

Kids, Why Eat Your Greens (Or Your Reds or Your Yellows)?

A Nutrition Education Intervention

Submitted by Jessica Mary Drogowski

Health Sciences

To:

The Honors College

Oakland University

In partial fulfillment of the
requirement to graduate from

The Honors College

Mentor: Dr. Jennifer F. Lucarelli, Assistant Professor of Health Sciences

School of Health Sciences

Oakland University

Acknowledgements

I would first and foremost like to express my most sincere gratitude and appreciation to Dr. Jennifer Lucarelli for her constant support, guidance, and encouragement throughout this project. I would also like to acknowledge the Baldwin Center staff, students, and volunteers for their cooperation; I give particular thanks to Lauren Fuller, Youth Program Director, for her assistance and her efforts to ensure the smooth facilitation of this project. Additionally, I would like to thank the Oakland University Honors College dean and staff, my family, and my friends for their encouragement and support. I would like to recognize the Oakland University Honors College for their financial support of this project.

Abstract

America's children battle a plethora of negative influences related to their health and overall wellness. A growing obesity epidemic, poor eating habits, negative influences and various health conditions are all struggles today's children face. This is in part due to a lack of proper nutritional education. Educational programs that teach children about wellness, nutrition, and the role their choices play in their health are needed for the enhancement of today's youth and their health. This project sought to teach children the importance of proper nutrition and the impact it has on overall wellness. This report also sought to analyze the educational approach as well as the current nutritional knowledge of children. It is crucial that children are taught from a young age the skills they need to make healthy nutritional choices, as the knowledge they possess will impact their health and overall wellness status for the whole of their lives. This project showed some positive trends in participants' preferences and nutrition knowledge; it also resulted in suggestions for future projects utilizing this or similar educational methods.

Background

What a person puts in their body will affect their health and, through that, their overall wellness. The maxim “you are what you eat” has existed since the early 19th century (Mello, 51). Although this is a well-known and commonly acknowledged doctrine (Mascarenhas, Zemel, & Stallings, 1998; Lifshitz, Tarim, & Smith, 1993; Bantle et al., 2008; Nishida, Uauy, Kumanyika, & Shetty, 2004), what people do or, more precisely, do not do with this knowledge has significant and varied effects throughout our society. Since nutrition does impact individuals’ health statuses in such an encompassing manner, societal concerns regarding the rising cost of healthcare (Baumol, 1993; Wang, McPherson, Marsh, Gortmaker, & Brown, 2011), the increasing prevalence of diet-related diseases (Sizer & Whitney, 2011), and how to be healthy and well in general require considering the nation’s overall knowledge and implementation of proper nutritional habits.

Presently, Americans as a whole have an inadequate and undesired health status (Wanless, 2004; Aday, 2001). Although most obvious in our current obesity epidemic, with over 20% of the American population classified as obese (James, 2004) and a growing obesity rate averaging 16.9% amongst children of all ages (Fryar, Carroll, & Ogden, 2012), this is also seen in the prevalence of coronary heart disease, which affects over 13 million Americans and costs the United States in excess of \$150 billion annually (Capwell et al., 2010). Obesity has been shown to persist from childhood to adulthood in all populations studied, as well as correlate with increased risk of cardiovascular disease, non-insulin-dependent diabetes mellitus, hyperlipidemia, gall bladder disease, osteoarthritis and certain cancers (Mus & Strauss, 1999). In addition, Americans in general and children specifically do not consume near the recommended amount of fruits or vegetables; they also do not eat the recommended variety of vegetables

(Lorson, Melgar-Quinonez, & Taylor, 2009). In fact, over half of school children, 51%, eat less than one serving of fruit per day (Briggs, Safali, & Beall, 2003).

Although true that our society as a whole is suffering from increasingly poor nutrition and health status (Zhang & Wang, 2004), those of a lower socioeconomic status generally are at increased risk (Ivanovic, Castro, & Ivanovic, 1997; Sobal & Stunkard, 1989). Minorities and different ethnicities have varying levels of fruit and vegetable consumption, but all below the recommended levels (Lorson et al., 2009). In order to promote wellness amongst our citizens, proper nutrition education must be a high priority.

If knowledge is power, then teaching people basic nutritional guidelines and habits would enable them to make wise, healthy choices for their own benefit. Educating children on proper nutrition is especially important because teaching them from a young age enables early intervention, which impacts them for a lifetime. Not only does early nutrition education give kids knowledge for future use, it also lets them make healthy decisions now that will affect them later (Glanz, Rimer, & Viswanath, (eds), 2008; Camilli, Vargas, Ryan, & Barnett, 2010). In addition, research has shown that for most food groups, it takes five to ten exposures to a new food before children demonstrate a preference for that food and, therefore, a higher intake of the food (Birch & Fisher, 1998).

Introducing children to new ideas and information in an interactive way is crucial in teaching them (Haury, 1993; Kember & Gow, 1994). Introducing them to new foods and information about health in such a way will act in a synergistic manner with their desire to learn (Mcfarlane & Pliner, 1997). This allows for maximum learning and maximum integration of new knowledge into future and current lifestyle choices. Additionally, children's food preferences are

the strongest factor influencing what they consume (Birch & Fisher, 1998), thereby reinforcing the importance of developing a preference for a wide variety of healthy foods amongst children.

When addressing the wellness status of people, researchers consider several topic areas, including intellectual, emotional, physical, spiritual, vocational, environmental and social components (Myers, Sweeney, & Witmer, 2000). Physical activity, sleep, and nutrition are factors that have lasting impact on these wellness components. People are ultimately responsible for their own health behaviors, but in order to better empower them, researchers and health providers use the powerful tool of education to teach people how to care for themselves. Although children have limited ability to make their own health and nutrition choices, we can influence the areas they do have control over, as well as teach them information that they can use later in life.

Methods

Aims & Objectives

The project intention was to teach health and nutrition information to elementary school age children through six thirty-minute sessions, enabling them to have an understanding of the impact nutrition has on their health and empowering them to make healthy choices. Through the interactive lessons, this project sought to generate an interest in wellness and nutrition amongst the students and an increased preference for fruits and vegetables, in the hopes of encouraging lifelong interest in proper health and nutritional decisions for the good of their own wellness status.

An analysis of the collective knowledge of the students before and after the course regarding the importance of proper nutrition was performed to determine what educational

information children might be lacking and to suggest future educational goals for nutrition programs aimed at this population. An analysis of the lesson plans and methods of teaching implemented was performed to identify indicators of which topics the children learned and which were not presented in an effective manner, in order to suggest future adjustments to childhood nutrition education programs.

The Oakland University Institutional Review Board (IRB) approved all intervention, evaluation, and consent methods utilized in this project. Parental consent was obtained from the appropriate guardians via the approved consent forms (Appendix G). These forms were either hand delivered to the guardians when they visited the Baldwin Center or delivered to their homes by the participating children. Verbal child assent was obtained at the Baldwin Center during each child's first day of participation using the approved script (Appendix H).

Procedures

The primary purpose of this study was to increase the health and nutrition conceptualization of children. This was attempted by seeking to positively impact the nutrition knowledge of the children involved, giving them some of the tools they will need to be responsible for their own health and wellness so that they can make good lifestyle choices. Secondary purposes included generating an analysis of the teaching methods and lesson plans to better inform future nutrition education and gaining insight into children's current health and nutrition-related behaviors.

Using the established and validated CATCH Kids Club nutrition curriculum, a six session series on nutrition was taught to Kindergarten-3rd grade children who attended the Baldwin Center of Pontiac's afterschool program. Attendance for these sessions ranged from five to ten

students daily; in total eight students participated in the pre-/post-test. Interactive lessons and introductions to new foods, specifically fruits and vegetables, were used to stimulate interest and learning. Lesson topics included the impact of nutrition on people's health status, what a healthy diet includes, the concept of energy balance in people's bodies, the importance of fruits and vegetables in people's diets, how people can be responsible for their own health, and what types of decisions people can personally make in everyday situations.

CATCH Curriculum

Coordinated Approach to Child Health, once known as Child and Adolescent Trial for Cardiovascular Health (CATCH), was originally a multicomponent program developed for a multiregional school-based health intervention. The components included interventions in the areas of school policy, practices in nutrition, physical activity, health education, and smoking. CATCH was originally tested for efficacy in 96 schools in four different states. Osganian, Parcel, and Stone (2003) reported "the results of the trial demonstrated that CATCH was successful in changing the school environment and positively influencing students' nutrition and physical activity behaviors, as well as promoting healthful knowledge and attitudes", supporting the further use of the program in school-age children and the institutionalization of the program into schools and after-school centers. Follow-up research done with the original CATCH cohort indicated that CATCH had been able to influence student behaviors including retention of dietary knowledge, dietary intentions, and daily vigorous activity levels in a way that lasted over time (Nader et al., 1999). In addition, CATCH Kids Club specifically has been shown to effectively teach nutrition and health information in the after-school setting, a prime location for

such education (Kelder et al., 2004). As such, CATCH Kids Club was an appropriately selected curriculum for this project.

Intervention

Lessons were taught using the CATCH Kids Club Healthy Habits & Nutrition Grades K-5 curriculum. Lessons for the Kindergarten-2nd grade age group were utilized, with supplementation from the 3rd-5th curriculum as deemed appropriate. The general format consisted of a lesson, approximately thirty minutes in length, consisting of an introduction to material, discussion of material, participation in a related activity, and preparation and consumption of a complementary snack. All lessons and associated forms utilized are attached.

- Lesson One: Basic Concepts: Go, Slow, & Whoa Foods (Appendix A)
 - Activities included discussion of “Go, Slow, & Whoa Foods” concept, student participation in story read to them, a demonstration of solid versus liquid fat sources, and consumption of snack related to story (including low-fat graham crackers, low-fat string cheese, and apple slices).
- Lesson Two: Basic Concepts: Energy Balance (Appendix B)
 - Activities included discussion of energy input and output of the human body, participation in the “Go & Whoa Food Exercise Pattern” game, and preparation and consumption of trail mix (consisting of Oat-O Cereal, Rice & Corn Cereal, dried apricots, raisins, dried cranberries, sunflower seeds, and low-fat pretzel sticks).
- Lesson Three: Beverages: Sugary Beverages & Beverages: Water (Appendix C)

- Activities included discussion of beverages, demonstration of sugar content in 100% juice and soft drinks, “importance of water” role play, and preparation and consumption of smoothie (consisting of banana, kiwi, frozen mango, and orange juice).
- Lesson Four: Fast Foods: Fast Food Strategies (Appendix D)
 - Activities included discussion of fast food restaurants, group participation naming ways to make healthier choices when ordering at restaurants, and preparation and consumption of snack kabobs (consisting of cherry tomatoes, red peppers, yellow peppers, green peppers, orange peppers, and mild cheddar cheese).
- Lesson Five: Snacking on Vegetables (Appendix E)
 - Activities included discussion of the health benefits of eating vegetables and of the colors and parts of different vegetables, participation in “Vegetable Salad” and “Vegetable Riddles” games, and preparation and consumption of veggie pitas (consisting of chopped broccoli, cherry tomatoes, cucumbers, and carrots in whole wheat pita sections with a plain hummus spread).
- Lesson Six: Snacking on Fruits (Appendix F)
 - Activities included discussion of the health benefits of eating fruits and different colors and parts of fruits, participation in “Fruit Train” game, and preparation and consumption of fruit parfaits (consisting of low-fat sugar-free vanilla yogurt, banana slices, blueberries, and oats & honey granola with dried blueberries).

