

Evaluation of EAT360
2019-2020
School Year

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OVERVIEW

About EAT360

Vetri Community Partnership (VCP) is a Supplemental Nutrition Assistance Program-Education (SNAP-Ed) local partner in Philadelphia county. EAT360 is VCP's nutrition education program. EAT360 staff educate young eaters and support healthy lifestyles for families in school communities. Through a combination of direct education and policy, systems and environmental changes, the EAT360 team connects nutrition messages with healthy choices and lifestyles. Nutrition education is delivered to students, as well as caregivers and parents, at each of their partner schools. EAT360 combines approved SNAP-Ed curriculum with hands-on cooking activities that expose participants to whole ingredients.

Each partner school is unique and VCP tailors its approach for each location. SNAP-Ed coordinators at VCP collaborate with school faculty and administration to assess needs and address priorities at each site. Promotional activities like cafeteria tasting events for students or pop-up tasting bars for families amplify the voices of community leaders who prioritize wellness with a simply prepared fruit and vegetable-forward recipe, or snacks rich in whole grains. In FY20, VCP served SNAP-Ed programming in 16 Philadelphia schools. A subset of three charter schools were included in this program evaluation.

Evaluation of EAT360 Direct Education

The Research & Evaluation Group at Public Health Management Corporation worked with VCP to assess EAT360 direct education among students and parents/caregivers.

Students participated in three EAT360 classes. Before the lessons began, students completed a pre-survey to assess their nutrition knowledge and self-reported ability in various cooking skills. The students then completed post surveys, directly after each lesson, to measure their change in knowledge and cooking skill, as well as to gather feedback about their experience in the cooking class. At the third and final lesson, students answered knowledge questions from the previous two lessons to assess knowledge retention.

Student pre- and post-surveys were linked through their student ID numbers, in order to perform matched analysis and to assess each student's change in knowledge and skill.

Parents and caregivers were also given short surveys asking about their familiarity and experience with VCP programming at their schools and within their community.



Impact of COVID-19 on EAT360

School closures resulting from the COVID-19 pandemic interrupted VCP's implementation of its third lesson. Because of this unforeseen stoppage, the third lesson was administered at one of three schools. Additionally, while the post-survey among parents/caregivers was distributed, the response rate was very low and could not be analyzed.



Methods

Students in 2nd and 5th grades at three schools completed a pre-survey before the EAT360 direct education lessons and post-surveys following each lesson. The lessons featured the following recipes and learning objectives.

Lesson Information

Lesson 1

-Meal: Hummus
-Lesson objective: How to build a balanced and healthy snack and why this is important

Lesson 2

-Meal: Veggie Patties & Chimichurri Sauce
-Lesson objective: Why it is important to eat a variety of colorful fruits and vegetables

Lesson 3

-Meal: Watermelon Lime Flavored Water
-Lesson objective: Why it is important to eat whole fruits and limit sugary beverages

Notes

*Due to the COVID-19 pandemic, lesson 3 was only completed at Wissahickon Charter – Awbury

EAT360: Direct Education

Number (and percentage) of 2nd and 5th Grade Students Participating in the EAT360 Evaluation

School	2 nd	5 th	Total
Independence Charter School West	206 (76%)	72 (26%)	278 (100%)
Wissahickon Awbury*	52 (22%)	186 (78%)	238 (100%)
Wissahickon Fernhill	108 (51%)	105 (49%)	213 (100%)
TOTAL	366 (50%)	363 (50%)	729 (100%)

Number of Students Participating in the EAT360 Evaluation by Lesson and School

School	Gr.	Pre	Lesson 1	Lesson 2	Lesson 3	Total
Independence Charter School West	2 nd	87	52	67	n/a	206
	5 th	39	--	33	n/a	72
Wissahickon Awbury*	2 nd	23	--	14	15	37
	5 th	49	48	43	46	140
Wissahickon Fernhill	2 nd	44	33	31	n/a	108
	5 th	45	33	27	n/a	105
TOTAL	2 nd	154	85	112	15	351
	5 th	133	81	103	46	317



