

## DESCRIPTION

Students will be introduced to the concepts of calories, recommended servings, portions, and serving size. A short walk-jog-sprint demonstration will illustrate calories as a measurement of food energy consumed by the body and physical energy exerted by the body, with excess energy being stored by the body. Students will learn the difference between foods that have empty calories and those whose calories provide nutritional benefit. Students will explore recommended servings for each food group based on their age and activity level, then compare the portion vs. recommended serving sizes on a variety of foods by calculating the total number of recommended servings and calories in each portion. Students will use this information to build their awareness of portion distortion and make healthy food choices.

**TIME:** 45 minutes

**SUBJECT:** Health, Math, Science

## LEARNING OBJECTIVES

After this lesson students will be able to:

- Describe how calories measure the food energy converted by their bodies into physical energy.
- Differentiate between foods that have empty calories and those whose calories provide nutritional benefit to our bodies.
- Understand that a recommended serving is the amount of food you should eat based on your age and activity level while a portion is the amount of food served to one person in one sitting.
- Utilize a chart to find the number of recommended servings from each food group for their age and activity level.
- Identify where to find serving size information on a Nutrition Facts Label.
- Recognize that typical portion sizes have increased over time and often exceed one recommended serving.

### ACADEMIC STANDARDS\*

**HCPS III:** HE.6-8.1.9, HE.6-8.4.1, HE.6-8.6.1, MA.6.3.1, SC.6.6.3

\*A detailed list of the Academic Standards can be found in the Unit Overview document.

## KEY TERMS AND CONCEPTS

**Calorie** – A unit of measurement for energy that measures the energy our bodies receive from food and the energy our bodies exert from activity. (The amount of heat required to raise the temperature of one kilogram of water 1°C; 1 calorie = 4.184 Kilojoules.)

**Empty Calories** – Calories that come from food or drinks that contain few or no nutrients that benefit our bodies. Often come from caution foods high in added sugar, low-quality fat, and salt

**Food Energy** – The fuel our bodies use to do different things

**Nutrition Facts Label** – Food package label listing the nutrients in the food

**Physical Energy** – The energy of motion; observable as the movement of an object

**Portion** – The amount of food or drink served for one person at one time; helping

**Recommended Servings** – The amount of food a person should eat based on their age and activity level

**Serving Size** – The amount of food listed on a product's Nutrition Facts label often determined by the manufacturer as what should be eaten by one person in one sitting

## LESSON OUTLINE

- I. Introduction (2 minutes)
- II. The Calorie Machine (10 minutes)
- III. Not All Calories are the Same (5 minutes)
- IV. Recommended Servings (5 minutes)
  - What is a Recommended Serving? Reference Sheet
- V. Serving Size and Portion Distortion (5 minutes)
  - Plate and Soda Size Discussion
- VI. Portion Size vs. Recommended Serving Size (10 minutes)
  - Portion Size vs. Recommended Serving Size Student Worksheet
- VII. Close to the Source Snack (5 minutes)
  - Brainy Guacamole with Cucumber "Chips"
- VIII. Closing (3 minutes)

## LESSON MATERIALS

### Core Supplies:

- 'ĀINA In Schools apron with name tag
- Kōkua Hawai'i Foundation cloth bag
- Laminated 'ĀINA Food Guide Poster
- Copy of 'ĀINA In Schools Student Workbook
- Knife (plastic lettuce knife)\*
- Measuring spoons
- Citrus squeezer
- Cutting board
- Non-latex gloves
- Garbage/compost bag

### Lesson Supplies:

- Vocabulary Cards (8)
- Plate Size Sign
- Soda Size Sign
- Nutrition Facts Label Sign
- Tasting cups
- Napkins

### Teaching Team to Provide:

- 1-4 Bananas (locally-grown; optional)
- Serving tray (or use top of supply bin as tray)
- Snack ingredients
- Serving spoon

*\*Please do not bring knives on campus. The only knives allowed are those that are plastic and very well attended by an adult.*

### ACCOMPANYING DOCUMENTS

- Portion Size vs. Recommended Serving Size Student Worksheet
- What is a Recommended Serving? Reference Sheet
- Take Home Letter with Guacamole Recipe

### ADVANCE PREPARATION

- Lead docent to contact teachers to confirm date/time of the lessons.
- Review lesson content, roles and shopping needs with docent team.
- Shop for snack ingredients and review materials needed for lesson.
- Prepare guacamole and slice cucumber into "chips."



