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DISCOVERY NEIGHBORHOOD MYPLATE MACY: A PILOT STUDY

by

Amanda Marie Robine

A THESIS

Presented to the Faculty of  
The Graduate College at the University of Nebraska  
In Partial Fulfillment of Requirements  
For the Degree of Master of Science

Major: Nutrition & Health Sciences

Under the Supervision of Professor Julie Albrecht

Lincoln, Nebraska

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## DISCOVERY NEIGHBORHOOD MYPLATE MACY: A PILOT STUDY

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University of Nebraska, 2015

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**Background:** Obesity prevalence in United States children ages 2-19 years has been consistently high since 2003.<sup>1</sup> These children are at a greater risk for many chronic disease. Educating children on how to make healthful food choices, and using fun characters in a classroom setting may be one step to reducing the obesity rate.

**Objective:** Increase knowledge about MyPlate and healthy eating in children in kindergarten through fifth grade.

**Design:** After the development of a nutrition lesson, an expert panel reviewed and suggested changes. Once changes were made the lesson was delivered to second and third graders at a summer camp. Data were analyzed to determine if an increase in nutrition knowledge existed.

**Participants:** Six members of an expert panel, 6 second graders, and 8 third graders.

**Statistical Analysis:** Means and standard deviations of the expert panel's rating were calculated. Percentages of students answering nutrition questions correctly were analyzed and compared from a pre- and post- evaluation.

**Results:** The expert panel rated the lesson met the objectives, was age appropriate and clear, provided an overview of MyPlate, and followed the Experiential Learning Model. Second graders increased their ability to identify foods from the grain group (+16.7%) and protein group (+16.6%). Third graders increased their ability to correctly identify the number of food groups in a meal (23.2%), and identify the missing food group grain (12.5%) and vegetable (12.5%).

**Conclusions:** The expert panel was a key component to developing the MyPlate lesson. A small increase in knowledge was seen through this lesson, students were engaged and learned about making healthy choices.

Dedication

To Zach-

Your unfailing love and support pushed me to finish, you always knew I would be successful and for that I am forever grateful.

## Acknowledgements

A special thank you to the University of Nebraska Lincoln Campus Recreation Staff who supported me and allowed me to implement this lesson during summer camp.

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## **Chapter 1: Introduction**

### **Childhood Obesity**

In 2011-2012 8.4% of children in the United States 2-5 years old were obese and 17.7% of children 6-11 years old were obese.<sup>1</sup> Obesity is defined as children whose body mass index (BMI) falls at or above the 95<sup>th</sup> percentile on the Center for Disease Control (CDC) BMI for age growth charts. Children with obesity are at a greater risk for high blood pressure, high cholesterol, insulin resistance, breathing problems, joint problems, and psychosocial issues. Obese children are also at a greater risk for cardiovascular diseases, diabetes, and some cancers as adults.<sup>2</sup>

The Youth Risk Behavior Survey<sup>3</sup> (YRBS) is conducted every 2 years, and provides valuable information representing CDC priority health risk behaviors in middle school and high school students. The YRBS was most recently completed in 2013. From this survey, the CDC found that 21.9% of middle school students ate fruit/drank 100% fruit juice 3 or more times in one day, and 5.0% did not eat any fruit/drink 100% fruit juice. Vegetable consumption for middle school students was that 15.7% of students ate vegetables 3 or more times per day, and 6.6% did not eat any vegetables. The CDC also reported that 12.5% of middle school students drank 3 or more glasses of milk per day, while 19.4% of middle school students did not drink any milk. Three or more cans/bottles of soda/pop per day were consumed by 11.2% of middle school students, and 13.7% of students did not eat breakfast.

Nebraska's YRBS results were collected in 2012 and was divided into 3 age groups: 15 or younger, 16 or 17, and 18 or older. <sup>4</sup>For Nebraska students 15 years old or younger 16.1% reported eating fruits and vegetables 5 or more times per day. Approximately 4.4% of students reported not eating any fruits/drinking 100% fruit juice, and 5.3% reported not eating any vegetables. There were 6.3% of students ages 15 or younger who drank a can, bottle, or glass of pop/soda 3 or more times per day. Thirteen and a half percent of Nebraska students ages 15 or younger drank 3 or more glasses of milk per day, and 12% of students did not drink any milk in a day. Finally, 9.9% of Nebraska students ages 15 or younger did not eat breakfast.

In 2014, Nebraska completed a school health profile. The Nebraska School Health Profiles Report<sup>5</sup> assesses and monitors school health education. In 2014, 91.0% of middle school teachers tried to increase knowledge in the area of nutrition and dietary behavior. Teachers did this by teaching the benefits of healthy eating (90.7%), the benefits of eating breakfast every day (90.7%), differentiating between nutrition and non-nutrition beverages (86.2%), the benefits of eating more fruits, vegetables and whole grains (90.7%), and the benefits eating a variety of foods that are high in calcium (83.9%).

### **Healthy Eating Knowledge, Attitudes, and Behaviors of Youth**

One group of researchers conducted a focus group study to determine youth understanding of obesity, to determine gaps in nutrition knowledge, dietary habits and if youth think they are susceptible to obesity.<sup>6</sup> Ten focus groups were conducted to aid in the development of a public health program. The focus groups consisted of five youth per



group with the youth ranging from 4<sup>th</sup> to 7<sup>th</sup> grades. Normal weight and overweight children were included in each group. The researchers defined understanding as “comprehending or having a mental grasp on the concept;” recognition was defined as “being able to identify obesity;” and perception was defined as “interpretation of obesity in relation to the youths’ daily lives.”<sup>3</sup> The focus groups were analyzed using inductive thematic analysis which identified themes throughout the context of the focus groups.

The researchers found three themes emerge from the focus groups.<sup>6</sup> The first theme focused on attitudes toward consuming healthy foods. Female participants were most likely to have positive feelings toward healthy eating; while male participants considered healthy foods as not having a good taste. Females were also able to identify the connection between what they choose to eat and body weight. Youth reported gaining knowledge about healthy eating from their parents or from classes at school.

The next theme that emerged indicated attitudes that youth have which was: “Obesity may be a problem and it does not apply to me.”<sup>6</sup> Youth were able to define obesity, but often did not recognize that they were overweight themselves. Of the students that recognized themselves as overweight, most were female and reported feeling self-conscious or being treated differently by their classmates. Normal weight children stated that their overweight classmates did not care about their appearance and were not trying to make changes, even though the normal weight children did not report using dietary habits to prevent weight gain. When asked which health habits they would change, overweight youth reported they would change household chores or personal hygiene. Changing dietary habits was rarely mentioned.

The last theme that was determined reflected the idea that all people are made differently; “It doesn’t matter what you look like.”<sup>6</sup> Overweight youth in this study stated that obesity can be caused by non-modifiable factors such as genetics or metabolism, and most could not see the benefit of healthy eating or exercise on obesity. Normal weight youth stated modifiable factors as a cause for obesity, such as healthy eating and exercise, and reported the process of resolving obesity as taking a long time and taking many different approaches. There was some disconnect between normal weight and overweight individuals on the long term consequences of obesity. Normal weight individuals could link obesity to poor health in the future and a decreased quality of life. Overweight individuals focused on current problems, such as decreased ability to participate in gym class or not being able to fit into rides at amusement parks. Several overweight youth stated that overweight youth would naturally reach a healthy weight without any changes in lifestyle.