Nutrition Knowledge

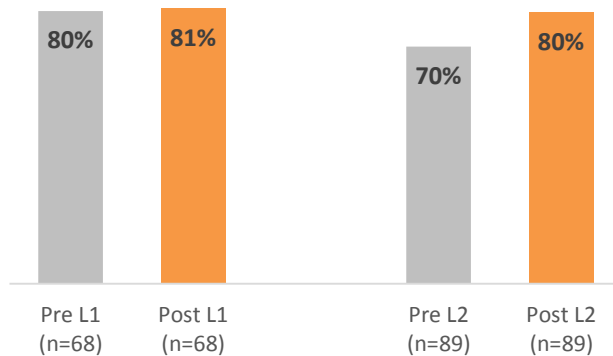
Students were asked questions about their nutrition knowledge before and after each EAT360 lesson. These questions corresponded to the nutrition content that EAT360 coordinators taught during the lessons.

- On the pre-survey, students were asked all of the nutrition questions (4 questions for 2nd grade; 6 questions for 5th grade).
- After both lessons 1 and 2, students were only asked the questions that pertained to those lessons to assess immediate gains in knowledge.
- After lesson 3, students were asked questions pertaining to lesson 3, as well as all of the previous questions in order to assess knowledge retention over time. Fifth graders were also asked 2 questions about overall EAT360 messaging at the pre- and final post-survey.

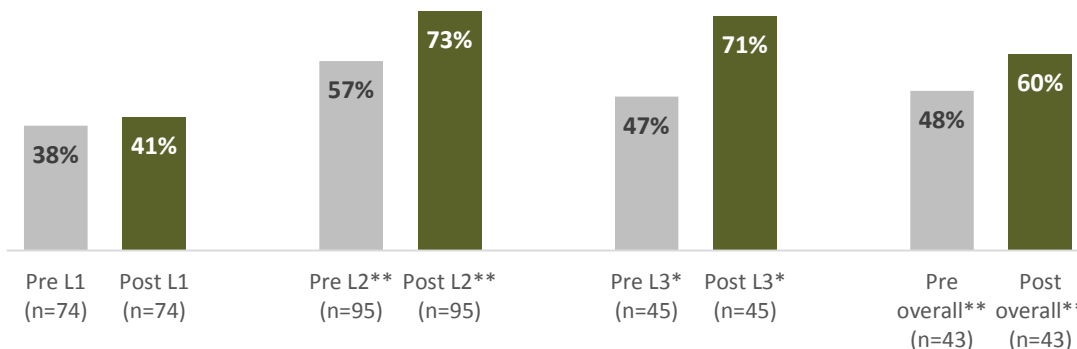
Students' pre- and post-surveys were matched by student ID. The average percent of questions students answered correctly was compared at the pre- and post-survey timepoints. The "post lesson" score for 5th graders shows knowledge retention, as it includes knowledge questions from all 3 lessons. There were only 15 matched 2nd grade scores at the lesson 3 timepoint. Because this is such a small sample and likely not representative, their lesson 3 data is not included.

Both 2nd and 5th grade students' knowledge improved. The younger students had higher pre-survey scores, which may indicate that these questions were easier to answer. Fifth graders had more variability in their scores across lessons.

Second graders' lesson 1 scores did not show much improvement, but their lesson 2 scores improved from an average of 70% of questions correct at the pre-survey to 80% correct at the post-survey.



Fifth graders' pre-survey scores ranged from an average of 38% correct at lesson 1 to a high of 73% at lesson 2. While 5th graders showed little improvement after Lesson 1, there was significant gains in knowledge after Lessons 2 and 3.



* p<0.05; ** p<0.01 using the Paired Samples t Test statistic, which compares the baseline mean score of a student to their mean post score.



Nutrition Knowledge

Analyzing the individual knowledge questions can help VCP understand the content areas where students had a high initial understanding, where they grew the most, and where they continued to struggle. This information can shape how VCP develops future programming. Keep in mind, however, that these results may also be influenced by the degree of difficulty of the questions, themselves.

Analyses below reflect pre-test scores and the post-test scores immediately following each lesson, with the exception of finding #5 among 5th graders, which assesses knowledge retention from the pre-test to the final post-test.

