Garden-based Learning Experiences

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1. Rationale:

In recent years, obesity among children has reached alarming levels and ways of decreasing it are being examined.  According to the Center for Disease Control, 17.4% of children ages six to eleven years were considered obese in 2005-2008. The CDC hopes to decrease childhood obesity by 10% by the year 2020 and one way this could be accomplished is to increase the variety and contribution of fruits and vegetables in the diets of children (“Nutrition and weight,” 2011). A way to boost a child’s interest in fruits and vegetables is to increase their involvement in the production of them.

Gardening teaches children important skills such as responsibility, self confidence, love of nature, creativity, physical activity, and nutrition (“Gardening for children,” 2011).  In a recent study, children who engaged in garden-based learning increased their servings of fruits and vegetables more than those who did not garden. They also gained more positive attitudes about environmental issues (Waliczek, 1999). Participating with nature can improve mental health, reduce stress, and can produce physiological benefits such as lower blood pressure and reduced muscle tension (Relf, 1988). Although further research is needed, the results of this study seem to indicate the efficacy of using garden-based nutrition education to increase the consumption of fruits and vegetables (Mcaleese, 2007).

1. Target Population: 6th Graders in a classroom setting
	1. Mediators of Change
		1. Behavior capability
		2. Self-efficacy
		3. Outcome expectations
2. Lesson Plan Worksheet:

**Title of session:** Garden-based Learning Experiences for Sixth Graders

**Behavioral goal/outcome:** Sixth graders will increase their consumption of fruits and vegetables, enhance environmental awareness, and learn to appreciate the value of food preparation through gardening.

**Educational goal:** Educate children about the importance of fresh fruits and vegetables. Facilitate the ability to grow and nurture a plant.

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| Mediator of behavior change (Educational strategies) | Specific learning objective for mediator (Must have at least 3 objectives stated here!) | Learning domain | Practical educational activities, learning experiences, messages or content | Evaluation measures |
| Behavioral CapabilitySelf EfficacyOutcome Expectations | At the end of the session, students will be able to plant a vegetable seed and demonstrate the skills needed in future gardening endeavors. At the end of the session, students will be able to state the benefits of home-grown foods to both consumer and the environment.Appreciate the hard work that goes into growing garden fresh foods. Appreciate the importance of garden-grown fruits and vegetables as a nutritious food source. | Cognitive Domain: comprehension levelCognitive Domain: comprehension levelAffective Domain: valuing level | Plant vegetable seeds by giving them step by step instructions using a PowerPoint and a handout. Provide knowledge about home gardening and its effects on both the consumer (health benefits) and the earth (maintaining nutrient soil) using a PowerPoint. Use a PowerPoint and YouTube video (seed growing) to summarize the necessary needs for plant life and sustainment. Use a PowerPoint to describe the health benefits of home-grown fruits and vegetables.  | Test knowledge and skill comprehension by observing the students potting plant seeds. Scale how confident learners are regarding benefits of garden-grown fruits and vegetables by administering a 5 question quiz that will be discussed as a group upon completion.Scale of 1-5 related to willingness of increasing consumption of fruits and vegetables. |

1. Narrative Lesson Outline: “Garden-based Learning Experiences”
	1. Overview of Content
		1. Introduction/Icebreaker
		2. Reasons for gardening –health benefits
		3. Reasons for gardening-environmental
		4. YouTube video- “what a plant needs to grow” song
		5. Handout-how to plant a seed (coloring page on back)
		6. Planting session
		7. Evaluation quiz
		8. Discussion of quiz
		9. Verbal assessment of willingness to increase fruit and vegetable consumption/wrap-up (questions?)
	2. Materials Needed
		1. Pencils/pens
		2. Name tags
		3. Planting activity
			* Seeds
			* Soil
			* Water
			* Styrofoam cups
			* Plastic spoons
			* Paper towel
	3. Lesson Plan
		1. Introduction/Icebreaker. (8 minutes) Greet participants, pass out name tags, and introduce the lesson. Have participants discuss what they know about garden-based learning. Ask questions like “Do you garden?” “Do you have a garden at home?” Discuss the answers to these questions as a group.
		2. Health benefits of gardening. (10 minutes) Begin by reviewing the reasons that gardening can be beneficial to one’s health. Be sure to mention physiological benefits such as responsibility, creativity, increased nutrition and long term effects such as reduced obesity rates.
		3. Environmental benefits of gardening. (10 minutes) Discuss the reasons that gardening is beneficial to the environment. Be sure to mention that growing seeds is a natural process. Chemicals used in commercial farming are damaging to the soil, but gardening at home helps replenish the soil’s natural nutrients.
		4. What a plant needs to grow Video. (1-2 minutes) Watch video. <http://www.youtube.com/watch?v=OQT6piZOX7c&feature=related>
		5. Planting Session. (15 minutes) Hand out “How to plant a seed” handout. Discuss directions while instructors give a demonstration. Have children plant their seeds.
		6. Evaluation Quiz. (4 minutes) Hand out five question quiz. Have students complete the quiz alone or in groups.
		7. Quiz Discussion. (8 minutes) Discuss answers to the quiz. Answer any questions.
		8. Verbal Assessment of Willingness to Increase Fruit and Vegetable Consumption/ wrap-up. (5 minutes) By a show of hands, see how many students will increase their consumption of home grown fruits and vegetables at home. Answer any final questions.
2. References

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**Appendix A: Handout 1**

**How To Plant A Seed/Coloring Page/Fact Sheet**

**How To Plant A Seed**

**Directions:**

1. **Fill Styrofoam cup ¾ full of soil.**
2. **Dampen soil by adding a small amount of water.**
3. **Use your pointer finger to make a small hole to place the seed.**
4. **Place the seed.**
5. **Cover seed with a spoonful of soil.**
6. **Water thoroughly.**
7. **Place cup in a sunny spot so the seed can grow.**



**Garden-Based Learning- Fun Facts**

What is Garden-Based learning?

* Programs, activities, and projects that use gardening as the basis for learning that incorporates active and engaging real-world experiences with personal meaning for children, youth, adults, and communities

Health Benefits of Gardening

* Increases consumption of fruits and vegetables
* Increases activity levels
* Physiological benefits

Environmental Benefits

* Increased environmental awareness
* Gain respect and care for living creatures

Farming Methods: Conventional

* In the last 50 years pesticides have been widely used by commercial farmers
* Over 98% of sprayed insecticides and 95% of herbicides reach a destination other than their intended target species
* Pesticides contaminate land and water

Farming Methods: Home-Grown

* Reduce your impact on the environment
* Increase your self reliance
* Have more control over what you eat
* Have a connection to the source of your food
* Save money while eating the healthiest food
* Enjoy the beauty and flavor of home grown food

**Appendix B: PowerPoint**

**Garden-Based Learning Experiences**

**Appendix C: Evaluation Quiz**

**5-Question Assessment**

**5-Question Quiz**

1. What are three health benefits of gardening ?

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1. What are three environmental benefits of gardening ?

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1. How is commercial farming harmful?

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1. What are three benefits of home-grown fruits and vegetables ?

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1. Who can benefit from garden-based learning ?

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