This study demonstrates that youth may not be motivated to participate in healthy eating or lifestyle changes.<sup>6</sup> Youth did not have an understanding of obesity for long term health consequences of poor lifestyle habits.

Another study, utilized focus groups to examine the health behaviors and perceptions of youth.<sup>7</sup> The researchers conducted 4 focus groups for ages 8-10 years, 4 focus groups for ages 15-17 years, and 3 focus groups for ages 11-14 years. The total number of youth participating in all focus groups was 68 youth. During the focus group sessions, researchers asked open ended questions focusing on foods considered

healthy/unhealthy, healthful/unhealthful eating habits, what determines healthful/unhealthful eating habits, and ideas for programming in their community.

From these focus groups, the three themes that emerged were: perceptions of healthful eating and nutrition knowledge, influences on food selection, and recommendations for programming to promote healthy eating.<sup>7</sup> Youth identified healthful eating as eating fruits and vegetables, portion control, and the role of physical activity in energy balance. Another theme recognized by the researchers is the youths' attitude that knowledge does not mean behavior change. One youth pointed out that broccoli is a healthy food, however most people do not like broccoli. Youth stated that their food selection was determined by taste, convenience, cost, and sensory cues (advertisements). Youth were prompted with several programs to promote healthy eating. The youth responses fell into two categories: those seen as desirable, and those seen as negative. Programs seen as positive included gardening and cooking classes. One program seen as undesirable was nutrition classes. Youth were opposed because they already have health class during the school day. Utilizing the findings from this study, educators may be able to target lessons and programming to best meet the needs and attitudes of youth regarding nutrition.

### **Discovery Neighborhood**

The Discovery Neighborhood project was developed to teach children principles of food safety.<sup>8-9</sup> This program uses a 30"x36" mat representing a neighborhood and a cartoon character with each lesson. Using the mat and characters, educators are able to facilitate each lesson using similar techniques to those used for a Conversation Map®.<sup>10</sup>

The lessons contain an optional food activity to give participants an opportunity to apply the practices taught using each specific lesson.

During the pilot test of the Discovery Neighborhood lessons, 33 students participated from three different communities. A majority of the students (75%) were K-2 graders. An increase in knowledge was found in hand washing (17%), cleaning (12%), separating (10%), and cooking (30%).<sup>9</sup>

The Discovery Neighborhood program can be used in an afterschool program or an in-school setting and was designed to meet the National Health Education Standards.<sup>8-9,11</sup> These standards include students comprehending concepts dealing with health promotion, factors on health behaviors, locating valid information, using decision making skills, goal setting, practices to reduce health risk, and ability to advocate for health.<sup>11</sup>

The Discovery Neighborhood program was also designed to meet the National Science Education Standards.<sup>8-9,12</sup> Through the Discovery Neighborhood lessons, students learn science concepts including physical science, life science, earth and space science, engineering, technology, and application of science.

### **Effect of Character Advertising**

In many different situations, cartoon characters are used for advertising messages or products. A study was done to determine the quality of foods advertised using familiar cartoon characters.<sup>13</sup> The researchers examined 577 televised food advertisements during children's programming in 2011. After selecting the television advertisements to be reviewed, reviewers used a coding system to evaluate familiar characters, product type,

nutritional quality, healthy food claim, depiction of physical activity, and associating the products with fruit. To determine healthfulness of the products advertised, the researchers used the WE-CAN rating system which includes “Go,” “Slow,” and “Whoa” foods. The “Go” foods are nutrient dense and relatively low in calories and should be consumed regularly. The “Slow” foods are higher in fats, added sugars, and calories, and it is recommended they be consumed sometimes. “Whoa” foods are the least nutrient dense and highest in calories; they should only be consumed once in a while.

Results of the food advertisement reviews included 73% of advertisements featuring a familiar character, 24% of advertisements were for sugary cereals, 40% of advertisements were of restaurants and fast food.<sup>13</sup> The quality of foods advertised included 72% of advertisements promoting “Whoa” foods, 53% of advertisements had at least one health message, and 33% of advertisements associated the product with fruit. Familiar characters which were most often used to promote sugary cereals, restaurants/fast food, sugary drinks, and sugary snacks. About 80% of advertisements with licensed characters included at least one health message. The researchers concluded that familiar characters are used often, about 3 out of every 4 advertisements, many of these advertisements promoting food products or restaurants.

Another study examined how they could affect nutrition knowledge and physical activity using animal characters.<sup>14</sup> An animal character was incorporated into each lesson and was developed into a story that presented nutrition and physical activity concepts to the participants.

Students (n=1,285) in 60, 3<sup>rd</sup>-5<sup>th</sup> grade classrooms participated in the “Go Wild with Fruits and Veggies” program over 7 months.<sup>14</sup> This program consisted of hands on activities including trying fruits and vegetables and practicing physical activity. At the end of the program children were asked to answer questions related to fruits and vegetables and exercise. The researchers found that the participants tried more fruits and vegetables (82%), consumed more fruit (72%), consumed more vegetables (57%), and exercised more (79%). Participants were asked to name their favorite character. The participants gave reasons for choosing their favorite character based on the activities, or fruits and vegetables that were associated with that character. For example, one participant stated “Derek Deer loves red veggies and so do I now.” This study demonstrated the beneficial aspect of using characters that children will relate to and that characters can influence nutrition and physical activity behaviors.

## **Instruments and Evaluation Tools**

### **Conversation Map ®**

The Conversation Map®<sup>10</sup> was developed to engage small groups of diabetes patients through interactive and visual learning experiences.<sup>15</sup> The Conversation Map® was designed to engage learners through meeting individual learning needs, sharing personal knowledge and experiences, and discussion of the consequences of behaviors. The map consists of a large colorful graphic of relevant locations where participants would encounter potential barriers for their diabetic condition. In 2012, over three million people have participated in diabetes education using the Conversation Map®. Research has shown that after education using the Conversation Map®, patients feel more

empowered, demonstrate better understanding of diabetes self-care, and decrease negative attitudes towards their diabetes diagnosis.

Another study using the Conversation Map® methodology examined teaching food safety to immigrants and refugees.<sup>16</sup> In this study, participants were assigned to participate in either a class using a food safety map, a cooking class, or no class. Each group took a pre- and post- test two weeks after the classes to determine if there was an increase in knowledge. Both the cooking class and food safety map class were effective in increasing participant knowledge about food safety when compared to participants not involved in a class.

The Conversation Map® methodology is used to guide conversations about specific topics. This creates an open conversations where participants can feel free to ask questions, and helps create participant guided learning. The Discovery Neighborhood Mat consists of a community where youth would encounter food. In the Discovery Neighborhood lessons, opened ended questions are used throughout each location on the map to stimulate conversation about each food safety topic.<sup>8-9</sup>

## **MyPlate**

MyPlate was created by the USDA and released in June 2011 to replace MyPyramid.<sup>17</sup> MyPlate is an easy to use tool to help people make healthy food choices, and is based on the Dietary Guidelines for Americans<sup>18</sup>. The Dietary Guidelines are a set of evidenced-based nutrition practices developed by The United States Department of Health and Human Services and the United States Department of Agriculture. The

Dietary Guidelines are recommended for Americans ages 2 years and older. These guidelines are designed to encourage food and beverages that will aid in achieving and maintaining a healthy weight, promotes health, and reduce the risk of developing chronic diseases.