Second Grade Students:

1. At least two-thirds of students got each question correct at the pre-test, indicating fairly high initial knowledge in all areas. This gave students less room for improvement following each lesson.
2. Students had the highest initial understanding of how healthy snacks provide bodies with necessary energy, as 92% of students got this question correct on the pre-test.
3. Students' knowledge grew the most in understanding fiber and in the relationship between fruit and vegetable color and nutritional content. Twenty-one percent of students who got the vitamin question incorrect at the pre-test answered it correctly at the post-test, and 29% of students who incorrectly answered the fiber question at the pre-test answered it correctly at the post-test.
4. Students seemed to have the most trouble grasping the concept of how many healthy snacks they should eat each day (23% of students got this question incorrect at both the pre- and post-test).



Fifth Grade Students:

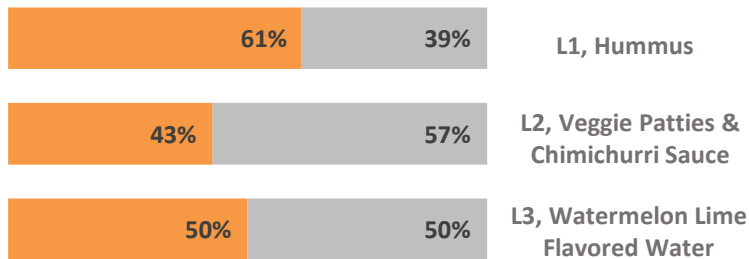
1. Between 26% and 70% of students answered each question correctly at the pre-test.
2. Students had the highest initial understanding that different colored vegetables have different vitamins and minerals, as 70% of students got this question correct at the pre-test.
3. Students' knowledge grew the most in understanding the relationship between fruit and vegetable color and nutritional content and the recommended servings of 100% fruit juice (between 28% and 36% got these questions incorrect the pre-test, but correct at the post-test).
4. Students seemed to struggle the most in their understanding of food labels and healthy snacks. About one-half of students answered the food label question incorrectly at the pre- and post-test and 45% answered the healthy snack question incorrectly at the pre- and post-test.
5. Forty-five students answered pre-survey questions again at the final post-test (after lesson 3). Regarding the question on the importance of eating a variety of fruit/vegetable colors, 87% answered the question correctly at the final post-test, compared to 64% getting it right at the first post-test. While knowledge scores did not grow at the final post-test for the other questions, it also did not fall, indicating that students retained knowledge in these areas.



Food Exposure

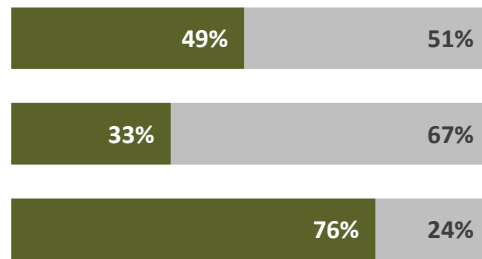
As part of the EAT360 curriculum, students ate the foods that they helped prepare in each lesson. One of the goals of EAT360 is to expose students to new foods. Overall, the percentages of students that had the foods before ranged from 43-61% for 2nd graders and 33-76% among 5th graders. Students from both grades had the least prior exposure to the Veggie Patties & Chimichurri Sauce from lesson 2.

Between 43% and 61% of 2nd grade students had the lesson foods before, and between 39% and 57% never had the lesson foods before.



2nd grade: n ranges from 14 to 96 depending on the lesson

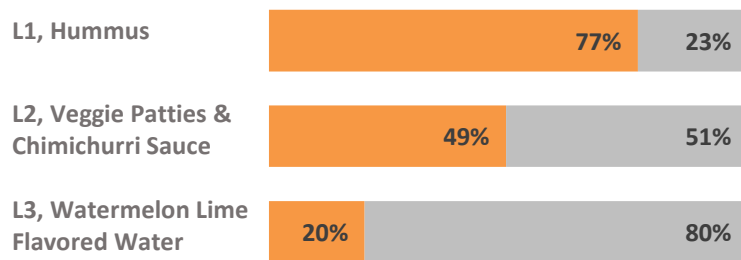
Between 33% and 76% of 5th grade students had the lesson foods before, and between 24% to 67% never had the lesson foods before.