### INGREDIENT QUANTITIES NEEDED FOR SNACK

Ingredients	Up to 20 students	Up to 30 students	Up to 40 students
Avocados* (large)	3-4	5-6	7-8
Limes,* cut into quarters	1 lime (2 Tablespoons)	2 limes, (3 Tablespoons)	2 limes, (4 Tablespoons)
Garlic,* crushed	2 cloves	3 cloves	4 cloves
Salt	1 pinch	1 pinch	2 pinches
Cucumber*	3-4 slices/student	3-4 slices/student	3-4 slices/student

*\*Locally grown*

## BACKGROUND INFORMATION

### Portion Distortion

It's not your imagination. The food served in restaurants is getting bigger. In the past 30 years, the portion size of some food has visibly expanded. Bagels, for instance, were the size of a hockey puck thirty years ago, but now they are more the size of a music CD and have 210 more calories!

This is portion distortion. Food sizes are two to five times larger than they were in the past. Dinner plates are larger and restaurants serve huge amounts of food. As a result, adults now eat about 300 more calories per day than they did in 1985, according to the American Heart Association. As any nutritionist will tell you, all it takes is 100 extra calories a day to gain 10 pounds a year. To work off those 100 calories, you'd have to walk 25 minutes more each day.



### Portions, Recommended Servings, and Serving Size

A portion is the amount we are served or that we choose to put on our plate. A recommended serving is the amount of food a person should eat based on their age and activity level. A serving size is the measured amount of food listed on a product's Nutrition Facts Label often determined by the manufacturer as what should be eaten by one person in one sitting. It does not take into account age, activity level, or health goals. Portions are often 2 to 3 times the serving size listed on a Nutrition Facts Label.

Nutrition Facts	
Serving Size 5 oz. (144g)	
Servings Per Container 4	
Amount Per Serving	
Calories 310	Calories from Fat 100
% Daily Value*	
Total Fat 15g	21%

Serving sizes were originally determined by surveys conducted by the USDA between 1978-1988 based on the average amount eaten by Americans, but not necessarily what is best for your health.

The concept of serving sizes can be very confusing, as food manufacturers often list serving sizes that may "trick" us into eating more of an item, or thinking a given food item is lower in calories than it actually is. Although the FDA has encouraged all food manufacturers to label a product's serving based on what is reasonably consumed in one sitting, it is up to the food manufacturer to determine this amount. Due to this lack of consistency, it is important think of the serving size listed as a unit of measurement that can be used calculate the actual nutritional content in the portion size used.

### Appropriate Portion Sizes for Each Individual

Over the years, government and public health organizations have struggled to make recommendations on the ideal number of servings each person should consume in a day. Recommendations should be based on one's age, activity level, metabolism, and weight goals, so it is difficult to make a standard one size fits all serving amount that is right for every individual. Each person should be listening to their body cues to determine what portion is best for them.



Research shows that children under five typically eat the same amount of food regardless of how much is on their plate. They eat until they are satisfied and do not typically overeat. Starting at age five people tend to eat more when larger portions are put on their plate, meaning it is easier to overeat when we don't pay attention to the portion sizes that is best for each individual's needs.



Researchers have also found that when using larger plates or bowls, people will typically add much more food than if they used a smaller plate. This leads to both an increase in the amount of food eaten and also in the amount of food wasted. Since the 1960's, plate sizes have increased from 9 inches to 14 inches today! Bowl, cup, and even spoon sizes have also increased in size, causing an increase in food consumption.



Small, medium, and large no longer have meaning in a culinary world that features oversized everything. When most people are presented with more food, they will eat it. Many of us were raised as part of the "Clean Plate Club" so we're compelled to finish everything.