Evaluation

The program evaluation was conducted through a pre-test and post-test of the children's knowledge, attitude, and self-efficacy related to the information taught (Appendix I). The test consisted of three categories, assessing the children's knowledge, personal habits, and preferences.

- Pre-tests were administered on day one and day two, dependent upon the individual participant's first day of participation in the program.
- Post-tests were administered on day five and day six, necessitated by participant attendance.

Statistical analysis was conducted using a paired t-test to determine changes following the intervention.

Results

Eight children participated in the pre-test and seven of those eight participated in the post-test. General health and nutrition knowledge questions were analyzed using a simple binary correct/incorrect system and statistical results were reported in reference to correct answers (Table 1). None of the results were significant, and only question two, referring to the minimum recommendation of daily vegetable consumption, showed a significant trend towards improved knowledge ($p < 0.10$).

The general health and nutrition knowledge questions were represented as the percentage of participants who correctly answered each question in the pre-/post-test. Since there were no significant results and only question two indicated a significant trend, the results represent the general increase and decrease in correct participant responses. According to the results,

children's knowledge in the areas of the effect food can play on health and the specific recommended daily minimum vegetable intake increased, though neither significantly. In addition, children reported 100% correct response regarding water's impact on health on both the pre-test and post-test.

Table 1: Percent of Correct Responses in Nutrition Knowledge Questions			
	Pre-test (%)	Post-test (%)	P-value
Daily minimum recommendation of fruit intake	57	29	0.82
Daily minimum recommendation of vegetable intake	17	67	0.10
Quantity of food ingested affect health	71	86	0.30
Participation in physical activity affect health	57	57	0.50
Importance of consuming variety of vegetable colors	71	57	0.66
Fruit consumption benefits for health/wellness	83	83	-
Consumption of water affect health	100	100	-
Healthiest fast food menu choice	83	83	0.50

Table 2 reports percent of participants that fell within each response option for consumption of given food and drink categories. Likewise, Table 3 shows the results for the post-test responses for consumption behaviors of given food and drink categories.

Table 2: Pre-test Percentage of Participants Reporting Given Consumption Behavior					
	2-3/Day	1/Day	2-3/Week	1/Week	Never
Water	25	0	50	25	0
Soft Drinks	25	13	13	13	38
Vegetables	38	13	50	0	0
Fruit	38	13	50	0	0

Table 3: Post-test Percentage of Participants Reporting Given Consumption Behavior					
	2-3/Day	1/Day	2-3/Week	1/Week	Never
Water	25	25	50	0	0
Soft Drinks	33	0	17	0	50
Vegetables	17	17	50	17	0
Fruit	33	0	50	17	0

Children's self-reported personal habits were rated based on a five-point scale in which healthier habits (e.g., higher consumption of fruits) were assigned higher point values (Table 4). There were no significant movements reported in the tests that indicated an increase in healthy personal habits. Instead, the only significant result showed a reduction in reported consumption of vegetables. In addition, there was a trend showing a reduction in reported consumption of fruits.

Table 4: Changes in Mean Food and Beverage Consumption			
	Pre-test Mean (SD)	Post-test Mean (SD)	P-value
Water consumption	2.25 (1.26)	2.75 (0.96)	0.20
Soft drink consumption	2.33 (1.63)	2.33 (1.97)	0.50
Vegetable consumption	3.17 (0.98)	2.33 (1.03)	0.95
Fruit consumption	3.17 (0.98)	2.50 (1.22)	0.91

Children's personal food consumption preferences for individual fruits and vegetables were graded using a binary like/dislike scheme, with results being reported in reference to percentage of children expressing a preference for consumption of each individual food or food group. Table 5 contains the percentage results for fruit consumption preference; the results showed no significant trends in either direction. Participants' reported preferences for vegetable consumption are shown in Table 6. A significant trend indicating an increase in preference for consumption of peppers and corn was reported.

Table 5: Fruit Consumption Preferences		
	Pre-Test Results	Post-Test Results
	(%)	(%)
Apple	100	100
Banana	88	71
Blueberry	63	43
Grape	88	86
Pineapple	75	71
Watermelon	100	100
Kiwi	63	57
Strawberry	100	100
Cherry	75	86
Orange	88	86
Average	84	80

Table 6: Vegetable Consumption Preferences		
	Pre-Test Results	Post-Test Results
	(%)	(%)
Carrot	75	86
Pepper*	25	57
Celery	88	86
Potato	50	71
Cucumber	63	57
Broccoli	63	71
Corn*	75	100
Cauliflower	38	57
Spinach	50	57
Tomato	38	57
Average	56	70
* indicates $p < 0.1$; trend towards significant increase in preference in post-test results		

Discussion

The primary intent of this program was for participants to gain a significant increase in health and nutrition knowledge. Secondary intents of this research were to gather information regarding the efficacy of this curriculum, ascertain the current trend of children's health behaviors, and provide suggestion for future educational interventions in nutrition and health.

Participant Knowledge

The results of this study could be taken to indicate that the CATCH curriculum program was ineffective, since much of the data shows either no change in knowledge, behaviors, or preferences towards healthier choices or demonstrates a regression away from healthy choices (Table 1 & 4). However, it is more likely there are multiple confounding factors that influenced the specific population studied and the results generated.

The students who participated in this study had previously been introduced to the concept of Go/Slow/Whoa foods (a core concept of the CATCH nutrition program) at the Baldwin Center. Because of that, and previous education they had received elsewhere, they started with a greater nutrition knowledge than anticipated, leaving little room for improvement. This could explain the similarity in percentage of correct responses for many questions between the pre-test and post-test (Table 1). In addition, child attendance at the after school program was inconsistent; of the eight participants, only one student attended every lesson. This inconsistency likely contributed to low overall increases in post-test scores. These situations are by no means representative of children as a whole. This was a unique, and small, sample population; therefore these results should not be unduly extrapolated in reference to larger trends amongst the child population in general.

The observed behaviors in the children indicated an increase in general nutrition knowledge, affinity for trying new foods, and information regarding food concepts; they expressed desire to give the correct responses and enjoyment of activities. However, since test results did not support these observations, consideration must be given to why that is. It is possible that post-test results frequently showed a decrease in healthy behaviors and food consumption preferences (Tables 2, 3, 5, & 6) not because of actual changes in children's

behavior but instead because of an increase in awareness and knowledge amongst participants. The program may have taught children how to correctly recognize and analyze their own behaviors (e.g., fruit and vegetable intake), and to report them more accurately, thereby demonstrating an apparent decrease in knowledge that in fact may represent deeper conceptual understanding of nutrition and health material.

Program Appraisal

An evaluation of the CATCH Kids Club curriculum, as implemented in this program, generates useful insight into effective child nutrition education programs. There are key components to any good educational curriculum for children and nutrition education is no exception. This study identified several characteristics of successful child nutrition education curriculum.

The most important factor found was the inclusion of students in the process, whatever was being done. Participants were far more engaged and responsive when activities and lessons allowed for them to be a part of the action. They particularly enjoyed any hands-on activities, such as the preparation of the topic-related snack, as well as visual demonstrations.

It was found that a relatively high level of structure in the environment was important for effective teaching and discussion of the lesson. Though an after-school center is an excellent place to implement such a nutrition program as this, it does present with some unique challenges, as other research has also shown (Kelder et al., 2004), including a more relaxed environment than the school-setting, a non-classroom-conducive layout, children who may be tired of being instructed in a class after being in school all day, and a potential lack of structure and discipline in the program. In addition, students responded far better when lessons were more thoroughly

rehearsed and not read directly from the CATCH Kids Club book. They enjoyed the interaction with the instructor, and garnered more this way.

It was also found that although the children always expressed an interest in preparing the snack, initially they were hesitant to try the foods that were new to them or about which they had negative, preconceived notations. However, as the program continued participants became more willing to experiment with the foods. Because of this, and the general adaptation of the children to the curriculum, a longer timeframe might more effectively implement such a program. The length of each session (30 minutes) was deemed to be appropriate for the age group, setting, and material.

Test Design

The results of the pre-/post-test reveal issues with the test itself that greatly influenced the outcome and reasonable extrapolation of this study. It is likely that the test design impinged upon its ability to show accurate results. The wording and vocabulary of the questions, the length of the test, and the setting in which the test was administered should all be adjusted to better produce authentic results. As the vocabulary of the participants was apparently below the level anticipated, simpler and direct wording of questions would help ensure full comprehension. The number of test questions was acceptable; reducing it by a few questions and shrinking the font some would address the concerns related to the length. A more formal, classroom setting (where students each had their own private desk all facing the front of the room) would be more conducive to quiet testing, which in turn would assist in preventing participants from influencing each others' responses. Because of the age group being assessed, it would be beneficial to ensure that all answer options are on the page that corresponds with their question (a printing and

copying glitch resulted in half of one question's answers appearing on the next page, which confused many participants).

Most of the children were simply guessing on the pre-test, and many verbally expressed that they did the same on the post-test. Because of the small sample size, these statistical anomalies were influential enough to affect the entirety of the data, thus yielding the number of results with no significance or significance opposite the intended direction.

Since the reported and observed behaviors of the children don't match their knowledge shown on the test, it is indicated that the tests were poor representations of their true knowledge and behaviors and/or that the observations were incorrect. Further research with larger populations is recommended before determining to what extent either is the case.

Child Behaviors

The natural behaviors of the children also affected the efficacy of this project, both positively and negatively. The children's desire to be right and share correct answers led them to quickly pick up on some key concepts, but they did not appear to retain such information beyond that lesson. In addition, the effect of peer influence was apparent throughout this project. Children were repeatedly influenced by their peers in regards to what foods they reported preferring and were willing to try, what answers they gave, their interest in the material, their behavior, and their involvement throughout the lesson. Since attendance differed each day, every lesson had a new dynamic that was heavily affected by the interaction of the personalities participating in the project.

Suggestions for Future Programs

This study indicated crucial topics that should be included in a child nutrition education program. Key nutrition subjects that should be a part of any such curriculum include:

- The variety of fruits and vegetables that exist and the different ways they impact health
- The relationship between physical exercise and food consumption, as well as its effect on health
- Recommended daily minimum consumption of different food groups

It is also suggested that a program include exposure to fruits and vegetables, particularly the ones being discussed. This provides participants with the opportunity to experience new foods. When implemented in such a way that these foods appear attractive and/or fun to the students, it was found to encourage tasting and consumption of the foods.