5th grade: n ranges from 46 to 99 depending on the lesson

On the post-surveys, students were asked if they tried the foods that they had just helped to make. Between 20% and 77% of 2nd graders tried the foods and between 64% to 91% of 5th graders tried the foods.

About 3 out of 4 2nd grade students tried the Hummus from lesson 1.



2nd grade: n ranges from 15 to 61 depending on the lesson

Among the 2nd graders that indicated they **never had** the meals from the lessons before:

- 71% tried the hummus from lesson 1
- 46% tried veggies patties from lesson 2
- 14% tried the flavored water from lesson 3

2nd grade: n ranges from 7 to 54 depending on the lesson

Over 90% of 5th grade students tried the Watermelon Lime Flavored Water from lesson 3.



5th grade: n ranges from 45 to 99 depending on the lesson

Among the 5th graders that indicated they **never had** the meals from the 3 lessons before:

- 64% tried the meal from lesson 1
- 80% tried the meal from lesson 2
- 82% tried the meal from lesson 3

5th grade: n ranges from 11 to 66 depending on the lesson



Cooking Skills



Methods

Students' pre- and post-surveys were matched by student ID in order to compare individual growth in skills. Students rated the individual cooking skills each time they were featured in the lessons. Their pre-survey skill ratings were compared to their latest post-survey rating to assess maximal improvement in skill.

In 5% of all ratings, 2nd graders indicated some experience with the cooking skill at the pre-test and then indicated that they had "never tried" the skill at the post-test. In those instances, their pre-survey value was converted to "never tried." Evaluators determined that those students may not have understood the cooking skill until they were actually exposed to it or that they had simply answered the question incorrectly due to random error or comprehension difficulty. These errors did not occur among 5th grade students, further demonstrating that those few 2nd graders likely struggled with comprehension.

On the pre/post surveys, students rated their competency with the cooking skills featured in the EAT 360 lessons. The purpose was to determine if students' cooking skills improved during their participation in the cooking lessons. For each cooking skill, students responded if they: 1) had never done the cooking skill, 2) could not do it, 3) could do it with help, or 4) could do it on their own.

Cooking skills featured in EAT 360 Lessons

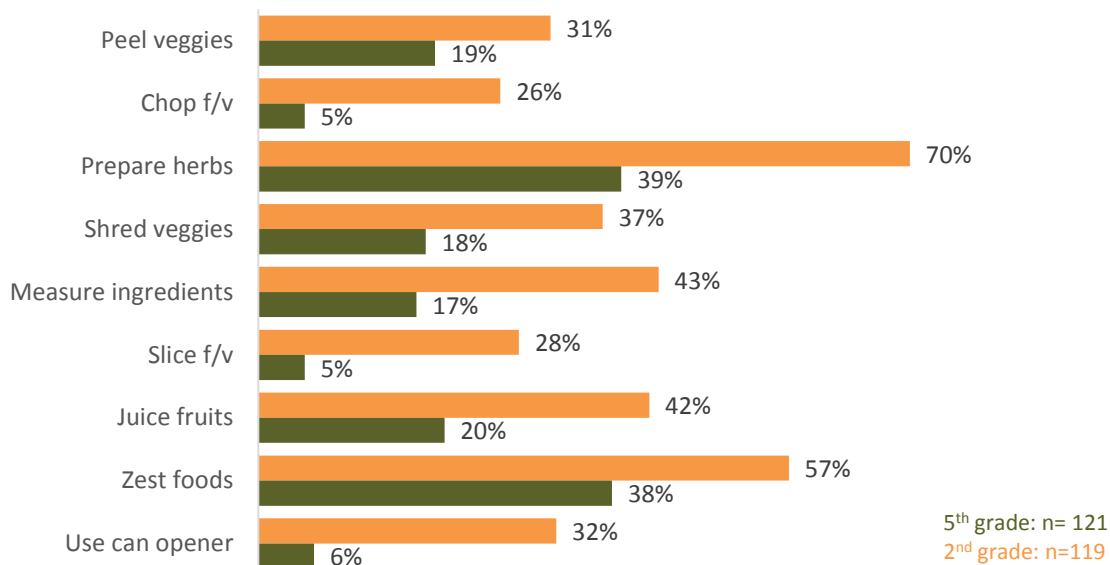
	Lesson 1	Lesson 2	Lesson 3
Peeling vegetables	X	X	
Chopping fruits / veggies	X	X	X
Preparing herbs	X	X	X
Shredding vegetables		X	
Measuring ingredients	X	X	
Slicing fruits / veggies	X		X
Juicing fruits	X	X	
Zesting foods	X		
Using a can opener	X		X