### Empty Calories

Not all calories are created equal. Food and drinks are increasingly being made with more artificial ingredients and less nutritionally dense calorie content. Empty calories are calories that come from food or drinks that contain few or no nutrients to benefit our bodies. Empty calories often come from caution foods high in added sugar, low-quality fat, and salt. We need to pay attention to the types of food we put in our body and always create a balanced plate by choosing close to the source foods and avoiding food or drinks with empty calories.



Research has also shown that caution foods and empty calories send mixed chemical signals to our brain that reduce our ability to recognize when we are full and increase cravings for the caution foods. This causes us to continue to eat more and never be fully satisfied.



In the end, all people, even kids, need to get in tune with their bodies and pay attention to when they feel almost full, then stop eating.

### Tips to Battle Portion Distortion:

- If purchasing items bargain-sized or in bulk, re-portion food items into recommended serving sizes for age and activity level.
- At a restaurant ask for half your order to be packed to-go. Bring your own food container.
- At home, use smaller plates, cups, bowls and cutlery. This leads to smaller portion sizes.
- Use smaller serving spoons--they help to control how much of a food we add onto a plate.
- Keep large food containers and packages off the counter.
- Rather than "super-sizing" foods, try "smart-sizing" instead. Learn portion-size awareness. Super-sizing is ordering the large soda (32 fluid ounces) at a fast-food restaurant. Smart-sizing is requesting the child size (12 fluid ounces), even if it's not listed on the menu.
- Avoid eating snacks directly out of the package, as there is a great temptation to consume far more than the serving that's right for you.

### References:

- "How Sugar and Fat Trick the Brain into Wanting More Food." [scientificamerican.com/article/how-sugar-and-fat-trick-the-brain-into-wanting-more-food/](https://www.scientificamerican.com/article/how-sugar-and-fat-trick-the-brain-into-wanting-more-food/)
- "Plate size and children's appetite: effects of larger dishware on self-served portions and intake." [doi.org/10.1542/peds.2012-2330](https://doi.org/10.1542/peds.2012-2330)
- "Portion Size: Latest Developments and Intervention." [doi.org/10.1007%2Fs13679-017-0239-x](https://doi.org/10.1007%2Fs13679-017-0239-x)
- "Serving Portion Size Influences 5-Year-Old but Not 3-Year-Old Children's Food Intakes." [doi.org/10.1016/S0002-8223\(00\)00070-5](https://doi.org/10.1016/S0002-8223(00)00070-5)
- "Sucralose Promotes Food Intake through NPY and a Neuronal Fasting Response." [doi.org/10.1016/j.cmet.2016.06.010](https://doi.org/10.1016/j.cmet.2016.06.010)
- "Super-size me: Portion size effects on young children's eating." [doi.org/10.1016/j.physbeh.2007.11.015](https://doi.org/10.1016/j.physbeh.2007.11.015)
- "2015-2020 Dietary Guidelines for Americans." [health.gov/dietaryguidelines/2015/](https://www.health.gov/dietaryguidelines/2015/)

## INTRODUCTION

2 MINUTES

*"Hello again, we are... (docent names). Welcome to your sixth nutrition lesson as part of the 'ĀINA In Schools program!"*

*"Do you remember our last lesson? We talked about listening to our body signals for hunger and fullness and how mindful eating can help us to make healthy food choices."*

*"In today's lesson you will apply what you have learned about close to the source foods, food labels, and body signals to help you choose not only what to eat, but how much to eat."*

*"Let's get started!"*

## THE CALORIE MACHINE

10 MINUTES

*"There is energy all around us. For example, energy from the sun is used to create different types of energy. Solar panels on rooftops use energy from the sun to heat water and provide electricity."*



*"Plants use energy from the sun to produce food for themselves by photosynthesis."*

*"Even humans use sunlight to make vitamin (D) in our skin, which is used to build our bones and help us grow."*

*"The neat thing about energy is that it can be changed from one form to another. Let's look at how energy is transferred in the food we eat, such as a banana. Every morning, the sun rises and shines on the banana tree. The banana leaves collect the light energy from the sun and transform it into food energy through photosynthesis. The plant uses its food energy (and water) to grow bananas."*

*"Then we come along and eat a banana. Is this banana a close to the source food?"* Desired response: Yes!

