables pre-intervention (21%) compared to post-intervention (44%; p<0.02). The authors concluded that using a gardening curriculum that included food preparation and nutrition was effective in increasing reported vegetable intake. This study was limited in that it is unclear if the gardening curriculum was successful in increasing servings of vegetables to meet the recommended daily intake because the authors only reported on if vegetables were eaten that day.

Servings per day of vegetables have also increased after being exposed to a gardening, cooking, and nutrition education curriculum. Beckman and Smith (2008) evaluated an existing gardening curriculum titled the Youth Farm and Market Project (YFMP). This program was comprised of inner city youth (n=96) between the ages of eight
to fifteen years old. The curriculum focused on experimental learning by gardening along with cooking lessons and nutrition education. YFMP was run three times per week and lasted 10 weeks. Participants completed pre and post-surveys and a 24-hour diet recall pre and post-intervention. For the 24-hour diet recall youth were asked to report on what they ate the day before. The authors used measuring cups and three-dimensional food models to increase accuracy. The results showed for the 24-hour diet recall that boys (n=25) reported an increased intake of fruit post-intervention (3.05 serving/day) compared to pre-intervention (2.01 serving/day; *P*=0.03) and an increased intake of vegetables post-intervention (3.42 serving/day) compared to pre-intervention (2.05 serving/day; *P*=0.007). The results from the 24-hour diet recall showed that girls (n=41) reported no significant increases in fruit or vegetables, and there was an increase in servings of meat per day from pre-intervention (1.01 serv/day) compared to post-intervention (1.49 serv/day; *p*=0.04). The authors concluded that only boys were seen to have a significant increase in fruit and vegetable intake per day, and that while the girls did increase intake of meat (servings/day) they did not increase saturated fat (g/day). This study had limitations in that the curriculum included a wide age range of eight to fifteen years old, which could have impacted the limited behavior change in the girls, and the authors suggested that future gardening and cooking interventions need to be specifically designed for certain age groups. This study also did not include any objective measurements to determine if the gardening, cooking, and nutrition program impacted biomarkers for obesity, such as: body weight, waist circumference, or blood pressure.

Biomarkers for obesity were reduced after adolescents participate in gardening, nutrition, and cooking interventions\textsuperscript{27}. Davis et al. (2011)\textsuperscript{27} designed a 12-week gardening,
nutrition, and cooking program titled “LA Sprouts” for adolescents between the ages of eight to ten years old. The intervention used local elementary schools that already had an after school program currently running. Participants were enrolled in LA Sprouts if they were currently involved in the after school program (n=34) and the participants who were not originally in the after-school program made up the control group (n=70). LA Sprouts was taught once per week over a 12-week period and the classes lasted 90 minutes. The intervention included a 45-minute interactive cooking and nutrition lesson taught by a registered dietitian and then was followed by a 45-minute interactive gardening lesson taught by a Master Gardener. Parents of the participants also received three 60-minute nutrition and gardening classes during the 12-week period. Anthropometrics were taken pre and post-intervention, and measurements included height, weight, body fat percentage, waist circumference, and blood pressure. Dietary intake was measured by the Block Food Screeners for ages 2-17, which measures food eaten yesterday. The results from the anthropometric data showed that there was a significant decrease in diastolic blood pressure of 5% in the intervention group, compared to the control group of 3% (P=0.04). The overweight group (n=61) had a significant lower percentage gaining weight, 1% increase versus a 4% increase in weight for the overweight control participants (P=0.03). The intervention overweight group had a 1% decrease in BMI percentile compared to the control group which had a 1% increase in BMI percentile (p=0.04). The results from the dietary intake showed significant higher intake of fiber (grams/1,000 kcal/day) in the intervention group by 22% compared to the control which had a decrease intake by 12% (P=0.04). The overweight control group reported a significant decrease in fiber by 29% (grams/day), compared to the overweight intervention group, which had no change
There were no significant changes of intake of fruits and vegetables reported between the groups. The authors concluded that the LA Sprouts intervention was successful at reducing biomarkers for obesity and also improved dietary intake by increasing dietary fiber. This study had limitations in that it was not randomized and the groups were unbalanced. The dietary intake measure that was used is not as specific as a 24-hour diet recall which may have resulted in less accurate intake values. Also, this study did not include a strong family component, as the parent information session only had 25% participate.

Moving forward it may be important to include more caregiver involvement within the gardening and cooking programs because of the significant role of family connectedness in fruit and vegetable intake and in preventing childhood obesity.

Parent-Youth Connectedness in Health Outcomes

The dyad (parent-youth) team is an important concept to explore in order to understand if health intervention programs can have a greater impact if the parent and child are working together as a team. Literature shows that the when the dyad team is used children adhere to health programs better such as monitoring their blood sugar levels in a Type 1 Diabetes study, and better care for their asthma symptoms in dyad focused education sessions. Literature, though, is very limited on the unique concept of the dyad team working together in an intervention program to accomplish healthier food intake and a stronger relationship. It is thought that if the dyad is participating in the intervention program together, then the health behavior learned will be more sustainable over time once the program ends. This hypothesis is supported by the Social Cognitive Theory in
which children learn by modeling practices, and if they see their parent modeling healthy behavior then they will be more likely to adopt that behavior\textsuperscript{30}.

An adolescent’s perception of family connectedness has been seen to be a model of how close relationships are supposed to function and enhance their general level of functioning for themselves\textsuperscript{31}. One way in which family connectedness can be enhanced is through having regular family meals\textsuperscript{32}. Based on cross-sectional and longitudinal studies, family meals have been seen to be associated with better nutritional intake for adolescents\textsuperscript{33}. There are multiple factors that have been found to be predictors of family mealtime. Welsh et. al\textsuperscript{34} examined how family meal time frequency was affected by family cohesion, which is defined as the emotional bonding families have with one another, and improved dietary intake. Ninety household were included in the study (n=152 adults; n=75 adolescents). Households participated in a 12-month weight gain prevention intervention in which each participate had anthropometric measurements (height and weight) taken at baseline and post-intervention. Survey measurements included asking the adults and adolescents about how many family meals they had in the past seven days, a family cohesion scale, which measures the level of cohesiveness within the family, and a dietary recall survey. The results showed that adults who reported a greater number of family meals had a significant higher intake of fruits ($P<0.001$) and vegetables ($P<0.001$) (serv/week). Adolescents showed a significant negative correlation between family meals and intake of sweets ($P<0.05$) and sugary-sweetened beverages ($P<0.05$). There was also seen be significant increase of family meals per week if the participant reported a high level of family cohesion ($r=0.41, P<0.04$). The authors concluded that from this study family
meals were increased if cohesion within the family was high and having regular family meals was associated with better nutritional intake in both adults and adolescents.

Parenting style has also been identified as a predicting factor of family meal occurrence. There are four different parenting styles, these include authoritarian, authoritative, permissive, and uninvolved. Berge et. al. 2010\(^{35}\), conducted a cross-sectional and five-year longitudinal study looking at the associations between family meal time and parenting styles. The cross-sectional sample included middle school and high school adolescents (n=4,746) and the longitudinal portion included only middle school students (n=806). The cross-sectional results showed that girls reported a significantly greater amount of family meals per week if maternal and parental parenting styles were authoritative, which is described as a strict parenting style, compared to all other parenting styles (\(P=0.01\)). Boys reported a significantly greater amount of family meals per week if the maternal parenting style was authoritative (\(P<0.001\)). The results from the longitudinal sample showed that authoritative parenting style was associated with a higher frequency of family meals, if the authoritative parent was the opposite sex of the adolescent; daughter-father (\(P<0.001\)) and son-mother (\(P=0.023\)). The authors concluded more research should focus on family dinner environment and how to increase the occurrence of family meals.

Family meals have continually seen to be associated with more healthful food intake, increased nutrient intake\(^{36}\), an increased positively towards dietary attitudes, and preventative against eating disorders later into adulthood\(^{37}\). Eto et al. 2011\(^{38}\), looked to see what motivated adolescents to have more regular family meals and how to improve family meal occurrence. The sample included fifth-graders through seventh-graders (n=261) from
multiple schools. The participants completed a survey asking about family meal frequency, their thoughts about family meals, and dietary attitudes. The results showed that the majority (84%) of the students enjoyed having family meals and that their greatest perception of subjective norms (63%) came from their family. For family meal frequency half reported having 5 or more meals per week, and 30% presorted having 2 or fewer. Overall, researchers found that students, who had the intention to have family meals, had 2.23 (1.12-4.44; \( P<0.05 \)) times more family meals per week. Adolescents who reported that it was difficult to make time for family meals had significantly decreased odds of having family meals (OR, 0.44; 0.32-0.60; \( P<0.001 \)). The authors concluded that based on these results it may be important for adolescents to increase their intention to have family meals and give families support in order for them to overcome barriers that prevent the time allowed for family meals to occur.

**Summary of Gardening, Cooking, and Nutrition Education**

Increasing fruit and vegetable intake in adolescents proves to be challenging. It was observed that nutrition and cooking education lessons alone can work to increase knowledge and self-efficacy of eating healthfully, but did not show an increase in intake of fruit and vegetable servings. Gardening curriculums coupled with nutrition education showed significant increase in preferences and willingness to try new fruits and vegetables, but did not report a significant increase in intake of fruits and vegetables. Intervention methods that combined gardening curriculums with nutrition and cooking lessons showed significant increases in preferences of fruits and vegetables, but reported mixed results on increased intake of fruits and vegetables. There was evidence that this type of intervention may reduce body weight gain and risk of obesity. There is limited published literature on
gardening/cooking/nutrition education interventions and the methods are varied with different measurement outcomes used which makes it difficult to compare results. The studies reviewed all had similar limitations in that they had small sample sizes, participants were not randomized, and half did not have a control group. The majority of the study designs were not based off of theoretical support which can weaken the design because it is not based off empirical evidence. These limitations can affect the results and limit the impact of the findings. None of the studies reviewed had a strong family component involved which can affect the availability of fruits and vegetables in the home, and is strong indicator of eating habits during adolescence. Childhood is also a difficult age group to follow because they are in the process of growing, can be inaccurate in their reporting of diet. In order to make a positive change in diet quality during adolescence all variables that influence diet intake need to be addressed and these include preferences, availability, and social influences such as social norms and role models.

**Future Research for Gardening, Cooking, and Nutrition Education Curriculums**

Future research needs to focus on how to better incorporate the family and the family environment into health promoting interventions that involve adolescents. The parents do the buying and preparation of the food and make the food available to the adolescent. If the parent does not value the benefits or the importance of eating fruits and vegetables then the increased intake may not been seen in the adolescent. Future outcome measures should not only focus on fruit and vegetable intake but also on a decrease in food groups that are associated with increased obesity prevalence such as sugar-sweetened beverages and a diet high in saturated fat. Survey measurements should also measure availability of fruit and vegetables in the home because of the strong correlation between
availability and intake of fruit and vegetables during adolescence. Lastly, the design of future interventions should incorporate the parent being present during the gardening and cooking lessons and have the parent learn alongside their child about how to grow their own produce and how to prepare healthy meals and snacks at home.

Methodology

Study Design

The development of a gardening, cooking/nutrition, and family mealtime curriculum was designed to meet and address critical health issues that are occurring in the community using the Social Cognitive Theory. The methodology was comprised of three parts. Part-one was the development of the curriculum using three evidence-based programs. The three evidence-based curricula's included Junior Masters Gardener program titled Health and Nutrition from the Garden, iCook 4-H, and Essential Elements of 4-H Youth Development Programs. Part-two was a multi-phased review process by experts in different health, education, and horticulture fields in order to obtain qualitative and quantitative data about the appropriateness of the curriculum and to identify if the objectives in the curriculum were being met within each lesson. Last, part-three was comprised of focus
groups which aimed to collect qualitative data from stakeholders in the community about health needs and barriers to having family involvement in healthy activities from the perspective of both the child and the parent and to evaluate if those health needs and strategies to overcome barriers were being met in the curriculum.

**Timeline**

The initial development (first complete draft) of the curriculum began in October 2014 and was completed in January 2015. The expert review survey was developed in February 2015-March 2015. WVU’s IRB exempted the expert review survey and participants completed the survey between the months of March 2015-May 2015. WVU’s IRB approved the focus group in May 2015 and participants were recruited for the focus groups during the month of May. Focus groups were held during May 2015 and early June 2015. Data analysis occurred during the beginning of June 2015. Figure 1 shows the timeline of the development process of the curriculum.

**Figure 1: iGrow Curriculum Development Timeline**

![Diagram showing the timeline of the development process of the curriculum]

- **Phase 1:** Development of the curriculum
  - October 2014-January 2015
  - Contact Experts to review curriculum March 2015

- **Phase 2:** Expert Review Survey Development
  - February 2015
  - Expert Review Completed May 2015
  - WVU’s IRB Exempt Expert Review Survey March 2015

- **Phase 3:** Focus Group Thematic Design
  - May 2015
  - WVU’s IRB Approval May 2015
  - Recruit participants for Focus Group May 2015

- **Run Focus Group May 2015-June 2015**
  - Focus Group Thematic Analysis June 2015
Part One

Curriculum Overview and Theoretical Support

The development of the gardening, cooking/nutrition, and family meal curriculum, tentatively titled *iGrow*, was based off the parent program titled *iCook 4-H* and uses the Social Cognitive Model as the underlying theory. The development of *iGrow* incorporated three different evidence based curricula. The *iGrow* curriculum is comprised of five sessions that are approximately two-hours long. Each session contains a gardening component, a cooking component, and a family meal time component. *iGrow* is designed to be taught in after-school setting in evenings or on weekends, for youth (pre-adolescent and early adolescent) and the main preparer of meals in their household, which make up the “dyad pair”. The curriculum aims to teach basic gardening using a container gardening method, cooking/nutrition education, and the importance of family meals to dyads (parent-youth pairs) using a hands on experiential learning approach.

The curriculum structure and objectives focus around the Social Cognitive Theory (SCT). The SCT, in terms of health promotion, is based around the theory that health is influenced by an interaction of environment and personal variables. In order to develop programs that are going to be successful at preventing certain health risks during adolescence, such as childhood obesity, theory based interventions have seen to more successful than non-theoretically based ones and allow for more accurate replication. The SCT is a framework that explains why people change and maintain health behaviors. The SCT not only includes personal factors but also environmental factors in order to promote healthier lifestyles and to create more sustainable behavior change.
The three constructs, within the SCT, that this curriculum aims to address, are personal factors, behavior, and environmental influences. The personal factors that are addressed in the curriculum aim to increase nutrition knowledge, food preferences, perceived barriers/benefits of eating healthy, and having self-efficacy for eating healthy. The behavior component of iGrow aims to increase healthy activities that the dyads complete as a family. The last construct, which is environment, is applied by showing families how their home environment can be changed to increase healthy behaviors. This curriculum has been developed with the objective to help families achieve a healthier lifestyle together by increasing social support, changing the culture within the home to focus more on health goals, and to increase the availability of healthy food in the home. During the development of the curriculum age, socioeconomic limitations, and gender of participants were taken into account in order to ensure that the curriculum is appropriate for multiple environments and populations. Figure 2 shows the SCT and how the framework was used within the curriculum development process.
Figure 2: Social Cognitive Theory

Three Evidence-Based Curriculums

*iGrow* was developed using three evidence based curricula’s that were seen to improve health in pre-adolescents using intervention methods which either incorporated gardening, cooking, family meal time, and/or positive youth development. The evidence based curricula were used as guidelines in order to create an original curriculum that
included gardening in conjunction with cooking and family meals while using a dyad-model approach.

The gardening component of the curriculum was altered from the Junior Masters Gardener program titled *Health and Nutrition from the Garden*. The original curriculum was tested in an after school program that was run with elementary aged children which aimed to educate elementary age children on nutrition and the importance of eating fruits and vegetables. Secondary measurements for this study looked to see if dietary patterns changed and how the curriculum affected nutritional attitudes of the participants. The curriculum, *Health and Nutrition from the Garden*, was used in the study because it aims to educate children on how to eat a healthy diet while operating on a low-cost budget. The program consists of six lessons that focus on topics such as gardening on a budget, eating a balanced diet, plant needs, label reading, and storage methods.

The study was ran in the summer months and occurred in four counties across the state of Texas. The program was run in different time frames, for example one site ran the program for one week and another site held classes once a week for 12 weeks. The sample included 56 participants and ranged from grades second through fifth. Results from the program showed that after participating in the program children increased their knowledge about the benefits of eating fruits and vegetables (*P*<0.001), and also reported eating healthier snacks (*P*=0.001)\(^43\). However, there were no significant results of increased fruit and vegetable intake.

During the development of *iGrow* the *Health and Nutrition from the Garden* program was modified by including activities that aimed to teach nutrition and health knowledge from the garden and also instructions on how to take care of a garden. Supplemental lesson
plans were also used from Extension sites in order to teach the gardening concepts and methods to the dyad-pairs.

The cooking/nutrition and family mealtime education component of the curriculum was modified from the *iCook 4-H* program and is considered the parent program for *iGrow*. *iCook 4-H* is a program that aims to increase culinary competence in youth, increase the occurrence of family meal time, and increase physical activity for youth and caregivers by using parent-youth pairs, as a dyad-team, in a six, 2-hour lesson design, that utilizes experiential learning\(^4^4\). This program was ran in five states and occurred over a 12-week span, which consisted of holding a lesson every other week. During *iCook 4-H* dyad-pairs (n=84) worked together towards a healthy lifestyle by setting goals to achieve as a family that focused around cooking, eating together, or being physically active. Results from this study showed that youth increased taste preferences and family meal occurrence per week\(^3^2\) and enjoyed spending more time together as a family participating in healthy activities such as cooking and physical activity\(^4^5\).

The *iCook 4-H* program was utilized in the development of *iGrow* by incorporating the lesson layout structure, the cooking/nutrition information, and the family meal time component into the curriculum. The family goal setting was also included in the *iGrow* curriculum in order for families to have the opportunity to set healthy goals and work towards them as a team. *iGrow* is the next step off of *iCook 4-H*, and extends the program from cooking and family meal time by including gardening and using containers to grow fruits and vegetables.

Lastly, the third evidence-based curriculum is titled *Essential Elements of 4-H Youth Development Programs*. This curriculum is comprised of eight elements, which are divided
into four concepts that have been essential in youth programming in order to achieve the most effective learning environment. The four concepts include belonging, independence, mastery, and generosity. These concepts create an environment that facilitates positive youth development. Furthermore, these eight essential elements allow youth to learn experientially, facilitate a safe environment for learning, and allow for mastery of skills and empower youth to affect positive change in their environment. These elements were incorporated into the curriculum throughout all five sessions.

**iGrow Curriculum Overview**

The *iGrow* program (Appendix I) is a unique curriculum that aims to teach families the skills needed to container-garden and cook nutritious food in fun and easy ways. The *iGrow* program has three main objectives of container-gardening, cooking, and eating together as a family. This curriculum has been developed from three evidence based curriculums which include: *Essential Elements of 4-H Youth Development Programs, Health and Nutrition from the Garden*, and *iCook 4-H*. The *iGrow* program leads families in a step-wise process and teaches the skills needed to grow produce in containers, empower youth to make their own healthy recipes, and give families the tools to have more regular family meals. *iGrow* was designed for 8 to 10 year old youth and their primary food preparer. *iGrow* covers all the basics of gardening and cooking, so the participants ideally would have limited experience with gardening or cooking. *iGrow* is designed to be taught by extension, graduate student studying either nutrition or horticulture, or an interested member of the community. It is also ideal to have assistants such as an undergraduate student or high school student volunteer to help facilitate the class. *iGrow* can function anywhere that there is access to adequate sunlight and cooking space. Access to a large in-ground garden space
is not needed since the program is designed to be container gardening, but will need access to an area with sunlight. The *iGrow* curriculum is designed to be run in a flexible manner and altered to work in multiple environments. Lessons include optional activities and information that can be shared or omitted based on time and space.

Each *iGrow* session is broken down into six parts. Each part equally contributes to lesson objectives and experiential learning. The six parts of the each lesson include icebreakers, set activity, gardening activity, cooking activity, family meal time, and goal setting. Figure 3 shows a breakdown of each session and lesson overviews.

**Figure 3: iGrow Session Overview**

<table>
<thead>
<tr>
<th>Session</th>
<th>Set Activity</th>
<th>Gardening</th>
<th>Cooking/Nutrition</th>
<th>Family Meal Time</th>
<th>Goal Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>What’s Growin On?</td>
<td>ABC’S of Plants</td>
<td>Planting Seeds</td>
<td>Introduction to basic knife safety-Garden Salsa</td>
<td>Focusing on Family Meals</td>
<td>Setting SMART-R Goals</td>
</tr>
<tr>
<td>Washin’ and Wormin’</td>
<td>Hand Washing</td>
<td>Worm Composting</td>
<td>Food Safety-Salad Recipe</td>
<td>Taste Testing</td>
<td>Short Term and Long Term Goals</td>
</tr>
<tr>
<td>From Farm to Table to Yummy</td>
<td>How food leads back to plants</td>
<td>Transplanting</td>
<td>Using Leftovers and fresh Vegetables</td>
<td>Place Setting</td>
<td>Setting SMART-R Goals</td>
</tr>
<tr>
<td>Rough and Tough Foods</td>
<td>Fiber Sources</td>
<td>Watering and Fertilizing</td>
<td>Healthy Snacking</td>
<td>Family Communication</td>
<td>Setting SMART-R Goals</td>
</tr>
<tr>
<td>Growing, Growing, Gone!</td>
<td>Discover Spices</td>
<td>Harvesting Plants</td>
<td>Using non-meat sources of protein</td>
<td>Positive Family Communication</td>
<td>Setting SMART-R Goals</td>
</tr>
</tbody>
</table>

**Part 2: Expert Review**

**Sample**

Part two was a multi-phased expert review process which occurred in the form of Qualtrics © survey (Appendix D). The first round of reviews was conducted, and then a second, in order to increase feedback. The expert review was comprised of qualitative and quantitative data from experts in the fields of nutrition, horticulture, gardening, curriculum
development, youth/family development, and 4-H leadership training. The sample was based upon expertise in different fields, and was therefore a non-randomized sample. The objective for using a non-probability, purposive expert sampling method, was to gain feedback on the curriculum from a multidisciplinary sample of experts, working in different communities, and to look for commonalities in feedback on the different sections of the curriculum. The sample goal was to gain feedback from multiple experts in all fields, and therefore recruitment occurred continuously through the data collection period.