In addition, it is advised that future use of this curriculum in similar settings include an increase in longitudinal time frame, consisting of more lesson plans, in order to capitalize on students' increasing interest in topics and their increasing familiarity and comfort level with the program style and instructor. This would also ensure time to effectively teach and revisit key concepts, reinforcing retention of the material. Careful consideration should be given to age groups taught using given lessons; it was found that the age range from kindergarten to 3rd grade made it difficult for all participants to simultaneously be engaged at their individual appropriate levels.

Future nutrition education interventions in after-school programs would also benefit from integration with other facets of participants' lives. Specifically, inclusion of children's families and schools would greatly increase the efficacy and retention of such a program.

Conclusion

This study did not demonstrate agreement with previous research regarding the effectiveness of the CATCH Kids Club curriculum; this was determined to be due to a poor evaluation technique (namely, the pre-/post-test design), inconsistent participation, as well as the prior knowledge possessed by the particular population sample.

Future use of this curriculum in the after-school program setting would benefit from hands-on involvement for students and a high level of structure in the environment. Concepts in which children currently lack knowledge that should be integrated into future programming include facts about fruits and vegetables and their affect on health, the relationship between food, physical activity, and health, and the daily recommendations for food consumption in different food groups.

The primary objective of this project was to teach children the importance of proper nutrition and the impact it has on overall wellness. Since any experience children have that encourages them to make healthy choices is beneficial, this objective was accomplished. In addition, several suggestions regarding effective curriculum implementation and nutrition education were made. In these regards, the project was a success. It adds to the general body of knowledge in this field, as well as having positively affected the lives of the participants.

Appendices

Appendix A: CATCH Kids Club Lesson 1

Go, Slow, & Whoa Foods, Part 1

Grade Levels: K-2

Theme: Basic Concepts
Sub-Theme: GO, SLOW, and WHOA Foods
Lesson: G-S-W Foods: Part 1

TEACHER NOTES

1. The three sub-themes in the Basic Concepts theme should be taught in the following sequence:
 - (1) Physical Activity
 - (2) GO, SLOW, and WHOA Foods
 - (3) Energy Balance
2. Within the GO, SLOW, and WHOA Foods sub-theme, the **G-S-W Foods: Part 1** lesson should be taught prior to the **G-S-W Foods: Part 2** lesson.

OBJECTIVES

Participants will:

- Distinguish between GO, SLOW and WHOA foods
- Distinguish between healthy and unhealthy fats
- Compare GO, SLOW and WHOA foods in terms of recommended frequency of consumption

MATERIALS

- Any type of liquid oil (approximately 1/2 cup) in a closed, clear container
- One stick of butter
- Story: "Rabbit and Turtle"
- 3 Illustrations for Story: "Rabbit and Turtle"

1. DISCUSSION AND DEMONSTRATION

- A.** Explain the CATCH healthy eating message by saying or paraphrasing the following:

Did you know there is no such thing as a "bad" food? It's true! But it's also true that it's best to eat some foods more often than others. For example, do you think it's better to eat fresh fruit or candy bars more often? (Fresh fruit) Is it better to eat crunchy potato chips or crunchy carrots more often? (Carrots)

It's OK to eat foods like candy bars and potato chips once in a while. But if you eat them often then you might not be as healthy as you could be. That's because of certain things these foods *contain*.

The word *contain* may be new for you. Since we're going to use this word a lot in CATCH Kids Club, let's learn what it means. When a food *contains* something, then that "something" is *in* the food. [Have participants repeat the word *contain* a few times.]

Let's think about two foods you can buy at a store: an apple and a fried apple pie. The fried apple pie is made of dough with cooked apples inside. The dough contains a lot of fat, and the cooked apples contain a lot of sugar. Which do you think you should eat more often: the apple or the fried apple pie? (Apple) Right—because the apple is a lot healthier than the fried apple pie.

In CATCH Kids Club, foods are divided into three groups: GO, SLOW, and WHOA. To decide which group a food belongs to, you think about how much salt and unhealthy kinds of fat and sugar are in it.

GO foods usually contain the smallest amounts of salt and unhealthy kinds of fat and sugar. WHOA foods usually contain the largest amounts. And SLOW foods are usually in between. In CATCH Kids Club, you'll learn a lot about GO and WHOA foods.

Think about the apple and the fried apple pie again. Which is a GO food? (Apple) Which is a WHOA food? (Fried apple pie)

Since the kind of fat in a food helps you know if it's GO or WHOA, let's look at two kinds of fat and see the difference.

- B. Show participants the butter and oil. Then say or paraphrase the following:

Unhealthy kinds of fat are solid. They stay solid not only in the refrigerator, but also out of it. Also, most of them come from animals. Here's an unhealthy fat. [Unwrap the butter, and make sure everyone can see it.] What is this? (Butter) [If anyone says "margarine," explain that margarine is similar to butter and is also an unhealthy solid fat.]

Healthy kinds of fat are *not* solid. They're liquid. Also, most healthy kinds of fat come from plants, not animals. Here's a healthy kind of fat. It's an oil. [Show the container of oil to the participants. Shake it for them to see that the oil is liquid.]

Let's remember what you learned about the work your heart does. It pumps blood and oxygen to all parts of your body. Which kinds of fat do you think would make it harder for your heart to do its work: a solid fat from an animal, or a liquid oil from a plant? (A solid fat from an animal) That's right!

So which food should you eat more often: one that contains a solid fat, or one that contains a liquid oil? (One that contains a liquid oil) Which food should you eat more often: one that was cooked using a liquid oil, or one that was cooked using a solid fat? (One that was cooked using a liquid oil)

2. STORY

- A. Say or paraphrase the following:

Now we're going to read a story about GO and WHOA foods. The story is called "Rabbit and Turtle." Listen carefully to see which GO and WHOA foods are mentioned.

You're going to help me tell parts of the story. Whenever I point to you, say "Only once in a while!"

- B. Have participants practice saying "Only once in a while!" Then show them Illustration 1, and say that Rabbit and Turtle are the two characters in the story.
- C. Read the story, showing the illustrations as indicated. At the end, immediately ask participants, "What do you think Rabbit said?" (GO foods)

D. Say or paraphrase the following questions about the story:

What foods did Rabbit eat? (Cake, candy, and chips) **Were they GO foods or WHOA foods?** (WHOA foods)

Why didn't Rabbit finish the race? (He didn't feel good because he had eaten cake, candy, and chips.)

What did Turtle keep telling Rabbit? (Eat WHOA foods only once in a while!)

What foods did Turtle tell Rabbit were healthy GO foods that were great snacks? (Fruit, graham crackers, low-fat string cheese)

Do you think Rabbit will stop eating so many WHOA foods for a snack? Why? [Allow participants to answer as time allows.]

- E. Remind participants that in CATCH Kids Club they're going to learn a lot about GO and WHOA foods. Ask them to raise their hand if they already eat GO foods. Reinforce them for a positive response. Ask them to raise their hand if they're going to eat GO foods more often. Reinforce them for a positive response.

ADDITIONAL ACTIVITIES

1. Have participants act out "Rabbit and Turtle" in small groups.
2. Bring in the GO foods mentioned in the story. Have participants eat small samples of them. Ask them to name their favorite. [*Suggestion:* Make a bar graph of their responses.]
3. Ask participants to name GO foods they could eat for breakfast, lunch, and dinner. Consult the GO-SLOW-WHOA List, located in the CATCH Kids Club Family Tip Sheet in the Basic Concepts theme, and correct participants' responses as needed.

Story: Rabbit and Turtle

One day Rabbit told his friend Turtle, "Let's have a race after lunch. Let's start the race at my house. The finish line for the race will be the playground in the park."

Turtle didn't like races very much. But since Rabbit was her friend, Turtle said, "OK."

Later, Turtle went to Rabbit's house. Rabbit was outside eating a piece of cake. Rabbit said, "This snack is mmm-mmm-good." *[Show Illustration 1 again]*

Turtle said, "Rabbit, you eat cake for a snack too often. Cake is a WHOA food, and you should eat WHOA foods . . . *[Point to participants to say their line].*"

Rabbit laughed at Turtle and said, "Let's start the race! Get ready—get set—go!"

Rabbit took off hopping. Turtle took off crawling. After a few minutes, Rabbit was way ahead of Turtle. But Turtle could still see Rabbit. Turtle saw Rabbit stop hopping. Then she saw him take something out of his pocket and eat it. Turtle called, "Rabbit, what are you eating?"

Rabbit answered, "Candy." *[Show Illustration 2]*

"Rabbit," Turtle called, "you eat candy for a snack too often. Candy is a WHOA food, and you should eat WHOA foods . . . *[Point to participants to say their line].*"

Rabbit just laughed and said, "You better hurry up!" And he took off hopping.

Turtle kept on crawling. A few minutes later she saw Rabbit stop hopping just before he got to the park. Turtle saw Rabbit take a bag of chips out of his pocket and eat them. Turtle walked up to Rabbit and said, "Rabbit, you know that chips are a WHOA food. But you often eat them for a snack. You should eat WHOA foods . . . *[Point to participants to say their line].*"

Rabbit didn't laugh this time. Instead, he rubbed his tummy and said, "I don't feel so good." He sat down on the sidewalk. Turtle crawled to the playground and yelled, "I won the race!" *[Show Illustration 3]*

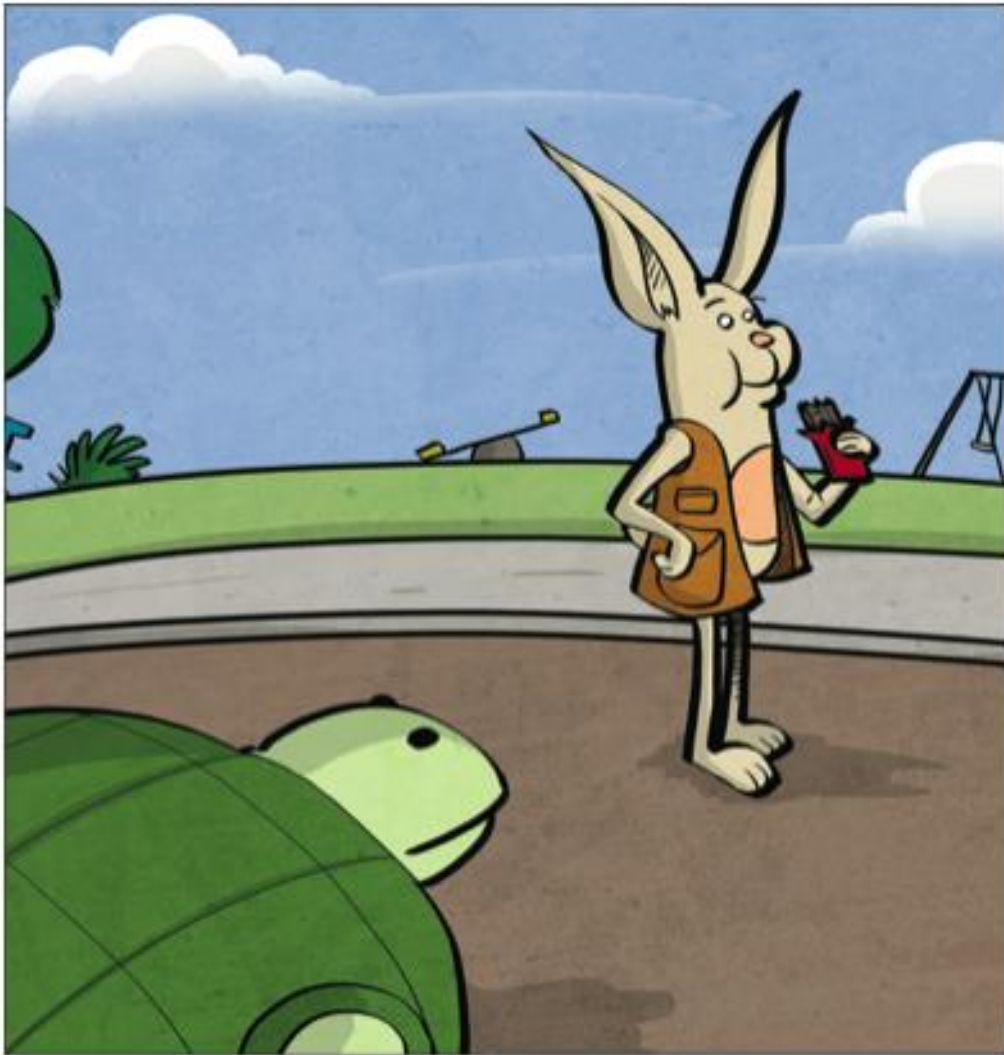
Then Turtle crawled to Rabbit and said, "You should eat more GO foods. Like fruit. Or graham crackers. Or low-fat string cheese. All those foods are great snacks. And you should eat WHOA foods *[Point to participants to say their line].*"