*"Why?"* Desired response: It is not processed and comes straight from nature.

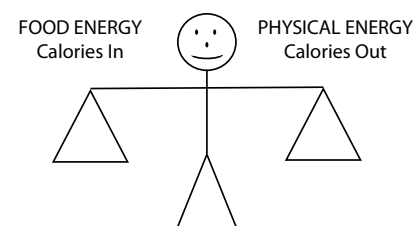
*"Right! We eat the close to the source banana and our bodies collect the energy from it as well as from*

*other foods that we eat. This is FOOD ENERGY. Your body uses FOOD ENERGY and transforms it into PHYSICAL ENERGY to do things like run, jump, think, grow, and even breathe. Our bodies use calories for everything!"*

*"CALORIES are the unit of measurement for this energy. Just like miles are a unit of measurement for distance or pounds is a unit of measurement for weight."*

*"The food energy going into our bodies as well as the physical energy that our bodies exert for movement are both measured in CALORIES."*

Draw the Calorie Machine Diagram on the board and select three volunteers. *"These three volunteers will help to demonstrate how food energy is transformed into physical energy! We will use this Calorie Machine to track their energy consumption and exertion."*



Have the volunteers stand at the front of the class. Tell them that one will walk in place, one will jog in place, and the other will run in place very quickly.

## THE CALORIE MACHINE

## CONTINUED

Refer to the 1st student walking in place: *“(Name of student #1) requires energy to move his/her body, which comes from the food he/she eats. Let’s pretend that (name of student #1) ate one apple banana for a snack today that gave him/her 65 calories of energy. Now (name of student #1) is going to use that energy by walking for 30 minutes which burns about 65 calories.”*



Show with the Calorie Machine how the number of calories going into the machine in the form of food energy are in balance with the number of calories being put out in the form of physical energy.

Next refer to the 2nd student jogging in place: *“Now (name of student #2) has more energy available because he/she ate two apple bananas! Each apple banana has 65 calories. How many total calories did he/she consume?”* Desired Answer: 130 calories.



*“Right! (Name of student #2) is jogging so he/she needs more energy. The 130 calories from the apple bananas are now being exerted and he/she is using 130 calories by jogging for thirty minutes.”*

Show with the Calorie Machine how the number of calories are balanced.

*“Since (name of student #2) is jogging, he/she required more energy than (name of student #1).”*

Next refer to the 3rd student running in place:

*“Now (name of student #3) is running very fast for 30 minutes and exerts 260 calories. How many bananas should he/she eat to have enough food energy for this physical activity?”*

Desired Answer: 4 apple bananas



Show with the Calorie Machine how the number of calories are balanced if the student eats 4 apple bananas because  $4 \times 65 = 260$ .

## DOCENT NOTES AND KEY

1 apple banana — 65 calories of energy

Calories used in 30 minutes by an average 11 year old:

- Walking (briskly at 3.5 mph and carrying an object less than 25 lbs) — 65 calories of energy
- Jogging (in place) — 130 calories of energy
- Running very quickly (9 mph or 6.5 min/mile) — 260 calories of energy

**Note:** these numbers are not exact and are meant to illustrate relative differences in the amount of energy used in different activities.

*“Does someone really eat 4 bananas at a time? Probably not, but the point is that what you put into your body in the form of food calories should be in balance with what is exerted by your body in physical activity.”*



*“What happens if you don’t eat enough food calories?”*  
Desired Answer: You won’t have enough energy to grow and perform the physical activities you want/ need to do.

*“What happens if you eat more food calories than you use with physical activity and your body needs for its normal functions? Is the Calorie Machine balanced? Where do those calories go?”* Desired Answer: The extra calories are stored by your body to use later.