A group of researchers examined the effects of replacing MyPyramid with MyPlate.<sup>19</sup> The researchers wanted to accomplish two things. First, to assess consumers' awareness of the change from MyPyramid to MyPlate, and second, to determine if MyPlate influenced healthful food choices after being released for 4 months. To accomplish these objectives, 51 people ages 18-34 years were given a survey which included 11-questions. The survey included questions to determine how familiar participants were with MyPyramid and MyPlate and how likely the participants were to use MyPlate to guide their food choices. Of the 51 participants, 80.4% (n=41) were familiar with MyPyramid, and 45.1% (n=23) of participants had previously seen the MyPlate graphic before participation in the study. When asked if the MyPlate graphic would influence their food choices, 43.1% (n=22) indicated it would influence food choices. The researchers hope that the longer MyPlate is around, people would be more influenced to make healthful food choices.

### **Experiential Learning Model**

The Experiential Learning Model was first introduced by David Kolb in 1984.<sup>20</sup> The model is called “experiential” to highlight the role experience plays when learning is taking place. This holistic model of learning combines experiences, perceptions, cognition, and behaviors. Experiential learning is more about the process than the



outcomes. For that reason, Kolb's Experiential Learning Cycle includes a concrete experience, observations and reflections about the experience, formation of abstract concepts (making sense of the relationships created in the experience), and testing the new concepts in a new situation (putting the concept into practice).

Experiential learning gives youth an opportunity to be actively involved in learning and is used to introduce new topics and teach life skills.<sup>21-23</sup> The five step process is: experience, share, process, generalize, and apply. The first step involves the activity; this activity should engage the youth. Steps two and three of the Experiential Learning Model requires the youth to share and process. This means the youth describe the activity and reflect about what happened during the activity. Next, the students must generalize the experiences they had, and be able to create guidelines that can be used in situations outside of the activity. Finally, the students must apply the activity. Applying the activity allows the students to practice the new skill they have learned, which will help the skill become a part of their everyday lives. Experiential learning is a cyclical model that can feed into itself and be used over and over. For example, if a mistake is made during the application of the activity, the mistake can be used as an experience and guide the students through the steps share, process, generalize, and finally back to apply.

### **Conclusion**

Childhood obesity is a growing issue among today's youth.<sup>1-2</sup> Youth and parental knowledge and attitudes and the way in which food is advertised may have an impact on children's food choices. With the use of the Discovery Neighborhood Mat<sup>8</sup>, a relatable cartoon character, and the Experiential Learning Model, youth can be empowered with

the knowledge to engage in a healthy lifestyle. The Discovery Neighborhood Mat can be used to promote open conversations and let the youth lead the learning process, and the Experiential Learning Model will create a learning process the youth can apply to all situations involving nutrition and dietary choices. Creating formal nutrition lessons could enhance the nutrition education that is already being completed in the state of Nebraska.<sup>5</sup> Through the learned concepts of a healthy lifestyle, an impact can be made on childhood obesity among youth.

The overall goal of the study was to increase knowledge about MyPlate and healthy eating in children in kindergarten through fifth grade. To accomplish this goal, the objectives were to:

1. Develop an educational program that could be given in class or in an out of school setting to educate children in kindergarten through 5<sup>th</sup> grade about MyPlate and healthy eating using the Discovery Neighborhood Map, based on the Experiential Learning Model.
2. Have an expert panel evaluate the lesson.
3. Test the educational program with kindergarten through fifth grade students.

## Chapter 2: Methods

This study began with the design of the nutrition lesson which utilized the Discovery Neighborhood Map<sup>8</sup> and the Experiential Learning model. Next, the study was implemented during summer youth camps to test the effectiveness.

### Development of Lesson

The Discovery Neighborhood MyPlate lesson (Appendix 1) was developed utilizing the Experiential Learning Model. The activities that meet each step in the Experiential Learning Model can be seen in Table 2.1. Through this model, children have the opportunity to learn through open discussion and hands on activities. The lesson format resembles that of the other six Discovery Neighborhood lessons (Albrecht et al., 2014). Each lesson lasted approximately 45 minutes to 1 hour. The pre and post tests were based on evaluation questions used by Nebraska's Nutrition Education Program, which have been tested for reliability and validity.<sup>24</sup>

Once the lesson was completed, an expert panel of 6 nutrition and education professionals reviewed it for appropriateness of content, meeting stated objectives, clarity, accurate content, and if the lesson followed the Experiential Learning Model. Nutrition experts were given the lesson and asked to complete the Expert Panel Evaluation form (Appendix 2). In addition, these experts could provide edits on the lesson and send their comments to the researcher. Changes were made before delivering the lesson to youth.

IRB approval was obtained from the University of Nebraska-Lincoln (Appendix 3).

<b>Step in the Experiential Learning Model</b>	<b>Activity in the Discovery Neighborhood MyPlate Macy Lesson</b>
1. Experience	Ask youth to select a specific place on the Discovery Neighborhood Mat. Places include the park, home, school, grocery store, swimming pool, etc.
2. Share	Answering a question based on the location chosen on the Discovery Neighborhood Mat. For example, if the child chose to go to a house the question would be: “MyPlate Macy is having dinner at your house tonight. Name a dinner that include all 5 food groups.”
3. Process	Discussing other answers that would be appropriate for each question.
4. Generalize	Discussing how answering the question created a healthy meal. For example, after the youth names a dinner that includes all 5 food groups, the instructor would ask: “How do you know all 5 food groups are represented?”
5. Apply	Participating in the Fix MyPlate Activity where students had to look at a meal created by the instructor, determine which food group was missing, and decide a food item to add to make the meal a complete MyPlate meal.

**Table 2.1 Experiential Learning Model in MyPlate Macy Lesson**

### **Lesson Implementation**

Implementation of the lesson took place in summer youth camps in Nebraska. For consistency, the same instructor delivered each lesson. Adult consents and youth assents were obtained before the delivery of the lesson. During lesson implementation, students were asked to complete pre and post evaluations to test their nutrition knowledge before and after the lesson was delivered. The pre and post evaluations were divided into two age ranges grades: K-2 and grades 3-5 (Appendix 1).

## **Data Analysis**

Means and standard deviations were computed based on analysis from the expert panel regarding content, how well the lesson meets the objectives, age appropriateness and clarity of the lesson. In addition to the stated quantitative data, qualitative data was collected through the expert panel's comments on the lesson.

Data from the delivery of the Discover Neighborhood MyPlate lesson, the pre and post evaluations were analyzed. The percentage of students answering each question correctly were calculated and compared to determine if the children had an increase in knowledge as a result of the lesson.

## Chapter 3: Results

### Expert Panel Lesson Evaluation

The expert panel was composed of nutrition and education professionals (n=6). These nutrition and education professionals used a rating scale to determine if the lesson contained appropriate content, met stated objectives, was understandable, and used the Experiential Learning Model (Appendix 2.) The expert panel ratings are provided in Table 3.1. The expert panel was also asked to provide comments about the lessons, and identify how it fit into the Experiential Learning Model.