Part 2: Recruitment

Recruitment for the expert review survey was exempted by West Virginia University’s Review Board (IRB). Experts (n=29) in the field of family studies and human development (n=3), horticulture (n=3), nutrition (n=7), extension 4-H (n=3), curriculum development (n=3), Master Gardeners (n=3), agriculture extension agents (n=3), and experts that deal with youth programming (n=4) were contacted via email (Appendix A) and invited to participate in the review process of the curriculum by completing an internet based survey (Qualtrics ©). Two rounds of emails were sent out to equal amount of experts in the different identified fields, and reviewers who were identified were also asked to nominate others in their field that they would consider as being an expert in that area, which resulted in a greater amount of reviewers that were connected in specific fields. Table 1 shows twenty-five experts were contacted and how many agreed to review the curriculum. A request to reach a two week deadline was given to each expert reviewer from the time they agreed to review the curriculum, and a twenty-five dollar gift card was offered to those who participated and provided expert feedback. To those who agreed to participate, they were instructed to read through the curriculum without bias of other
reviewers in the field and answer the survey questions that were coordinated with different sections (Appendix B). The reviewer was asked not to share their thoughts or comments with other experts that were also reviewers if they knew them. They were notified that the review process would take about forty-five minutes to complete. Once the expert review was completed by answering the survey the participant was thanked and received their gift card (Appendix C). Figure 4 shows a flow chart of the review process.

**Table 1: Experts Contacted for Review**

<table>
<thead>
<tr>
<th>Field of Expertise</th>
<th>Family and Youth Development</th>
<th>Horticulture</th>
<th>Nutrition</th>
<th>Extension, 4-H</th>
<th>Curriculum Development</th>
<th>Master Gardener</th>
<th>Agriculture/Extension</th>
<th>Youth Programming</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacted (n)</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>29</td>
</tr>
<tr>
<td>Agreed to Review (n)</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

**Figure 4: Expert Reviewer Recruitment and Data Collection**

- **Contacted to be an expert reviewer**
  - **Agreed to participate**
  - **Did not agree to participate**
  - **Curriculum and instructions on how to complete the review provided**
  - **Review completed within 2 week period**
  - **Incentivised**
  - **Thanked for consideration**
Survey Instrument

The survey instrument was internet-based and ran through Qualtrics ©. The survey consisted of thirty-five questions which included open-ended, interval, multiple-choice, and multiple-response options. The questions aimed to gain feedback on demographics, expert opinions on the different sections of the curriculum, and expertise on the implementation and successfulness of the curriculum in a community setting. The format allowed for the experts to explain their feedback on the curriculum and their thoughts about what they thought was being implemented well and what needed to be altered within the sessions. The interval questions allowed the participant to report on how successful, based on their expert opinion, the curriculum would be at achieving the overall objectives. The survey was open for a two-month period (March/2015-May/2015).

Analysis

The survey responses were downloaded in an Excel file from Qualtrics© and analyzed using normative statistical analysis and thematic analysis based on the question type. The averages and frequencies were determined for the quantitative data. The qualitative data from the open-ended questions were analyzed using thematic analysis[^47]. In support of the thematic analysis methodology feedback was coded based on identified
themes. Common themes were identified in order to determine and include suggestions from the expert reviewers into the curriculum.

**Results**

The results from the expert review survey showed that out of the 17 experts there were a total of 11 reviewers that completed the review process and provided expert feedback through the Qualtrics© survey. Of the reviewers there were 10 females and 1 male. The entire sample categorized their self as being an expert in at least one of the specialized fields which included gardening, horticulture, youth/family development, curriculum development, 4-H training, and nutrition. The field with the greatest amount of reviewers was nutrition (n=7), followed by youth development (n=2), teaching (n=2), and then student (n=2). The average amount of years the reviewers have been working in their field was about 14 years, with the minimum being 2 and the maximum being more than 30. The majority of the reviewers were based in Morgantown, WV, with the exception of n=5 being based out of state. The average time spent reviewing the curriculum was about 40 minutes, with the minimum time being 15 minutes and the maximum time being a about two hours. Table 2 shows the breakdown of the different reviewers and their field of expertise.

**Table 2: Expert Review Sample**

<table>
<thead>
<tr>
<th>Reviewer</th>
<th>Area of Expertise</th>
<th>Job Description</th>
<th>Years in the Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nutrition, Student</td>
<td>Nutrition</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Youth Development</td>
<td>4-H</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Curriculum Development, Nutrition</td>
<td>Healthy living, Cooperative Extension, nutrition curriculum development for children/adolescents</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Family/Youth Relationships</td>
<td>Child Development &amp; Family Studies</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Nutrition, Teaching,</td>
<td>Human Nutrition</td>
<td>7</td>
</tr>
<tr>
<td>Student</td>
<td>Teaching</td>
<td>Parent, Aerospace Engineer and have been homeschooling my two children for five years.</td>
<td>20</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td>7</td>
<td>Youth Development</td>
<td>Experiential Education, outdoor education, camping</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>Nutrition</td>
<td>Research and education</td>
<td>30</td>
</tr>
<tr>
<td>9</td>
<td>Nutrition</td>
<td>Behavior Change Methodology, child and young adult obesity prevention</td>
<td>27</td>
</tr>
<tr>
<td>10</td>
<td>Nutrition</td>
<td>Extension and Youth Programming</td>
<td>15</td>
</tr>
<tr>
<td>11</td>
<td>Nutrition</td>
<td>Obesity, Behavioral Researcher</td>
<td>20</td>
</tr>
</tbody>
</table>

**Quantitative Analysis**

The results for the quantitative questions were analyzed in Excel using the mean and median formulas. Expert reviewers were asked to report on if the curriculum covered the objectives that were set forth in each session, if the lessons were occurring in sequential order, and if the resources provided were appropriate for running the program. The reviewers were also asked, based on their expert opinion, how well the curriculum would work in their community, and if they thought gardening, cooking, and family meal time would be increased after families participated in the program.

Based on the results the average score, when asked how well the curriculum was understood, was 8.87 out of 10. Ninety-one percent of the reviewers replied that the overview of the curriculum explained what materials were needed to run the program. Majority of the reviewers reported that the all five of the sessions in the curriculum were appropriate in covering the lesson objectives, with the exception of lesson three which had a lower percentage agreeing that the lesson objectives were appropriately conveyed. Figure 4 shows the results of the expert reviewers and what percentage agreed or disagreed that the lesson objectives were appropriate and if the skill level was appropriate.
within the curriculum. The results (Table 4) also showed that, when asked how feasible it would be to run the program in the reviewer's community, the mean score was 7.82 out of 10. When looking at increasing skills the highest mean score 7.45 at increasing culinary skills, followed by a mean score of 7.36 at increasing gardening skills, and lastly a score of 6.73 at increasing family meal time.

Figure 5: Expert Review of Lesson Objectives and Skill Level

Lesson Objectives Appropriate  
Skill Level Appropriate

Lesson 1

Lesson 2

Lesson 3

34
Table 4: Expert Review of Increasing Skills of the Overall Program

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Std</th>
<th>Responses (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gardening Skills</td>
<td>7.36</td>
<td>2.00</td>
<td>10.00</td>
<td>2.91</td>
<td>11</td>
</tr>
<tr>
<td>Cooking Skills</td>
<td>7.45</td>
<td>4.00</td>
<td>10.00</td>
<td>1.75</td>
<td>11</td>
</tr>
<tr>
<td>Family Meal Time</td>
<td>6.73</td>
<td>4.00</td>
<td>8.00</td>
<td>1.10</td>
<td>11</td>
</tr>
<tr>
<td>Feasibility of Implementation</td>
<td>7.82</td>
<td>2.00</td>
<td>10.00</td>
<td>2.18</td>
<td>11</td>
</tr>
</tbody>
</table>

Thematic Analysis

The open-ended, qualitative data was analyzed using thematic analysis. The questions asked what was easy and difficult to understand about the curriculum, what their opinion was about the resources provided, and any additional feedback they thought would
be helpful. More specifically, the reviewers were also asked to read over each session of the curriculum and report on how clear the objectives were, comment on the gardening and cooking component, and give feedback on areas of likes, dislikes, and any confusion within each lesson.

**Overall opinion of the curriculum:**

Based on the responses of the expert reviewers similar themes emerged based on their viewpoint of the curriculum as whole. Comments that occurred frequently included that the curriculum was nicely laid out and that is was clear that each lesson is comprised of multiple parts of gardening, cooking, and family meal time. Another common theme about the overall curriculum was centered on the materials that were provided. Reviewers requested more materials in the beginning of the curriculum in order to limit confusion about how to prepare to run the class and materials/supplies needed in order to set up the lessons and also, additional resources for the gardening component of the curriculum. Another common theme was around time orientated questions. Questions arose about how much time was needed between the sessions, how much time each lesson would take, and how many months ahead of time are needed in order to prepare to run the program. Overall, the expert reviewers requested more details about cost, time commitments, and overall session lay out of the curriculum.

**Session 1:**

The reviewers offered insight in their review of session one. Common responses for the session focused on the gardening component of the session. Responses included the need to give more details on how to garden and the possible importance of having the families take home their own plant and grow at home along with the program. This was
suggested in order to keep the families engaged in the learning objectives of the curriculum in-between sessions. Another common theme was stream-lining the curriculum in order to ensure that all session were in the same format.

Session 2:

For Session 2 reviewers suggested making the objectives more clear and measurable throughout the lesson, and stay away from objectives that start with “learn”. Composting worms was introduced in this session and was suggested that participants take home their own worms in order to continue the learning process at home and report back on their progress at the next meeting time. Time was a theme that emerged with this session also, and it was suggested that the time allotted for each section within the session may not be enough.

Session 3:

Session 3’s feedback centered around keeping the sessions connected to each other and focused more on outside of the session and at home activities that should be incorporated. Reviewers thought it is important to have the family meal time be more interactive and to facilitate discussion on how the dyad pairs can spend time together at home engaging in healthy activities. Time continued to be a theme in the feedback and it was mentioned that there may not be enough time between sessions to see enough growth in the plants in order to accomplish the gardening component in Session 3, which is transplanting.

Session 4:

Common themes that emerged in the feedback for Session 4 included re-wording the objectives to make them more clear, to talk more about the safety component of
gardening (specifically fertilizing), and to include more details in the activities in general. From the feedback it was clear the curriculum needs to give more specific directions for the leaders who would be running the program. Referencing to de-inhibitor and icebreakers, reviewer 6 commented that, “while it is important to observe the group and provide the correct activity, you may want to recommend a specific activity to go along with each lesson”. Overall, the comments for this session, centered on providing more details to be included into the curriculum.

Session 5:

The feedback from Session 5 focused again on timing, but also on streamlining the curriculum so that the directions in each section are the same throughout. Comments from the reviewers were positive in that they thought the activities that were covered in this session would be good learning experiences for both the youth and adults participating in the program. Reviewer 5 did suggest that an activity should be altered to focus more on fruits and vegetables rather than an activity that used meat to taste test different spices, and to have the youth and caregivers “taste test different (uncommon) fruits and vegetables and to determine if they were ripe/unripe”.

Discussion

Thematic analysis was conducted on the expert review responses. After collecting all the feedback and categorizing the responses into common themes based on each session, edits to the curriculum were taken into consideration. The most common theme that emerged from the expert review survey was time orientated concerns. Reviewers were concerned that there was not enough time allotted in each section to cover the lesson objective. Based on this feedback the time to deliver each session was expanded from an
hour and half to two hours. Increasing the delivery time of the session should allow the
leader to have more time to cover all the details of the session and also have adequate time
to transition to the next section in the lesson. Time was also a question when it came to
having plants that were ready to be transplanted, harvested, and how much time there
would be between sessions. This issue was also addressed in the revised curriculum
explaining that the leader of the curriculum would need to have plants already growing in
order to be able to accomplish the lesson activities. It was explained in the revised
curriculum that plants, such as tomatoes, should be started six to eight weeks ahead of time
in order to be able to transplant by the third lesson and have plants ready to harvest by the
fifth lesson. Time in between lessons was still left to the discretion of the leader of the
program. Ideally, the sessions would be held a week apart from each other, but in actuality
this may not be possible.

The second most common theme that emerged from the reviewers is at-home
activities that could help reinforce the lesson objectives of the program. It was suggested
that families should also plant seeds that they can take home with them and then each
session they would report back to their class about how their seed was doing. Another
popular suggestion was that the families should brainstorm during the sessions about how
they can spend more time together gardening, cooking, or eating together more. Based on
this common theme revisions were made to the curriculum that focused more on
encouraging the activities that were happening during the lesson to also occur at home. The
revised curriculum has the families planting seeds that they will care for at home and
challenges them to bring in pictures and report on how their plants are doing.

Part 3: Focus Group
Sample

Part three was a descriptive, qualitative study which aimed to gain feedback on health education and programming needs in the community using community based participatory research (CBPR). CBPR is a collaborative approach between researchers and community members in order to design interventions that are appropriate and held in high regard with community members\(^48\). The aim of using CBPR is to have partners contribute their expertise and opinion in order to have a better understanding of the environment\(^49\).

Stakeholders in the community were contacted and participants in the focus group included caregivers and youth. Community members were included in the study design in order to enhance the understanding of gardening, cooking, and eating together as a family and to integrate that feedback into the curriculum in order to benefit the community environment and health needs that were identified.

Recruitment

The West Virginia University's IRB approved the recruitment of participants for the focus group. Caregivers and youth were recruited to participate in the focus group in order to gain rich qualitative data about the health needs of the community. Stakeholders in the community were identified who had previous involvement in family programming and were given a flyer and information about the focus group (Appendix E). The community members who were contacted (n=6) were asked to distribute the flyer (Appendix F) to other families in the community who they thought may be interested in participating. A flyer was also distributed to a local elementary school in third and fourth grade classrooms (n=30) inviting families to participate in the focus group. The flyer told the families that during the focus group they would discuss gardening, cooking, and family meals. If
interested in participating, they were instructed to call or email to sign up for a time that was set for the focus group. Families who called to participate were also encouraged to reach out to others in the community. Participants of the focus group were given an incentive in the form of a tomato plant and a gift card of momentary value for their time.

**Focus Group Data Collection**

Focus group work was utilized in the development of the curriculum in order to gain insights and exploratory data from members of the community. It is recommended that when youth are participants in the focus group it is especially important to make sure they are comfortable and relaxed\(^{50}\). In order to facilitate a comfortable environment, before the focus group began the families, facilitator, and note takers all participated in an “ice breaker” activity that encouraged the participants to become more familiar with one another. After the icebreaker, caregivers and youth were separated into different rooms. Research has shown that demographics, such as age, can influence group behavior\(^{35}\), and for that reason caregivers were grouped together, and all youth were grouped together. The participants were asked a series of open-ended questions in which they were instructed to answer, and were reminded that there were no right or wrong answers (Appendix H). The outline of the focus group questions are below.

**Table 3: Focus Group Question Outline**

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Caregiver</th>
<th>Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus Group Questions</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Gardening | 1. What benefits do you see in having a home garden?  
2. If you start to think about building your own garden, what makes you uneasy about the process?  
3. Do you think gardening with your child would be a good activity to do together? | 1. If I asked you to explain to a friend what you needed in order to build a garden, what would you tell them?  
2. How do you think you would go about caring for your garden?  
3. How hard do you think it is to garden?  
4. If you could grow anything in your garden, what kinds of plants would you grow? |
| Cooking | 1. When you are thinking about cooking dinner, how do you decide what to cook?  
2. Does your child help you at all when cooking?  
3. What are you comfortable/not comfortable with your child cooking?  
4. If you could get any help with cooking/preparing meals what would it be? | 1. What are tools you need in the kitchen in order to cook?  
2. What steps do you take when preparing to make a recipe?  
3. What are safety tips you should take when cooking?  
4. What makes one recipe healthy and another recipe not healthy? |
| Family Meals | 1. Would you say your family is healthy eaters?  
2. What are the barriers when it comes to having a family meal?  
3. What do you think are the benefits in having family meals?  
4. How could having family meals be easier? | 1. Do you think your family eats healthy?  
2. Does your family ever sit down and eat a meal together?  
3. What do you like or dislike about family meals?  
4. How do you think you could help family meals happen more often? |

The three main themes of the focus group included: gardening knowledge/comfort, cooking knowledge/comfort, and family meal enjoyment/occurrence. The script for the caregiver focus group allowed for the respondents to talk fluidity, but remained structured enough to offer consistency. Prompts were included in the script to encourage feedback.
and expansion of thought. The youth focus group script differed from the caregivers in order to make it appropriate for children. Richer qualitative data from youth focus groups is seen to be obtained when children are allowed the ability to role play and explore their imagination\textsuperscript{51}. In order to achieve this, questions were phrased in a way that the children were giving advice to a friend and acting as the expert of the different topics that were discussed, and not censured for giving advice or feedback that was extraneous or off topic. Focus group data collection is only as successful as the extent to which participants feel comfortable to share and express their thoughts and opinion\textsuperscript{52}. With that in mind, participants were reminded that there were not any right or wrong answers to the questions and all their feedback would be de-identified. During the focus group participants engaged with one another in person, and participated in a group activity (i.e. icebreaker) prior to the focus group in order to facilitate an environment that was more cohesive and safe for sharing.

Analysis

Thematic analysis was conducted to analyze the qualitative feedback from the focus groups. Each focus group was comprised of one facilitator and one to two note takers who were consistent throughout data collection in order to collect reliable feedback. St and Clarke’s methodology\textsuperscript{53} was used in the thematic analysis of the focus group feedback which uses note takers to transcribe the dialogue then reviewers to group common responses into themes and sub-themes. The data from the focus groups was transcribed into a word document then compared between the different note takes. The data was then coded, reviewed, and compared to each focus group. Each question was analyzed in order
to determine themes and sub-themes that emerged from the discussions. The transcriptions were looked at to evaluate the depth of the feedback, and to identify any conversations that went outside of the scope of the study. Focus group work was conducted until saturation of the themes was completed and the discussions were similar enough to assume that the three themes of gardening, cooking, and family meal time were fully discussed and explained.

**Results**

The aim of utilizing focus groups in the development of the curriculum was to gain insight on what parents and youth in the community saw as their influencers and inhibitors when it came to gardening, cooking, and eating together as a family and to incorporate that feedback into the curriculum in order to make the lesson objectives and skill level appropriate for the community’s needs.

**Participant Demographics**

The focus group participants consisted of either caregivers or youth. All of the adults (n=5) in the focus group were women, married, had at least one child, and were living in the same community. The youth (n=8) who participated were all in elementary school, between the ages of 8 and 11 years old, and were a mix of males (n=3) and females (n=5). To ensure that a meaningful conversation occurs, it is essential that participants have enough common ground and share similarities in order to facilitate a discussion, but it is as equally important that there are differences present within the group in order to gain multiple viewpoints. Participants in the caregiver focus group shared commonalities, such as living in the same community and caring for children, in order to promote cohesiveness and compatibility, and to gain understanding on what this target population
identifies as important for their children and families along the themes of gardening, cooking, and family mealtime. The youth focus group consisted of participants who were in grades third through fifth. The youth were all living in the same community, had a caregiver participating in the caregiver focus group, and were made up of a mix of having siblings to being an only child. The majority of the children had little to no experience with either gardening and/or cooking and the caregivers were equally diverse in skill level with gardening and cooking.

**Theme 1: Gardening**

*Youth: How would you explain to a friend what they needed in order to build a garden? How difficult would it be for you to take care of your garden? If you picture the perfect garden, what would be in it?*

The youth were able to name the essential broad components of what is necessary in order to make a garden. There were common supplies mentioned that would be needed such as land, water, tools, and seeds. Areas where they were not sure about included how much land you would need, one participant commented that “acres and acres of land are needed to have a garden”, and then another participant commented that “(you) don’t need too much space for a cucumber garden”. Questions that arose from the discussion were based around how much sun, water, soil, and land was needed in order to grow a garden and it was clear from the discussion that the youth were unsure on the specifics of these essential components when creating a garden.

When discussing how difficult it would be to take care of their garden all youth agreed that it would be a difficult task. Common themes included that it is difficult to know how much sun the plants should be getting or how much to water the plants. The majority
of the youth said that they “would need a lot of help with taking care of the garden” and also commented that it would be “easier if my mom helped me” take care of the plants.

When asked to picture their perfect garden many of the participants commented that they would want to grow “cherries, berries, carrots, tomatoes, broccoli, and spinach”. Many youth commented that they would grow food that they would want to eat and said “I would eat all the food I grew”. Some youth also said that they would grow the food for their family or to sell to their community. Another common theme in the garden is that it would have to look nice. One participant said, “I would make it look pretty” and “I would decorate my garden with flowers because it would look cool”. Making sure that their garden was producing food that they liked to eat and that it looked aesthetically pleasing were the two main priorities and motivators when thinking about their ideal garden environment.

*Caregiver: What kind of benefits do you see in having a home garden? If you start to think about growing your own garden what makes you uneasy about the process? Do you think gardening with your child would be a fun activity?*

Caregivers reported many similar themes when discussing the benefits of having a garden at home. The most common theme that arose was taste differences that the participants noticed when eating home grown vegetables. One participant stated that “the taste is always much better and that makes me want to eat more” and that the “quality is better which makes the taste better”. Another main theme was decreasing preservatives and increasing health. Common responses from participants included that “health is the number one benefit to the home garden. Controlled environment is key- no preservatives” and “you don’t have to worry about the ingredients. You don’t need to wash it because it’s
organic”. Caregivers also noted that having a garden at home increased convenience by having the ingredients in the home and having easier access to fresh produce.

When talking about what would make the participants uneasy when trying to take care of their home garden the most common theme was the logistics of the gardening process. Participants felt uncertain about when the right time is to start their seeds, how they would identify them later, and how to prepare themselves for the whole process of taking care of their plants. Another logistic that was brought up was having enough space to garden. One participant commented that, “space would be an issue- I live in an apartment. There is no room for an ideal garden”.