*“Yes! Your body doesn’t need those excess calories and ends up storing them. That is why we should eat an amount of food that’s right for our energy need each day. It’s complicated and we each use food energy at different rates, but in general we need to eat more if we’re more active, and less if we’re not so active.”*

Thank the student volunteers and have them sit down.

## NOT ALL CALORIES ARE THE SAME

5 MINUTES

*“So class, are all calories the same? For instance is 260 calories of soda the same as 260 calories of apple bananas?”*

Desired answer: NO!

*“That’s right. Just like we learned in our previous lessons, foods have different functions in our body and do not always provide the same quality of nutrients.”*

*“Which ĀINA Food Group is a banana part of?”*

Desired Answer: Protective

*“Exactly! A banana is a protective food that has lots of vitamins, fiber, and nutrients that help to protect our body from getting sick and keep us healthy.”*

*“Which ĀINA Food Group is soda part of?”*

Desired Answer: Caution

*“Very good. Soda is a caution food that is high in sugar and added colors, flavors, and chemicals which can be harmful to your body. It has also no fiber to slow down all that sugar from entering your blood-stream at once.”*



*“Soda is an example of a food or drink made of EMPTY CALORIES. Can anyone tell me what they think EMPTY CALORIE means?”*

*Entertain a few answers. “EMPTY CALORIES are calories that come from food or drinks that contain few or no nutrients to benefit our bodies. EMPTY CALORIES often come from caution foods high in added sugar, low-quality fat, and salt.”*

*“So, are all calories created equal?”*

Desired answer: NO!

*“Right! We need to pay attention to the types of food we put in our body and always create a balanced plate by choosing close to the source foods and avoid food or drinks with empty calories.”*

*“We also need to be aware that Caution Foods can*

*trick our body into eating more than we need. These Caution Foods do not signal to our brain that it is time to stop eating so instead of stopping when we are satisfied, we continue to eat or drink the food gaining a lot of EMPTY CALORIES without any nutrients.”*

*“How many of you can drink an entire 20 ounce bottle of soda at one time? How many of you can eat four apple bananas in one sitting?”*

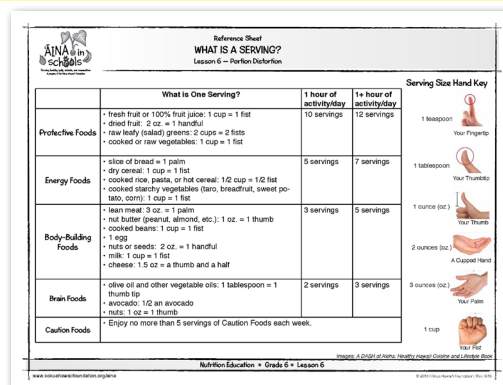


*“Right, it is easier to drink the soda all at one time because the body does not recognize that you are getting any nutrients and does not tell you to stop.”*

## RECOMMENDED SERVINGS

5 MINUTES

“The *What is a Recommended Serving?* Reference Sheet that shows us the **RECOMMENDED SERVINGS** we should eat in each food group. A **RECOMMENDED SERVING** is the amount of food you should eat based on your age and activity level. This is different from a **PORTION**, which is the amount of food served to one person. This chart will help you to decide how much one **RECOMMENDED SERVING** is and how many servings to eat from each food group so you have enough energy to grow, be active, and stay healthy.”



What is a Recommended Serving? Reference Sheet

“Kids your age are growing really fast. Your bodies are getting taller and your brains are busy learning new things every day. This requires a lot of energy! If you don’t get enough **CALORIES** from close to the source foods, your bodies (and brains) may not continue to grow to their full potential. If you consume too many calories from **FOOD ENERGY**, your body will simply store it for use later on as **PHYSICAL ENERGY**. Our bodies have an almost unlimited storage capacity!”

“Each one of you is different and you may need different amounts of food from your friend sitting next to you. Why? Because some of you are more active than others. For example, some of you prefer to jog so you would only need to eat two bananas worth of calories, but if you are doing a lot of intense activity, you would need to eat four bananas worth of calories.”