Rabbit said, still rubbing his tummy, "From now on, when it's time for a snack I'm going to eat _____."

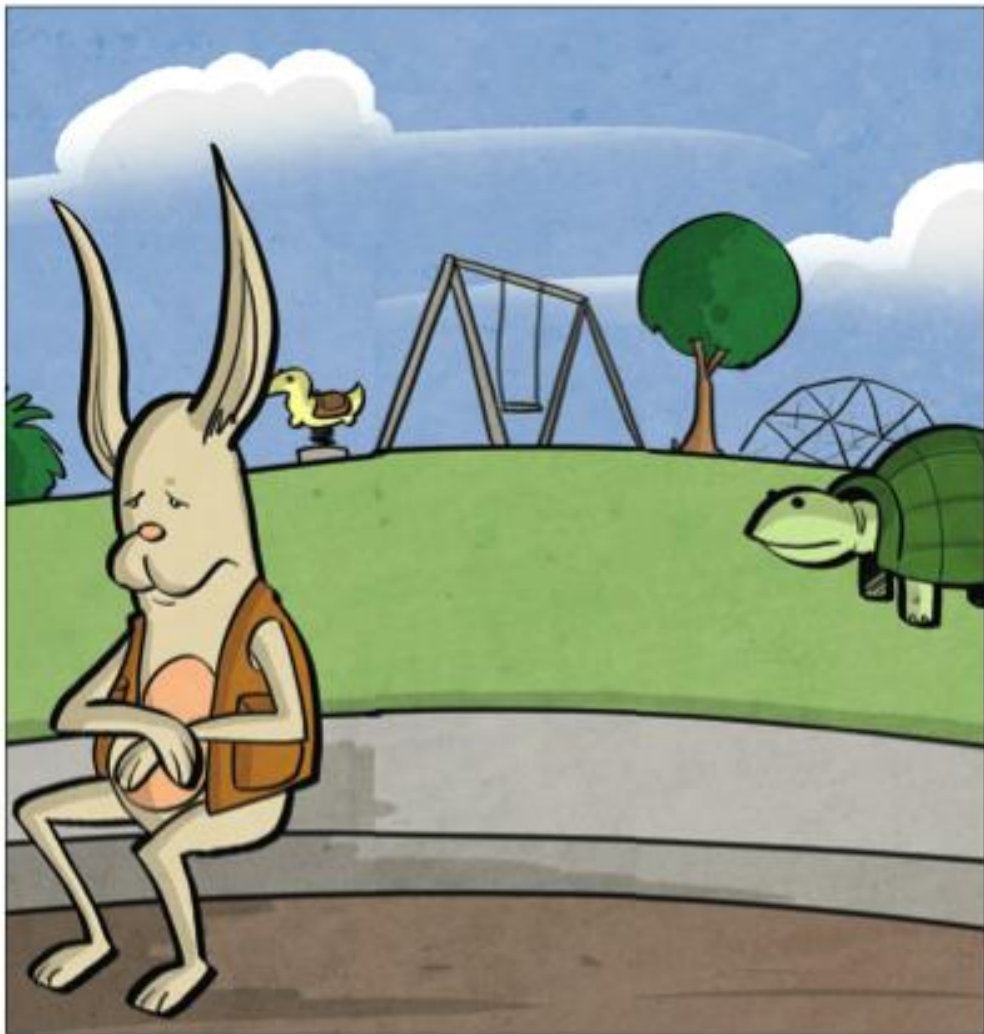
Rabbit and Turtle: Illustration 1



Rabbit and Turtle: Illustration 2



Rabbit and Turtle: Illustration 3



Appendix B: CATCH Kids Club Lesson 2

Energy Balance: It's Good to Be in Balance

Grade Levels: K-2

Theme: Basic Concepts
Sub-Theme: Energy Balance
Lesson: It's Good to Be in Balance

TEACHER NOTE

The three sub-themes in the Basic Concepts theme should be taught in the following sequence:

- (1) Physical Activity
- (2) GO, SLOW, and WHOA Foods
- (3) Energy Balance

OBJECTIVE

Participants will:

- Relate the concept of energy balance to their food consumption and physical activity levels

MATERIALS

- Food Cards

PREPARATION

Cut apart the Food Cards on the broken lines.

1. DISCUSSION

- A. Ask participants to raise their hand if they've done a GO activity lately. Reinforce participants for a positive response. Ask participants to raise their hand if they've eaten a GO food lately. Reinforce participants for a positive response.
- B. Explain the idea of energy balance by saying or paraphrasing the following:

Let's think about balance. Raise your hand if you've ever seen a see-saw in a playground. [As needed, describe a see-saw.] When two girls the same size are on the see-saw, what happens? (The board goes straight across.) The see-saw is balanced. What happens if one girl gets off and her big, tall brother takes her place on the see-saw? (That end of the see-saw goes down to the ground.) Now the see-saw is out of balance.

Your body can be in balance or out of balance—but in a little different way than a see-saw is.

What does your body need so it can move and play and do all the other things it does? (Food) Your body uses the food you eat to do all these things. When your body uses up all the food you eat each day, it's in balance. Doing lots of GO activities and eating mostly GO foods help your body stay in balance.

But what if you don't eat enough food? Then your body will get out of balance, and over time you may *lose* weight.

What if you eat *more* food than your body uses up? Then your body will get out of balance, and over time you may *gain* weight—especially if you don't do enough GO activities or if you eat a lot of WHOA foods.

2. GAME

- A. Tell participants they're going to play a game to help them understand what can make their body get out of balance. Tell them that first they're going to practice the exercises they'll do during the game. Have them quickly practice each of the following:

Knee lifts
Arm circles
Toe touches

Jumping jacks
Invisible jump-rope

- B. Hold up one of the Food Cards, and say or paraphrase the following directions:

I'll call on kids one at a time to turn over one of these Food Cards. They'll give me the card, and I'll read the four things on it: a food, whether it's a GO food or WHOA food, an exercise, and the number of times everyone will do that exercise. Then we'll all do the exercise together.

Pay close attention to the foods and the number of times you do the exercises. See if you can figure out a pattern.

When you do the exercises, be careful not to bump into other kids. Also, stay on your feet and don't lose your balance.

- C. Play the game until all the cards have been turned over, or as time allows. Then say or paraphrase the following:

What was the pattern between the kinds of foods and the number of times you did the exercises? (You did an exercise only 5 times for a GO food; you did an exercise 10 times for a WHOA food.)

Why did you have to do the exercises a lot more times for WHOA foods? (When you eat a lot of WHOA foods, you need to do more exercise for your body to use up the foods.) WHOA foods usually contain more unhealthy kinds of fat and added sugars.




What did we say can happen if you eat a lot of WHOA foods—especially if you don't do enough GO activities? (Over time you might gain too much weight.)

If you eat GO foods more often than WHOA foods, and if you do GO activities just about every day, you'll help your body stay in balance. You'll also have lots of energy to run and play and do all the things you want to do.

ADDITIONAL ACTIVITIES

1. Have participants illustrate their own message of being in energy balance from eating healthy foods and doing GO activities. Tell them to draw something related to healthy foods on one half of a page, and something related to GO activities on the other half.
2. Have participants set a two-part goal:
 - To eat at least two more GO foods than they usually do, and to do this each day for the next three days
 - To do one more GO activity than they usually do, and to do this each day for the next three days

Food Cards

<p>GO</p> <p><u>Baked Chicken</u> <u>without Skin</u></p>  <p>5 Arm Circles</p>	<p>GO</p> <p><u>Black Beans</u></p>  <p>5 Jumping Jacks</p>	<p>GO</p> <p><u>Low-fat Milk</u></p>  <p>5 Knee Lifts</p>
<p>GO</p> <p><u>Corn Tortilla</u></p>  <p>5 Invisible Jump-Ropes</p>	<p>GO</p> <p><u>Cucumber</u></p>  <p>5 Toe Touches</p>	<p>GO</p> <p><u>Pineapple</u></p>  <p>5 Toe Touches</p>

Food Cards

<p>SLOW</p> <p><u>Chocolate Low-fat Milk</u></p>  <p>10 Invisible Jump-ropes</p>	<p>SLOW</p> <p><u>Eggs Fried in Vegetable Oil</u></p>  <p>10 Knee Lifts</p>	<p>SLOW</p> <p><u>Baked Fish Sticks</u></p>  <p>10 Arm Circles</p>
<p>SLOW</p> <p><u>Low-fat Sour Cream</u></p>  <p>10 Arm Circles</p>	<p>SLOW</p> <p><u>Cornbread</u></p>  <p>10 Toe Touches</p>	<p>SLOW</p> <p><u>Carrots prepared with vegetable oil</u></p>  <p>10 Jumping Jacks</p>

Food Cards

WHOA <u>Whole Milk</u>  15 Arm Circles	WHOA <u>Corn Chips</u>  15 Jumping Jacks	WHOA <u>Fried French Fries</u>  15 Toe Touches
WHOA <u>Sweet Rolls</u>  15 Knee Lifts	WHOA <u>Fried Chicken</u>  15 Invisible Jump-Ropes	WHOA <u>Soft Drink</u>  15 Toe Touches

2. Bring in ingredients for making a trail mix, such as the following:
 - One or more types of unsweetened dried fruits
 - Pumpkin seeds, raw or roasted without salt
 - Sunflower seeds, raw or roasted without salt
 - One or more types of nuts
 - Whole-wheat, corn, or rice squares cereal
 - Spoon-size shredded-wheat cereal
 - Toasted oat O's cereal

Have participants create and eat a sample-size serving of their own trail mix, using a tablespoon of each of three of the ingredients. Tell them that the trail mix is a high-fiber snack.