When talking about gardening with their child as a family the majority of the caregivers discussed both pros and cons about gardening as a family activity. The main theme that emerged was that it depends on the child’s personality. One caregiver commented that her son does not like to get his hands dirty, and another comment was that, “it would depend if my child was listening to me or not”. Another caregiver shared that they thought it would be fun and have heard of other families who have gardened together and it looked like a good project, they also stated that, “my child is an extrovert that enjoys making things look lovely and seeing her work done”. Lastly, it was mentioned that gardening as a family “could be a fun learning and nurturing experience”. Overall, the discussion was diverse and the caregivers reported that it depended on the child if gardening would be a good family activity to be involved in.

**Theme 2: Cooking**
Youth: *What are some tools you need in the kitchen in order to cook? What about cooking is easy and/or difficult? If I was trying to eat healthy, what would you tell me to do?*

When discussing tools needed in the kitchen the youth were able to list off common tools such as knives, spatulas, cutting boards, measuring cups, and utensils. Another main necessity that the majority of youth said was that a recipe was needed in order to cook.

The two most common themes that emerged, when talking about what was easy about cooking, included that it is easier to cook when you are following recipes and when you have more experience cooking. One participant stated, “I don’t practice cooking, I’m not a star at it” while another participant said, “that cooking is easy, but my friends that don’t cook would think cooking is difficult”. When talking about following a recipe, one participant commented that, “It’s easier to follow a recipe step by step”. The youth also commented that recipes are easier to follow when fewer ingredients are needed and it is easier for themselves to cook “easy things” like “eggs, spaghetti, and pancakes” that have fewer ingredients. When discussing difficult aspects of cooking the most common theme was measuring out the ingredients and following the directions correctly. The majority agreed that reading a recipe can be difficult and “making sure you don’t heat things up too much” can be challenging and “if you put something in the (oven) too long, then it’s not good”. When it came to measuring out ingredients all the participants said it was difficult to measure correctly, and one youth commented that, “at first I did not read the measurement right, I would think that ¼ cup is the same as 1 cup”. The participants also talked about how certain safety guidelines need to be followed in the kitchen. Many youth reported that knife safety is important and people “need to be careful not to cut their fingers with
knives”. Cross-contamination was also alluded to in multiple comments when youth said that “you can’t cut carrots and steak on the same cutting board” and “can’t cut all the fruits and vegetables on the same board”. While all the information or instructions that youth discussed during the focus group may not have been exactly accurate, the majority of the time they were on the right track to give appropriate guidelines for someone who was trying to cook.

The next question focused on healthy eating and aimed to gain insight on what youth considered healthy and non-healthy foods. Common foods that were mentioned from the youth included fruits, vegetables, rice, chicken, milk, and cheese. Multiple participants commented on eating organic foods and that “organic foods are healthy” and another commented that, “organic means health”. Another common theme was moderation. Many participants commented that eating too much of anything can make people unhealthy, and that, “‘Good stuff’ can become bad for you”. A few of the participants mentioned that it depends on how certain foods are cooked and that “deep-frying is bad,” and, “when vegetables are deep-fried then they are not good for you”. Some participants thought that staying away from bread would help someone be healthier and contrary to that, one participant stated that, “bread, cereal, rice, and garlic bread are healthy [for you]”. Three of the participants mentioned “My-Plate” and that a balanced diet of “honey, carrots, protein, grain, fruit, vegetables, and dairy are all healthy”. Overall, the majority of youth agreed that eating a balanced diet was important in order to stay healthy.

Adult: When you are thinking about what to have for dinner, how do you decide what you’re going to make? Does your child help you at all when you’re cooking? Do you ever talk about fruits and vegetables?
When caregivers when discussing how they decide what they will have for dinner, time was the biggest theme that emerged, with a sub-theme of health. Time played an important role when having to make dinner and many caregivers said they based dinner on ingredients that were on hand or if they had little time they were forced to depend on a fast-food option. One participant stated, “That picking up a second job caused more of a dependence on fast food for a little”. The majority of participants mentioned that they have started to plan out meals and get organized with what they are eating during the week in order to make the process easier. Other caregivers noted that taste and food preferences does play a role when deciding what the meal will consist of and it can be challenging when there are picky eaters within the household.

Caregivers discussed how their children help them cook and challenges they face when trying to involve them in the cooking process. One participant shared that her son is an excellent cooker and her daughter has noticed how the family has been cooking and wants to learn more about the process. Another caregiver also commented that, “As a mother, you need to learn how to let go because giving them [child] a knife can be a scary thing”. The majority of participants agreed that they would be open to their children helping in the kitchen but would need to present in order for them to feel comfortable with their child cooking. When discussing barriers participants faced when cooking with their child, skill level was a common theme. The caregivers all agreed that their children like to experiment in the kitchen. One participant shared that “I like things done right, my way, and in order”. Time was also a common issue. One participant commented, “No, he does not help me. I always cook when he is doing homework. I teach him when time is available”.

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When asked about how often they talk to their child about fruits and vegetables and trying new foods, caregivers reported that the best way to talk about this was when their child was eating, but majority reported that it is difficult to try new foods. One caregiver suggested teaching about how taste buds change and said her child, “Now will come and say ‘can I have a piece of that?’ He learned from a program that you need to try something 12 times before you decide not to eat it”. Another caregiver shared that her child is very conscious of weight and that resources have helped a lot with determining healthiness. It was clear from the feedback that limited dialog was taking place in the home about fruits and vegetables and picky eaters pose an issue when trying to introduce new food.

Theme 3: Family Meals

Youth: Does your family ever sit down and eat a meal together? What do you like or dislike about family meals? What else is going on when you eat with your family?

During the family meal discussion the youth reported various feedback on when they eat meals together. About half of the youth reported that they always have family meals at dinner and then the other half reported that family meals only occurred on special occasions or on the weekends. The location of the meal was also mixed. One of the youth participants stated that “sometimes we sit in the TV room and sometimes in the dining room”. Other participants verbally agreed that they sometimes sit and have meals with their families on their couch, while others stated that they had to be sitting at the table. One youth reported that their family eats dinner together “mostly everyday but it depends how my brother and sisters feel. If they are mad, they don’t eat with us”. Dinner was the most popular meal to have as a family, and then breakfast on the weekends only. Family interaction was also seen to be an important factor when it comes to having family meals.
Participants discussed different aspects that make family meals enjoyable and not enjoyable. The most common occurrence was that conversation plays a major role in whether the meal is a good experience. Youth said that they “don’t want arguments”, “parents are distracted, and I eat in silence” and “too much work talk” can all make family meals not enjoyable. Conversation that was said to be enjoyable was when youth talked about their day at school or could listen to other conversations that were occurring between their siblings at the table. Participants also stated that food plays a major role in the meal and that if the food is good then the meal is more enjoyable. A participant shared that, “My sister always makes salads. She puts a lot of weird things [in it]. It’s good and bad.” Another youth stated that “two bites per plate is the house rule” and similar statement was that “I usually taste everything”.

It was also common, among the participants, that there was background noise during the family meal. Majority of the participants stated that either the TV was on or the computer was on during the meal. The youth also verbally agreed that they enjoyed watching TV while eating. A few of the participants shared that they were not allowed to watch TV or use the computer during the meal but this was not the norm within the focus groups. From the discussion it was understood that both family interaction and food are key factors in family meals, and that background noise was common during meal time.

Adult: Does your family ever sit down and eat a meal together? What do you like or dislike about family meals? What else is going on when you eat with your family?

All of the caregivers reported that they make an effort to try and have regular family meals but the most common barrier is time constraints. It was shared that when the children were younger family meals were easier, but now with different schedules it makes
having family meals more difficult. It was also a common theme that family meals were easier during the weekend when they are not rushed. Participants shared that they try and have meaningful discussions at meal time and “try to find something fun to talk about”. One caregiver shared that their family meal is not always at the dinner table and sometimes will eat on sofas “depending on what the meal is”. The majority of the participants said that they like to use family meals to talk about the day and catch up with one another.

When discussing what makes family meals enjoyable the participants all commented that positive conversation and positive attitudes were important components. Common remarks included “the best meals we have are when everyone is involved”, “we try not to bring negative conversation during dinner”, and “we talk about the day and find out what everyone is doing”. Another comment was that it is helpful to use paper products in order to minimize the cleanup. One aspect that was mentioned, that makes meals less enjoyable, was having picky eaters. It was brought up that when children are very vocal about what they dislike it can make for a less enjoyable meal.

Half of the caregivers reported that it was common for there to be background noise on when eating a family meal. One participant shared that “The TV is in the living room. It has become a problem. We usually have meals in the living room not the kitchen”. Some caregivers mentioned other aspects such as animals, emails, and schedules that are distractions during family meals. From the discussion the feedback showed that difficult habits, such as watching TV during dinner, are seen by caregivers as something they want to work to change in their family meal environment.

Discussion
After conducting both the youth and adult focus groups there were themes that emerged that supported the use of the *iGrow* curriculum in the community but the discussions also brought to light issues that families face, when it comes to health, that may need to be addressed more closely within the curriculum. Focusing on the gardening component, youth reaffirmed, with their lack of detail, that the curriculum was beginning at the appropriate starting point with covering the basics of gardening and showed that it is important for the skills covered in the sessions to be about the basics of how to create and take care of a garden. The adult focus group also provided feedback that they would be uncertain about where to begin when trying to create and care for a container garden which justified the curriculum explaining the fundamentals of gardening.

Both the youth and adult focus group provided positive feedback when talking about gardening and that it is something that they would be excited to do. Caregivers saw it as a benefit by having access to better tasting produce and the possibility of increasing the health status of their families. The youth were excited when asked to describe their ideal garden, and gave vivid feedback about how they would use the produce that they grew as food and as a form of decoration in their backyard. The adults, though, were hesitant to report that gardening with their child would be an enjoyable activity based on having little experience and their child not being attentive enough during the process. Addressing this concern is important in the curriculum and is accomplished by giving the child ownership in taking care of their plants and making themselves the one in charge of growing and tending to them. Growing fresh produce has been seen to empower youth, puts them in charge of making healthy choices for themselves, and helps them value healthy eating\(^{54}\). The parent is important in assisting the child in the gardening process, but ideally it is the
child who will take ownership. The iGrow curriculum facilitates this by giving the youth control in the whole planting process from sowing the seed to harvesting the produce.

The cooking component of the curriculum was also supported based on the focus group discussions. The youth were able to list of certain tools needed when cooking, but stated that one of the most difficult parts of cooking is measuring and using the tools correctly. The iGrow curriculum was developed with this in mind and takes the youth and the caregivers through specific steps on which tools to use and how to use them. The youth brought up an excellent point in that “practice makes perfect” and it is better to start off with easy recipes and then work towards more challenging recipes in a step-wise fashion. During the curriculum development process this methodology was taken into account and the skills needed to complete the recipes are designed to build on themselves. Another main component of the curriculum covers nutrition and based on the feedback from the youth the majority knew that it is important to eat a balanced diet. Few of the participants, however, reported about using MyPlate, which is a tool used to plan a healthy meal. It seems from the feedback that youth would benefit from better understanding about what it means to eat a well-balanced diet and how to use MyPlate when planning out meals.

When discussing cooking the youth reported that they enjoyed cooking but some said that they were not that skilled in it. The caregivers reported that they would like to have their children more involved in the cooking process but they face challenges with having limited time and feeling uncomfortable with their child being involved. The iGrow curriculum aims to help caregivers overcome these barriers by educating and demonstrating easy, healthy, and quick meals. Also, by having the youth practice cooking skills such as chopping and measuring ingredients during the lessons the caregivers will
have the opportunity to become more confident and comfortable with their child’s capabilities when practicing these skills at home.

Family meals were reported to be an enjoyable activity based on the youth’s feedback. About half the youth said that they had regular family meals, but with that being reported, the majority stated that during their family meal the television was on. Caregivers also reported that the television was on during their family meal time and this is something that they want to change. Television may take away from the benefits of family meals such as connecting and communicating with each other. From the focus group feedback it was seen that this is an important topic that was omitted from the original curriculum. After conducting the focus group, helping families become comfortable with turning the television off during dinner is a topic that is now covered in the family meal time component of the curriculum.

**Overall Conclusions and Summary**

Increasing fruit and vegetable intake in youth is a complex, multi-faceted public health issue facing our society. Curriculums are being implemented into schools and community’s that focus on promoting healthy eating and healthy life styles, but not all the curriculums are evidence based and may lack important components that lead to an increase in fruit and vegetable consumption. The current curriculum development study aimed to understand how to develop an original curriculum, from three evidence based curricula, with the objective of increasing gardening skills, culinary competence, and family meal time in pre and early adolescents and the caregiver.

The hypothesis that modifying three evidence based curricula with different emphasis on youth development, gardening, culinary, and family meal time was met by utilizing CBPR
and having experts in multi-disciplinary health fields review the curriculum for appropriateness and by having youth and caregivers from the community support the lesson objectives. There were multiple suggestions on how to improve the developed curriculum further in order to achieve the objective of increasing these health orientated skills in youth and caregivers. The multi-disciplinary field of reviewers (n=11) included experts in nutrition, youth programming, family-youth relationships, and curriculum development. Based on the results the majority of reviewers reported that the curriculum met the lesson objectives and skill level for gardening and cooking were appropriate. Expert review was utilized in order to better understand if the original evidence based curricula were being modified in order to mesh well with each other but stayed true to their structure in order for the youth and caregivers to acquire the basics of these healthy activities in order master the skills of gardening, cooking, and family meals.

The youth and caregiver focus group also supported the hypothesis and showed that iGrow was meeting the needs and skill level of the community. The caregivers reported that they had little knowledge and limited skills when it came to gardening and cooking with their child. These needs would be met within the iGrow curriculum by taking the families through a step-wise process in order to feel confident with the activities to do on their own. Caregivers also reported on barriers with family meals due to time and that the majority had television on during dinners. The iGrow curriculum also covers these topic areas and gives caregivers the tools to make family meals easier and educates on why it is important to turn the television off and spend time communicating during dinner.

Youth discussed health topics also and based on their knowledge level it was concluded that the iGrow curriculum was covering the basic knowledge of gardening and
how to take care of their plants but also teaches about how food leads back to plants. One of the most important concepts that are covered in iGrow is that fruits and vegetables can be delicious and used in many different ways. The curriculum aims to show youth how growing their own produce can be used to create healthy meals that are also easy for them to make themselves. Results from the youth focus group also supported the idea that youth want to spend quality time with their families, specifically during meals. The majority of youth reported that family meals were enjoyable when they were talking with their family about their day and least enjoyable when their family went separate ways and did not eat together.

Family dynamics have been seen to play a critical role in healthy outcomes in youth. While the iGrow curriculum is promoting gardening, cooking, and family meal time, the grounding of these activities focus around the objective of having families spend more time together participating in healthy activities. Along with increasing promoting fruit and vegetable intake, the curriculum is also promoting connectedness between youth and their caregiver.

References


Appendices

Appendix A: Recruitment Email for Expert Review

Appendix B: Expert Review Email with Curriculum and Instructions

Appendix C: Expert Review Thank You Letter

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**Appendix A: Recruitment Email for Expert Review**

Dear Expert Reviewer,

You are being contacted because of your expertise in ______. We are requesting your expert opinion (followed by a $25 gift card as a thank you for your time and expertise) of a 5 session program targeting youth/parent (dyad model) focused on three aims:
growing food, culinary skills in preparing the harvested food and eating it together in a family meal setting. This curriculum is 83 pages in length which includes resources and handouts. We project your time commitment will be between 45 to 90 minutes. This review would need to be completed by Monday, April 6.

I am a researcher at West Virginia University where we have been active in many youth based research projects. Jade White (jwhite34@mix.wvu.edu) is a masters student that has been working on developing this curriculum using three evidence-based programs for her thesis project. Please reply to this email if you are interested and that you can commit to doing this and I will send you the curriculum pdf and the link to the questionnaire for your expert feedback.

Sincerely,

Melissa Olfert

Appendix B: Expert Review Email with Instructions for Review Process

Dear [Expert Reviewer],

Thank you for your willingness to review this draft curriculum. We ask that you do not share with others as it is under development, expert review for by content experts. We value your expert opinion. Attached you will find the MSWord document to use track
changes as you review (this is not necessary but the following link/questionnaire is essential). Further, here is the link to the questionnaire that you will need to fill out to complete your expert opinion.

http://wvu.qualtrics.com/SE/?SID=SV_4MVtF794Rd9lxlP.

You will also find on the questionnaire a request for your mailing address to return your gift card for your time by Monday, April 6.

Thanks again,

Melissa and Jade

Appendix C: Expert Review Thank You Letter

Dear [Expert Reviewer],

Thank you very much for participating in and completing the expert review of the gardening, cooking, and family meal time curriculum. Your input has been very valuable in
the development process of the curriculum and the feedback you provided is very much appreciated it.

The suggestions and feedback you provided have been analyzed and considered in the revision of the curriculum. I will be presenting my work at the end of this month and your participation in the expert review survey has given me invaluable insight into the different topic areas.

Thank you again,

Jade White and Melissa Olfert

Appendix D: Expert Review Survey Questions

Default Question Block

Thank you for your participation in the process of reviewing the iGrow curriculum. Please answer the following questions with your expertise and area of work in mind. At the end of the survey we will ask for a mailing address in order to send you a gift card to thank you for your participation. Also, there will be a box to mark if you would like to be contacted in the future about updates on the program.

Which category or categories best describes your area of work?

- Horticulture
- Master Gardener
- Curriculum Development
- Family and Youth Relationships
- Human Nutrition
- Youth Development
- Teacher
How many years have you been working in your field?

The following questions will ask you about your overall understanding and thoughts of iGrow. For this section you will have had to read through the iGrow curriculum.

After reading the iGrow curriculum leader guide how confident do you feel that you could teach the program?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of Curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What was difficult to understand about the curriculum overall?
What was easy to understand about the curriculum overall?

For the next 3 questions review pages 1-6 (Introduction)

Does the overview of the curriculum explain the scope and materials needed to run iGrow? Please explain.

- Yes
- No

Were there any areas that were confusing when reading through the introduction of the program?

What additional information should be included in the introduction?

For the next 3 questions please review to pages 7-19 (Session 1)

Are the learning objectives for the lesson clear and adequately addressed throughout the lesson?

- Yes
- No

Are the gardening and cooking skills appropriate and occurring in sequential order?

- Yes
- No
Please provide feedback on the lesson: Likes, dislikes, areas of confusion, etc.

For the next 3 questions please refer to pages 20-32 (lesson 2)

Are the learning objectives for the lesson clear and adequately addressed throughout the lesson?

☐ Yes
☐ No

Are the gardening and cooking skills appropriate and occurring in sequential order?

☐ Yes
☐ No

Please provide feedback on the lesson: Likes, dislikes, areas of confusion, etc.

For the next session please refer to pages 33-44 (lesson 3)

Are the learning objectives for the lesson clear and adequately addressed throughout the lesson?

☐ Yes
☐ No

Are the gardening and cooking skills appropriate and occurring in sequential order?

☐ Yes
☐ No

Please provide feedback on the lesson: Likes, dislikes, areas of confusion, etc.

For the next section please refer to pages 45-55 (lesson 4)

Are the learning objectives for the lesson clear and adequately addressed throughout the lesson?

☐ Yes
☐ No
Are the gardening and cooking skills appropriate and occurring in sequential order?

- Yes
- No

Please provide feedback on the lesson: Likes, dislikes, areas of confusion, etc.


For the next section please refer to pages 56-67 (lesson 5)

Are the learning objectives for the lesson clear and adequately addressed throughout the lesson?

- Yes
- No

Are the gardening and cooking skills appropriate and occurring in sequential order?

- Yes
- No

Please provide feedback on the lesson: Likes, dislikes, areas of confusion, etc.


For the next section please refer to pages 68-83 (resources and handouts)

Are the resources helpful with achieving the learning objectives?

- Yes
- No

What additional resources would be helpful for leaders in order to deliver the curriculum?


This next section will ask for feedback based on your expert opinion and personal experience.

What do you think would be a good name for this program?


12
What do you think would be a good name for this program?

On a scale of 0 to 10 what is the feasibility of running iGrow in your community?

On a scale of 0 to 10 would iGrow increase gardening skills in youth and parent?

On a scale of 0 to 10 would iGrow increase cooking skills in youth and parent?

On a scale of 0 to 10 would iGrow increase family meal time for families?

Please provide any additional feedback or comments you have about the iGrow curriculum and program.

Would you like to be kept updated on the development of the program curriculum?

- Yes
- No

Would you be willing to participate in a future focus group about the program? If yes, please provide a phone number.

- Yes
- No
Appendix E: Recruitment Email for Focus Group

Hello [Name],

My name is Jade White and I am a graduate student at West Virginia University studying Human Nutrition under Dr. Melissa Olfert.

Thank you so much for letting me share this program, iGrow, with you. What iGrow is all about is gardening, cooking, eating together as a family, and increasing family involvement in healthy activities. Right now we are just in the development phase of the program and are looking to collect feedback from families in the community about what they think about it so far.

We are looking for families (one caregiver and children between 8 to 11 years old) to participate in a focus group that will last about an hour and half. About 45 minutes of talking and the rest will be spent doing a fun gardening activity.

These are the times we are holding the sessions:

Saturday, May 30th from 10am to 12pm
Saturday, May 30th from 12pm to 2pm
Sunday, May 31st, from 11am to 1pm

We are offering a tomato plant for your time. We are trying to get about 20 dyad pairs to do this, so if you know anyone in your network of friends who may be interested please let me know!

Please let me know if you are able to participate and what sessions work best for you.

Thank you so much,
Jade
Appendix F: Recruitment Focus Group Flyer

Gardening,
Cooking,
And Family Meals

**WHAT:** We need you and your family’s thoughts and input on a new program that focuses on gardening, cooking, and eating as a family!

**WHO:** 8 to 10 year old youth and their primary caregiver

**WHEN:** Saturday May 30th or Sunday May 31st, will last about 90 minutes

**WHERE:** Animal Sciences Farm on Stewartstown Rd

**WHY:** An incentive offered for your time spent giving your feedback!!!

If interested please email or call Jade White jwhite34@mix.wvu.edu or 203-803-0922
Melissa Olfert: melissa.olfert@mail.wvu.edu
Appendix G: Focus Group Reminder Email

Hi [Focus Group Participant],

This is an email reminding about the focus group tomorrow from [time] at Animal Sciences Farm on Stewartstown Road. The discussion should last one and half hours and then we will do a gardening activity. Looking forward to meeting you and your child!