Age appropriateness of content was rated 4 out of 5 by 83.3% (n=5) of the expert panel, with an average rating of  $4.0 \pm 0$ . When asked if the lesson met the stated objectives 33.3% (n=2) rated 4 out of 5, and 66.7% (n=4) rated 5 out of 5, with an average rating of  $4.67 \pm 0.52$ . The clarity and understandability of the lesson content was rated 4 out of 5 by 83.3% (n=5) and 5 out of 5 by 16.7% (n=1) of the expert panel, with an average rating of  $4.18 \pm 0.41$ . The expert panel was asked if the lesson provided an overview of MyPlate; 16.7% (n=1) rated 4 out of five and 83.3% (n=5) rated 5 out of 5, with an average rating of  $4.82 \pm 0.41$ . When asked if the lesson followed the Experiential Learning Model, 16.7% (n=1) rated 2 out of 5, 16.7% (n=1) rated 3 out of 5, and 50% (n=3) rated 5 out of 5, with an average rating of  $4.0 \pm 1.41$ .

The comments provided by the expert panel included how the lesson fit into the Experiential Learning Model and difficulty of content. Some members of the expert panel thought some of the content may be too difficult for younger age groups. Other

comments identified the “Do” activities were completed during the introduction of the Macy MyPlate lesson, the “Reflect” activities completed during the first activity of the Macy MyPlate lesson (tour of Discovery Neighborhood), and the “Apply” activities were completed during the final activities (creating MyPlate meals, the Fix MyPlate Activity, and making the recipe).

Question	Answers	n (%)
The content for the lesson is age appropriate for grades K-5.	1	0 (0%)
	2	0 (0%)
	3	0 (0%)
	4	5 (83.3%)
	5	0 (0%)
	Missing	1 (16.7%)
The content of the lesson meets the stated objectives.	1	0 (0%)
	2	0 (0%)
	3	0 (0%)
	4	2 (33.3%)
	5	4 (66.7%)
	Missing	0 (0%)
The content of the lesson is clear and easily understood.	1	0 (0%)
	2	0 (0%)
	3	0 (0%)
	4	5 (83.3%)
	5	1 (16.7%)
	Missing	0 (0%)
The content of the lesson provides an overview of MyPlate.	1	0 (0%)
	2	0 (0%)
	3	0 (0%)
	4	1 (16.7%)
	5	5 (83.3%)
	Missing	0 (0%)
Does this lesson follow the Experiential Learning Model?	1	0 (0%)
	2	1 (16.7%)
	3	1 (16.7%)
	4	0 (0%)
	5	3 (50%)
	Missing	1 (16.7%)

**Table 3.1 Responses from Expert Panel Evaluation (n=6)**

## **Lesson Delivery to Youth**

The Discovery Neighborhood MyPlate Macy lesson was conducted during a summer camp program. Students in second grade (n=6) and third grade (n=8) completed a pre-evaluation, participated in the lesson, and completed a post-evaluation. (Appendix 1) Results of the pre- and post- evaluation can be seen in Tables 3.2 and 3.3.

During the pre-evaluation the second graders were asked to identify foods from each food group. When asked to identify the food from the vegetable group, 100% (n=6) students correctly answered broccoli, other choices included a pretzel and chicken. Students were asked to identify the food from the fruit group, 100% (n=6) correctly answered apple, other choices included milk and French fries. When asked to identify the food from the dairy group, 83.3% of students correctly identified cheese, 16.7% (n=1) did not answer, other choices included eggs and candy. Students were asked to identify the food from the grain group, 83.3% (n=5) correctly identified bread and 16.7% (n=1) identified a carrot, another choice was a banana. Lastly, students were asked to identify the food from the protein group; 66.7% (n=4) correctly identified an egg, 16.7% (n=1) identified corn, 16.7% (n=1) did not answer, another choice was grapes.

During the post evaluation, the second graders were again asked to identify foods from each food group. When asked to identify the food from the vegetable group, 100% (n=6) students correctly answered broccoli, other choices included a pretzel and chicken, which resulted in a change of 0% answering correctly. Students were asked to identify the food from the fruit group, 83.3% (n=5) correctly answered apple, other choices included French fries 16.7% (n=1) and milk. This resulted in a change of -16.7% of



students answering correctly. When asked to identify the food from the dairy group, 83.3% of students correctly identified cheese, 16.7% (n=1) identified eggs, another choice was candy. This resulted in a change of 0% of students answering correctly. Students were asked to identify the good from the grain group, 100% (n=6) correctly identified bread, other choices included a carrot and a banana. This resulted in a change of 16.7% of students answering correctly. Lastly, students were asked to identify the food from the protein group; 83.3% (n=5) correctly identified an egg, 16.7% (n=1) identified corn, another choice was grapes. This resulted in a change of 16.6% of students answering correctly.

During the pre-evaluation, the third graders were asked to identify how many food groups were pictured in a meal. Then the students were asked to identify which food groups were missing. When asked to identify how many food groups were pictured, 62.5% (n=3) correctly identified three food groups, 12.5% (n=1) identified four food groups, 25% (n=2) identified 5 food groups. When asked to identify which food groups were missing 75% (n=6) correctly identified the grain group with 25% (n=2) missing a response, and 87.5% (n=7) correctly identified the vegetable group, with 12.5% missing a response.

During the post-evaluation, the third graders were asked to identify how many food groups were pictured in a meal. Then the students were asked to identify which food groups were missing. When asked to identify how many food groups were pictured, 87.5% (n=7) correctly identified three food groups, 12.5% (n=1) were missing a response, resulting in a change of 23.2% of students correctly identifying three food

groups pictured. When asked to identify which food groups were missing 87.5% (n=7) correctly identified the grain group with 12.5% (n=1) were missing a response, and 100% (n=8) correctly identified the vegetable group, which was a change of 12.5% of students correctly identifying the grain group and 12.5% of students correctly identifying the vegetable group.

Question	Pre Responses	n (%)	Post Responses	n (%)
Circle the food from the vegetable group:	Broccoli	6 (100%)	Broccoli	6 (100%)
	Pretzel	0 (0%)	Pretzel	0 (0%)
	Chicken	0 (0%)	Chicken	0 (0%)
	Missing	0 (0%)	Missing	0 (0%)
Circle the food from the fruit group:	Milk	0 (0%)	Milk	0 (0%)
	French Fries	0 (0%)	French Fries	1 (16.7%)
	Apple	6 (100%)	Apple	5 (83.3%)
	Missing	0 (0%)	Missing	0 (0%)
Circle the food from the dairy group:	Eggs	0 (0%)	Eggs	1 (16.7%)
	Cheese	5 (83.3%)	Cheese	5 (83.3%)
	Candy	0 (0%)	Candy	0 (0%)
	Missing	1 (16.7%)	Missing	0 (0%)
Circle the food from the grain group:	Carrot	1 (16.7%)	Carrot	0 (0%)
	Banana	0 (0%)	Banana	0 (0%)
	Bread	5 (83.3%)	Bread	6 (100%)
	Missing	0 (0%)	Missing	0 (0%)
Circle the food from the protein group:	Egg	4 (66.7%)	Egg	5 (83.3%)
	Grapes	0 (0%)	Grapes	0 (0%)
	Corn	1 (16.7%)	Corn	1 (16.7%)
	Missing	1 (16.7)	Missing	0 (0%)