Cooking Skills

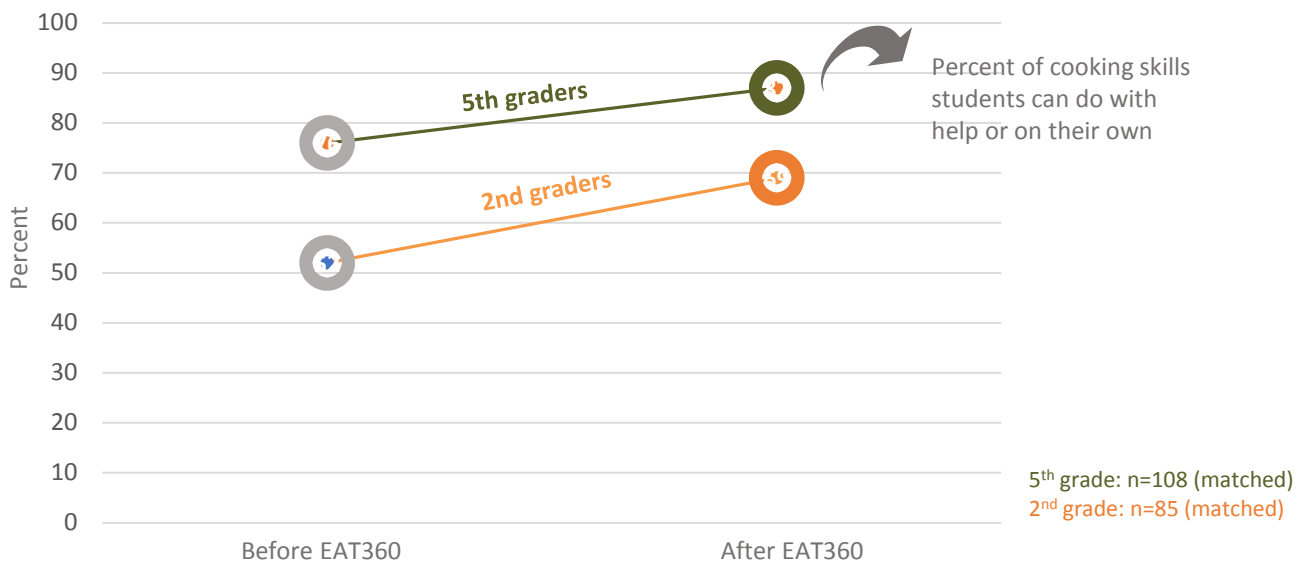
EAT360 exposed a considerable proportion of students to cooking skills that they had never done before. Preparing herbs and zesting foods were particularly new to students, followed by measuring ingredients and juicing fruits. Students reported more prior exposure to chopping and slicing fruits and vegetables and peeling vegetables (2nd grade only). As expected, higher percentages of 2nd grade students had never done the cooking skills in the past, compared to 5th grade students.

At baseline, between 26% and 70% of 2nd graders had never done the cooking skills before, and the skills were new to between 5% and 38% of 5th graders.