3. While teaching the lessons in the Snacks theme, on poster board or chart tablet paper keep an on-going list of healthy snack ideas that participants contribute. Encourage them to name high-fiber snacks to add to the list.

Appendix C: CATCH Kids Club Lesson 3

Beverages: Sugary Beverages

Beverages: Thirst-Quenching Water

Theme: **Beverages**

Lesson: **Sugary Beverages**

OBJECTIVES

Participants will:

- Distinguish between natural and added sugars
- Compare 100% fruit juices and sugary beverages in terms of nutrients and amount of sugar

MATERIALS

- 1/2 cup of sugar in a small bag or container
- Teaspoon measuring spoon
- Dark-colored plate

1. DISCUSSION

TEACHER NOTE

"Soft drink" is used in the CATCH Kids Club program. If participants call this type of beverage "soda," "pop," or "soda pop," you may want to do one of the following: (1) point out that "soft drink" refers to the same type of beverage; (2) substitute the word they use for "soft drink" throughout the lesson.

- A. Explain the difference between natural and added sugars by saying or paraphrasing the following:

In the next few CATCH Kids Club lessons, we're going to talk about beverages. The word *beverage* may be new for you, so let's find out what it means. A beverage is simply something you drink. [Have participants repeat the word *beverage* a few times.] Are 100% fruit juices beverages? (Yes) Are soft drinks beverages? (Yes) Do you think all beverages are GO beverages? (No) Let's find out why.

Does apple juice taste sweet? (Yes) Does a soft drink taste sweet? (Yes) It's true that they're both sweet. But did you know that the kinds of sugar that make them taste sweet are very different?

The kinds of sugar in 100% fruit juices are natural sugars. They're already in the fruits used to make the juice. When you eat and drink foods that contain natural sugars, you're also getting vitamins and minerals that help you stay healthy.

Other foods contain kinds of sugar that aren't natural. For example, white sugar, brown sugar, and corn syrup are kinds of sugar that aren't naturally found in foods. How do you think those kinds of sugar get in foods? (They're added.) Those kinds of sugar are usually added to the foods in the factories that make them. Sometimes the person who cooks a food adds sugar. Sometimes the person who eats a food adds sugar. Raise your hand if you've ever added sugar to a food.

If the sugars in a food were added at a factory, that food is less likely to contain vitamins and minerals—and more likely to be a WHOA food. Foods that contain natural sugars are mostly GO foods.

Let's call beverages that contain added sugars "sugary beverages." Do you think soft drinks are the only kind of sugary beverage? (No)

- B. Say each of the following types of sugary beverages and ask participants to give a brand-name example: sports drink, fruit juice drink, fruit-flavored drink. Point out that (1) fruit juice drinks usually contain only 5% or 10% juice, which is a tiny amount, and (2) fruit-flavored drinks are only colored sugar water and contain no fruit juice at all.

2. DEMONSTRATION

- A. Tell participants they're going to compare the amount of sugars in a 100% fruit juice and in a soft drink.
- B. Measure out 5 teaspoons of sugar onto the plate, and show this amount to participants. Point out that this is more or less the amount of natural sugars in a small carton of 100% orange juice. Tell participants to do one toe touch for each teaspoon of sugar in the carton of orange juice.
- C. Measure out 16 teaspoons of sugar onto a different area of the plate, and show this amount to participants. Point out that this is more or less the amount of added sugars in a large (20-ounce) bottle of a soft drink. Tell participants to do one toe touch for each teaspoon of sugar in the soft drink.

- D. Ask a few participants to comment on the difference. Then say or paraphrase the following:

Think back to what we learned about your body being in or out of balance. If you eat *more* food than your body uses up, your body will get out of balance and over time you may gain too much weight.

Drinking too many beverages with added sugars can get your body out of balance and, over time, make you gain weight. Sugary beverages can also hurt your teeth. How? (By causing little holes in them called cavities)

- E. Ask participants to raise their hand if they already drink GO 100% fruit juices. Reinforce them for a positive response. Ask them to raise their hand if they're going to drink fewer WHOA sugary beverages. Reinforce them for a positive response.

ADDITIONAL ACTIVITIES

1. Either bring in, or have participants bring in, empty, clean containers of several types of 100% fruit juice and sugary beverages. Divide participants into groups. Group older participants with younger ones. Have groups look at the number of grams of sugars in each Nutrition Facts label. Tell them to rank the beverages from smallest to greatest amount of sugars.
2. Poll participants on their favorite kind of 100% fruit juice among the following: grape juice, apple juice, pineapple juice, orange juice. Guide participants to create a bar graph using the results of the poll.

Theme: **Beverages**

Lesson: **Thirst-Quenching Water**

TEACHER NOTE

In the Beverages theme, the **Sugary Beverages** lesson should be taught prior to this lesson.

OBJECTIVES

Participants will:

- Identify health benefits of drinking water
- Identify water as a GO beverage

MATERIALS

- *(Optional)* Clean, empty 8-ounce milk carton
- *Water Rhyme* handout (one half-page per participant)

PREPARATION

Cut apart the *Water Rhyme* handouts on the broken lines.

1. ROLE-PLAY AND DISCUSSION

- Remind participants that in the last CATCH Kids Club lesson they learned about some beverages that are WHOA foods because they contain a lot of added sugars. Have them name these sugary beverages. (Soft drinks, sports drinks, fruit juice drinks, fruit-flavored drinks) Ask them to name the naturally sweetened GO beverage they learned about. (100% fruit juice)
- Tell participants that now they're going to learn about another GO beverage—and that this one contains no sugar at all. Ask them to stand up. Say the following:

I'm going to describe a scene. Listen carefully. Play like you're the kid in the scene. Do all the actions the kid would do.

"It's a really hot day. You're running on the playground. You're throwing balls. You're catching balls. Now it's time to walk to the school building. You walk inside to the water fountain. You lean over. You take a long drink of water."

How does the water taste?

- C. Have several participants answer the question. Encourage them to use descriptive words. Have participants sit down. Then say or paraphrase the following:

Water tastes great when you're thirsty. Did you know that this GO beverage also helps your body in many ways? When you were the kid in the scene, did you bend your arms and legs when you were running and playing catch? Water helps you bend parts of your body.

Listen to other ways that water helps your body.

- It helps you fight off illness.
- It helps your body cool off when it's too hot.
- It helps your blood move through your body.
- It helps your body get rid of the parts of food it can't use.

2. RHYME

- A. Say or paraphrase the following:

Besides all the wonderful things that water does to help your body, it quenches your thirst. Have you heard the expression "quench your thirst" before? When something quenches your thirst, it makes your thirst go away. Did water quench your thirst when you were the kid in the scene drinking from the fountain? (Yes)

You're about to hear a rhyme about water. In the rhyme, this GO beverage is called "thirst-quenching." What does that mean? (Water makes your thirst go away.)

- B. Read the "Water Rhyme" below two times. [Note: Underlined, boldfaced words and syllables are the strong beats and should be given the most stress.]

Water Rhyme

When you're thirsty,
Drink a lotta
Clear thirst-quenching
Plain ol' water.

SNACK RECIPE: Fruit Smoothie

Note: Fruit chunks will need to be frozen overnight.

INGREDIENTS:

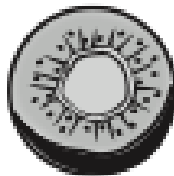
- 2 kiwi fruits
- 1 banana
- ½ cup 100% orange juice
- ½ cup frozen mango chunks (or other frozen fruit chunks)

UTENSILS, ETC.:

- Knife and cutting board
- Peeler
- Blender (or food processor)
- Measuring cups

DIRECTIONS:

1. Peel and slice the kiwi fruits and put them in a blender.
2. Measure out the orange juice and frozen fruit chunks.
3. Add the banana, orange juice, and frozen fruit chunks to the blender.
4. Blend until smooth.



Serves: 2

Note: If the recipe must follow the USDA Meal Pattern for after-school snacks, include one of the following ingredients (per participant) to eat along with the smoothie.

- 1 ounce of cheese
- 1 ounce of nuts or seeds
- 1 ounce of meat
- 1 muffin



Fruit Smoothie with String Cheese	Nutrient Amount
Calories (kcal)	237
Fat (g)	5
% kcal from fat	21%
Saturated fat (g)	4
% kcal from saturated fat	15%
Dietary fiber (g)	5
Sugars (g)	26
Sodium (mg)	155
Protein (g)	9
Vitamin A (IAP)	65
Vitamin C (mg)	108
Calcium (mg)	245
Iron (mg)	1

Appendix D: CATCH Kids Club Lesson 4

Fast Foods: Fast Food Strategies

Grade Levels: K-2; 3-5

Theme: Fast Foods

Lesson: Fast Food Strategies

TEACHER NOTES

1. In the Fast Foods theme, the **Fast Food Strategies** lesson, **Unhealthy Fats** lesson, **Too Much Salt!** lesson, and **GO and WHOA Fast Foods** lesson should be taught in the sequence in which they appear in this manual.
2. This lesson is intended for both K-2 and 3-5 participants, except for the following: (1) the word *energy* is used in references to energy balance only in the 3-5 lesson; (2) one of the *Additional Activities* is applicable only to participants in the 3-5 group.

OBJECTIVE

Participants will:

- Identify strategies for making healthier fast food choices

MATERIALS

- *Fast Foods Cheer* handout (one per participant)

1. DISCUSSION AND CHEER

- A. Introduce the Fast Foods theme by saying or paraphrasing the following:

In the CATCH Kids Club lessons, you've learned about three things in foods that can make them WHOA foods. What are they? (Salt, added sugars, solid fats)

In the next four lessons, we're going to talk about fast foods. Raise your hand if you like to go to fast food restaurants. They're fun. But think about the foods you can order at these restaurants. Are many of them GO or WHOA foods? (WHOA foods)

You're going to hear about some WHOA fast foods that contain a lot of salt, or a lot of added sugars, or a lot of unhealthy, solid fats—or maybe two of these things. You're also going to learn about ways to eat healthier at fast food restaurants.

- B. Review the concept of energy balance by saying or paraphrasing the following:

Think back to what we learned about your body being in or out of [energy] balance. What can happen when you eat *more* food than your body uses up? (Your body can get out of [energy] balance and over time you may gain too much weight.)

Eating too many *fast foods* can get your body out of [energy] balance and make you gain weight. That is because lots of fast foods contain solid fats or added sugars.

Eating foods that contain a lot of salt doesn't make people gain weight. But these foods aren't healthy for another reason, and you'll find out why in one of the lessons. *Make heart work harder / wear out sooner maybe*

Since many fast foods contain added sugars, a lot of salt, and unhealthy, solid fats, it's best to eat them only once in a while. Let's learn a cheer that says this.