**Table 3.2 Responses from K-2 Pre/Post Evaluation (n=6)**

Question	Pre Responses	n (%)	Post Responses	n (%)
Number of food groups:	0	0 (0%)	0	0 (0%)
	1	0 (0%)	1	0 (0%)
	2	0 (0%)	2	0 (0%)
	3	5 (62.5%)	3	7 (85.7%)
	4	1 (12.5%)	4	1 (12.5%)
	5	2 (25%)	5	1 (12.5%)
	Missing	0 (0%)	Missing	0 (0%)
Which food groups are missing?	Fruit	0 (0%)	Fruit	0 (0%)
	Vegetable	0 (0%)	Vegetable	0 (0%)
	Grain	6 (75%)	Grain	7 (87.5%)
	Protein	0 (0%)	Protein	0 (0%)
	Dairy	0 (0%)	Dairy	0 (0%)
	Missing	2 (25%)	Missing	1 (12.5%)
Which food groups are missing?	Fruit	0 (0%)	Fruit	0 (0%)
	Vegetable	7 (87.5%)	Vegetable	8 (100%)
	Grain	0 (0%)	Grain	0 (0%)
	Protein	0 (0%)	Protein	0 (0%)
	Dairy	0 (0%)	Dairy	0 (0%)
	Missing	1 (12.5%)	Missing	0 (0%)

**Table 3.3 Responses from 3-5 Pre/Post Evaluation (n=8)**

## **Chapter 4: Discussion**

### **Expert Panel Discussion**

Based on the results from the Expert Panel evaluation, the Expert Panel rated the lesson very highly (average rating=4.3). Changes were made to the lesson based on feedback. Simplifications to the content were added to make some content easier for the younger age groups. For example, the question at the playground asked, “What would be the best drink to rehydrate?” but was changed to, “What would be the best drink to help take care of your thirst?” because the word rehydrate may be too difficult for younger children. To clarify the content for the youth, wording throughout the lesson, and on the pre and post evaluations were changed. For example, the introduction was changed to introduce all of the food groups first, and then introduce foods from each of the food groups. Additionally, many of the questions asked the students to identify a missing fruit group, this was changed to include more of the other food groups (vegetables, protein, grain, and dairy). Finally, spelling and grammatical changes were made to the lesson.

### **Discovery Neighborhood Discussion**

As with the food safety section of Discovery Neighborhood,<sup>9</sup> the results of this pilot study resulted a small increase in knowledge among second and third grade students attending summer camp. Prior to administration of the lesson, many second grade students had knowledge of the food groups, which is evident from the results of the pre-evaluation. By the end of the lesson, more second grade students were able to correctly identify a food from the grain group, and a food from the protein group. The third grade

students also had prior knowledge of the food groups. There was a small increase in the number of students who correctly identified the number of food groups that were pictured. There was also an increase in the number of students who correctly identified the missing food groups as grain and vegetable. The results of this study suggest that adding this nutrition lesson to Discovery Neighborhood could be another way to increase and/or reinforce the knowledge of youth in the areas of food and nutrition.

The Discovery Neighborhood MyPlate Macy lesson was based on MyPlate. MyPlate is a tool designed to help the public make healthier choices when eating.<sup>16</sup> Incorporating MyPlate into the lesson provided an easily recognizable icon that the students may see outside of the Discovery Neighborhood lesson. Researchers performed a study of adults and found out that MyPlate was being utilized to guide food choices.<sup>17</sup> By exposing youth to the MyPlate graphic, they may be able to make healthful food choices at a young age.

Using a cartoon character in this lesson provided the opportunity for the youth to relate a fun character to nutrition, unlike many characters who are used to promote fast food and sugar sweetened cereals.<sup>13</sup> Providing youth with a relatable character who is promoting a healthy message may influence youth to make healthier choices. One study provided an example that using animal characters in the nutrition lesson increased willingness to try fruits and vegetables.<sup>14</sup> Participants in that study were asked to name their favorite character and state why they chose that specific character. Many participants stated their reasons for choosing a specific character had to do with foods the character liked to eat. Using human characters in the Discovery Neighborhood MyPlate

Macy lesson may have a similar effect on youth. More research is need to measure the effect of the cartoon characters in the Discovery Neighborhood MyPlate Macy lesson.

Using the Discovery Neighborhood mat provided an easy way to guide discussion about healthful eating. Youth were very attentive and involved during this section of the lesson, and enjoyed sharing stories about their favorite foods from each food group. During the lesson, the students were able to work as a team to create a MyPlate meal using food models. Many of the groups separated the food models in to food group categories and then created their meal. Similarly to the Conversation Map® students were able to share their knowledge, personal experiences, and engage in discussion.<sup>10,15</sup> The Conversation Map® was originally designed to be used by adults. Using the Discovery Neighborhood Mat is one way to determine if the Conversation Map® methodology will be beneficial for children.

While teaching the lesson, it was evident that the students were very excited to learn about nutrition and talk about food choices they have made. When the food groups were introduced students appeared very proud when they knew a food item for each specific food group. Students enjoyed answering the questions when using the Discovery Neighborhood Mat. Each question allowed the students to tell a story about where their food comes from, their favorite meal, or their favorite foods/drinks. The students' stories allowed more opportunity for education on where food comes from, or how to create healthier choices using their favorite foods/drinks.

## Chapter 5: Conclusion

The expert panel was essential in editing and creating content for the Discovery Neighborhood MyPlate Macy lesson. Through the insights of the expert panel, the information in the lesson was made more specific and better met the needs of the students. Using the Experiential Learning Model<sup>20-21</sup> to create the Discovery Neighborhood MyPlate Macy lesson allowed the lesson to dig deep into the students' prior knowledge, expand that knowledge, and create an environment where the students can apply their knowledge to many situations involving nutrition and dietary choices. It requires many reviews to ensure each step in the model is effectively completed.

There was a small increase in knowledge of second and third graders attending summer camp through using the Discovery Neighborhood MyPlate Macy lesson. This pilot study provided information on how the lesson using the Discovery Neighborhood Mat could be used to engage students and increase knowledge. Research including a larger sample size needs to be done to further determine the effectiveness of this Discovery Neighborhood lesson.

In the future, researchers may want to create and test new evaluation questions. Pre and post tests were based on evaluation questions created by Nebraska's Nutrition Education Program, and was ideal for this study because these questions have been tested for reliability and validity.<sup>24</sup> However, since these questions are used across the state of Nebraska, students may know the answers due to overuse. Creating new questions or using innovative evaluation tools will allow future researchers to assess specific nutrition knowledge related to this lesson.

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## Appendix 1. Discovery Neighborhood MyPlate Lesson

### Discovery Neighborhood: MyPlate Macy



### Discovery Neighborhood: MyPlate Macy

#### Objectives:

As a result of participating in this lesson, youth will:

- Identify which food groups different foods belong.
- Build an appropriate, balanced meal using MyPlate guidelines.