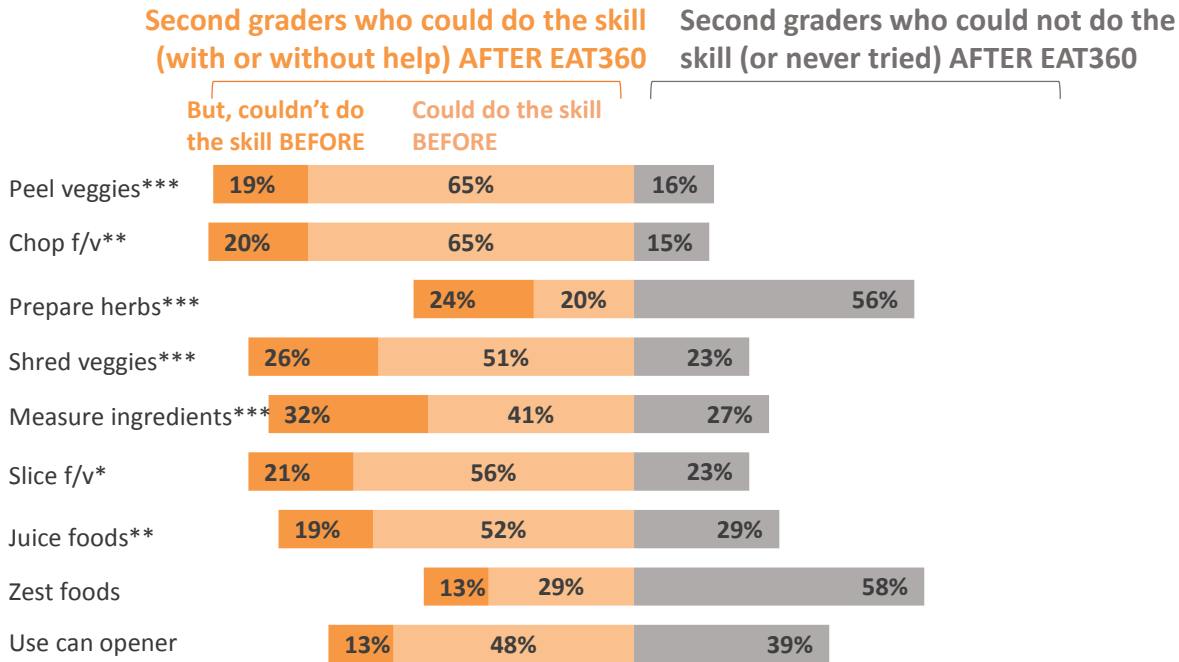
Overall, students self-reported competency with the cooking skills improved during the school year. Among students who provided answers to at least 5 cooking skills at the pre- and post-time periods, the percent of skills they could do with help or on their own increased significantly ($p < 0.001$). Among 2nd graders, students could do 52% of the cooking skills (4.7 skills) with help or on their own at the pre-survey, compared to 69% of skills (6.2 skills) at the post-survey. Among 5th graders, the percent of skills increased from 76% to 87% (6.8 to 7.8 skills).

Both 5th graders and 2nd graders were able to do a higher percent of cooking skills with help or on their own after the lessons.