Please call me if you need any more information or directions (203-803-0922)

Thank you,

Jade
Appendix H: Methodology for Focus Group

iGrow: Barriers and Perceptions of Gardening, Cooking/Nutrition, and Eating Together as a Family

1. Define the purpose, i.e. objectives of the focus group

The purpose of the focus group is to capture barriers and perceptions of youth and caregivers about gardening, cooking/nutrition, and eating meals together as a family.

2. Timeline

One to 1.5 hours for opening statements, discussion, and closing statements.

3. Identify the participants

The participants for this focus group will include youth and caregivers from the community.

4. Generate the questions

Question Topic: How has iCook made an impact of families eating and physical activity habits?

Theme 1: Gardening

1) How would you explain to a friend what they needed in order to build a garden?
2) How difficult do you think it is to care for a garden?
3) If you could grow anything in your garden, what would you grow? Why?

Theme 2: Cooking/Nutrition

1) What are some tools you need in the kitchen in order to cook?
2) Do you think cooking is easy or hard? Why?
3) What makes one recipe healthy and another recipe not healthy?

Theme 3: Family Meals

1) Does your family ever sit down and eat a meal together? When?
2) What do you like or dislike about family meals?
3) What else is going on when you eat with your family?

5. Script

Opening (10 Minutes)

Hello, my name is Jade White, and I will be facilitating our focus group discussion today. This is Becca, and she will be taking notes for us today. Thank you for taking the time to have a conversation with us today about your outlook on some different health topics We will be talking about gardening, cooking/nutrition, and family meal time. Today, we are trying to capture your opinion on these different topics and how
you feel about them. There is no right or wrong answers, so please feel free to speak your mind. Does anyone have any questions?

Respond to any questions.

Before we begin can I ask you all to put away your cell phones so we are not distracted during the discussion. It is also important that we let everyone speak and have an input in the conversation. Again, there is not any right or wrong answers to the questions I am going to ask, and it is very important that we hear from everybody because everyone has experiences and opinions to share. Thank you again for your participation in this focus group. First before we begin let’s do a quick activity to get us all acquainted

*Do icebreaker- “Me Too Game”*

Alright, that was fun. Let’s begin our discussion.

**Youth Focus Group Questions**

**Focus Area 1: Gardening**

1) How would you explain to a friend what they needed in order to build a garden?
   - Prompt: What kind of space would you need?
   - Prompt: What kind of supplies?

2) How difficult do you think it is to care for a garden?
   - Prompt: Do you think it is something you could do on your own?
   - Prompt: Would you need the help of a friend? Your parent to help?

3) If you could grow anything in your garden, what would you grow? Why?
   - Prompt: Would you grow it because you would want to eat it?
   - Prompt: What would you do with the food you grew in your garden?

**Focus Area 2: Cooking/Nutrition**

1) What are some tools you need in the kitchen in order to cook?
   - Prompt: What would you use to cut, bake, and measure ingredients?

2) Do you think cooking is easy or hard? Why?
   - Prompt: What kind of recipes could you make on your own?
   - What about with the help of your parent?

3) What makes one recipe healthy and another recipe not healthy?
   - Prompt: What kind of ingredients would you say are healthy?
   - Prompt: What kind of ingredients would you say are unhealthy?

**Focus Area 3: Family Meals**

1) Does your family ever sit down and eat a meal together? When?
   - Prompt: Do you eat all meals together?
Prompt: What do you think is difficult about having family meals?

2) What do you like or dislike about family meals?
   Prompt: Is it the food, company, talking, etc.?

3) What else is going on when you eat with your family?
   Prompt: Are there things going on in the background?

**Adult Focus Group Questions**

**Focus Area 1: Gardening**

1) What kind of benefits do you see in having a home garden?
   Prompt: Do you think it could increase health? How?

2) If you start to think about growing your own garden what makes you uneasy about the process?
   Prompt: Would you be uncertain about when to plant the seeds, how to care for the plants, or anything else?

3) Do you think gardening with your child would be a fun activity, why or why not?
   Prompt: If no, why would it not be a good activity to do together?

**Focus Area 2: Cooking/Nutrition**

1) When you are thinking about what to have for dinner, how do you decide?
   Prompt: Do you base it off of what you feel like eating, what you have on hand, health, taste preferences, etc.?

2) Does your child help you at all when you’re cooking?
   Prompt: What do they help you cook?
   Prompt: What would you feel comfortable having them help you with in the kitchen?

3) If you could get any help with preparing/cooking meals what would it be?
   Prompt: Is it difficult to come up with meals to make, time to prepare them, picky eaters?
   Prompt: What kind of ingredients would you say are unhealthy?

**Focus Area 3: Family Meals**

1) Does your family ever sit down and eat a meal together? When?
   Prompt: Do you eat all meals together?
   Prompt: What do you think is difficult about having family meals?
2) What do you like or dislike about family meals?  
   Prompt: Is it the food, company, talking, etc.?
3) What else is going on when you eat with your family?  
   Prompt: Are there things going on in the background?
Appendix I: iGrow Curriculum

A Gardening, Cooking, and Family Meal Approach to Healthy Eating

tentatively titled “iGrow”

The iGrow curriculum is designed to give children and their primary food preparer the experience of growing and cooking their own fruits and vegetables. The iGrow curriculum was designed using 4-H Positive Youth Development “Essential Elements Training”, iCook 4-H Curriculum Project, and a Junior Masters Gardener Program.

The iGrow curriculum could be run in any type of organization. This includes, but is not limited to, after school programs, camps, and community organizations. Ideally this program would be run in an out-of-school environment in order to have the participation of the primary food preparer.

For this curriculum all you need is space to do container growing and access to a space for cooking and preparing recipes.

Curriculum developed by Jade White for partial completion of Master’s Thesis Project
Melissa Olfert, DRPH, MS, RDN, LD
West Virginia University, Davis College of Natural Resources and Design, Human Nutrition and Foods

References for curricula that were used in the development:

iCook 4-H

Junior Masters Gardener: Health and Nutrition from the Garden

Essential Elements of 4-H Youth Development
Gardening, Cooking, and Family Approach to Health

The iGrow program is a unique curriculum that aims to teach families the skills needed to do container-gardening and cook nutritious food in fun and easy ways.

The iGrow program has three main objectives which are container-gardening, cooking, and eating together as a family. This curriculum has been developed from three evidence-based curricula’s that include: 4-H Positive Youth Development, Health and Nutrition from the Garden, and iCook 4-H. The iGrow program leads families through a step-wise process and teaches the skills needed to grow produce in containers; to empower youth to make their own healthy recipes; and to give families the tools to have more regular family meals.

Each session of iGrow begins with icebreakers and/or “de-inhibitizers” in order to facilitate a positive hands-on learning environment in which participants feel accepted and safe. Icebreakers are designed to help families in the sessions get to know each other, whereas de-inhibitizers are there to facilitate a safe and comfortable learning environment.

**Who can participate in iGrow?**

iGrow was designed for parent-youth dyad teams to participate. 8 to 10 year old youth and their primary food preparer would be ideal for iGrow. The curriculum covers all the basics of gardening and cooking so the participants, ideally, would have limited experience with these skills.

**Who can teach iGrow?**

iGrow is designed to be taught by an extension agent, graduate student, or an interested member of the community. It is also ideal to have assistants such as an undergraduate student or high school student volunteer to help facilitate the class.

**Where can iGrow be implemented?**

iGrow can take place anywhere that there is access to adequate sunlight and cooking space. Access to a large in-ground garden space is not needed since the iGrow program is designed to teach container gardening.
The iGrow curriculum is designed to be implemented in a flexible manner and adapted to work in different environments. Lessons include optional activities and information that can be shared or omitted based on time and space.

**Why Container Growing?**

Container gardening allows for flexibility and diversity of environment. Many plants can be grown in containers and this can help families have their own vegetable gardens at home even if they do not have access to green space.

**What do you need to prepare to teach iGrow?**

Preparation for iGrow ideally would begin about 5 months prior to teaching. This way the instructor can have started vegetables that are used in the recipes and allow the dyads to harvest from full grown plants. In order for this to work the instructor should start seeds indoors in early spring and run the iGrow session during the summer. Appendix (page 79) has a growing chart to help you determine how long is needed for certain vegetables to grow.

Listed below are the vegetables and herbs used in the recipes that can be grown ahead of time:

- **Vegetables:**
  - Cherry Tomatoes
  - Lettuce
  - Green Onion
  - Snap Peas
  - Green Pepper

- **Herbs:**
  - Cilantro
  - Basil
Session Overview and Breakdown

Each session is broken down into seven parts. Each part contributes equally to lesson objectives and hands-on learning. The different parts are described below:

1. Icebreakers/De-inhibitizers
   In each session all participants will engage in icebreakers/de-inhibitizers. Icebreakers are designed for participants to get to know each other, while de-inhibitors aim to make participants feel more comfortable with each other. The amount of icebreakers and de-inhibitizers per group and per session may change based on the dynamic of the group.

2. Set Activity
   The set activity is designed to get the participants thinking and prepared for the lesson. The aim of the set activity is to have the dyads participate and start to learn the foundation of the lesson objectives.

3. Gardening Activity
   Each session has a gardening activity that the dyads will participate in as a family unit. iGrow is designed in a step-wise manner and leads the participants through the whole gardening process. (Note: you may have to start plants ahead of time in order to accomplish each lesson objective.)

4. Cooking Activity
   Each session has a cooking activity in which the youth will complete a healthy recipe with the help of the adult. Ideally the youth will be able to harvest the produce from plants, but if this is not possible, the ingredients can be bought at a food store. The cooking activities aim to increase the youth and the adult’s confidence in preparing a healthy recipe from beginning to end.

5. Family Meal Time and Taste Testing
   Family meal time and taste testing strategies are discussed in all the sessions. The goal is for families to learn ways to make family meals a positive and enjoyable experience, and learn the importance of taste testing different foods.

6. Setting SMART-R Goals
   At the end of every session dyads will set SMART-R goals that they want to accomplish together as a family.

7. Nutrition Challenge
   Each session the dyads will be given a challenge that focuses on a healthy lifestyle, which they should try to complete by the next iGrow session.
Gardening and Cooking for Health and Nutrition
Lesson Overview

Lesson 1: What’s Growin’ On?
Participants discuss basic gardening and cooking skills.

- ABC’s of Plants
- Planting the Seed
- Safety and Salsa
- Taste Testing
- SMART-R Goals

Lesson 2: Washin’ and Wormin’
Participants will create a compost bin and demonstrate food safety techniques.

- All Washed Up
- Not THAT Creepy Crawlies
- Super Salad
- Family Communication
- SMART-R Goals

Lesson 3: From Farm to Table to Yummy
Participants will demonstrate how to transplant plants and how to use MyPlate in healthy meal planning.

- Favorite foods and Plants
- Transplanting Plants
- Quick Rice Stir-Fry
- Place Setting
- SMART-R Goals

Lesson 4: Rough and Tough Foods
Participants will observe maintenance of their plants and prepare healthy snacks

- Fiber Sources
- Watering and Fertilizing Plants
- “Healthify” Snacks
- Communicating Beyond Meals
- SMART-R Goals

Lesson 5: Packing the Power with Protein
Participants will observe how to harvest their plants and how to incorporate non-meat sources of protein in their meals.

- Guess the Spice
- Harvesting Plants
- Protein Packed Quesadilla
- Avoid Power Play at Meals
- SMART-R Goals
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Session 1
What’s Growin’ On?
Lesson 1 - What's Growin' On?

Goals: Participants (youth and adults) will increase gardening and cooking competence.

Lesson Objectives:
1. Discuss how plants and people are connected
2. Discuss what plants need to survive
3. Learn how to plant a seed
4. Identify basic equipment needed in the kitchen
5. Make a vegetable related snack
6. Practice positive family communication by sharing a meal
7. Set "healthy week" goals

Educational Materials Needed:

Introduction
- Material to write classroom rules
- Name tags
- Hair ties
- Lesson 1 participant sheets (goal setting)
- Handouts

Icebreaker/De-inhibitizer

Session Activity – ABC’s of Plants
- Plant Needs: Matching/Charades Game
- How plants and people are connected
- Handouts: plant parts matching game

Gardening Skills: Planting seeds
- Planting material: seeds, soil, seed trays

Cooking Skills: Introduction to basic knife skills and safety
- Food: tomatoes, cilantro, onion, garlic, limes, salt, and tortilla chips (amounts listed on page 10)
- Equipment: large mixing bowl, large and small spoons, paring and chef’s knife, cutting board, pizza cutter
Family Communication: Focus on family mealtime and taste testing

- Place setting for taste testing: napkins, utensils, plates, cups/bottle water

Goal Setting: Setting SMART-R Goals

- Pens or pencils
- Youth and adult participant sheet

End of Lesson Items

- Cleaning supplies and containers for leftovers
### Gardening, Food, and Equipment Shopping List

#### Gardening Equipment Needed for Session

<table>
<thead>
<tr>
<th>Item</th>
<th>1 Dyad Station</th>
<th>6 Dyads (1 Session)</th>
<th>12 Dyads (2 sessions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed tray</td>
<td>3 trays with 6 cells</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Soil</td>
<td>1/3 of bag</td>
<td>2 bag</td>
<td>4 bag</td>
</tr>
<tr>
<td>Large Container</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Seeds (tomato, basil, spinach)</td>
<td>10 (each)</td>
<td>60 (total)</td>
<td>120 (total)</td>
</tr>
</tbody>
</table>

#### Food and Equipment Shopping List (*grown in garden*)

<table>
<thead>
<tr>
<th>Fresh Salsa with Chips</th>
<th>1 Dyad Station</th>
<th>6 Dyad Station (1 Session)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food Item</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomato*</td>
<td>2 whole</td>
<td>12 whole</td>
</tr>
<tr>
<td>Cilantro*</td>
<td>1 bunch</td>
<td>1 bunch</td>
</tr>
<tr>
<td>Onion</td>
<td>1/2 whole</td>
<td>3 whole</td>
</tr>
<tr>
<td>Garlic</td>
<td>1 clove</td>
<td>6 cloves</td>
</tr>
<tr>
<td>Limes</td>
<td>½ whole</td>
<td>3</td>
</tr>
<tr>
<td>Salt</td>
<td>¾ tsp</td>
<td>1.5 tsp</td>
</tr>
<tr>
<td>Tortilla Chips (can use already made chips or tortillas)</td>
<td>2 tortillas</td>
<td>12 tortillas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Equipment Items</strong></th>
<th></th>
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<tbody>
<tr>
<td>Cutting Board</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Paring Knife</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Chef’s Knife</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Large mixing bowl</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>¼ tsp measuring spoon</td>
<td>1</td>
<td>6</td>
</tr>
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</table>
# Session at a Glance

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome and Introduction</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Session Overview and Set Activity</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Gardening Activity</td>
<td>25 minutes</td>
</tr>
<tr>
<td>Cooking Skills and Recipe of the day</td>
<td>20 minutes</td>
</tr>
<tr>
<td>Family Communication: Family Meal Time</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Goal Setting: Setting SMART-R Goals</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Wrap-up and Take Home Messages</td>
<td>5 minutes</td>
</tr>
</tbody>
</table>
Welcome and Introduction- 15 minutes

- Introduce yourself and other leaders/helpers. Have name tags available with markers so participants can get to know each other’s names.
  - “Welcome to the iGrow program. Thanks so much for joining us. My name is __________ and I will be your session leader for today. The other helpers/leaders are _______________.”
- Explain that iGrow is all about learning how to grow our own vegetables by using containers and learning how to make delicious, healthy recipes.
- Establish respectful classroom rules (Keep the rules as a blank slate and let the groups come up with them on their own; guide/suggest rules when needed):
  - We are going to come up with respectful classroom rules together as a group.
  - We will write them down (on chalkboard, flip chart, or piece of paper) and review them at each lesson.
- Have participants get to know each other and get moving through icebreakers- choose one icebreaker from the handouts/resource section (page 69-72).

Session Overview- 5 minutes

- Tell Participants – Today’s session is titled “What’s Growin’ On?” Together we will learn basic plant information and plant needs, how to plant your own seeds, cooking skills and food safety, how to prepare a recipe, the importance of mealtime discussions, and goal setting.
  - Gardening Skills – Teach what plants need in order to grow and have participants plant their own seeds.
  - Cooking Skills and Recipe of the Day- Practice culinary skills including proper knife safety, measuring, and using cutting boards. Make a fresh salsa and corn tortilla chips. Also, identify basic equipment used in food preparation.
  - Family Communication- Focus on Family Mealtime: Discuss what makes family meals a positive experience and taste test the recipe.
  - Goal Setting: Identify how to set family goals related to improving food habits and physical activity by making SMART-R goals.

Set Activity: P.L.A.N.T Needs -10 minutes

- Begin a discussion about the basic needs of people and write them on the board: air, water, nutrients, clothing, and shelter
- Ask a participant to circle what they think plants need to survive.
- Ask if the participants can think of anything plants need that people do not need.
• Write the word “P-L-A-N-T-S” vertically and tell the participants that everything plants need is in the word.
• Complete the chart as seen below

  P  Place- in a container or garden for roots to grow
  L  Light- sun or artificial light
  A  Air- oxygen and carbon dioxide
  N  Nutrients- nitrogen, phosphorus, potassium and others
  T  Thirst- plants, like all living things, need water
  S  Soil- to grow roots

• Ask the participants what they like about their houses. Ask them what makes their houses comfortable places to live. With the word P-L-A-N-T-S still on the board, ask group members what kind of home they would build for a plant.
• After the discussion is over, tell the participants that it is now time to go look for a good place to grow our plants.

**Gardening Activity: Planting Seeds - 25 Minutes**

*Before the class – separate the seeds into different groups so that each dyad pair receives all seeds (i.e. tomato, spinach, and basil) and have two containers be filled halfway with soil.*

• Now it’s time to explore the gardening space you are using, and find a place for the plants. Remind participants that the garden site should be one that has access to sun, allows the container to drain, and can be watered easily.

• Show the participants where the plants will start out in. Ask them why this would be a good place to start the seeds. Explain that it is warm, the seeds will have access to water, and will allow for easy draining. (This can be a table by a window where seeds will have access to sunlight)

• Now that the location has been decided, show the participants where the planting will occur. Ask the dyads to pick out 5 small trays that they will use to plant their seeds. Once all the pairs have decided on their trays have the participants show the participants where the soil is.

• Explain that the medium is very important so that the plants can get the nutrients they need in order to survive. Just like people need certain nutrients to survive, plants also need certain nutrients in order to grow. Tell the participants that soil and its nutrients
will be discussed in the next class.

- Ask them to all feel the soil and describe what it feels like (dry, moist, rough, soft, etc.). Ask if they think their seeds would like to be planted in this soil, or if more water is needed so that the seeds will not be thirsty. Ask one child (with the help of the adult) to add water to the soil, and have another couple of participants mix the soil until the water is combined. Keep repeating this until the soil has enough moisture to keep its shape if put into a ball.

- Now that the soil has the appropriate moisture, have the participants fill up all their trays with the soil. Have them make small dents in their trays with their finger where their seeds will go. Have all the participants drop one seed into the dent and cover with soil. Label the tray with their name and type of seed it is. Participants should repeat this until all the seeds are planted.

- After everyone is finished planting their seeds, have the participants carry their trays to the area they decided earlier to let their plants grow. Lastly, ask for help with the cleanup.

- Additional “How to Start Seedlings” planting resource provided (page 80)

Cooking Skills and Recipe of the Day — 30 minutes

Recipe- Fresh Salsa with Corn Tortilla Chips

- Session Objective: Practice culinary skills such as washing vegetables, proper and safe knife skills, measuring, and cutting board use.

- Items needed:
  - Food: Tomatoes, cilantro, onion, garlic, limes, salt, corn tortilla, cooking spray
  - Equipment: Large mixing bowl, spoons for mixing, paring and chef’s knives, measuring spoons, measuring cups, cutting board, pot holders, colander, baking sheet, oven, parchment paper

- Preparation time (before the class): 60-90 minutes
  - Grocery shopping for food and equipment (See food and equipment shopping list on page 2)
  - If you do not have an oven on site: cut the tortillas into 8 slices, arrange them on a baking sheet, and bake them prior to session (see recipe sheet on page 16 for directions on how to make tortilla chips). Alternatively, a non-stick sauté/frying
pan may be used to make the tortilla slices crispy. See instruction on the recipe sheet.
  o Set up cooking station(s) for lesson.

- Session presentation- 30 minutes
  o 10 minutes- explanation of knife techniques
  o 20 minutes- cooking recipes- preparing the salsa and tortilla chips (if you have an oven on site)

- Handouts/activity sheets
  o Recipe sheet

Steps/Instruction:

- Have participants put their hair up as needed and wash hands when they enter the kitchen. The helper should assist participants with proper hand washing techniques.
- Briefly discuss and demonstrate proper hand washing techniques
  o Wet hands with warm water, apply soap, scrub for at least 20 seconds and get between the fingers, rinse, and dry with paper towel, turning the water off with the paper towel.
- Review recipe using the recipe sheet
  o Discuss ingredients used, amounts needed, and equipment used.
- Review knife skills
  o It’s important to act responsibly in the kitchen so everyone stays safe.
  o Grip the handle of the knife.
  o Pinch the base of the blade with index finger and thumb.
  o Make a claw and tuck the thumb in on the other hand. Use this hand to hold food still, making sure to keep fingers folded inward.
  o Cut food by using a rocking motion with your knife.
  o Focus on the food you are cutting, not what others are doing.
- Recipe Preparation- see recipe sheet for instruction.
  o While preparing the recipe, discuss the tools being used.
  o While preparing the recipe, ask if there are any questions about the tools.
- Overall questions for recipe and/or food preparation:
  o What new words or concepts did you learn?
  o What did you like about preparing the recipe?
  o What was easy or difficult about preparing the recipe?
  o What changes might you make to the recipe?
  o How would you prepare the recipe at home?
- Model Efficient Cleanup:
  o Cleaning as you go can make cleaning easier once you are finished cooking.
Recipe: Fresh Salsa with Corn Tortilla Chips

Prep time: 20 minutes     Serving 4

Ingredients:
20 Tomatoes- small
1 bunch Cilantro
1 clove garlic
1 white onion
1 Lime
⅛ teaspoon salt
5 corn tortillas

Equipment:
Chef Knife
Cutting Board
Colander
Measuring Spoons
Mixing Spoon
Large Bowl
Paper Towels

Preparation:
• Wash the tomatoes and cilantro and let them dry in the colander. Pat the cilantro dry with a paper towel to remove excess water.