#### Supplies needed:

- Discovery Neighborhood Mat
- Evaluation
- MyPlate Macy game piece
- MyPlate Macy poster
- MyPlate Puzzle
- Envelopes containing MyPlate Puzzle
- Paper bags
- Food models
- MyPlate coloring page
- Parent newsletter

#### Preparation:

1. Print MyPlate Macy game piece and poster
2. Print MyPlate puzzle
3. Photocopy:
  - Evaluation
  - MyPlate coloring page (one for each youth)
  - Parent newsletter (one for each youth)

#### Introduction

(Text in **bold** will be spoken to students):

**I would like to introduce you to MyPlate Macy.**

(hold up MyPlate Macy poster)

Instruct youth to complete the pre-evaluation

**MyPlate Macy loves eating balanced meals. She can find foods from each of the food groups all over Discovery Neighborhood.**

**By a show of hands, how many of you have heard of MyPlate? Who can tell me one of the MyPlate food groups? (Fruits, Vegetables, Grains, Protein, and Dairy)** As the students say one of the groups, hold up each piece of the MyPlate puzzle. After all food groups have been stated, the puzzle should be put together to show a complete MyPlate.

**Raise your hand if you can tell me one food in:**

- **The fruit group?**
- **The vegetable group?**
- **The grain group?**
- **The protein group?**
- **The dairy group?**

Lesson:

**Now that we have learned about the food groups, MyPlate Macy wants to show you all of the delicious foods in Discovery Neighborhood, and how to make the foods into a balanced meal.**

Ask the student to locate a place on the Discovery Neighborhood Mat that they would like to eat. Encourage the students to choose different places, you want them to learn about healthy eating in a variety of locations and situations.

### Discovery Neighborhood: MyPlate Macy



Ask for a volunteer to go first. Have the student place the MyPlate Macy game piece on a location on the mat.

Ask the question appropriate to the place where they put the game piece. Once the student has answered the question choose another student to move the game piece and answer the question. Continue until each student has had a chance to answer a question, or until all of the questions have been answered.

Questions:

**Backyard swimming pool:** You and MyPlate Macy are having a pool party for your friends. Your mom brings everyone a snack of frozen fruit pops. Which food group do frozen fruit pops belong?

**Baseball Diamond:** (2 part question): You and MyPlate Macy have a game of baseball today. After the game, you are going to have a picnic lunch. If your lunch contains a ham and cheese sandwich with carrot sticks, which food group is missing?

What food item could you add to complete the meal?

**Deli Store:** You and MyPlate Macy decide to eat lunch at the deli. You order a sandwich with bread, turkey, cheese, lettuce, and tomatoes. What should you add to your lunch to make it a MyPlate meal?

**Doctor's office:** While at the doctor's office, you and MyPlate Macy notice a MyPlate poster. Name your favorite food and which MyPlate food group your favorite food belongs to.

**Donut Store:** During a trip to the donut shop MyPlate Macy wants to order a healthy drink. What would be a healthy drink option from the dairy group?

**Farmer's Market:** You and MyPlate Macy take a trip to the farmers market to buy some produce. Name one food from the fruit group and one food from the vegetable group that you could buy from the farmer's market.

**Grill:** MyPlate Macy invites you to a cookout with her family. At the cookout you enjoy a cheeseburger on a bun, and potato salad. What food group is missing?

**Grocery Store:** At the grocery store, there are many options of foods from the grain group. How can you tell if the food you want to buy is a whole grain product?

**House:** You met MyPlate Macy for breakfast before school. Name a breakfast that would include all five MyPlate food groups.

**House:** MyPlate Macy is having dinner at your house tonight. Name a dinner that has all five MyPlate food groups.

**House:** What can you and MyPlate Macy have for lunch that would include all five MyPlate food groups?

**House:** You and MyPlate Macy are having a play date. What can you and MyPlate Macy have for a snack that will contain at least two of the MyPlate food groups?

**Park at the Lake:** Name a drink that would be good to take with you for a hot day of playing at the park.

## Discovery Neighborhood: MyPlate Macy

**Pizza Restaurant:** At the pizza restaurant, MyPlate Macy wants to order a pizza containing all five MyPlate food groups. What five ingredients should the pizza have?

**Playground:** When you and MyPlate Macy are playing on the playground, you become very thirsty. What would be the best drink to take care of your thirst?

**Skateboard Park:** At the skateboard park, you and MyPlate Macy take a break to have a snack. What is a healthy snack option?

Lesson:

Activity:

Now we are going to learn how to make our own MyPlate meals.

Have the students split up into groups of 4-5. Each group needs a small paper lunch bag of food models.

**In your group, open the bag and choose ONE FOOD FROM EACH FOOD GROUP you would eat for lunch. Make sure to include only one food item from each of the MyPlate food groups.**

Examples of foods you could include are:

- Apples, oranges, bananas
- Yogurt, milk, cheese
- Carrots, broccoli
- Lunch meats, beans, other meats
- Bread, popcorn, rice

After the students have created their lunches, discuss each lunch and how the foods fit into MyPlate. Discuss alternative options that could have been used.



Now that you know how to make a MyPlate meal, let's play a game of Fix MyPlate. For this game, I am going to show you a meal. Raising your hands, tell me which food groups are missing, and what could be added to the meal to fix it.

Take answers about fixing the meal from more than one student to emphasize that a variety of foods can fit.

Optional Activities:

Optional Activity 1:

**Read and discuss Jack and the Hungry Giant Eat Right with MyPlate**

([http://www.amazon.com/Jack-Hungry-Giant-Right-MyPlate/dp/0823426025/ref=sr\\_1\\_1?ie=UTF8&qid=1412717438&sr=8-1&keywords=Jack+and+the+Hungry+Giant+Eat+Right+with+MyPlate](http://www.amazon.com/Jack-Hungry-Giant-Right-MyPlate/dp/0823426025/ref=sr_1_1?ie=UTF8&qid=1412717438&sr=8-1&keywords=Jack+and+the+Hungry+Giant+Eat+Right+with+MyPlate))

Optional Activity 2:

**Prepare MyPlate Pizza Quesadillas**

Supplies needed:

- Recipe ingredients
- Utensils for cooking
- Skillet with hotplate or electric skillet
- Paper plates
- Paper napkins

Ingredients:

- 1 whole wheat tortilla
- 2 Tbsp diced green pepper
- 2 Tbsp pizza sauce
- 2 slices of ham chopped
- 1 Tbsp pineapple tidbits
- Sprinkle of mozzarella cheese

**Discovery Neighborhood: MyPlate Macy****Directions:**

1. Spread about 2 tablespoons of pizza sauce on half of the tortilla.
2. Sprinkle Mozzarella cheese over pizza sauce.
3. Top with green pepper, ham, and pineapple. Fold tortillas in half. Gently press down the edges.
4. Preheat a large skillet. Spray with cooking spray. Cook tortilla over medium heat for about 2 minutes per side or until cheese melts.
5. Cut tortilla into three triangles.

**MyPlate Coloring Page**

Have youth color the MyPlate coloring page. If there is not enough time, let the youth take the page home to complete.

**Post-Test Activity**

At the end of the lesson, in groups of 4 or 5, have the youth put the MyPlate puzzle together.

**Evaluation (Post-test)**

Have youth complete the evaluation (post-test).