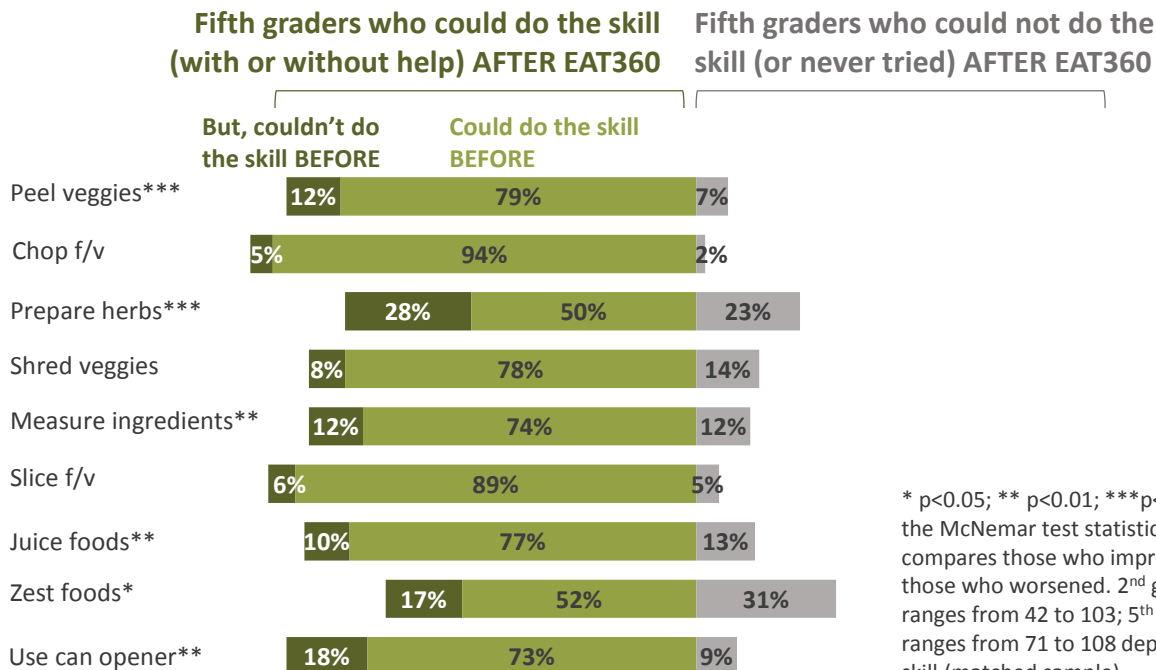


Cooking Skills

Second grade Students: Students reported significant improvement in most cooking skills after participating in EAT360. With the exception of preparing herbs and zesting foods, the majority of second grade students reported being able to do the skill with help or on their own after the EAT360 classes. **Among those who could do the skill after EAT360, between 13% and 32% of students (depending on the skill) had not been able to do or had never done the skill before.** For example, 1 in 3 students reported being able to measure ingredients after EAT360 and had not been able or had never done that before.



Fifth grade Students: Compared to 2nd graders, higher percentages of 5th graders were able to do the cooking skills with or without help prior to EAT360. Still, students reported significant improvement in 6 of the 9 cooking skills (they did not improve significantly in chopping, shredding, or slicing). Like 2nd graders, 5th grade students felt less competent in preparing herbs and zesting foods. **Depending on the skill, between 5% and 28% of students who were not able to do certain cooking skills before EAT360, reported being able to do them with or without help after EAT360.**



* p<0.05; ** p<0.01; ***p<0.001 using the McNemar test statistic, which compares those who improved to those who worsened. 2nd grade N ranges from 42 to 103; 5th grade N ranges from 71 to 108 depending on skill (matched sample).



Students' Experiences with EAT 360 Classes

Students gave their thoughts on how they felt about the cooking class at the end of each of the post lesson surveys. Fifth graders were asked an additional open-ended question where they could share their favorite parts of the cooking classes.

79% of 2nd graders said that they think cooking at school is fun.

67% of 2nd graders said that they like cooking meals at home.

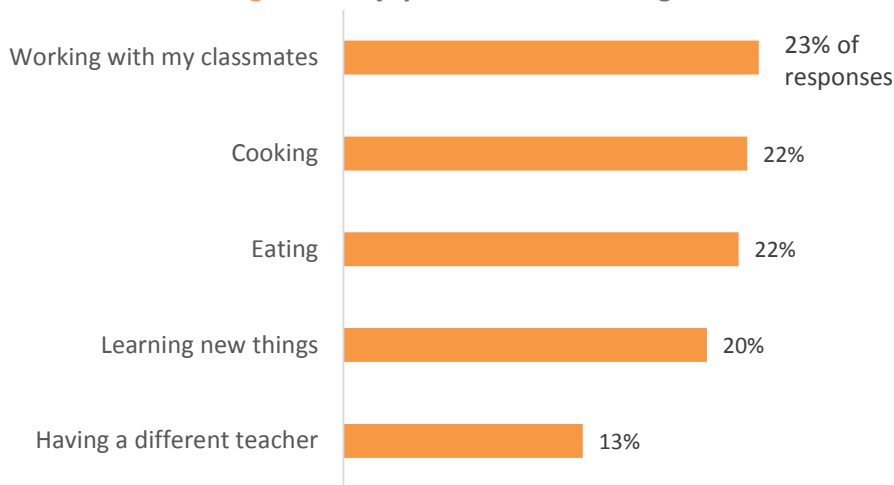
66% of 5th graders said that they think cooking at school is fun.

87% of 5th graders said that they like cooking meals at home.

Second Grade Students

Second graders' favorite parts of the cooking class across the 3 lessons were "working with their classmates," "cooking," and "eating."