- C. Teach participants the "Fast Foods Cheer." [Note: Underlined, boldfaced words and syllables are the strong beats and should be given the most stress.]

Fast Foods Cheer

Cheeseburgers, milkshakes
Fried chicken, french fries . . .
Fast foods can be fun to eat.

But since they're WHOA foods—
Fatty and sugary—
They should be a sometimes treat.

2. STRATEGIES

- A. Say or paraphrase the following:

Have you heard the word *strategy* before? A strategy is a plan or way to reach a goal.

One of the goals in CATCH Kids Club is to eat healthy foods so that your body stays in [energy] balance. The cheer we just did names one strategy for reaching this goal: to eat fast foods only sometimes, or once in a while—like maybe once a week.

Now let's talk about a few strategies you can use when you *do* go to a fast food restaurant. One strategy is to order healthier foods. Let's name some of them. [As needed, supply the following:]

Salad	Grilled or broiled hamburger	Vegetarian pizza
Fruit	Grilled chicken (without the skin)	100% fruit juice
Low-fat milk		

But what if you really wanted to order a WHOA food? What could you do to eat less of the WHOA food?

- B. As needed, explain the following strategies and, if time allows, ask participants to give a few examples:
- Order a smaller size of the WHOA food. (*Examples:* Order a single-meat instead of a double-meat hamburger; order the smallest size of a soft drink.)
 - Share a larger size of the WHOA food with someone. (*Example:* Share a medium order of french fries with a friend.)
 - Take home part of a larger size of the WHOA food and eat it later. (*Example:* Eat half a personal pizza and take the other half home to eat for lunch the next day.)
- C. Give participants a *Fast Foods Cheer* handout. Point out the strategies below the cheer. Tell participants to say the cheer for their family and to show them the strategies.
- D. Encourage participants to use one or more of the strategies the next time they eat fast food.

SNACK RECIPE: Veggie-Cheese Kabob

INGREDIENTS:

- ½ cup fresh bell peppers (yellow, red, and/or green)
- ½ ounce cheddar cheese
- ½ cup (about 6) cherry or grape tomatoes

UTENSILS, ETC.:

- Knife and cutting board
- Toothpicks or mini-skewers

DIRECTIONS:

1. Wash the vegetables.
2. Slice the peppers into bite-sized wedges.
3. Slice the cheese into bite-sized cubes.
4. Thread the tomatoes and pieces of bell pepper and cheese on each toothpick or mini-skewer, alternating them.



Serves: 1

Alternative recipe ingredients:

Cheese: part-skim mozzarella, string, soy, Swiss
Vegetables: broccoli, celery, cauliflower, cucumber

Veggie-Cheese Kabob	Nutrient Amount
Calories (kcal)	85
Fat (g)	5
% kcal from fat	53%
Saturated fat (g)	3
% kcal from saturated fat	32%
Dietary fiber (g)	2
Sugars (g)	4
Sodium (mg)	95
Protein (g)	5
Vitamin A (RAI)	89
Vitamin C (mg)	50
Calcium (mg)	117
Iron (mg)	1

Appendix E: CATCH Kids Club Lesson 5

Snacks: Snacking on Vegetables

Theme: Snacks

Lesson: Snacking on Vegetables

TEACHER NOTE

In the Snacks Theme, the **Snacking on Fruits** lesson should be taught prior to this lesson.

OBJECTIVES

Participants will:

- Identify vegetables of a variety of colors
- Identify health benefits of vegetables
- Recognize that vegetables are healthy snacks

MATERIALS

- *So Many Vegetables!* handout (one per participant)
- Sets of crayons (or markers) of the following colors: Purple, green, red, white, yellow, orange (one set per pair of participants)

1. DISCUSSION

- Ask participants if their parents and teachers want them to eat a lot of vegetables. Tell them the reason for this is that vegetables help kids' bodies in so many ways.
- Say or paraphrase the following:

Vegetables are great GO foods, just like fruits are. And vegetables help your body in many of the same ways that fruits do.

Do you think fruits and vegetables help your body grow the way it should? (Yes) Do fruits and vegetables help you not get sick? (Yes) What do fruits and vegetables help you do when you cut yourself? (Heal faster) Which parts of your body do fruits and vegetables keep healthy? (Eyes, skin, bones, teeth, hair) Finally, why do fruits and vegetables help your body stay in balance? (Because they don't contain unhealthy kinds of fat or sugar)

Are all vegetables the same color? (No) Let's see which colors vegetables can be.

2. COLORING VEGETABLES

- A. Divide participants into pairs. Group readers with non-readers, if applicable. Give each pair a set of crayons. Give each participant a *So Many Vegetables!* handout.
- B. For each vegetable, do the following:
- Say its name and have participants repeat it.
 - Say whether the outside part can be eaten along with the inside part.
 - Describe the outside and inside, including the color(s). Say whether the vegetable comes in more than one color. [As needed, use the information that follows this list of bulleted points.]
 - Have participants color the vegetable using the color of the part that is eaten. If a vegetable comes in more than one color, tell participants to choose one of the possible colors.

Asparagus: Entire vegetable can be eaten; green outside and inside

Beets: Outside part usually not eaten; usually purple outside and inside

Bell peppers: Entire vegetable eaten; either green, red, yellow, or orange outside and inside

Broccoli: Entire vegetable can be eaten; green outside and inside

Cabbage: Entire vegetable can be eaten; either green or purple outside and inside

Cauliflower: Entire vegetable can be eaten; white outside and inside

Celery: Entire vegetable can be eaten; green outside and inside

Cucumber: Entire vegetable can be eaten; usually green outside and white inside

Eggplant: Entire vegetable can be eaten; usually purple outside and white inside

Spinach: Entire vegetable can be eaten; green outside and inside

Sweet Potato: Outside part usually not eaten; orange outside and inside

Zucchini: Entire vegetable can be eaten; green outside and white inside

- C. Ask participants if they remember why it's best to eat fruits of different colors every day whenever they can. (Fruits of different colors help your body in different ways.) Tell them the same is true for vegetables.
- D. Tell participants that vegetables make great GO snacks. Ask a few participants which vegetables they could eat at snack-time. (*Possible answers:* Baby carrots, cherry tomatoes, cut-up raw vegetables like broccoli and zucchini with a low-fat dip)

- E. Say or paraphrase the following:

Some kids think a vegetable they've never tried before is going to be yucky. If you think this, be brave! Try a bite or two. You might like it! And even if the new vegetable doesn't taste just right the first time, don't give up. The more you try a new food, the more you'll like it.

Take home your handout and show it to a grown-up at your house. Politely ask the grown-up to buy vegetables for you to try.

- F. Ask participants to raise their hand if they're going to eat vegetables more often for a snack. Reinforce participants for a positive response. If time allows, ask them what they intend to eat.

ADDITIONAL ACTIVITIES

1. Inform participants they're going to play a game called "Veggie Salad." Explain that *veggie* is a short way to say *vegetable*. Tell each participant the name of a vegetable from the *So Many Vegetables!* handout. Make sure the participant remembers what color the vegetable is.

Have participants stand in a big circle. Tell them they're going to make a delicious salad in a huge, make-believe bowl that is inside their circle—and that they're the vegetables for the salad!

Teach participants the following song, which they'll sing as they play the game:

(sung to the tune of "The Farmer in the Dell")

The salad needs a ____ [say a vegetable].

The salad needs a ____ [say the same vegetable].

The salad needs a ____ [say the color of this vegetable] veggie.

The salad needs a ____ [say the same vegetable].

Example:

The salad needs an eggplant.

The salad needs an eggplant.













The salad needs a purple veggie.

The salad needs an eggplant.

Snacks: Snacking on Vegetables

Name _____

So Many Vegetables!

asparagus 	cabbage 	eggplant 
beets 	cauliflower 	spinach 
bell peppers 	celery 	sweet potato 
broccoli 	cucumber 	zucchini 

SNACK RECIPE: Veggie Pocket

INGREDIENTS:

- 1 whole-wheat pita bread
- 2 Tablespoons prepared hummus (See recipe below.)
- 1 Tablespoon sliced tomatoes
- 1 Tablespoon sliced cucumber
- 1 Tablespoon bean sprouts (optional)



UTENSILS, ETC.:

- Knife and cutting board
- Peeler
- Tablespoon measuring spoon

DIRECTIONS:

1. Slice the tomato, peel and slice the cucumber into thin slices, and set these aside.
2. (Optional) Wash bean sprouts and place them on a paper towel to dry.
3. Tear about 1/3 off the top of the pita bread, saving the torn pieces to eat later.
4. Carefully open the pita bread, making sure not to tear it.
5. Spread 2 Tablespoons of the hummus into the pita bread, and smooth it evenly with the back of the spoon.
6. Slip the tomato and cucumber slices into the pita bread.
7. (Optional) Stuff bean sprouts into the pita bread.

Serves: 1

INGREDIENTS for Hummus:

- 2 cans chickpeas (garbanzo beans), one drained and one with liquid
- 1 Tablespoon olive oil
- ¼ cup lemon juice
- 1 garlic clove, peeled
- 1 teaspoon cumin
- ¼ teaspoon salt
- 2 Tablespoons tahini (ground sesame paste) (optional)

UTENSILS, ETC.:

- Knife and cutting board
- Blender or food processor
- ¼ cup measuring cup
- Tablespoon measuring spoons
- Teaspoon measuring spoons

DIRECTIONS:

1. Measure out all ingredients and put them in the blender or food processor.
2. Blend until smooth.

Yield: 3-¼ cups (makes 30 2-Tablespoon servings)

Veggie Pocket	Nutrient Amount
Calories (kcal)	180
Fat (g)	4
% kcal from fat	20%
Saturated fat (g)	1
% kcal from saturated fat	1%
Dietary fiber (g)	5
Sugars (g)	2
Sodium (mg)	309
Protein (g)	6
Vitamin A (RAE)	5
Vitamin C (mg)	3
Calcium (mg)	23
Iron (mg)	2

Appendix F: CATCH Kids Club Lesson 6

Snacks: Snacking on Fruits

Grade Levels: K-2

Theme: Snacks

Lesson: Snacking on Fruits

OBJECTIVES

Participants will:

- Identify fruits of a variety of colors
- Identify health benefits of fruits
- Recognize that fruits are healthy snacks

MATERIALS

- Fruit Cards (one per participant)

PREPARATION

Cut apart the Fruit Cards.

1. DISCUSSION

- A. Ask participants why they think doctors, parents, and other adults want them to eat a lot of fruit. (*Possible answers:* Fruit is good for you; fruit helps you stay healthy; fruits contain a lot of vitamins.)
- B. Say or paraphrase the following:

Fruits are great GO foods. Listen to all the good things they do for you.

- They help your body grow the way it should.
- They help you stay well.
- When you cut yourself, they help you heal faster.
- They keep your eyes, skin, bones, teeth, and hair healthy.
- Since they don't contain unhealthy kinds of fat or sugar, they help your body stay in balance.