**Parent Newsletter**

Provide a parent newsletter to each child to take home.

**Resources**

1. [ChooseMyPlate.gov](http://ChooseMyPlate.gov)

Discovery Neighborhood: MyPlate Macy



MyPlate Macy Game Piece





Discovery Neighborhood: MyPlate Macy



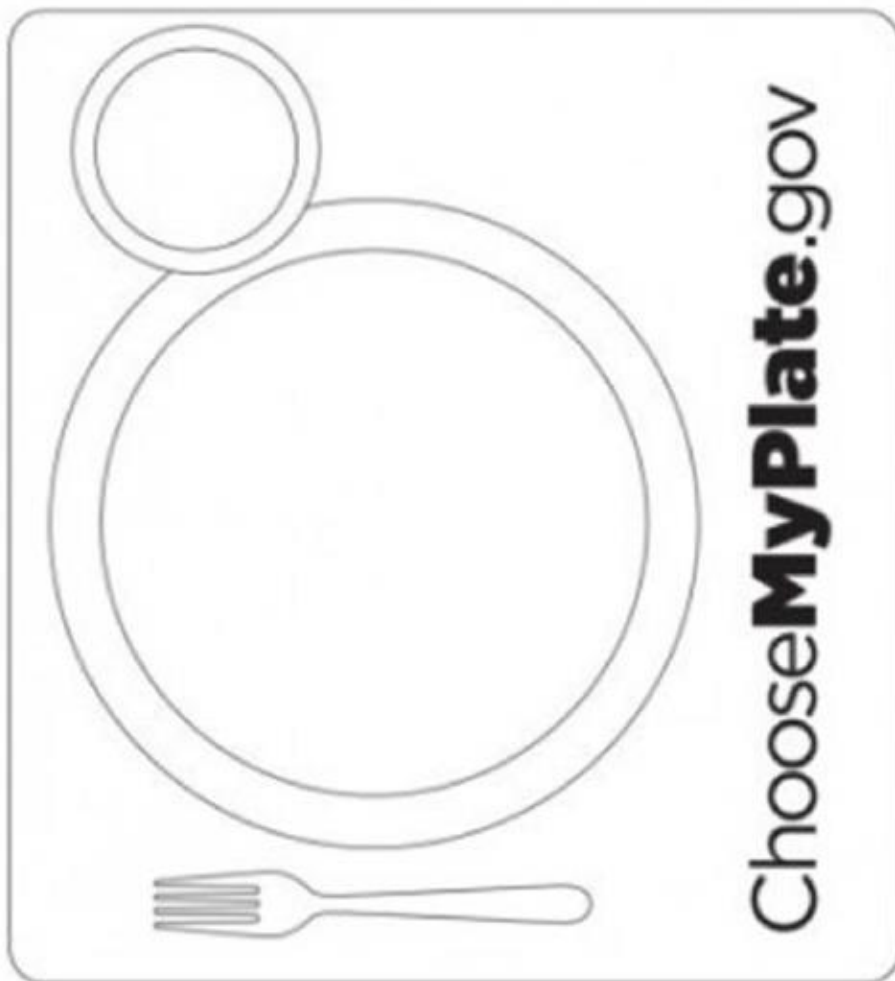
MyPlate Macy Game Poster



Discovery Neighborhood: MyPlate Macy



MyPlate Puzzle

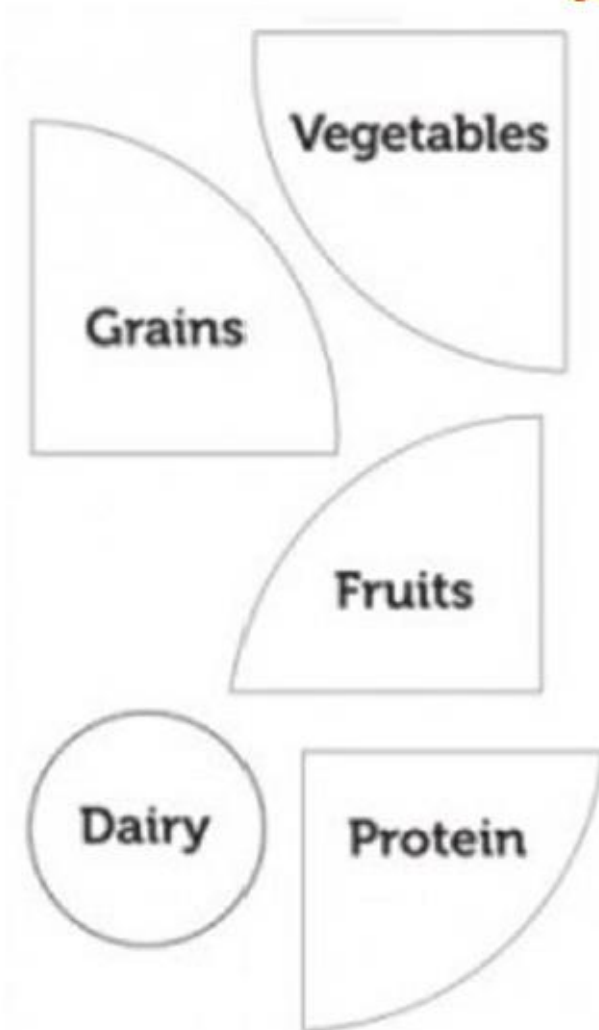


Choose **MyPlate**.gov

Discovery Neighborhood: MyPlate Macy



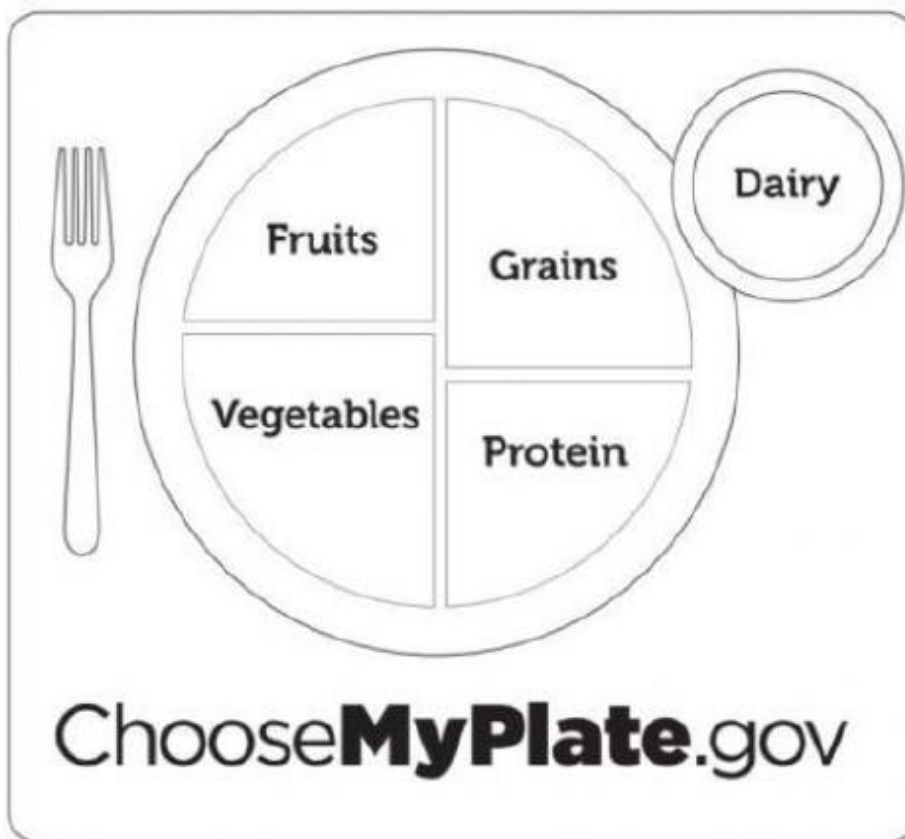
MyPlate Puzzle



Discovery Neighborhood: MyPlate Macy



MyPlate Coloring Page



Discovery Neighborhood: MyPlate Macy



Pre/Post Evaluation 3-5

Name: \_\_\_\_\_

Grade: \_\_\_\_\_

Count the number of different food groups in your lunch and write the number in the box.