Directions:
• Preheat oven to 400 F
• Dice tomatoes, cilantro, garlic, and onion. Toss together in a bowl.
• Cut lime in half and squeeze juice into bowl.
• Add ¼ teaspoon of salt.
• Mix the ingredients together.
• Cut each tortilla into eight pieces. Arrange tortillas on baking sheet. Lightly coat with cooking spray.
• Bake for 6 to 8 minutes or until lightly browned.
• Serve with salsa.

In areas without an oven...
• You could prepare the chips ahead of time
  OR
• Use a non-stick sauté/fry pan to make the tortilla slices crispy.
• Lightly coat the tortillas with cooking spray
• Place the pan over medium-high heat
• Place the tortilla on the pan and cook on one side until brown (about 2 minutes)
• Flip and cook on other side until brown
• Remove from pan and cut into eight triangles
Family Communication: Focus on Family Mealtime - while taste testing/eating salsa – 15 minutes

Facilitated discussion: Get families comfortable with one another by discussing their experiences with family meals using the talking points below. Set out plates, napkins, utensils, and cups so youth and adults can try the fresh salsa during the discussion.

- Please ask the following questions to encourage input from all youth-adult pairs.
  - What is the first thing that comes to mind when you hear the phrase “family meal”?
  - Describe what a family meal means to you.
  - What challenges does your family have eating together?
    - Encourage families to also talk about ways that these barriers could be overcome and if other families have faced these same barriers.
    - What makes a family meal a positive experience?
- Points to cover about successful family meals
  - Eat at the dinner/kitchen table
  - Free your family from distractions – TV, cell phones, etc.
  - Be respectful – everyone gets a turn to talk
  - Set expectations- no one leaves until everyone is finished eating (this does not mean everyone has to “clean their plates”, but means that everyone has decided they are done eating)
  - Keep questions open-ended- don’t ask yes/no questions
  - Remember – Think about where your family is now in relation to family meals and see how you can improve upon that. (Maybe add one more family meal per week)

Goal Setting: Setting SMART-R Goals (10 minutes)

- Items needed: Goal sheet and adult sheet
- Time for activity: 10 minutes
- Introduction/Discussion
  - Setting goals is a way to help you focus on what you want to do to be healthier.
  - Setting SMART-R goals can help you meet your goals successfully. Let’s discuss each letter, in SMART-R; and how it relates to goal setting.
  - SMART-R goals are:
<table>
<thead>
<tr>
<th>SMART-R Goals</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific</td>
<td>Be as specific as possible so that you know what you are really trying to accomplish</td>
<td>Instead of “I will exercise more” choose something more specific, such as “I will walk more.”</td>
</tr>
<tr>
<td>Measurable</td>
<td>Make the goal measurable so that you will know if you have been successful</td>
<td>Instead of “I will walk”, include a measurement such as “I will walk 10 miles everyday”</td>
</tr>
<tr>
<td>Attainable</td>
<td>Is the goal realistic and something that you have the ability to accomplish?</td>
<td>Can you really walk 10 miles every day? – Maybe your goal should be 3 miles every day?</td>
</tr>
<tr>
<td>Relevant</td>
<td>Is the goal relevant to nutrition, family meals, family communication, or physical activity?</td>
<td>Walking is relevant to physical activity. A goal to do your homework every day is good, but not relevant to health.</td>
</tr>
<tr>
<td>Time-Oriented</td>
<td>Give yourself a time frame as to when you want to accomplish your reward.</td>
<td>How often or by what time period do you want to meet the goal of walking 3 miles a day?</td>
</tr>
<tr>
<td>Reward</td>
<td>Once you have reached your goal, reward yourself!</td>
<td>What are some non-monetary, non-food rewards that you give yourself for reaching your goals? (celebrated together with family game night!)</td>
</tr>
</tbody>
</table>

Make and share SMART-R goals:

- Goals made by each adult-youth pair should focus on physical activity and less sedentary time, eating healthier, and/or family meals and communication. Example goals are listed below if participants are having trouble developing their own:
  - Prepare x number of meals together as family in the next z weeks.
  - Try x number of fruits/veggies or new foods in the next z weeks.
  - Turn off the TV for x number of hours in the next z weeks.
  - Drink x more glasses of water in the next z weeks.

- Have everyone share their goals.
- Remind the adults and youth that in the next session they will review their goals and make new goals as well.
- Goal Sheet in handouts/resources (page 73)

Take Home Message and Wrap Up - 3 minutes

- Answer any questions that participants may have.
- SMART-R goals:
  - During the next two weeks, remember to encourage each other by asking how they are doing with their goals.
• Family Communication Reminders
  o Sit at the dinner/kitchen table, turn off the TV and cell phones, be respectful of everyone
• Next time we will...
  o Learn about composting and decorate your plants’ permanent container
  o Learn about food safety and perform experiments
  o Make a recipe from our garden
  o Learn the difference between short- and long-term goals
Session 2
Washin’ and Wormin’
iGrow Lesson 2 – Washin’ and Wormin’
(Food Safety and Composting)

Goals: Participants (youth and adults) will increase gardening and cooking competence.

Lesson Objectives:
1. Learn how to make a compost bin at home
2. Decorate the permanent plant containers
3. Make a simple salad
4. Practice positive taste testing techniques
5. Set “healthy week” goals

Education Materials Needed:

Introduction:
- Name Tags
- Session Activity – ABC’s of Plants
- Handouts- Goal setting
- Respectful Classroom rules

Icebreaker/De-Inhibitizer

Gardening Skills: Composting and decorating pot
- Composting bin, worms, plant based foods, newspaper, and water
- Paint, paint brushes, water, and pots to be decorated by each pair

Cooking Skills: Food safety and salad recipe:
- Food- Lettuce, tomatoes, carrots, almonds, cheese; Dressing- balsamic vinaigrette
- Set Activity- All washed up- Soapy Solutions handout
  - Cooking oil, cinnamon or dried parsley, access to sink to wash hands, measuring spoons; Alternative- can also be done with glow germ lotion and a black light

Family Communication: Focus on family mealtime and taste testing
- Food options for do’s and don’ts of taste testing
  - Fruit and veggie trays
  
  OR
- Make your own fruit and veggie tray with a mixture of local, seasonal produce
- Goal Setting: Setting SMART-R Goals
- Youth and adult participant sheets

End of lesson items:
- Cleaning Supplies
- Containers for leftovers

**Food and Equipment Shopping List:**

Below is a shopping list of all food and equipment items needed for the corresponding number of adult-youth pairs (dyads). Amounts for one dyad workstation*, 6 dyad workstations (one session), 12 dyad workstations (two sessions), etc., are included. The recipes and list are for 4 servings to allow for leftovers.

*A dyad workstation consists of one adult and child pair. The list reflects food needed for each dyad to make all recipes.

<table>
<thead>
<tr>
<th>Items</th>
<th>1 Dyad Station</th>
<th>6 Dyad Stations</th>
<th>12 Dyad Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gardening- Decorating Container</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Container</td>
<td>3</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Paint- Assorted Colors</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Table Cloth</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Bowl</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Paint Brush- Large</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Paint Brush-Medium</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Set Activity- Worm Bin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic storage Tub w/ lid</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Red Wiggler Worms</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Sheets of newspaper (10)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Spray Bottle of Water</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Food scraps</td>
<td>½ cup</td>
<td>½ cup</td>
<td>1 cup</td>
</tr>
<tr>
<td>Rulers</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Food- Simple Salad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lettuce (mix)</td>
<td>1 C</td>
<td>6 C</td>
<td>12 C</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>¾ C</td>
<td>3 C</td>
<td>6 C</td>
</tr>
<tr>
<td>Ingredients</td>
<td>1/2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Carrots- Whole</td>
<td>1/2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Almonds</td>
<td>3 each</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Cheese</td>
<td>1 TBSP</td>
<td>6 TBSP</td>
<td>12 TBSP</td>
</tr>
<tr>
<td>Dressing</td>
<td>¼ TBSP</td>
<td>3 TBSP</td>
<td>6 TBSP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equipment</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting Board</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Chef Knife</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Paring Knife</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Peeler</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Set of Measuring Spoons</td>
<td>1</td>
<td>2-4</td>
<td>2-4</td>
</tr>
<tr>
<td>Set of Measuring Cups</td>
<td>1</td>
<td>2-4</td>
<td>2-4</td>
</tr>
<tr>
<td>Large Mixing Bowl</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Small Bowl</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Fork</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>

The following non-recipe items are also needed:
- At Session Activity- cooking oil and cinnamon or dried parsley
- Family Communication: Do’s and Don'ts of Taste Testing- Food options include pre-made fruit and veggie tray OR make your own fruit and veggie tray with mixture of local, seasonal produce
### Session at a Glance:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome and Introduction</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Set Activity</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Gardening Activity</td>
<td>45 minutes</td>
</tr>
<tr>
<td>Cooking Skills and Recipe of the Day</td>
<td>30 Minutes</td>
</tr>
<tr>
<td>Family Communication: Taste Testing</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Goal Setting: Setting SMART-R Goals</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Take Home Message and Wrap-Up</td>
<td>5 minutes</td>
</tr>
</tbody>
</table>
Welcome & Introduction - 5 minutes

- Welcome participants to the meeting: Welcome back and thanks so much for joining us for the second session.

- Review respectful classroom rules established in Session 1: Let’s review the respectful classroom rules we came up with together at Session 1 and see if there are any we need to add.

- Ask participants: Before we discuss the session overview for today, please share something you learned at Session 1 and how you applied it at home between sessions, such as eating habits, being more active, or mealtimes.

- Have participants get reacquainted with each other and get moving by doing icebreakers: choose one or two icebreakers and one or two de-inhibitors from the handouts/resource section (page 69-72).

Session Overview - 10 minutes

- Tell participants: Today’s session is titled “Washin’ and Wormin’”. We will cover the following:
  - Gardening Skills: We will check on the plants in the greenhouse, learn all about composting, and paint the containers you will take home.
  - Cooking Skills and Recipe for the Day: Food safety basics and make a salad recipe.
  - Family Communication: Focus on family mealtime and the dos and don’ts of taste testing.
  - Goal Setting: Setting SMART-R goals.

Set Activity- 5 minutes

- Game Intro activity to help youth and adults get focused on the session.
- Activity is called All Washed Up- Experiment Soapy Solutions. You will need the following materials to conduct this activity:
  - Cooking oil
  - Cinnamon or dried parsley
  - Access to sink to wash hands
  - Measuring spoons (teaspoon and tablespoon)
- *Alternative- Activity could be done with glow germ lotion and a black light
- Tell participants: We are going to do a quick activity to get you familiar with the session topic. Use the All Washed Up- Soapy Solutions handout with youth and adults.
• Ask participants the following questions:
  ○ What is the most effective way to remove bacteria from your hands?

Getting ready: Ask three youth to volunteer for the experiment

Procedure:
• For youth volunteers: Rub ½ TBSP of cooking oil all over your hands until completely coated. Sprinkle 1 tsp of dried parsley on hands and rub it around until it’s evenly distributed. The dried parsley will represent bacteria. It’s all over!
  ○ Youth No. 1: wash hands with cold water and no soap
  ○ Youth No. 2: wash hands with warm water and no soap
  ○ Youth No. 3: wash hands with warm water and soap
• My Observations- Go over results and ask participants to answer the following:
  ○ The method of hand washing that removed the most “bacteria” was:
  ○ The method that removed the least bacteria was:
  ○ Illustrate how the hands of Students 1, 2, and 3 looked after washing.
• My Conclusions- Go over main points of the experiment by asking the following:
  ○ I can remove bacteria from my hands by:
  ○ If I used only cold water and no soap to wash, this is what might happen:
  ○ Why does the... Warm water help? Soap? Rubbing?
• Tell your family- Take home message from the activity
  ○ Encourage all family members to wash hands with soap and warm water for 20 seconds.

Gardening: Not THAT Creepy Crawlers- 25 Minutes
[stevanasserthick.org/teacher/lesson_plans/worm_bin.pdf]

• Title: Not THAT Creepy Crawlers
• Items needed: Plastic bin with lid, worms, newspaper, water, and plant based food scrap.
• Preparation: Can start the composting 1 month in advance, or have the class start it and watch it over time. Have a small amount of leftover, plant-based food. Poke breathing holes into the plastic bin that the compost will go into.
• Time it will take: 25 minutes within the session
• Handout and Resource Guide (page 81 and 82)

Steps/instructions:
• Pre-Activity Questions:
  ○ What is compost? (Crumbly, dark soil that helps plants grow)
  ○ How does compost help plants grow? (It provides nutrients)
○ What do we know about worms? (They live underground, they eat our leftover food, they can eat half their weight every day)
○ What do worms eat? (plant-based foods like fruits, vegetables and bread)
○ Name some examples of plant-based food that you might have after lunch?
  (Bread crusts, fruit peels, carrot tops)
○ What happens to the leftover food after worms eat it? (It gets digested and comes out the worms' bodies as "castings", or compost which are like vitamins for the soil.)
  
- Making the Worm Bin:
  ○ Ask the participants to recall from session 1 what all animals need to survive?
  (food, water, shelter, air)
  ○ All these things need to be present in the worm bin:
    - Shelter- bin and newspaper for bedding
    - Food- leftover food scraps
    - Water- moistened newspaper
    - Air- air holes s punched into the bin
  ○ Explain how the bin will be the worms' home.
  ○ Prepare the bedding.
    - Hand out half a sheet of newspaper to each participant and have them tear into strips about ½” to 1” wide.
    - Place bedding in bin and spray with water bottle until it is about as moist as a wrung out sponge.
  ○ Now it’s time to add the worms and the food to the bin:
    - Place the worms in the moist bedding near the bottom of the bin. Include soil from the box of worms if available. Place a handful of food near worms and cover with newspaper.
    - Add dry shredded newspaper on top.
  ○ Hand each pair a worm and ask them to carefully observe, describe, and measure the worm when extended to its full length. Develop a chart on the board to compare lengths of the worms.
  ○ For upkeep, feed the worms every three to seven days, always burying the food under paper. Do not overfeed. Add more paper as needed to cover the food and soak up excess moisture.

- Gardening: Decorating Containers- 20 minutes

  ○ Title: Decorating the Containers
  ○ Objective: Adults and youth will decorate and paint their containers for their plants that they will take home.
  ○ Items needed: Permanent container, paint, paint brushes, water, and drop-cloth
  ○ Preparation: Set up painting area with drop cloth and a place for each dyad.
  ○ Time it will take: 20 minutes within the session
Steps/instructions:

- Explain that gardens not only bring food but can also bring beauty to an environment. These containers will be your plant’s permanent home, and you can decorate them however you choose.
- Allow dyads to decorate their containers.
- Keep the containers when they are finished, and explain that in the next class they will transfer their plants to this permanent home.

Cooking Skills, Recipes of the Day - 30 Minutes

- Items needed:
  - Simple Salad Recipe - Lettuce, tomatoes, carrots, almonds, and cheese.
  - Equipment: Cutting board, chef/paring knives, measuring cups, measuring spoons, colander, large mixing bowl, small bowls, and forks
- Session Preparation: 60 minutes
  - Grocery shopping (if items are not available in the garden)
  - Set up cooking station for session
- Session Presentation - 30 Minutes
  - Recipe preparation and taste testing
- Steps/Instructions:
  - Follow recipe instructions provided in curriculum

Prepare Simple Salad Recipe

- Have participants wash their hands

- Tell the participants that they will keep practicing their knife skills by making a simple salad. Have them all go to the gardening area and see what plants the lettuce and carrots were harvested from. You can either harvest the produce before the lesson or have the participants do the harvesting. If there is not enough volume of produce, you can supplement from the grocery store.

- Remind the participants about what they learned in the first session about knife skills and safety. (Pinch the knife with the forefinger and thumb right above the handle and then wrap the remaining fingers around the handle) Ask the participants what the other hand should be doing while cutting (making a claw to protect the fingers).

- Before they begin chopping, demonstrate to the participants how to thoroughly wash the produce
• Now have the participants start with the lettuce. Show them how to cut the lettuce in half, then in fourths. Have them do this to all their lettuce and put the lettuce into the big mixing bowl.

• Next have the participants prepare the carrots. Show them how to peel the carrot by holding the carrot with one hand, and using the peeler by going down the carrot away from their body. Once the carrot is peeled, have them chop up the carrot and empty the pieces into the large mixing bowl.

• Then, the participants will cut up the tomato. Using the paring knife, they will cut the tomatoes into half, and then cut each half in half. Add the tomato to the large mixing bowl.

• Next, have the participants cut up their almonds. Using the paring knife demonstrate how to dice up the almond. Add the almonds to the salad. Alternative- shaved almonds can be used.

• Lastly, have one participant measure out the cheese. Have another participant dump the cheese into the large mixing bowl, and a different participant toss the salad.
Simple Salad Recipe

Time: Prep Time: 10 minutes  
Cook Time: None

Temperature: No Cooking Required

Production Amount: Yield: 6 Servings

Ingredients:
- 6 C Lettuce
- 3 C Tomatoes
- 3 Whole Carrots
- 18 chopped Almonds
- 6 TBSP of Cheese

Directions:
- Cut of lettuce
- Dice up tomato, carrot, and almonds
- Add cheese
- Toss until combined

Potential Substitute Ingredient:
- Omit/add any vegetable or fruit

Production Equipment:
- Cutting board
- Paring/chef knife
- Peeler
- Colander
- Large mixing bowl
- Spoon
Family Communication: Focus on Family Mealtime and Taste Testing: I Like it, I Love it, No Thank You! - 10 minutes

- **Title:** I Like it, I Love it, No Thank You!: The dos and don’ts of taste testing
- **Items needed:** Food options include pre made fruit and vegetable trays OR make your own fruit and veggie tray with a mixture of local and/or seasonal produce.
- **Time it will take:** 10 minutes within the session
- **Steps/Instructions:**
  - Have adults and youth work together as a class to make a list of the dos and don’ts of taste testing (3 minutes).
  - Write the list on the board.
  - Additional kid-friendly veggies and fruits resources provided (page 76)

1. **Adults and youth will test items from fruit and veggie tray (2 minutes). How to taste test:**
   - Smell the food
   - Take a small bite
   - Move the food around in your mouth to feel the texture and taste it before swallowing.
   - If you taste multiple dishes, cleanse your palette with a sip of warm water between recipes.

2. **Special notes, additional resources**
   - Everyone has different taste preferences and those may change over time.
   - We may have to try something 10-20 times before our taste buds decide that we like that food.
   - Don’t say things like “yuck” or “this is gross,” or spit food out. This can discourage our friends from eating something they may have liked and may hurt the feelings of the cook who prepared the meal.
   - If you don’t like something, think of nice ways to say you don’t want to eat it. These include “no thank you,” or “I don’t prefer that food.”
   - Do say “Thank you,” “I like it,” or “this is good,” etc.

Goal Setting: Setting SMART-R Goals- Setting short and long term goals- 10 minutes

- **Time it will take:** 10 minutes within the session
- **Steps/Instructions:**
  - Have the group discuss successes and challenges they had with their goals from the previous week.
  - Discuss short- and long-term goals
- **Special notes, additional resources:** Short- and long-term goals discussion
- Short-term goals can be achieved in a shorter, more measurable period of time
- Long-term goals can be achieved in a longer, more extended period of time
- It is important to set both short- and long-term goals
- Short-term goals are often stepping stones to reaching your more broad long-term goals.
  - Each dyad will make three goals for the next two weeks
  - Have pairs take turns sharing their goals
  - Remind pairs that they can hang their goals up on their refrigerator or somewhere that they will see them, so that they remember their goals.
  - Goal Sheet in handouts/resources (page 73)

**Take Home Message and Wrap-Up – 5 minutes**

- Practice safe hand washing at home for a healthier family.
- Try making a worm bin at home for when you bring your plants home!
- Trying new/different foods. Everyone has different taste preferences and those may change over time. We may have to try something 10-20 times before our taste buds decide that we like that food.
- Short- and long-term goals. It is important to set both short- and long-term goals. Short-term goals are often stepping stones to reaching your more broad long-term goals.
- Next time we will...
  - Learn about MyPlate and how to have a balanced meal
  - Transplant our plants into their permanent containers
  - Make a quick rice recipe
Session 3
From Farm to Table
to Yummy
iGrow Lesson 3 – From Farm to Table to Yummy
(MyPlate and ABC’s of Healthful Eating)

Goals: Participants (youth and adults) will increase gardening and cooking competence.

Lesson Objectives:
1. Learn about how favorite foods lead back to plants
2. Learn how to transplant plants into bigger containers
3. Learn how to incorporate leftovers and fresh veggies into a recipe
4. Focus on family mealtime and the importance of eating together
5. Set goals related to family communication, nutrition, and physical activity

Education Materials Needed:

Introduction:
- Name Tags
- Session Activity – Plants to Food and MyPlate
- Handouts (Build a Healthy Meal, MyPlate sheet, recipe)
- Respectful Classroom rules

Icebreaker/De-Inhibitor

Gardening Skills: Transplanting
- Soil
- Gardening Tools (gloves, shovels, watering container)
- Larger Containers
- Small plants

Cooking Skills: Using leftovers and fresh veggies
- Art of Meal Planning Game: Food Trading Cards and MyPlate sheet handout
- Recipe- Quick Rice
  - Food- brown rice, carrots, peas, broccoli, and water chestnuts
  - Equipment: knives, cutting board, colander, measuring cups, can opener, small bowl, large bowl, and non-stick frying pan

Family Communication: Focus on family mealtime and taste testing
- Setting the table- plates, forks, spoons, knife, napkin, and glass

End of lesson items:
- Cleaning Supplies
- Containers for leftovers

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**Food and Equipment Shopping List:**

Below is a shopping list of all food and equipment items needed for the corresponding number of adult-youth pairs (dyads). Amounts for one dyad workstation*, 6 dyad workstations (one session), 12 dyad workstations (two sessions), etc., are included. The recipes and list are for 4 servings to allow for leftovers.