Fruits also help you in another important way. They give you energy. And when you have energy, you can run and play longer and do other things you like to do.

Are all fruits the same color? (No) Let's name the colors that fruits can be. [As needed, supply the following: red, orange, yellow, green, blue, purple.] Some fruits, such as grapefruits and the inside of a watermelon, are pink, which is a light red. We'll put such fruits in the group of red fruits.

All fruits help you in some way. But it's best to eat different kinds of fruit each day—and of different colors—whenever you can. That's because fruits of different colors help your body in different ways.

- C. Tell participants that fruits make great GO snacks. Then say or paraphrase the following:

Fresh fruit, like orange slices, a banana, or apple slices, are a quick snack. Raise your hand if you sometimes eat fresh fruit for a snack.

Some fruits are dried. They make great snacks too—especially when they're GO foods because no sugar has been added to them. Raise your hand if you've eaten raisins. Raisins are dried grapes!

Frozen fruit can be fun to eat. Raise your hand if you've eaten frozen grapes or some other kind of frozen fruit.

You can also buy fruit in a can. But be careful about canned fruit. A fruit is sometimes canned with very sweet syrup, and this makes it a WHOA food. Should you eat fruit canned with very sweet syrup often? (No, only once in a while)

TEACHER NOTE

If participants mention or ask about fruit juice, you can explain the following:

Although 100% fruit juice is one way to eat fruit at breakfast, eating whole fruits is more nutritious than drinking fruit juice. Edible skins and pulp in whole fruits provide fiber and important nutrients that are lost when fruits are made into fruit juice. For this reason, and the fact that fruit juice contains a lot of sugar (even though the sugar is natural and not added), you should limit it to 1 or 1½ cups a day.

2. GAME

- A. Say or paraphrase the following:

Most of you have probably heard of bananas, apples, and oranges. But let's learn about some fruits that might be new for you. And let's see what colors they are.

- B. Hold up the Fruit Cards, one at a time. As needed, describe their outside and inside, including what the color is of the part that is eaten, and whether the fruit can be more than one color. Have participants repeat the name of each fruit.
- C. Tell participants they're going to play the Fruit Train Game. Say or paraphrase the following directions:

Together we're going to make a Fruit Train. I'm going to give each of you a Fruit Card. I'll tell you the name of the fruit and ask you to repeat it. Remember your fruit because that's the kind of "fruit car" you'll be in the train.

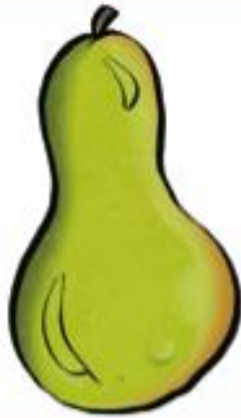
I'll be the train "engine." I'm going to move around and announce when it's time for each kind of fruit car to join the train. While you're waiting for me to call your fruit, jog in place.

When I call your fruit, join the train. Do this by getting behind the last kid already in the train.

Be careful not to bump into each other when you're joining the train or are already in it.

- D. Give a Fruit Card to each participant. [*Note:* More than one participant can be given the same fruit.] Say the name of the fruit and have the participant repeat it.
- E. Lead participants in the game. While the train is in motion, point out all the different colors of the fruits with remarks such as "We have two yellow fruit cars in our train: pineapple and mango" and "There are three fruit cars in our train that are red or light red: strawberry, watermelon, and grapefruit." [*Suggestion:* Change the tempo of the train movement after all participants have joined the train.]
- F. Ask participants to raise their hand if they're going to eat fruits more often for a snack. Reinforce participants for a positive response. If time allows, ask them what they intend to eat.

Fruit Cards



pear



watermelon



grapefruit



pineapple

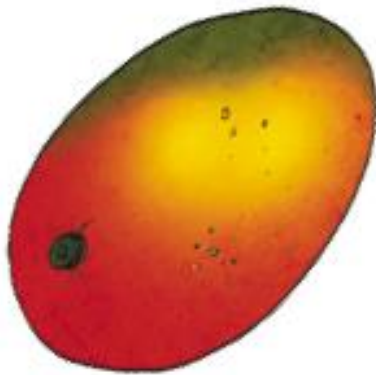
Fruit Cards



strawberry



grapes



mango



peach

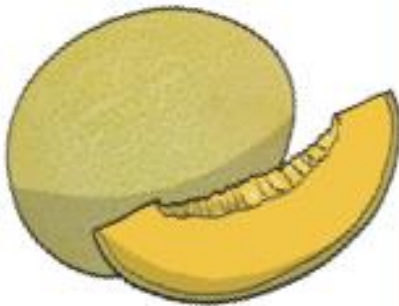
Fruit Cards



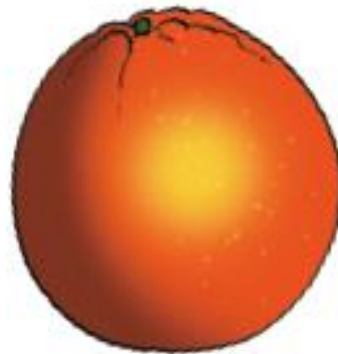
kiwi



blueberries



cantaloupe



tangerine

BREAKFAST RECIPE: Mango-Strawberry-Yogurt Parfait

INGREDIENTS:

- ½ cup vanilla low-fat yogurt
- ¾ cup spoon-sized shredded wheat cereal
- ½ cup fresh or frozen strawberries
- ¼ cup fresh or frozen mango cubes or slices
- 1 Tablespoon sliced or slivered almonds (optional)

UTENSILS, ETC.:

- Knife and cutting board
- Measuring cups
- Tablespoon measuring spoon
- Mixing bowl
- Large glasses (plastic or glass)



DIRECTIONS:

1. If the strawberries are fresh, wash them. If they are frozen, either set them out ahead of time to thaw, or place them in a microwaveable bowl and microwave them on MEDIUM (50%) for 1 minute, or until just thawed.
2. Peel the mango and cut the flesh into small chunks or slices.
3. Measure out the strawberries, mangos, and cereal, and mix them together in a bowl.
4. Layer the yogurt and cereal/fruit mixture alternately in the glasses.
5. (Optional) Sprinkle with the almonds.

Serves: 1

Alternative ingredients:

Yogurt: fruit-flavored non-fat or low-fat yogurt, plain yogurt
Strawberries: blueberries, raspberries, blackberries

Mango-Strawberry-Yogurt Parfait	Nutrient Amount
Calories (kcal)	354
Fat (g)	6
% kcal from fat	17%
Saturated fat (g)	1
% kcal from saturated fat	5%
Dietary fiber (g)	8
Sugars (g)	28
Sodium (mg)	248
Protein (g)	13
Vitamin A (RAE)	31
Vitamin C (mg)	57
Calcium (mg)	286
Iron (mg)	3

Appendix G: Parental Consent Form (text size and font altered)

Parental Permission Form

Dear Parent/Guardian,

My name is Jessica Drogowski. I am conducting a research study about healthy eating in kids. I am a student at Oakland University completing this study for my senior honors thesis. I am working under the direction of my advisor, Dr. Jennifer Lucarelli.

Children in K-3rd grade attending the Baldwin Center after school program are being asked to participate in this study. This form will tell you about the study to help you decide whether or not you want your child to participate. You should ask any questions you have before making up your mind. You can think about it and discuss it with your family or friends before you decide. It is okay to say “No” if you do not want your child to be in the study, they can still participate in the nutrition lessons. If you say “Yes” you can change your mind and your child may quit being in the study at any time without getting in trouble.

What is the study about?

I will be doing eight nutrition lessons during the after school program at the Baldwin Center. The purpose of this research is to see if this program improves what kids know about nutrition and helps them to make healthier food choices.

What will my child need to do and how long will they be in the study?

Your child will complete a short nutrition survey before the program begins. They will then participate in nutrition lessons twice a week for one month. They will complete the survey again at the end of the program for program evaluation purposes. The survey will take less than 10 minutes each time.

How many people will take part in this study?

Approximately 20 K-3rd grade students who attend the Baldwin Center program.

What risks, side effects or discomforts can my child expect?

We don't expect there to be any risks to your child participating in the study. They might not like some of the recipes that are made during the program, but they won't have to eat anything that they don't like.

What benefits can my child expect?

We expect your child to learn lots of fun information about food and health. They may also like trying out new foods and recipes. This program will help your child know more about nutrition so they can make healthy choices.

What choices does my child have if they do not take part in the study?

Your child will not be penalized in any way if they do not take part in the study. They will still be able to participate in the nutrition lessons and all other Baldwin Center activities, but will not take the evaluation surveys.

Will my child's study-related information be kept confidential?

Yes, your child's information (survey responses) will remain confidential in locked file cabinets in a research office on Oakland University campus. Only myself and my advisor, Dr. Jennifer Lucarelli, will have access to these files. No names will be used in reporting study results. Paper surveys will be properly destroyed 5 years after the study completion.

Who can I talk to about the study if I ever have more questions?

For questions about the study you may call me at (248) 802-1892. To discuss other study-related questions with someone who is not part of the research team, you may contact the chairperson of Oakland University's Institutional Review Board at 248-370-2762.

Signature

I have read (or someone has read to me) this form and I am aware that I am being asked to provide permission for my child to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to permit my child to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.

Print Name of Child

Relationship to the child

Print your name

Your signature

Date

PLEASE RETURN THIS FORM TO THE BALDWIN CENTER BY [INSERT DATE]

Appendix H: Child Assent Form (Text size and font altered)

CHILD ASSENT FORM

Dear Baldwin Center Students,

My name is Jessica Drogowski. I am doing a research study about healthy eating in kids. I am a student at Oakland University completing this study for my senior honors thesis. I am working under the direction of my advisor, Dr. Jennifer Lucarelli.

This study involves kids in K-3rd grade who take part in the Baldwin Center after school program. This form will tell you about the study to help you decide whether or not you want to participate. You should ask any questions you have before making up your mind. You can think about it and discuss it with your family or friends before you decide. It is okay to say “No” if you do not want to be in the study, you can still participate in the nutrition lessons. If you say “Yes” you can change your mind and quit being in the study at any time without getting in trouble. If you decide you want to be in the study, an adult (your parent) will also need to give permission for you to be in the study.

What is the study about?

We will be doing nutrition lessons during the after school program at the Baldwin Center. The purpose of this research is to see if this program improves what kids know about nutrition and helps kids to make healthier food choices.

What will I need to do and how long will I be in the study?

You will complete a short survey before the program begins. You will then participate in nutrition lessons twice a week for one month. You will complete the survey again at the end of the program. The survey will take less than 10 minutes.

Can I stop being in the study?

You may stop being in the study at any time. You may also refuse to answer any questions that may be asked of you during the study.

What bad things might happen to me if I am in the study?

We don’t expect there to be any risks to you participating in the study. You might not like some of the recipes, but you won’t have to eat anything that you don’t like.

What good things might happen to me if I am in the study?

We expect you to learn lots of fun information about food and health. You may also like trying out new foods and recipes. This program will help you know more about nutrition so you can make healthy choices.