Number of food groups: \_\_\_\_\_

Which food groups are missing?

\_\_\_\_\_

\_\_\_\_\_

Pre/Post Evaluation 3-5

Name: \_\_\_\_\_

Grade: \_\_\_\_\_

Count the number of different food groups in your lunch and write the number in the box.



Number of food groups: \_\_\_\_\_

Which food groups are missing?

\_\_\_\_\_

\_\_\_\_\_

Discovery Neighborhood: MyPlate Macy



Pre/Post Evaluation K-2 Name: \_\_\_\_\_ Grade: \_\_\_\_\_

Circle the food from the vegetable group:



Circle the food from the fruit group:



Circle the food from the dairy group:



Circle the food from the grain group:



Circle the food from the protein group:



## Discovery Neighborhood: MyPlate Macy



## Recipe: MyPlate Pizza Quesadilla

## Ingredients:

- 1 whole wheat tortilla
- 2 Tbsp diced green pepper
- 2 Tbsp pizza sauce
- 2 slices of ham chopped
- 1 Tbsp pineapple tidbits
- Sprinkle of mozzarella cheese

## Directions:

1. Spread about 2 tablespoons of pizza sauce on half of the tortilla.
2. Sprinkle Mozzarella cheese over pizza sauce.
3. Top with green pepper, ham, and pineapple. Fold tortillas in half. Gently press down the edges.
4. Preheat a large skillet. Spray with cooking spray. Cook tortilla over medium heat for about 2 minutes per side or until cheese melts.
5. Cut tortilla into three triangles.

## Recipe: MyPlate Pizza Quesadilla

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5. Cut tortilla into three triangles.



# Discovery Neighborhood

Amanda Robine, RD, LMNT

## Dear Parent or Guardian,

Your child is learning some wonderful things about nutrition in our **"Discovery Neighborhood"** program. Today we talked about MyPlate. MyPlate is the USDA's recommendations for a healthy meal. We reviewed the food groups, and which foods fit into those food groups. This newsletter briefly talks about what we learned today. Please visit with your child about what he or she learned today.

Sincerely,

*MyPlate Macy*

### Did you know?

In addition to eating a balanced meal, the USDA recommends children ages 6-17 participate in at least 60 minutes of physical activity per day. This could include playing sports, going to the playground, or simply taking a walk.



**Fuel up  
with foods  
from each  
food group**





## Discovery Neighborhood: MyPlate Macy



Daily recommended amounts of each food group are:

Fruits:  
1-1 1/2 cups

Vegetables:  
1-2 cups

Grains:  
5-6 ounces

Protein:  
4-5 ounces

Dairy:  
2 1/2-3 cups

## MyPlate Pizza Quesadilla

Ingredients:

- 1 whole wheat tortilla
- 2 Tbsp diced green pepper
- 2 Tbsp pizza sauce
- 2 slices of ham chopped
- 1 Tbsp pineapple tidbits
- Sprinkle of mozzarella cheese

Directions

1. Spread about 2 tablespoons of pizza sauce on half of the tortilla.
2. Sprinkle Mozzarella cheese over pizza sauce.
3. Top with green pepper, ham, and pineapple. Fold tortillas in half. Gently press down the edges.
4. Preheat a large skillet. Spray with cooking spray. Cook tortilla over medium heat for about 2 minutes per side or until cheese melts.
5. Cut tortilla into three triangles.

Food Groups:

**Fruits** are naturally low in fat, sodium, and calories. Eating fruits helps you get the recommended amount of fiber and other nutrients. Foods that fit into the fruit group include:

- ◊ Apples, oranges, bananas
- ◊ Dried fruit such as raisins
- ◊ 100% fruit juice

**Vegetables** are also low in fat, sodium, and calories. Vegetables provide vitamins, minerals, and fiber.

Foods that fit into the vegetable group include:

- ◊ Beans and peas, broccoli
- ◊ Leafy vegetable such as spinach
- ◊ Carrots, beets, cauliflower

**Grains** provide B vitamins, fiber, and minerals. The USDA recommends making half of your grains whole grains. Examples of whole grains include:

- ◊ Whole wheat bread
- ◊ Brown rice
- ◊ Popcorn, whole grain cereals

**Protein** foods provide building blocks for bones, muscles, cartilage, skin, and blood. They provide B vitamins, minerals, and iron. Examples of lean protein include:

- ◊ Seafood
- ◊ Nuts and seeds
- ◊ Eggs
- ◊ Chicken, 90% lean ground beef

**Dairy** products provide calcium and Vitamin D to help build bones and teeth. Foods that fit into the dairy group include:

- ◊ Milk
- ◊ Yogurt
- ◊ Cheese

## Appendix 2. Expert Panel Evaluation Form

Expert Panel Lesson Evaluation-Content Validity

Please Rate on a scale from 1-5	1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree
The content of the lesson is age appropriate for grades K-5	1	2	3	4	5
The content of the lesson meets the stated objectives.	1	2	3	4	5
The content of the lesson is clear and easily understood.	1	2	3	4	5
The content of the lesson provides an overview of MyPlate.	1	2	3	4	5
Does this lesson follow the Experiential Learning Model? Please indicate where in the lesson you find: Do, Reflect, and Apply	1	2	3	4	5

### Appendix 3. University of Nebraska-Lincoln IRB Approval



May 7, 2015

Amanda Robine  
Department of Nutrition and Health Sciences

Julie Albrecht  
Department of Nutrition and Health Sciences  
LEV 119E, UNL, 68583-0806

IRB Number: 20150515072 EX  
Project ID: 15072  
Project Title: Discovery Neighborhood: MyPlate Lesson

Dear Amanda,

This letter is to officially notify you of the certification of exemption of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 1 & 2.

You are authorized to implement this study as of the Date of Exemption Determination: 05/07/2015.

1. Your stamped and approved informed consent and assent documents have been uploaded to [NUgrant](#) (files with Approved.pdf in the file name). Please use these documents to distribute to participants. If you need to make changes to the informed consent and assent documents, please submit the revised documents to the IRB for review and approval prior to using them.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- \* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- \* Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- \* Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- \* Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- \* Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

A handwritten signature in cursive script that reads "Becky R. Freeman".

Becky R. Freeman, CIP  
for the IRB