*A dyad workstation consists of one adult and child pair. The list reflects food needed for each dyad to make all recipes.

<table>
<thead>
<tr>
<th>Items</th>
<th>1 Dyad Station</th>
<th>6 Dyad Stations</th>
<th>12 Dyad Stations</th>
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<tbody>
<tr>
<td><strong>Gardening-Decorating Container</strong></td>
<td></td>
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<tr>
<td>Large Container</td>
<td>3</td>
<td>18</td>
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<td>Gloves</td>
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<td>12</td>
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<td>Shovel</td>
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<td>6</td>
<td>12</td>
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<td>Soil-Bag</td>
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<td>2</td>
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<tr>
<td>Watering Container</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Set Activity- MyPlate Activity and Plant to Food</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large MyPlate Poster</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Index Cards</td>
<td>3</td>
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<td>36</td>
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<tr>
<td>Tape</td>
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<td></td>
</tr>
<tr>
<td>Poster Board</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Marker</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Food- Quick Rice</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown Rice (cooked)</td>
<td></td>
<td>3 C</td>
<td>6 C</td>
</tr>
<tr>
<td>Carrots (baby)</td>
<td>1 each</td>
<td>6 each</td>
<td>12 each</td>
</tr>
<tr>
<td>Peas*</td>
<td>¼ Cup</td>
<td>1.5 cups</td>
<td>3 C</td>
</tr>
<tr>
<td>Broccoli</td>
<td>3 each</td>
<td>1.5 C</td>
<td>3 C</td>
</tr>
<tr>
<td>Green Onion*</td>
<td>1 each</td>
<td>6 each</td>
<td>12 each</td>
</tr>
<tr>
<td>Ingredient</td>
<td>1 clove</td>
<td>6 cloves</td>
<td>12 cloves</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Garlic (fresh or pre-minced)</td>
<td>1</td>
<td>6</td>
<td>12</td>
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<tr>
<td>Pineapple, canned</td>
<td>1/4, 8oz can</td>
<td>1, 8oz can</td>
<td>2, 8oz can</td>
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<tr>
<td>Reduced-sodium soy sauce</td>
<td>1 TBSP</td>
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<td>Vegetable Oil</td>
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**Equipment**

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<tr>
<td>Paring Knife</td>
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<td></td>
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<tr>
<td>Peeler</td>
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<td></td>
<td></td>
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<tr>
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</tr>
<tr>
<td>Set of Measuring Cups</td>
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<td></td>
<td>2-4</td>
</tr>
<tr>
<td>Large Mixing Bowl</td>
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</tr>
<tr>
<td>Small Bowl</td>
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<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Fork</td>
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<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Non-stick frying pan</td>
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<td></td>
<td>1</td>
</tr>
</tbody>
</table>

*From garden*

The following non-recipe items are also needed:
- Table setting- forks, knife, plate, glass, and napkin
Session at a Glance:

Welcome and Introduction 10 minutes

Set Activity 5 minutes

Gardening Activity 40 minutes

Cooking Skills and Recipe of the Day 30 Minutes

Family Communication: Taste Testing 10 minutes

Goal Setting: Setting SMART-R Goals 10 minutes

Take Home Message and Wrap-Up 5 minutes
Welcome & Introduction - 10 minutes

- Welcome participants to the meeting: Welcome back and thanks so much for joining us for the third session.

- Review respectful classroom rules established in Session 1: Let’s review the respectful classroom rules we came up with together at Session 1 and see if there are any we need to add.

- Ask participants: Before we discuss the session overview for today, please share something you learned during Session 2 and how you applied it at home between sessions, such as eating habits, being more active, or mealtimes.

- Have participants get reacquainted with each other and get moving by doing icebreakers- choose one or two icebreakers and one or two de-inhibitors from the handouts/resource section (page 69-72).

Session Overview - 5 minutes

- Tell Participants- Today’s session is titled “From Farm to Table to Yummy”. We will cover the following:
  - Gardening Skills: We will check on the plants in the greenhouse, transplant your plants into bigger containers, and check on our worm composting bin.
  - Cooking Skills and Recipe for the Day: How to use leftovers in and fresh veggies from the garden in a recipe.
  - Family Communication: Focus on family mealtime and how to set the table.
  - Goal Setting: Setting SMART-R goals.

Set Activity- 5 minutes

- Title: From Garden to Table to Yummy
- Objective: Adults and youth will be able to identify how some of their favorite food leads back to plants.
- Items needed: White board or large poster board and markers.
- Preparation: none needed
- Time it will take: 5 minutes within the session
Steps/instructions:

- Ask the participants if they know that hamburgers come from plants and ask them to imagine what a hamburger plant would look like.
- Explain that parts of a hamburger really do come from plants, but hamburger plants do not really exist.
- Ask them to call out ingredients found in hamburgers and write the ingredients down on the board.
- Tell them that you will underline any word that names a plant.
- Go through each ingredient that is not a plant and ask where it comes from. Next to the ingredients, write where the ingredient comes from, and keep writing until you find a link to plants.

Gardening: Transplanting Plants - 40 minutes

- Title: Transplanting
- Objective: Adults and youth will be able to learn how to transplant their plants from seed trays to the permanent containers
- Items needed: Large decorated containers, soil, gardening tools, and watering can
- Preparation: Set up each parent-youth pair at a station where they have access to all the supplies
- Time it will take: 30 minutes within the session
- Handout and Resources (page 83 and 88)

Steps/instructions:

- Have each dyad pair find their basil and have them pull one seedling out of a cell. Explain that the ball of roots shows that the seedling is ready to move into a bigger container.
- Remind the participants of what they learned in session 1 about the soil, and how the soil needs to be moist enough for the plant to survive. Have the participants feel the soil again and add water and mix until enough water has been incorporated into the soil. (The soil should be able to be molded into a loose ball)
- Have the participants prepare their larger containers with soil. Tell them it has to be deep enough to cover the root system of their plant. Have the participants make a hole in the soil big enough for the plant.
- Next transplant the seedling into the permanent container. Have them pack the soil down around the root system.
- Fill any excess room with soil.
- Have the participants water their plants again.
- Show the participants where their plant will continue growing until it is big enough to take home at the end of iGrow.
Gardening- Check on the Worm Compost Bin

- **Title**: Composting Bin
- **Objective**: Adults and youth will measure the worms to see if they have grown since the last session
- **Items needed**: Worm compost bin, poster with measurements, rulers
- **Preparation**: Set up paper towel stations with rulers
- **Time it will take**: 10 minutes within the session

**Steps/instructions:**

- Explain that the worms have been making compost over the last two weeks, and have been eating and growing.
- Give each participant a worm on their paper towel and ask them to measure them.
- Write down the new measurements on the poster board that was used in session 2.
- Ask the participants how much the worms grew and if they think they will keep growing.

Cooking Skills, Recipes of the Day- 30 Minutes

- **Items needed**:
  - Large MyPlate Poster
  - Index Cards
  - Tape
  - Pens
  - Quick Rice Stir-fry Recipe – brown rice, carrots, peas, green onions, broccoli, pineapple, garlic, soy sauce and vegetable oil
  - Equipment: Cutting board, chef/paring knives, measuring cups, measuring spoons, colander, large mixing bowl, small bowls, forks, sauté pan, and wooden spoon
- **Session Preparation**: 60 minutes
  - Grocery shopping (if items are not available in the garden)
  - Set up cooking station for session
- **Session Presentation**: 30 Minutes
- **Recipe preparation and taste testing**
- **Steps/Instructions**:
  - Follow recipe instructions provided in curriculum

MyPlate Activity- 5 minutes

- Describe “MyPlate” to the participants: half of our plate should be fruits and veggies, a little less than half should be proteins, and a little more than a half should be grains, and don’t forget the dairy. Explain that they should try to include all food groups in a healthy well-balanced meal.
- Hand out three note cards to each participant
- Have each participant write one of their favorite foods on each of the note cards
- Ask each participant to come up to the big MyPlate poster and tape their favorite food to the MyPlate poster in the correct section.
- If any section is left blank, ask for examples of food that could go in that section.
- MyPlate supplemental handout provided (page 74)
- Healthly Meal planning resource provided (page 75)

Prepare Quick Rice Stir-fry Recipe

- Tell the participants that they will keep practicing their knife skills by making a quick rice stir-fry. Have them all go to the gardening area and collect green onions and peas. You can either harvest the produce before the lesson or have the participants the produce. If there is not enough volume of produce, you can supplement from the grocery store.
- Have participants wash hands and wash the vegetables that were picked from the greenhouse.
- Explain how they can use leftovers (cooked rice and other veggies in the freezer/fridge) along with fresh veggies that they may have in the garden to create a healthy balanced recipe.
- Remind the participants what they learned in the first session about knife skills and safety. (Pinch the knife with the forefinger and thumb right above the handle and then wrap the remaining fingers around the handle) Ask the participants what the other hand should be doing while cutting (making a claw to protect the fingers).
- Review the recipe.
- Discuss the ingredients used, amounts needed, and equipment used.
- Explain that the vegetables should be about the same size so that they will take the same amount of time to cook.
- Prepare the vegetables (peeling, cutting, rinsing, and measuring) per recipe instructions
- Ask participants: what are some different ways to cook vegetables?
  - Answer: Sauté, grill, broil, roast, ste
- Have each participant take a turn cooking the rice and vegetables on the pan

Specific teaching points related to stir-fry and whole grains to discuss:
  - Stir-fry is an easy and healthy way to eat more whole grains, and a good way to use leftover proteins and vegetables.
  - If using garlic or powdered ginger, add with the veggies.
  - Green onion- trim the root and tip, cut into small pieces using kitchen shears.
  - This recipe tastes better if the rice is cold; use leftover rice or cook the day before

  - Important note about whole grains:
    - Whole grains have the entire grain kernel (bran, germ, endosperm), while refined grains do not (bran and germ removed)
Whole grains have more nutrients than refined grains (processing removes fiber, iron, B vitamins)
Make half your grains whole.
Consuming whole grains may reduce the risk of heart disease.

**Quick Rice Stir-Fry Recipe**

**Ingredients:**
- 1 TBSP vegetable oil
- 1 TBSP fresh garlic, minced (about 2 cloves)
- 4 oz of canned pineapple chunks
- 1 C of broccoli, rinsed and chopped
- ½ C of carrots, rinsed and chopped
- ¼ C of peas, rinsed and chopped
- 2 green onion, rinse and sliced
- 1 TBSP fresh garlic, minced
- 2 C cooked brown rice, either instant or regular
- 1 TBSP reduced-sodium soy sauce

**Production Equipment:**
- Cutting board
- Paring/chef knife
- Peeler
- Colander
- Large mixing bowl
- Spoon
- Sauté Pan
- Wooden Spoon for stirring
- Can opener

**Directions:**
1. Heat oil in a large sauté pan over medium heat
2. Add garlic and green onion, and cook until fragrant, about 1 minute
3. Add all vegetables and pineapple; stir occasionally until almost cooked. About 5 minutes
4. Add rice and continue to cook until hot, about 3-5 minutes
5. Add soy sauce, toss well and serve

**Potential Substitute Ingredient:**
- Add protein: beef or boneless, skinless chicken breast
- Quinoa can replace rice
Family Communication: Focus on Family Mealtime and Taste Testing - 15 minutes

*Have youth and adults sit down together around a table and taste test the recipe during the activity to promote eating together.

- Title: Place setting for Family Meals
- Objective: Adults and youth will know the importance of sitting down for a family meal together, and youth will be able to set a table.
- Items needed: One place setting per pair: plate, spoon, fork, knife, glass, napkin
- Time it will take: 15 minutes

Steps/instructions:

Discuss the place setting and the different components (3 minutes)

- Ask participants to name the components of a place settings and where they belong. Draw them on the board.
- Ask what a place setting is. *(The dishes are called a place setting)*
- How do the place settings relate to MyPlate? *(MyPlate is a place setting that displays the five food groups for a healthy, balanced meal, and can be used as a tool to help us plan a nutritious meal.)*
- Do you use place settings in your house? If so, who sets the table? Do you take turns?

Place setting can be easy if you follow a few different rules: (3 minutes)

- The fork should be placed on the left.
- The napkin should be placed on the left, beside the fork.
- The knife and spoon go on the right. The knife is closest to the plate with the blade pointing inward.
- The glass belongs in the upper right-hand corner.
- “The knife is protecting the sweet spoon from the mean fork”

Place settings and family meal experience (4 minutes)

- Ask how sitting down to dinner at the table can improve the family meal experience and family communication (less likely to watch TV, more focused on the meal and communication, and free from distraction)
Goal Setting - 10 minutes

- Title: Goal Setting
- Objective: Youth and Adult will be able to make SMART-R goals.
- Time it will take: 10 minutes within the session
- Steps/Instructions:

Youth and adults will share from the previous session, and successes and challenges they had over the last weeks with the goals they had set (3 minutes)

- Review goal seeing (2 minutes)
  - SMART-R goals: Specific, Measurable, Attainable, Relevant, Time-oriented, Reward
  - Review the difference between short- and long-term goals.
    - Short-term goals can be achieved in a shorter, more measurable period of time
    - Long-term goals can be achieved in a longer, more extended period of time
    - It is important to set both short- and long-term goals.
    - Short-term goals are often stepping stones to reaching your more broad long-term goals.
  - Dyads will work together to make new goals for the week that have food, family meal/communication, or physical activity focus (3 minutes)
  - Share goals with the class (2 minutes)
- Goal Sheet in handouts/resources (page 73)

Take Home Message and Wrap-Up – 5 minutes

- Use MyPlate as your meal planning guide. Make half of your meals fruits or vegetables. Try new fruits and vegetables and think about eating the colors of the rainbow.
- Have family meals without distractions. Sitting down to dinner at the table can improve your family meal experience and family communication.
- Don't forget about your goals. Review the goals you set for yourself and see if you have made any progress or if you need to revise your goals.
- Be thinking about what plants you may want to plant at home this spring!
- Next time we will...
  - Learn about food labels and how to make snacks “healthified”
  - Watering and fertilizing our plants
  - Make snacks healthified
  - Use conversation starter card game
  - Set goals for nutrition and physical activity
Session 4
Rough and Tough Foods
iGrow Lesson 4 – Rough and Tough Foods  
(Fiber, Fertilizing, and Watering)

**Goals:** Participants (youth and adults) will increase gardening, cooking competence, and family mealtimes.

**Lesson Objectives:**
- Learn when and how to water plants need and how to fertilize
- Learn about fiber and make healthier dips
- Family Communication: Focus on Family Mealtime- Participants will use conversation starter cards to enhance family communication
- Goal Setting: Set SMART-R goals

**Education Materials Needed:**
*Introduction:*
- Name Tags
- Session Activity – Fiber Activity
- Handouts
- Respectful Classroom rules

*Icebreaker/De-Relaxer:*

**Gardening Skills:** Fertilize and Watering
- Watering can
- Fertilizer
- Plants
- Water

**Cooking Skills:** Food Safety and Salad Recipe:
- Activities/handouts:
  - “Rough and Tough Foods” Activity
- Recipe
  - Food: English Muffin Pizza

**Family Communication:** Focus on family mealtime and taste testing
- Place setting for taste testing: plates, utensils, cups/water, napkins
- Conversation starter cards

**Goal Setting:**
- Goal setting sheets (goal setting and adult sheets)

**End of Lesson Items:**
- Cleaning Supplies and containers for leftovers
**Food and Equipment Shopping List:**
Below is a shopping list of all food and equipment items needed for the corresponding number of adult-youth pairs (dyads). Amounts for one dyad workstation*, 6 dyad workstations (one session), 12 dyad workstations (two sessions), etc., are included. The recipes and list are for 4 servings to allow for leftovers.
*A dyad workstation consists of one adult and child pair. The list reflects food needed for each dyad to make all recipes.

<table>
<thead>
<tr>
<th>Items</th>
<th>1 Dyad Station</th>
<th>6 Dyad Stations</th>
<th>12 Dyad Stations</th>
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<tr>
<td><strong>Gardening- Decorating Container</strong></td>
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<tr>
<td>Fertilizer</td>
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</tr>
<tr>
<td>Smooth Plastic</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Sandpaper</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Colored paper</td>
<td>3</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td><strong>Food- English Muffin Pizza</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole Wheat English Muffin</td>
<td>2 each</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Tomatoes (whole)</td>
<td>1/2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Basil (leaves)</td>
<td>2</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Cheese</td>
<td>1 TBSP</td>
<td>6 TBSP</td>
<td>12 TBSP</td>
</tr>
<tr>
<td>Olive Oil</td>
<td>1 tsp</td>
<td>6 tsp</td>
<td>12 tsp</td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
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<td></td>
</tr>
<tr>
<td>Cutting Board</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Paring Knife</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Set of Measuring Spoons</td>
<td>1</td>
<td>2-4</td>
<td></td>
</tr>
<tr>
<td>Oven or Toaster Oven</td>
<td></td>
<td>1</td>
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</table>
**Session at a Glance:**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome and Introduction</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Set Activity</td>
<td>20 minutes</td>
</tr>
<tr>
<td>Gardening Activity</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Cooking Skills and Recipe of the Day</td>
<td>30 Minutes</td>
</tr>
<tr>
<td>Family Communication: Taste Testing</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Goal Setting: Setting SMART-R Goals</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Take Home Message and Wrap-Up</td>
<td>5 minutes</td>
</tr>
</tbody>
</table>
Welcome & Introduction - 5 minutes

• Welcome participants to the meeting: Welcome back and thanks so much for joining us for the fourth session
• Review respectful classroom rules established in Session 1: Let’s review the respectful classroom rules established together during Session 1 and see if there are any we need to add.
• Ask participants: Before we discuss the session overview for today, please share something you learned during Session 3 and how you applied it at home between sessions, such as eating habits, being more active, or mealtimes.
• Have participants get reacquainted with each other and get moving by doing icebreakers—choose one or two icebreakers and one or two de-inhibitors from the handouts/resource section (page 69-72).

Session Overview - 5 minutes

• Tell Participants- Today’s session is titled “Rough and Tough”. We will cover the following:
  • Gardening Skills: We will check on the plants in the greenhouse, learn all about watering and fertilizing, and check on our worm compost.
  • Cooking Skills and Recipe for the Day: We will prepare a healthy snack and learn about fiber.
  • Family Communication: We will discuss why family meals are important and learn about positive communication.
  • Goal Setting: Setting SMART-R goals for nutrition and family meals.

Set Activity- 20 minutes

• Game/Intro activity to help youth and adults get focused on the session.
• Activity is called “Rough and Tough Foods”
  You will need the following materials to conduct this activity:
  • 3 glass jars
  • 1 no fiber source- blended sugar or cola in ½ cup of water
  • 1 good fiber source- blended celery, broccoli with peels in ½ cup of water
  • 1 excellent fiber source- blended whole wheat or bran in 1 cup of water
  • 3 sheets of different colored paper
  • Sandpaper and smooth plastic
• Tell participants: We are going to do a quick activity to get you familiar with the session topic.
Getting ready: Prepare the three different sources of fiber in each of the jars

Procedure:

- Have the participants feel the sandpaper and the plastic with their eyes closed. Have them describe what each one feels like.
- Explain that these words are used to describe texture, and texture means how something feels and ranges from fine to medium to coarse. Explain that sometimes we can know how something feels just by looking at it. Show the participants the objects and allow them to compare the fine texture to the coarse texture.
- Explain that foods have texture too, and it’s called “fiber”. Explain that the fiber we get from plants has many health benefits. Ask if they have ever heard the saying “An apple a day keeps the doctor away”? This may be true because fruits and vegetables contain fiber. Fiber helps support the plant through its life cycle and helps to support our bodies too. Think of fiber as a scrub brush for the body- it clears and cleans it out quick! Explain that you can’t always taste fiber, but you can feel it.
- Have the participants look at the foods in the glass containers, and have them try to guess which containers have “no fiber”, “some fiber”, and the “most fiber”. Excellent sources of fiber are the “rough and tough” foods. Explain that eating foods with excellent sources of fiber will help their bodies stay tough, too!
- Next, describe what is in each of the containers and have the participants finger-paint the different blended fibers onto different colored paper. Have them sweep the paper with their fingers several times to leave a thin coat of each mixture.
- Foods that contain fiber sometimes have rougher textures and are usually thicker than foods that are lower in fiber. A banana is a good source of fiber that has a smooth texture but is thick when it is mashed or blended. Ask for examples of other foods that are high in fiber.

Gardening: Watering and Fertilizing Plants (nutrition to grow on) - 30 Minutes

- Title: Water and Fertilizing Plants
- Objective: Adults and youth will be able to learn how to adequately water and fertilize their plants.
- Items needed: Watering can, water, fertilizer, and plants
- Preparation:
- Time it will take: 30 minutes within the session
- Handouts and Resources (page 85 and 84)
Steps/instructions:

- **Pre-Activity Questions:**
  - Take the participants out to the greenhouse where the plants are growing.
  - Ask the participants what they need to do, other than eat well, to stay healthy (physical activity). Ask about some of their favorite things to do that get them active. Then ask what they do after they have been active for a long time (drink water).
  - Talk about the importance of water for plants too. Just as our bodies become dehydrated and thirsty, so do the plants. Growth is a plant’s primary form of physical activity.
  - Just like we need to eat a variety of fruits and vegetables to stay healthy, plants also need nutrients for proper growth. Explain that as plants grow they take nutrients from the soil, and eventually those nutrients need to be replaced. We can replace those nutrients by using the compost we have been making or by using fertilizer. The fertilizer you use will depend on what type of soil is in your garden and the crops that are being grown.
  - Watering and fertilizing can be done at the same time. Have the participants fertilize the plants with either compost or fertilizer and then water their plants.