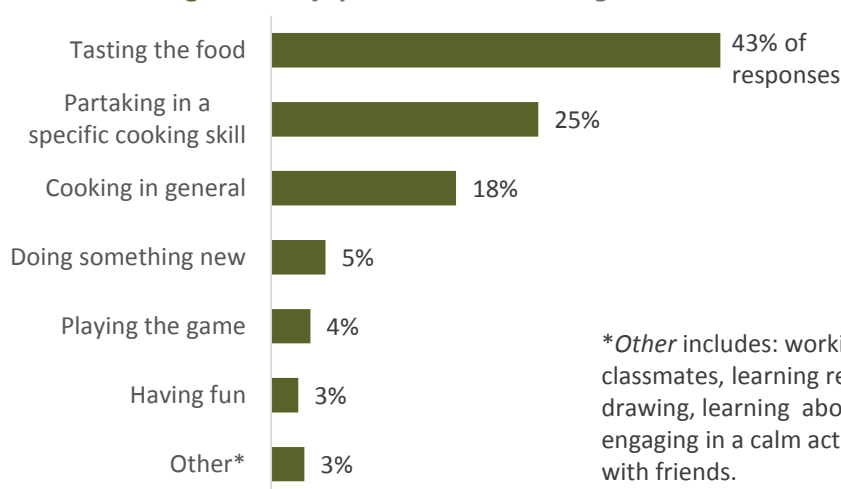
What 2nd graders enjoyed about the cooking classes



Fifth Grade Students

Across the three lessons, 86% of 5th graders provided responses regarding their favorite part of the cooking class. Students most frequently described enjoying tasting the food, partaking in a specific cooking skill, and cooking in general.

What 5th graders enjoyed about the cooking classes



*Other includes: working with classmates, learning recipes, drawing, learning about ingredients, engaging in a calm activity, and being with friends.



Students' Experiences with EAT 360 Classes

Below are some excerpts from 5th grade students' open-ended answers about their favorite part of the cooking classes.

“ My favorite part was chopping the food and helping my table if they needed help and just working together.”

“ That we got to chop food and make stuff. Last year we made cool stuff too and now I know I like peppers.”

“ Eating because the veggie patty was out of this world, it was so yummy.”

“ Making the drink. And doing my part of the cooking. Of course my most favorite part was drinking it. It was so good.”



“ Everything because, one, it's a fun good experience, two, learning new ingredients and how to make it, and three, trying new things and tasting.”

“ I think we should have more cooking classes because at home I don't really cook a lot.”

“ My favorite part of the class was the taste testing because all of the ingredients mixed well together, which didn't make it bland. It also included mint and ginger which made the drink tangy.”



Methods

During the school year, VCP held numerous nutrition education and cooking events designed to engage and educate the larger school community.

Short surveys were distributed to parents and caregivers at several events during the beginning of the school year to assess awareness of EAT 360 and interest in future events.

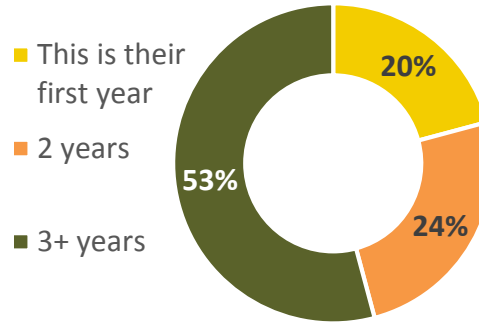
Respondents represented the below schools:

- Harrity: 10% of respondents
- Wissahickon Awbury: 29% of respondents
- GLA West: 27% of respondents
- GLA Southwest: 12% of respondents
- Alcorn: 22% of respondents

Parent/Caregiver Involvement

These surveys asked parents about their familiarity with VCP and if they had attended any of the events before, as well as their interest in nutrition education classes.

Among parents/caregivers, more than one-half had been at the school for 3 or more years; 1 in 5 were new to the school.



- **67%** of parents reported that this was their first experience with VCP. (n=49)
- **43%** of parents indicated that they were familiar with VCP programs. (n=49)
- Of those parents that said they were familiar with VCP programs, **76%** said they knew about the student cooking classes in school. (n=21)
- **86%** indicated that they were either very or somewhat interested in attending nutrition education classes with their school community. (n=49)



Parents identified the following topics as those they would like to see covered in nutrition education classes:

- Healthier ways of cooking
- Meal prepping
- General nutrition education
- Quick and healthy recipes
- How to cook veggies





Prepared by
Research and Evaluation Group at
Public Health Management Corporation



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