Will I be given anything for being in the study?

You will be able to participate in fun interactive food lessons and will make tasty snacks during the program.

Who can I talk to about the study if I ever have more questions?

You can ask me (Jessica) at the Baldwin Center or call me at (248)802-1892. To talk about other study-related questions with someone who is not part of the research team, you can call the chairperson of Oakland University's Institutional Review Board at 248-370-2762.

Signature

I have read (or someone has read to me) this form. I have had a chance to ask questions before making up my mind. I want to be in the research study.

Write or sign your name

Date

Investigator/Research Staff

I have explained the research to the participant before requesting the signature above. There are no blanks in this document. A copy of this form has been given to the participant or his/her representative.

Signature of person obtaining the assent

Date

Print name of person obtaining the assent

Appendix I: Pre-/Post-test (text size and image size & orientation altered)

NAME: _____

CIRCLE THE RIGHT ANSWER

1. How many cups of fruit should you eat in a day?

1 cup 2 cups 3 cups

2. How many cups of vegetables should you eat in a day?

1 cup 2 cups 3 cups

3. Can how much food you eat affect if you are healthy or sick?

Yes No

4. Can being physically active affect if you are healthy or sick?

Yes No

5. Is it important to eat vegetables of different colors?

Yes No

6. Why can eating fruits help you stay healthy?

- a. Fruits are cool colors
- b. Fruits taste good
- c. Fruits help your skin heal when it gets cut

7. Does drinking enough water each day help you stay healthy?

Yes

No

8. When you are at a restaurant, which food is healthiest to order?

Large fries

Apple slices

Cherry pie

CIRCLE THE LETTER THAT DESCRIBES WHAT YOU EAT

9. How often do you drink water?

- a. A few times a day
- b. Once a day
- c. Two or three times a week
- d. Once a week
- e. Never

10. How often do you drink pop?

- a. A few times a day
- b. Once a day
- c. Two or three times a week
- d. Once a week
- e. Never

11. How often do you eat vegetables?

- a. A few times a day
- b. Once a day
- c. Two or three times a week
- d. Once a week
- e. Never

12. How often do you eat fruits?

- a. A few times a day

- b. Once a day
- c. Two or three times a week
- d. Once a week
- e. Never

NAME: _____

CIRCLE THE FRUITS YOU LIKE TO EAT



Apple



Banana



Blueberry



Grape



Pineapple



Watermelon



Kiwi



Strawberry



Cherry



Orange

NAME: _____

CIRCLE THE VEGETABLES YOU LIKE TO EAT



Carrot



Pepper



Celery



Potato



Cucumber



Broccoli



Corn



Cauliflower



Spinach



Tomato

References

- Aday, L.A. (2001). *At risk in America: The health and health care needs of vulnerable populations*. San Francisco, CA: Jossey-Bass Inc. Retrieved from http://books.google.com/books?hl=en&lr=&id=dGOkhxV-4eoC&oi=fnd&pg=PR9&dq=At+risk+in+America:+The+health+and+health+care+needs+of+vulnerable+populations&ots=o2gwZQ_5vM&sig=JvCR0mkE5zRn1Ua5WJB-LdneFSw#v=onepage&q=At%20risk%20in%20America%3A%20The%20health%20and%20health%20care%20needs%20of%20vulnerable%20populations&f=false
- Bantle, J.P., Wylie-Rosett, J., Albright, A.L., Apovian, C.M., Clark, N.G., Franz, M.J., ... Wheeler, M.L. (2008). Nutrition recommendations and interventions for diabetes: A position statement of the American Diabetes Association. *Diabetes Care, 31(Sup)*, S61-S78.
doi: 10.2337/dc08-S061
- Baumol, W.J. (1993). Health care, education and the cost disease: A looming crisis for public choice. *Public Choice, 77(1)*, 17-28.
doi: 10.1007/978-94-017-3402-8_3
- Birch, L.L. & Fisher, J.O. (1998). Development of eating behaviors amongst children and adolescents. *Pediatrics, 101(Supp2)*, 539-549. Retrieved from http://pediatrics.aappublications.org/content/101/Supplement_2/539.full
- Briggs, M., Safali, S., & Beall, D.L. (2003). Position of the American Dietetic Association, Society for Nutrition Education, and American School Food Service Association—nutrition services: An essential component of comprehensive school health programs. *Journal of the American Dietetic Association, 103(4)*, 505-514.
[http://dx.doi.org/10.1016/S0002-8223\(03\)00163-9](http://dx.doi.org/10.1016/S0002-8223(03)00163-9)

- Capwell, S., Ford, E.S., Croft, J.B., Critchley, J.A., Greenlud, K.J., & Labarthe, D.R. (2010). Cardiovascular risk factor trends and potential for reducing coronary heart disease mortality in the United States of America. *Bulletin of the World Health Organization*, 88(2).
<http://dx.doi.org/10.1590/S0042-96862010000200013>
- Camilli, G., Vargas, S., Ryan, S., & Barnett, W.S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record*, 112(3), 579-620. Retrieved from
<http://www.tcrecord.org/content.asp?contentid=15440>
- Fryar, C.D., Carroll, M.D., & Ogden, C.L. (2012, September). NCHS Health E-Stat: Prevalence of obesity among children and adolescents: United States, trends 1963-1965 through 2009-2010. Retrieved from <http://cdc.gov>
- Glanz, K., Rimer, B.K., & Viswanath, K. (eds.) (2008). *Health behavior and education: Theory, research, and practice*. San Francisco, CA: Jossey-Bass. Retrieved from
<http://books.google.com/books?hl=en&lr=&id=WsHxyj710UgC&oi=fnd&pg=PR5&dq=Health+behavior+and+education:+Theory,+research,+and+practice.&ots=EVS-YcKoWO&sig=BWXgVtCfUf7kDkfv5J0aCr1V0jA>
- Haury, D.L. (1993). *Teaching science through inquiry. ERIC/CSMEE Digest*. Columbus, OH: ERIC Clearinghouse for Science Mathematics and Environmental Education. Retrieved from
[http://www.uhu.es/gaia-inm/invest_escolar/httpdocs/biblioteca_pdf/14_HAURY\[1\].1993%20TEACHING%20SCIENCE%20THROUGH%20INQUIRY.pdf](http://www.uhu.es/gaia-inm/invest_escolar/httpdocs/biblioteca_pdf/14_HAURY[1].1993%20TEACHING%20SCIENCE%20THROUGH%20INQUIRY.pdf)

- Ivanovic, D., Castro, C.G., & Ivanovic, R. (1997). Food and nutrition knowledge of school-age children's mothers from elementary and high school from different socioeconomic levels. *Arch Latinoam Nutr*, 47(3), 248-255. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/9673681>
- James, P.T. (2004). Obesity: The worldwide epidemic. *Clinics in Dermatology*, 22(4), 276-280. <http://dx.doi.org/10.1016/j.clindermatol.2004.01.010>
- Kelder, S., Hoelscher, D.M., Barroso, C.S., Walker, J.L, Cribb, P., & Hu, S. (2004). The CATCH kids club: A pilot after-school study for improving elementary students' nutrition and physical activity. *Public Health Nutrition*, 8(2), 133-140. doi: 10.1079/PHN2004678
- Kember, D. & Gow, L. (1994). Orientations to teaching and their effects on the quality of student learning. *The Journal of Higher Education*, 65(1), 58-74. Retrieved from <http://www.jstor.org/stable/2943877>
- Lifshitz, F., Tarim, O., & Smith, M.M. (1993). Nutrition in adolescence. *Endocrinology and Metabolism Clinics of North America*, 22(3), 673-683. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/8243454>
- Lorson, B.A., Melgar-Quinonez, H.R., & Taylor, C.A. (2009). Correlates of fruit and vegetable intake in US children. *Journal of the American Dietetic Society*, 109(3), 474-478. Retrieved from <http://www.thefreshfoodspundit.com/docs/fruit-vegs-kidsdiet.pdf>
- Mascarenhas, M.R., Zemel, B., & Stallings, V.A. (1998). Nutritional assessment in pediatrics. *Nutrition*, 14(1), 105-115. doi: 10.1016/S0899-9007(97)00226-8

- Mcfarlane, T. & Pliner, P. (1997). Increasing willingness to taste novel foods: Effects of nutrition and taste information. *Appetite, 28*(3), 227-238.
<http://dx.doi.org/10.1006/appe.1996.0075>
- Mello, C. (2008). You are what you eat. *The Student Writing Anthology 2008-2009: University of Massachusetts Amherst*, 51.
- Mus, A. & Strauss, R.S. (1999). Risks and consequences of childhood and adolescent obesity. *International Journal of Obesity 23*(Suppl 2), S2-S11.
doi: 10.1038/sj.ijo.0800852
- Myers J.E., Sweeney, T.J., & Witmer, J.M. (2000). The wheel of wellness counseling for wellness: A holistic model for treatment planning. *Journal of Counseling and Development, 78*(3), 251-266.
doi: 10.1002/j.1556-6676.2000.tb01906.x
- Nader, P.R, Stone, E.J., Lytle, L.A., Perry, C.L., Osganian, S.K., Kelder, S., ... Luepker, R.V. (1999). Three-year maintenance of improved diet and physical activity: The CATCH cohort. *Archives of Pediatric and Adolescent Medicine, 153*(7), 695-704.
doi:10.1001/archpedi.153.7.695
- Nishida, C., Uauy, R., Kumanyika, S., & Shetty, P. (2004). The joint WHO/FAO expert consultation on diet, nutrition, and the prevention of chronic diseases: Process, product, and policy implications. *Public Health Nutrition, 7*(1A), 245-250.
doi: 10.1079/PHN2003592
- Osganian, S.K., Parcel, G.S., & Stone, E.J. (2003). Institutionalization of a school health promotion program: Background and rationale of the CATCH-ON study. *Health Education & Behavior, 30*, 410-417.

doi: 10.1177/1090198103252766

Sizer, F.S. & Whitney, E. (2011). Nutrition: Concepts and controversies. (12th ed.). Belmont, CA: Wadsworth, Cengage Learning.

Sobal, J. & Stunkard, A.J. (1989). Socioeconomic status and obesity: A review of the literature. *Psychological Bulletin*, 105(2), 260-275. Retrieved from <http://psycnet.apa.org/?fa=main.doiLanding&doi=10.1037/0033-2909.105.2.260>

Wang, Y.C., McPherson, K., Marsh, T., Gortmaker, S.L., Brown, M. (2011). Health and economic burden of the projected obesity trends in the USA and the UK. *The Lancet*, 378(9793), 815-825. Retrieved from www.thelancet.com

Wanless, D. (2004). *Securing good health for the whole population: Final report*. London, England: HMSO. Retrieved from http://www.commed.vcu.edu/IntroPH/Introduction/wanless_health_trends.pdf

Zhang, Q. & Wang, Y. (2004). Trends in the association between obesity and socioeconomic status in U.S. adults: 1971 to 2000. *Obesity Research*, 12(10), 1622-1632.
doi: 10.1038/oby.2004.202