**Cooking Skills and Recipe of the Day – “Healthify” Snacks - 30 Minutes**

- **Title:** Healthify P-I-Z-Z-A
- **Objective:** Adults and youth will be able to learn how to prepare a healthy pizza snack
- **Items needed:**
  - Food: whole wheat English muffins, tomato, cheese, basil, and olive oil
  - Equipment: cutting board, knife, tin foil, toaster oven or oven
- **Preparation:**
  - Session preparation- 60 minutes
  1. Grocery shopping
  2. Set up cooking stations for session
  - Session presentation- 20 minutes

**Steps/instructions:**

- Have participants wash their hands
- Ask participants to raise their hand if they like to eat pizza. Then, ask participants to raise their hand if they think pizza is healthy for them.
- Show participants that they will be making a pizza snack that is healthified by using whole wheat English muffins for the “crust” and fresh ingredients that can be grown in the garden.
Remind participants that whole wheat products are an excellent source of fiber and fiber helps our bodies stay healthy.
Have the participants follow the recipe.
After completing the recipe, ask the participants what ingredients they could add to make the pizza healthy and tasty?

**Whole Wheat English Muffin Pizza**

Production Equipment:
- Cutting board
- Paring/chef knife
- Colander
- Olive Oil
- Toaster Oven or Oven
- Tin Foil

Ingredients:
- 1 whole wheat English muffin
- 4 slices of tomato
- 1 TBSP of mozzarella cheese
- 2 basil leaves
- 1 tsp of olive oil

Directions:
- Preheat to 375F
- Slice up the tomato
- Cut English muffin in half
- Place English muffin on the tin foil
- Put 2 slices of tomato on each English muffin half
- Sprinkle cheese on top of tomato slices
- Put one basil leaf on each half of English muffin
- Drizzle olive oil over top of each half
- Cook for 8 minutes

Potential Substitute Ingredient:
- Add any vegetables
Family Communication: Focus on Family Mealtime and Taste Testing - 10 minutes

- Title: Family Communication Beyond Mealtime
- Objective: Quality family communication can happen outside of mealtime
  - Participants will be able to effectively use conversation starter cards to enhance family communication.
- Items needed: Conversation starter cards and place settings
- Time it will take: 10 minutes within the session

Steps/Instructions:

- Although family meals are a great place to have quality family communication, there are other places we can have quality communication. (3 minutes)
  - Meal preparation is a great time to talk with family members and build stronger bonds by working together as a team to prepare a meal for the family.
- Ask the following questions:
  - Ask if adults/youth cook together and talk together.
  - Ask families where they do most of their communicating.
  - Have adults/youth take turns modeling how to use conversation starter cards (5 minutes).
    - Open the conversation starter booklet to any page. The question on that page is the question that must be asked and answered.
    - Each child will ask the adult a question. If time permits, have adults ask their children questions.
  - Ask how using the conversation starter cards can improve family communication? (2 minutes)

Goal Setting: 10 minutes

- Title: Goal Setting
- Objective: Adults/youth will be able to set SMART-R goals.
- Time it will take: 10 minutes within the session

Steps/Instructions:

- Have the group go around and discuss successes and challenges they had with their goals from the previous week.
- Review goal setting (2 minutes)
● SMART-R goals: Specific, Measurable, Attainable, Relevant, Time-oriented, Rewards
  o Review difference between short- and long-term goals
  o Each dyad will make two to three goals for the next two weeks
  o Have dyads share their goals
  o Goal Sheet in handouts/resources (page 73)

**Take Home Message and Wrap-Up — 5 minutes**

- Try eating more fiber in your diet and making half your grains whole grain.
- Make your snacks healthy and try to makeover other dishes to make them healthier.
- Try using the conversation starter cards at home when you are around the table together.
- Remember to hang your goals up where you will see them. Make sure you not only have short-term but also long-term goals to stay on track.
- Next time we will...
  - Learn about harvesting plants
  - Learn how to use spices and herbs in meals
  - Make a quesadilla
  - Enjoy more family meal time
  - Set SMART-R goals
Session 5
Growing, Growing, Gone!
(Harvesting and Spices)
iGrow Lesson 5 – Growing, Growing, Gone! (Harvesting and Spices)

Goals: Participants (youth and adults) will increase gardening, cooking competence, and family mealtimes.

Lesson Objectives:
- Learn when and how to harvest plants from containers.
- Identify non-meat sources of protein and demonstrate ways to make dishes more interesting by using spices.
- Demonstrate the ability to deter potential conflicts during mealtime by utilizing positive family communication.
- Set SMART-R goals to continue making positive changes.

Education Materials Needed:

Introduction:
- Name Tags
- Handouts
- Respectful Classroom rules
- Icebreaker/De-Inhibitor

Gardening Skills: Harvesting Plants
- Garden shears
- Gloves
- Full grown plants

Cooking Skills: Spices Activity and Salad Recipe:
- Tasting Activity:
  - Ingredients (prepare before session): Chicken breast seasoned separately with: cumin, allspice, Italian seasoning, curry powder, cajun seasoning, and jerk seasoning.  
  "Please note: Amount of spices used for each variation may differ. Add spices as needed, ensuring there is a distinction between each variation.
  - Equipment: measuring spoons, tin foil, oven, and six bowls
  - Labels to identify the different seasonings (use tape or write the name of the spice on the edge of a paper plate and place corresponding seasoned chicken next to the name)

- Recipe
  - Food: Olive oil, garlic, lentils, green pepper, seasoning salt, oregano, cheese, flour tortillas, and cooking spray.
  - Equipment: pan cooking quesadillas, bowls and spoons to mix the spices for tasting, knife, cutting board, measuring spoons, spatula, and spoons

Family Communication: Focus on family mealtime and taste testing.
• Printed list of scenarios
• Scissors to cut printed list of scenarios

**Goal Setting:**
• Goal setting sheets (goal setting and adult sheets)

**End of lesson items:**
• Cleaning Supplies and containers for leftovers

**Food and Equipment Shopping List:**
Below is a shopping list of all food and equipment items needed for the corresponding number of adult-youth pairs (dyads). Amounts for one dyad workstation*, 6 dyad workstations (one session), 12 dyad workstations (two sessions), etc., are included. The recipes and list are for 4 servings to allow for leftovers.

*A dyad workstation consists of one adult and child pair. The list reflects food needed for each dyad to make all recipes.

<table>
<thead>
<tr>
<th>Items</th>
<th>1 Dyad Station</th>
<th>6 Dyad Stations</th>
<th>12 Dyad Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gardening- Harvesting Plants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garden Shears</td>
<td>1/6</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Gloves</td>
<td>.5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Full Grown Plants</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Set Activity- Taste testing spices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooked Chicken</td>
<td></td>
<td>3 cups</td>
<td></td>
</tr>
<tr>
<td>Cumin</td>
<td></td>
<td>½ tsp</td>
<td></td>
</tr>
<tr>
<td>Allspice</td>
<td></td>
<td>½ tsp</td>
<td></td>
</tr>
<tr>
<td>Italian Seasoning</td>
<td></td>
<td>½ tsp</td>
<td></td>
</tr>
<tr>
<td>Curry Powder</td>
<td></td>
<td>½ tsp</td>
<td></td>
</tr>
<tr>
<td>Cajun Seasoning</td>
<td></td>
<td>½ tsp</td>
<td></td>
</tr>
<tr>
<td>Jerk seasoning</td>
<td></td>
<td>½ tsp</td>
<td></td>
</tr>
<tr>
<td>Salt</td>
<td></td>
<td>1 tsp</td>
<td></td>
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</table>
## Food: Lentil, Pepper, and Cheese Quesadillas

<table>
<thead>
<tr>
<th>Ingredient</th>
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<th>12</th>
<th>24</th>
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</thead>
<tbody>
<tr>
<td>Whole wheat tortilla</td>
<td>2</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Monterey Jack Cheese, Shredded</td>
<td>½ cup</td>
<td>3 cups</td>
<td>6 cups</td>
</tr>
<tr>
<td>Dried brown lentils</td>
<td>1 cup cooked</td>
<td>6 cups cooked</td>
<td>12 cups cooked</td>
</tr>
<tr>
<td>Onion</td>
<td>½</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Garlic Cloves</td>
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<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Oregano</td>
<td>½ tsp</td>
<td>3 tsp</td>
<td>6 tsp</td>
</tr>
<tr>
<td>Green pepper</td>
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<td>3</td>
<td>6</td>
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</table>

## Equipment

<table>
<thead>
<tr>
<th>Equipment</th>
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</thead>
<tbody>
<tr>
<td>Cutting Board</td>
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<td></td>
</tr>
<tr>
<td>Chef’s knife</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Paring Knife</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Set of Measuring Spoons</td>
<td>2-4</td>
<td></td>
</tr>
<tr>
<td>Skillet</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Pot to cook lentils</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Spoon/spatulas</td>
<td>1-2</td>
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</tbody>
</table>
### Session at a Glance:

- Welcome and Introduction: 5 minutes
- Set Activity: 20 minutes
- Gardening Activity: 30 minutes
- Cooking Skills and Recipe of the Day: 30 Minutes
- Family Communication: Taste Testing: 10 minutes
- Goal Setting: Setting SMART-R Goals: 10 minutes
- Take Home Message and Wrap-Up: 5 minutes
Welcome & Introduction - 5 minutes

- Welcome participants to the meeting: Welcome back and thanks so much for joining us for the fifth session
- Review respectful classroom rules established in Session 1: Let's review the respectful classroom rules we established together during Session 1 and see if there are any we need to add.
- Ask participants: Before we discuss the session overview for today, please share something you learned during Session 4 and how you applied it at home between sessions, such as eating habits, being more active, or mealtimes.
- Have participants get reacquainted with each other. Get them moving by doing icebreakers: choose one or two icebreakers and one or two de-inhibitors from the handouts/resource section (page 69-72).

Session Overview - 5 minutes

- Tell Participants: Today’s session is titled “Growing, Growing, Gone!” We will cover the following:
  - Gardening Skills: We will check on the plants in the greenhouse, learn how to harvest our plants, and check on our worm compost.
  - Cooking Skills and Recipe for the Day: We will learn how to use spices to season dishes and learn how to prepare a quesadilla that is packed with protein.
  - Family Communication: We will discuss the importance of using positive family communication to resolve potential conflicts during mealtimes.
  - Goal Setting: How to set SMART-R goals to continue making positive changes.

Set Activity - 20 minutes

- Title: Guess the Spice
- Objective: Discover different spices and try to guess which spice seasoned the chicken.
- Items needed:
  - Ingredients: 3 cups of cooked chicken, 1 tsp of salt, ¼ tsp cumin, ½ tsp of allspice, ½ tsp of Italian seasoning, ¾ tsp of curry powder, ¾ tsp of Cajun seasoning, and ¾ tsp of jerk seasoning
  - Equipment needed: measuring spoons, pan, oven, tin foil, and six small bowls (labels or paper plates to identify different seasonings)

Steps/Instructions:

- Before lesson
  - Cook boneless, skinless chicken breast with each of the seasonings and put in separate containers (note which chicken is seasoned with which spice)
- During the lesson:
Allow the participants to sample the various flavors by placing a sample of the chicken with different seasonings on a small plate. Have them sample one seasoning at a time.

After the taste, have each of the participants guess what the chicken was flavored with, and then pass around the seasoning so that they can see and look at it. Repeat this process for all six seasonings.

Talk about how herbs and spices are parts of plants (bark, leaves, and seeds) used to add flavor to foods. Commonly used spices are black pepper and cinnamon.

Ask participants:
- Which seasoning was your favorite?
- Which seasoning was most noticeable or distinct?
- Why is it important to use spices in our food? (add flavor without adding fat or extra calories)

Gardening: Harvesting Plants - 20 Minutes

- Title: Harvesting Plants
- Objective: Adults and youth will be able to learn how to harvest their plants.
- Items needed: Gardening shears, gloves, and full grown plants
- Preparation: none
- Time it will take: 30 minutes within the session
- Handouts and Resources (page 86)

Steps/instructions:

- Pre-Activity Questions:
  - Talk to the participants about what they have learned about plants and what plants need in order to live and grow.
  - Show the participants the difference between plants that are not ready to be harvested and those that are.
  - Ask the participants why they think it is important to wait until plants are ripe before they are picked and eaten?
  - Explain that herbs can be picked and used in recipes and will keep growing back in the same place (as well as lettuce).
  - Show an example of how to harvest plants that will be used in the session recipe.
  - Allow the participants to harvest the plants that are fully grown.
  - Have a youth demonstrate how to properly clean the vegetables once picked. Have all the participants wash their vegetables and allow them to try the vegetables that have been picked from the greenhouse.
Cooking Skills and Recipe of the Day - 30 Minutes

- Items needed:
  - Lentil, Pepper, Cheese Quesadilla - Lentils, green peppers, cheese, whole wheat quesadilla
  - Equipment: Cutting board, chef/paring knives, measuring cups, measuring spoons, colander, small bowls, skillet, and spatula
- Session Preparation: 60 minutes
  - Grocery shopping (if items are not available in the garden)
  - Set up cooking station for session
- Session Presentation - 30 Minutes
- Recipe preparation and taste testing
- Steps/Instructions:
  - Follow recipe instructions provided in curriculum

Prepare Lentil, Pepper, Cheese Quesadilla

- Before class:
  - Cook the lentils by following these steps: wash the lentils in a colander. Boil three cups of lentils in water and bring to a boil. Reduce heat to low and simmer uncovered for 20-30 minutes or until lentils are tender. Stir in salt.
  - Tell participants that they will be using lentils and the fresh green pepper to make quesadillas. Explain that lentils are an excellent source of protein, which is important for their muscles to grow.
  - Have the participants follow the recipe.
Prepare Lentil, Pepper, Cheese Quesadilla

Ingredients:
- 1 Tbsp olive oil
- ½ small onion, diced
- 1 clove garlic, crushed or finely minced
- 1 cup cooked lentils
- ¼ tsp seasoning salt
- ¼ tsp oregano
- ½ cup (2oz) Monterey Jack or Pepper Jack cheese, shredded
- 4 whole wheat tortillas
- ½ Green Pepper

Directions:
- Heat heavy skillet over medium heat; add oil and sauté onion, garlic, seasoning salt, and oregano for 4-5 minutes, until onion is tender.
- Add lentils and heat through, about 2-3 minutes, until mixture is thick and liquid is gone. Transfer lentil mixture to a small, clean bowl.
- Dice up the green pepper.
- To make quesadilla: Over medium-low heat, in a clean, heavy skillet sprayed with nonstick spray, add one tortilla.
- Spread with ½ cup lentil filling, ½ cup cheese, and ¼ cup of chopped green pepper.
- Brown for 1 to 2 minutes and move to cutting board or plate.
- Cut into six wedges and serve.

One serving is 3 wedges (1/2 quesadilla)
For ease of flipping, take one tortilla, spread ¼ cup lentil filling, 2 Tbsp. of cheese, and ¼ cup of green pepper on half of the tortilla and fold; heat for about two minutes and turn over; heat for another minute and remove to cutting board. Cut into three wedges.
Family Communication: Focus on Family Mealtime - 10 minutes

- Title: How to avoid the Power Play at Dinner
- Objective: Families will demonstrate the ability to deter potential conflicts during mealtime by utilizing positive family communication.
- Items needed:
  - Printed list of scenarios
  - Scissors to cut printed list of scenarios
  - Leaders list of suggested ways to avoid power play for each scenario
- Time it will take: 10 minutes within the session

Steps/instructions:

- Each youth/adult will choose one of the following scenarios. The youth will pretend to be the adult and the adult will pretend to be the youth.
  - The adult will act out what is written on the chosen piece of paper. The youth will pretend to be the adult and the adult will pretend to be the youth. Have dyads go one at a time. Discuss ways to make interactions positive.
  - Perform as many role play scenarios as time allows.
  - Some questions may come up regarding the primary food preparer's role for seconds and thirds.

<table>
<thead>
<tr>
<th>I’m not hungry even though it is time to eat.</th>
<th>I don’t like the vegetable that is being served.</th>
<th>I’m hungry but it isn’t time to eat.</th>
<th>I don’t want to clean my plate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will you make me a different entrée that I like to eat?</td>
<td>Tells on sister/brother for getting in trouble at school.</td>
<td>Is using phone or other electronic device during mealtime.</td>
<td>Youth sees food being served and says: Ewww that’s gross, I’m not eating that!</td>
</tr>
<tr>
<td>Youth tastes food and spits it out.</td>
<td>Can I have seconds?</td>
<td>Can I have thirds?</td>
<td></td>
</tr>
</tbody>
</table>
Special notes, additional resources: “Correct” answers from role playing

I’m not hungry even though it is time to eat. You don’t have to eat what is being served. You can eat later when we have a snack, but please come join us at the table so we can talk about our day and enjoy each other’s company.

I don’t like the vegetable that is being served. This is OK. You don’t have to eat it. You can eat something else being served that you like. Are you sure you don’t want to taste it? (Don’t push the tasting or force the tasting but gently encourage)

I’m hungry but it isn’t time to eat. The next meal/snack will be served soon and you can eat then. Would you like a glass of water?

I don’t want to clean my plate. That is fine. You don’t have to clean your plate. Eat until you are full and then you can stop eating.

Will you make me a different entrée that I like to eat? Everyone does not get his or her favorite entrée. You can eat one of the side dishes that you like. Your favorite entrée may be made tomorrow.

Tells on sister/brother for getting in trouble at school. That is not your news to tell and is not appropriate mealtime conversation. Your brother/sister and I will discuss this later.

Is using phone or other electronic device during mealtime. Please put your phone away. Mealtime is family time and not a time for texting or playing with other electronic devices.

Youth sees food being served and says: Ewww that’s gross, I’m not eating that! That is OK. You don’t have to eat it. You can eat something else being served that you like. Are you sure you don’t want to taste it? (Don’t push the tasting or force the tasting but gently encourage)

Youth tastes food and spits it out. Please do not spit your food out. You don’t have to eat it. You can eating something else being served that you like.

Can I have seconds? Yes, eat until you are full and then you can stop eating.

Can I have thirds? Yes, eat until you are full and then you can stop eating.
Goal Setting: 10 minutes

- Title: Goal Setting
- Objective: Adults/youth will be able to set SMART-R goals.
- Time it will take: 10 minutes within the session
- Steps/Instructions:
  - Have the group discuss successes and challenges they had with their goals from the previous week.
  - Review goal setting (2 minutes)
    - SMART-R goals: Specific, Measurable, Attainable, Relevant, Time-oriented, Rewards
    - Review difference between short- and long-term goals
  - Each dyad will make two to three goals for the next two weeks
  - Have dyads share their goals
  - Goal Sheet in handouts/resources (page 73)

Take Home Message and Wrap-Up — 5 minutes

- Try using the herbs that you have grown to season your dishes
- Add flavor without adding fat by using different spices.
- It is important to practice positive family communication to help resolve conflicts that may come up during mealtimes to keep them pleasant and enjoyable.
- Remember to hang your goals up where you will see them. Make sure you not only have short-term but also long-term goals to stay on track.
- This is our last session. Thank everybody for being a part of iGrow!
Handouts and Resources
Icebreakers- Play These First

Game: Name Game
Supplies: None
Have everyone stand in a circle. Have one person say their name and their favorite food. Have the next person say the previous person’s name, and then their name and their favorite food. Continue this until the last person in the circle has gone and said all the names.

Game: On or Off the Bus
Supplies: None
Have the participant’s line up in a straight line. Explain that they are currently “off the bus” and show them once they cross a line (note: can be imaginary) they are “on the bus”. Tell them that they agree with your statement then they should cross the line and “get on the bus”. Examples of statements:
- I like fruit more than vegetables.
- I like to play outside.
- I like to cook.

Game: Toilet Paper Game
Supplies: Toilet Paper
Have all the participants stand in a circle. Go to each person and have them take however many sheets of toilet paper they want. Once every participant has taken toilet paper tell the participants that they will say one fact about themselves for every piece of toilet paper they have. Go around the circle until everyone has introduced themselves.

Game: Circle-Circle Name-Name Game
Supplies: None
Have participants stand in a circle. Start with yourself and say your name repeatedly while doing a physical movement (i.e. Do arm circles and keep repeating your name). Have the participants join in, following your physical movement and repeating your name. Have each participant lead this activity by doing a different physical movement and saying their name with the group.

Game: Name Description Game
Supplies: None
Have all the participants stand in a circle. Have each person describe him/herself by using the first letter of their name. For example: My name is Jade and I like jelly, my favorite sport is jumping, and my favorite animal is a jack rabbit.

Game: Birthday Line Up
Supplies: None
Have participants line up in birthday order (not year). The catch is participants are not allowed to talk to one another!
Icebreakers- Play These Second

Game: Spider Web
Supplies Needed: Ball of Yarn

Form a circle with all the participants. Have one person start by holding on to the end of the yarn. This individual starts by stating something about themselves and tossing the ball of yarn to someone else while holding on to the end of the string. The person who catches the ball of yarn holds on the part of string that reached them, shares something about themselves, and tosses the ball of yarn to the next person. Continue this until a “spider web” pattern is formed with the yarn. Share with the participants that this activity shows that they are all unique as a spider web and they are all joined together by the “web” as a group in Grow.

Game: Bean Bag Toss
Supplies: Bean Bag

Ask the participants to stand in a circle. Using one beanbag, introduce yourself and how you stay physically fit. For example: My name is Jade and I like to jog. Throw the bean bag to a participant and have them introduce themselves by saying their name and how they stay physically fit. Keep throwing the beanbag until everyone has his or her introduction. Start the toss again, but this time say your name and your favorite healthy food. Go through the entire circle again with the participants saying their name and their favorite healthy food.

Game: Quarter Telephone Game
Supplies: Quarter

Have all the participants stand in a line holding hands. Tell the group one squeeze of the hand is “heads” and two squeezes is “tails”. Have only the person who had the head of the line look at the coin. As you flip and show them, they need to squeeze the hand of the person next to them appropriately trying to get the message to the other end of the line. When it reached the last person, they are to shout out either “heads” or “tails”.

Game: Two Truths and a Lie
Supplies: Pen and Paper

Have them write down to things that true about themselves and one thing that is a lie. Go around the room and have each participant read their three statements then have everyone try and guess which are true and which one is false. Note: Encourage them to find unique things about themselves so it is harder for people to guess.

Game: Who Am I???
Supplies: Nametag (sticky) and a pen

Place a nametag on the back of each participant with a fruit or vegetable on it. Participants are only allowed to ask yes or no questions. The goal is to guess what fruit or vegetable they are.
De-Inhibitizers: Play These Last

Game: Knee-Tag, Freeze-Tag
Supplied: None

Circle up. Explain that in this game everyone is “it” and if a person tags you on your knee you have kneel down and put both hands in the air. To be un-frozen another participant has to give you a high-five. A person is safe and cannot be tagged if they are standing still with their hands covering their knees.

Game: Team Rock, Paper, Scissors
Supplied: None

Stand in a circle and ask all the participants if they know the game rock-paper-scissors. You can show a demonstration of how the game is played. Explain that the participants will play each other and whoever the loser is will join the winners “posy” and cheer on that person. Keep playing until one person is the winner.

Game: Hula Hoop Pass
Supplied: 2-3 Hula Hoops

Have the participants make a circle and hold hands. Place a hula hoop in the chain of people and have the participants move the hula hoop around the circle by going through it and passing it to the person beside them. You can have more than one hula hoop going at time. After doing it once have the participants talk about what worked and didn’t work.

Game: Hula Hoop Pass Goal Challenge
Supplied: 2-3 Hula Hoops

Building on the hula hoop pass game, time the participants to see how long it takes them to make the hula hoop go around the circle once. Ask them if they think they can do it faster, and have them as a group come up with a goal of how fast they want to get the hula hoop around the circle. Time them once more with their goal time in mind.

- Report the time and ask why/why not they accomplish their goal. Also, ask if they would like to re-set their goal and try again.
De-Inhibitizers: Play These Last

<table>
<thead>
<tr>
<th>Game: Ant Tag</th>
<th>Supplies: 4 Hula Hoops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have the participants circle up. Tell the participants that in this game we are all going to be ants. Ask the participants what animal eats ants (answer: ant eater). Ask for 1 or 2 volunteers to be the “ant eater” (i.e. “it”). The ant eater will tag the ant and once the ants are tagged they must lie down on their back with their feet and arms in the air (i.e. dead ant). Once an ant is laying down other ants can grab their legs and arms and be safe from the ant-eater. Once they are holding on to the dead ant, they will carry him or her to the ant hospital (i.e. one of the hula hoops). Once the ant is at the hula hoop they can re-join the game.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Game: Knotted Up</th>
<th>Supplies: None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have all participants place one hand in the circle and grab somebody’s hand who is not next to them. Then have them place their other hand in the circle and grab a different person’s hand. Have the participants “un-knot” themselves until they are all holding hands in a large circle. Note: If hand-holding has been separated then the group should start over.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Game: Chicken-Dinosaur-Person: Rock Paper Scissors</th>
<th>Supplies: None</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is a build off of rock-paper-scissors. Participants will start off as chickens (squat down like a chicken) and play each other at rock paper scissors. Whoever wins will move up into a dinosaur (standing with small T-Rex arms). Whoever wins as a dinosaur will then become a person (standing with hands in the air).</td>
<td></td>
</tr>
<tr>
<td>a. Chickens can only play chickens, dinosaurs can only play dinosaurs, and people can only play against people</td>
<td></td>
</tr>
<tr>
<td>b. If you lose as a person you become a dinosaur and if you lose as a dinosaur you become a chicken</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Game: Stratosphere</th>
<th>Supplies: None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sit on the ground with your partner, backs together, feet in front of you, and arms linked. Try to stand up together. After they succeed add another person and try again. Keep adding people until your whole group is trying to stand together</td>
<td></td>
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</tbody>
</table>
What are your goals for the next two weeks?

Healthy eating goal:

Physical activity goal:

Family Meal goal:
MyPlate Dietary Guidelines

MyPlate Breakdown:

- MyPlate shows the USDA recommended intake of each food group at meals
- Fruits and Vegetables should make up 1/2
- Lean sources of protein should be 1/4
- Whole grains should make up 1/4
- Low-fat sources of dairy is about 1/4
- Goal is to get people thinking about what is going on their plate!
A healthy meal starts with more vegetables and fruits and smaller portions of protein and grains. Think about how you can adjust the portions on your plate to get more of what you need without too many calories. And don’t forget dairy—make it the beverage with your meal or add fat-free or low-fat dairy products to your plate.

1. **Make half your plate veggies and fruits**
   Vegetables and fruits are full of nutrients and may help to promote good health. Choose red, orange, and dark-green vegetables such as tomatoes, sweet potatoes, and broccoli.

2. **Add lean protein**
   Choose protein foods, such as lean beef and pork, or chicken, turkey, beans, or tofu. Twice a week, make seafood the protein on your plate.

3. **Include whole grains**
   Aim to make at least half your grains whole grains. Look for the words “100% whole grain” or “100% whole wheat” on the food label. Whole grains provide more nutrients, like fiber, than refined grains.

4. **Don’t forget the dairy**
   Pair your meal with a cup of fat-free or low-fat milk. They provide the same amount of calcium and other essential nutrients as whole milk, but less fat and calories. Don’t drink milk? Try soymilk (soy beverage) as your beverage or include fat-free or low-fat yogurt in your meal.

5. **Avoid extra fat**
   Using heavy gravies or sauces will add fat and calories to otherwise healthy choices. For example, steamed broccoli is great, but avoid topping it with cheese sauce. Try other options, like a sprinkling of low-fat parmesan cheese or a squeeze of lemon.

6. **Take your time**
   Savor your food. Eat slowly, enjoy the taste and textures, and pay attention to how you feel. Be mindful. Eating very quickly may cause you to eat too much.

7. **Use a smaller plate**
   Use a smaller plate at meals to help with portion control. That way you can finish your entire plate and feel satisfied without overeating.

8. **Take control of your food**
   Eat at home more often so you know exactly what you are eating. If you eat out, check and compare the nutrition information. Choose healthier options such as baked instead of fried.

9. **Try new foods**
   Keep it interesting by picking out new foods you’ve never tried before, like mango, lentils, or kale. You may find a new favorite! Trade fun and tasty recipes with friends or find them online.

10. **Satisfy your sweet tooth in a healthy way**
    Indulge in a naturally sweet dessert dish—fruit! Serve a fresh fruit cocktail or a fruit parfait made with yogurt. For a hot dessert, bake apples and top with cinnamon.
kid-friendly veggies and fruits

10 tips for making healthy foods
more fun for children

Encourage children to eat vegetables and fruits by making it fun. Provide healthy ingredients and let kids help with preparation, based on their age and skills. Kids may try foods they avoided in the past if they helped make them.

1 smoothie creations
Blend fat-free or low-fat yogurt or milk with fruit pieces and crushed ice. Use fresh, frozen, canned, and even overripe fruits. Try bananas, berries, peaches, and/or pineapple. If you freeze the fruit first, you can even skip the ice!

2 delicious dippers
Kids love to dip their foods. Whip up a quick dip for veggies with yogurt and seasonings such as herbs or garlic. Serve with raw vegetables like broccoli, carrots, or cauliflower. Fruit chunks go great with a yogurt and cinnamon or vanilla dip.

3 caterpillar kabobs
Assemble chunks of melon, apple, orange, and pear on skewers for a fruity kabob. For a raw veggie version, use vegetables like zucchini, cucumber, squash, sweet peppers, or tomatoes.

4 personalized pizzas
Set up a pizza-making station in the kitchen. Use whole-wheat English muffins, bagels, or pita bread as the crust. Have tomato sauce, low-fat cheese, and cut-up vegetables or fruits for toppings. Let kids choose their own favorites. Then pop the pizzas into the oven to warm.

5 fruity peanut butterfly
Start with carrot sticks or celery for the body. Attach wings made of thinly sliced apples with peanut butter and decorate with halved grapes or dried fruit.

6 frosty fruits
Frozen treats are bound to be popular in the warm months. Just put fresh fruits such as melon chunks in the freezer (rinse first). Make “popsicles” by inserting sticks into peeled bananas and freezing.

7 bugs on a log
Use celery, cucumber, or carrot sticks as the log and add peanut butter. Top with dried fruit such as raisins, cranberries, or cherries, depending on what bugs you want!

8 homemade trail mix
Skip the pre-made trail mix and make your own. Use your favorite nuts and dried fruits, such as unsalted peanuts, cashews, walnuts, or sunflower seeds mixed with dried apples, pineapple, cherries, apricots, or raisins. Add whole-grain cereals to the mix, too.

9 potato person
Decorate half a baked potato. Use sliced cherry tomatoes, peas, and low-fat cheese on the potato to make a funny face.

10 put kids in charge
Ask your child to name new veggie or fruit creations. Let them arrange raw veggies or fruits into a fun shape or design.

Go to www.ChooseMyPlate.gov for more information.

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June 2011

USDA Department of Agriculture
Center for Nutrition Policy and Promotion

Tip Sheet No. 11
Easy Peasy Container Gardening

1. Use a container that is waterproof. If the opening is too narrow, cut it off. Then add drainage holes to the sides of the container, about \( \frac{1}{4} \) to \( \frac{1}{2} \) inch from the bottom.

2. Put about 1 inch of coarse gravel in the bottom of the container for drainage. Fill your container 3/4 full with good potting soil. Regular dirt won’t drain very well and it doesn’t have the nutrients your plant needs.

3. Plant either a small plant or two to three seeds in your container.

4. Gently water your plant until the soil is moist and place it in a spot that gets sun for most of the day. Water your plant when the soil gets too dry. If the weather gets too hot or too cold, just move your plant to a better spot!
What Should I Plant?

Good container plants include tomatoes, peppers, eggplant, green onions, beans, lettuce, squash, radishes and parsley. Also, herbs like basil, mint and thyme are good, easy-to-grow choices. Think about the size of your container and the current growing season when deciding what to plant.

How Big is Your Container?

Small containers (6 to 8 inches across): try green onion, radishes, lettuces, parsley and herbs.

1 to 2 gallon containers: best for dwarf tomatoes, chard, broccoli, cucumbers, spinach and carrots.

5 gallon containers: try tomatoes, peppers, eggplant and squash and beans. Some plants, like tomatoes, need support as they grow taller. You can prop them up with tomato cages, a trellis, PVC pipe, etc.

What Time of Year is it?

Late Winter / Early Spring is a good time to plant warm season crops like tomatoes, summer squash, eggplant, peppers, beans, okra, watermelon and most herbs. These plants prefer the warm temperatures of spring and early summer.

Late Summer / Early Fall is a good time to plant broccoli, carrots, cauliflower, leaf lettuce, mustard greens, winter squash and turnips. These plants like cooler temperatures.
Sowing Seeds in Trays

Seeds in trays can be sprouted indoors over the winter and moved outside in the spring and summer.

When planting a seed, fill up the seed tray about a quarter inch from the top with soil that is damp but not wet.

Small seeds can be scattered evenly on top of the soil and then lightly coat the seeds with more soil.

Place smaller seeds closer to the surface, so that they won’t have trouble breaking through the soil.

A general rule is to plant twice as many seeds as you want. Try to limit only one to two seeds per cell to prevent overcrowding.
Composting 101

Why is composting good?

1. Improves soil’s physical characteristics
2. Increases the soil capacity to hold water and nutrients
3. Increase soil aeration

Materials for composting...

1. Kitchen Scraps
2. Grass Clippings
3. Dry Leaves
4. Sawdust

Building a Compost Pile:

1. Pick a secluded area
2. Close to your garden
3. Partially shaded to prevent drying out
4. Good drainage so it does not become water logged
5. Build in layers
6. Spread compost in your vegetable or flower garden in spring or fall, and work into the soil

Joseph Massala, Assistant Professor and Extension Horticulturist, and Patrick Lillard, Extension Assistant, Texas A&M System
Dos and Don’ts of Composting Worms


DON’T feed plastic, glass, metal, foil, glossy paper or grass clippings from lawns treated with pesticides.

DO chop up large pieces of fruits and veggies for easier breakdown

DON’T feed your worm’s pet waist or fresh manure

DO keep an eye on where you place food in the bin and how long it takes for your worms to consume it. This will help you understand how much your worms need and when.

DON’T feed your worms foods that are very salty, oily, or highly acidic, dairy/meat products or seeds.

DO take a whiff. If the bin begins to smell bad, you may be feeding too much.

DON’T worry about other bugs, such as fruit flies or vinegar flies, as they assist in the decomposition process. If population is high, you may be feeding too much. Ants appearing may indicate that it is too dry.

DO try new foods in moderation to see what your worms like. Worms can be picky, too
Transplanting Seedlings into Bigger Pots

1. When transplanting make sure to use gentle hands.

2. Fill your bigger pot with soil and inch below the top to make it easier to water.

3. Use your hands to make a whole big enough in your soil to allow the whole root system of your seedling.

4. Fill in around the plant with more soil, but do not compact it too much.

5. Once seedlings are in their new pot, water them in to collapse any air pockets in the root zone.
Using Organic Fertilizer in Your Garden

Just like humans, plants have appetites and the nutrients in the soil are what feed the plants. The plants take up all the nutrients, and that is why compost is needed in order to replenish the soil of essential elements. Fertilizing is the most important when plants are making fast new growth.

Mix the organic fertilizer from your compost bin into the soil and use the list below to see what plants need more compost than others.

<table>
<thead>
<tr>
<th>Fertilizer Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Light Feeders</strong></td>
</tr>
<tr>
<td>- Peas</td>
</tr>
<tr>
<td>- Turnips</td>
</tr>
<tr>
<td>- Mustard Greens</td>
</tr>
<tr>
<td>- Southern Peas</td>
</tr>
</tbody>
</table>


All About Watering

When should you water your plants?

Look at your plants leaves and soil to tell if they need watering. If the leaves are wilting and the soil is dry, it is time to water your plants.

What if you’re still not sure if they need to be watered?

You can stick your finger in the soil, about 3 to 4 inches deep, and if it is still dry, then it is time to water.

How much water do your plants need?

Plants would rather be watered infrequently and deeply rather than frequent, shallow watering. That means when you water your plants you should fill your containers to the top in order for the water to make it down to the roots.

Helpful Hint: Remember you are watering the roots, not the leaves, so you can direct the water directly at the soil.
Harvesting Plants

The best way to decide when to harvest is by looking at the characteristics of the plant.

**Beans, Snap:** Bean pods will be the most tender when the small seed inside is one-fourth normal size. From this stage on, the pods become more fibrous and the beans more starchy.

**Carrots:** Harvest at 1”-2” thickness. Harvest spring carrots before hot weather (July). Fall planted carrots should be harvested before ground freezes, or mulch heavily for winter harvest.

**Cucumber:** Cucumbers are best when slightly immature, just as the spines soften and before the seeds become half-size. This will vary with variety. Most varieties will be 1 1/4”-2 1/2” in diameter, 5”-8” long. Pickling cucumbers will be blocky and not as long.

**Kale:** Harvest leaves and leaf stems when they reach suitable size. Frost improves flavor.

**Lettuce, Head:** Harvest entire plant when head feels firm but before center bolts.

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Season Gardening Guide

**Spring**
- apricots
- artichokes
- asparagus
- cherries
- belgian endive
- broccoli
- butter lettuce
- cherries
- chives
- collard greens
- fennel
- green beans
- grapefruit
- honeydew
- lemons
- limes
- lychee
- mint
- mushrooms
- mustard greens
- nectarines
- oranges
- parsley
- pineapple
- radicchio
- radishes
- red leaf lettuce
- snow peas
- spinach
- spring onions
- strawberries
- swiss chard
- vidalia onions
- watercress

**Summer**
- apples
- apricots
- asian pear
- avocados
- beets
- bell peppers
- berries
- carrots
- cantaloupe
- cherries
- cilantro
- cucumbers
- eggplant
- endive
- figs
- garlic
- grapefruit
- grapes
- green beans
- jackfruit
- jalepeno peppers
- limes
- loquat
- lychee
- lettuce
- mangoes
- melons
- mulberries
- okra
- passion fruit
- peaches
- plums
- radishes
- shallots
- summer squash
- tomatoes
- watermelon
- zucchini

**Autumn**
- acorn squash
- artichokes
- arugula
- broccoli
- brussels sprouts
- butternut squash
- cape gooseberries
- cauliflower
- collards
- chiles
- cranberries
- curly endive
- daikon
- radish
- fennel
- garlic
- ginger
- grapes
- guava
- kale
- lemongrass
- limes
- mushrooms
- pomegranates
- pumpkin
- radicchio
- shallots
- swiss chard
- sweet potatoes
- turnips
- winter squash

**Winter**
- apples
- artichokes
- avocado
- bananas
- bok choy
- broccoli
- brussels sprouts
- cabbage
- cauliflower
- celery root
- chestnuts
- clementines
- collards
- cranberries
- cress
- grapes (red)
- lemons
- mushrooms
- onions
- oranges
- kale
- kiwi
- lettuce
- parsnips
- radishes
- rhubarb
- rutabagas
- snow peas
- spinach
- squash (winter)
- sweet potatoes
- tangerines
- turnips
- watercress
- yacon
Recipe: Fresh Salsa with Corn Tortilla Chips

Prep time: 20 minutes

Serving 4

Ingredients:

- 20 Tomatoes - small
- 1 bunch Cilantro
- 1 clove garlic
- 1 white onion
- 1 Lime
- ¼ teaspoon salt
- 5 corn tortillas

Preparation:

- Wash the tomatoes and cilantro and let them dry in the colander. Pat the cilantro dry with a paper towel to remove excess water.

Directions:

- Preheat oven to 400 F
- Dice tomatoes, cilantro, garlic, and onion. Toss together in a bowl.
- Cut lime in half and squeeze into bowl.
- Add the ¼ teaspoon of salt.
- Mix the ingredients together.
- Cut each tortilla into eight pieces. Arrange tortillas on baking sheet. Lightly coat with cooking spray.
- Bake for 6 to 8 minutes or until lightly browned.
- Serve with salsa.

In areas without an oven:

- You could prepare the chips ahead of time OR
- Use a non-stick sauté/fry pan to make the tortilla slices crispy.
- Lightly coat the tortillas with cooking spray
- Place the pan over medium-high heat
- Place the tortilla on the pan and cook on one side until brown (about 2 minutes)
- Flip and cook on other side until brown

Remove from pan and cut into eight triangles
# Simple Salad Recipe

**Time**
- Prep Time: 10 minutes
- Cook Time: None

**Temperature**
- No Cooking Required

**Production Amount**
- Yield: 6 Servings

**Production Equipment:**
- Cutting board
- Paring/chef knife
- Peeler
- Colander
- Large mixing bowl
- Spoon

**Ingredients:**
- 6 C Lettuce
- 3 C Tomatoes
- 3 C Carrots
- 3 TBSP chopped Almonds
- 6 TBSP of Cheese

**Directions:**
- Cut of lettuce
- Dice up tomato, carrot, and almonds
- Add cheese
- Toss until combined

**Potential Substitute Ingredient:**
- Omit or add any vegetable or fruit
Quick Rice Stir-Fry Recipe

Production Equipment:
- Cutting board
- Paring/chef knife
- Peeler
- Colander
- Large mixing bowl
- Spoon
- Sauté Pan
- Wooden Spoon for stirring
- Can opener

Ingredients:
- 1 TBSP vegetable oil
- 1 TBSP fresh garlic, minced (about 2 cloves)
- 4 Oz of can pineapple chunks
- 1 cup of broccoli, rinsed and chopped
- ½ cup of carrots, rinsed and chopped
- ½ peas, rinsed and chopped
- 2 green onion, rinse and sliced
- 1 TBSP fresh garlic, minced
- 2 cups cooked brown rice, either instant or regular
- 1 TBSP reduced-sodium soy sauce

Directions:
1. Heat oil in a large sauté pan over medium heat
2. Add garlic and green onion, and cook until fragrant, about 1 minute
3. Add all vegetables and pineapple; stir occasionally until almost cooked. About 5 minutes
4. Add rice and continue to cook until hot, about 3-5 minutes
5. Add soy sauce, toss well and serve

Potential Substitute Ingredient:
- Add protein: beef or boneless, skinless chicken breast
- Quinoa can replace rice
Whole Wheat English Muffin Pizza

Production Equipment:
- Cutting board
- Paring/chef knife
- Colander
- Olive Oil
- Toaster Oven or Oven
- Tin Foil

Ingredients:
- 1 whole wheat English muffin
- 4 slices of tomato
- 1 TBSP of mozzarella cheese
- 2 basil leaves
- 1 tsp of olive oil

Directions:
- Preheat to 375 degrees F
- Slice up the tomato
- Cut English muffin in half
- Place English muffin on the tin foil
- Put 2 slices of tomato on each English muffin half
- Sprinkle cheese on top of tomato slices
- Put one basil leaf on each half of English muffin
- Drizzle olive oil over top of each half
- Cook for 8 minutes

Potential Substitute Ingredient:
- Add any vegetables
Prepare Lentil, Pepper, Cheese Quesadilla

Ingredients:

- 1 Tbsp olive oil
- ½ small onion, diced
- 1 clove garlic, crushed or finely minced
- 1 cup cooked lentils
- ¼ tsp seasoning salt
- ¼ tsp oregano
- ½ cup (2oz) Monterey Jack or Pepper Jack cheese, shredded
- 4 whole wheat tortillas
- ½ Green Pepper

Directions:

- Heat heavy skillet over medium heat; add oil and sauté onion, garlic, seasoning salt, and oregano for 4-5 minutes, until onion is tender.
- Add lentils and heat through, about 2-3 minutes, until mixture is thick and liquid is gone. Transfer lentil mixture to a small, clean bowl.
- Dice up the green pepper.
- To make quesadilla: Over medium-low heat, in a clean, heavy skillet sprayed with nonstick spray, put one tortilla.
- Spread with ½ cup lentil filling, ½ cup cheese, and ¼ cup of chopped green pepper.
- Brown for 1 to 2 minutes and move to cutting board or plate.
- Cut into six wedges and serve.

One serving is 3 wedges (1/2 quesadilla)

For ease of flipping, take one tortilla, spread ¼ cup lentil filling, 2 Tbsp. of cheese, and ¼ cup of green pepper on half of the tortilla and fold; heat for about two minutes and turn over; heat for another minute and remove to cutting board. Cut into three wedges.