“Here is a list of the different kinds of foods you need to eat every day broken out by the food groups in our **ĀINA Food Guide**. The number of **RECOMMENDED SERVINGS** on this chart is for kids your age and shows a range based on different activity levels.” (See box at right.)

“While this can seem like a lot to remember, just remember your **ĀINA Food Guide**: fill half your plate with close to the source fruits and vegetables, split the other half with Energy and Body-Building Foods and sprinkle in some high quality fats and you have a recipe for healthy eating!”

### DOCENT NOTES

Review the guide with the students, give examples as needed, and cover the following main points:

The ‘What is a Recommended Serving?’ Column:

- Lists serving sizes for various foods.

The Activity Level Columns:

- These columns list the number of recommended servings to eat each day.
- Students who are active for approximately one hour each day, follow the recommended servings on the left.
- Students who are active for more than an hour each day, use the recommendation on the right.
- Eat the number of recommended servings for your activity level to stay healthy.

Serving Size Hand Key Column:

- Gives easy to remember measurements for a serving size.

Examples:

- One fist of spaghetti = 1 cup = 2 servings of Energy Foods
- One fist of tomato sauce = 1 cup = 1 serving of Protective Foods



## SERVING SIZES & PORTION DISTORTION

5 MINUTES

*“Who knows where can we find information about the number of servings in packaged foods?”*

*Desired Answer: On the Nutrition Facts Label.*

*“Right, you can look at the Nutrition Facts label for the serving size, just like we did in our Label Detectives Lesson to look for red flag ingredients. The SERVING SIZE is the amount of food listed on a product’s Nutrition Facts Label often determined by the manufacturer as what is eaten by one person in one sitting. This amount is based on the average amount eaten by Americans surveyed by the USDA but not necessarily what is best for your health.”*

Hold up the laminated Nutrition Facts Label visual aid. Point to where on the Nutrition Facts Label you find the number of serving sizes for a packaged food.

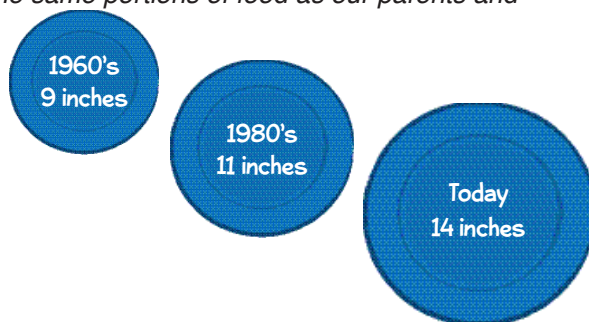
Nutrition Facts	
Serving Size 5 oz. (144g)	
Servings Per Container 4	
Amount Per Serving	
Calories 310	Calories from Fat 100
	% Daily Value*
Total Fat 15g	21%

*“At the top of the Nutrition Facts Label under ‘Serving Size,’ it displays the ‘Servings Per Container’ (or Servings). That’s how many servings there are in the container.”*

*“Watch out! Serving sizes on Caution Food Nutrition Facts Labels are dictated by the manufacturer. Think critically, investigate your label, and listen to your body.”*

Pull out the Plate Size Change Sign and Soda Size Sign and invite two volunteers to come up and hold the signs.

*“Raise your hand if you think we have been eating the same portions of food as our parents and*



*grandparents did when they were our age? Raise your hand if you think the portion sizes have changed over the last 50 years?”*

*“This sign shows that the sizes of the dinner plates 50 years ago were much smaller than they are now and have slowly increased over time. A bigger plate leads most people to serve and eat more food, even when they’re not any hungrier! Along with plate size, most of the portions we eat or drink today are 3-5 times the size that they were in 1955.”*

*“You can also see from this sign that the size of soda bottles has also changed over time. Even though our portions have gotten bigger, should we be eating more?”* Desired Answer: No!

Thank the volunteers and have them sit down.

### DOCENT NOTES

Plate, bowl, and cup sizes have increased along with portion sizes. In the 1960’s a standard dinner plate was 9” across; in the 1980’s dinner plates grew to 11” and today the average new dinner plate is a colossal 14”.

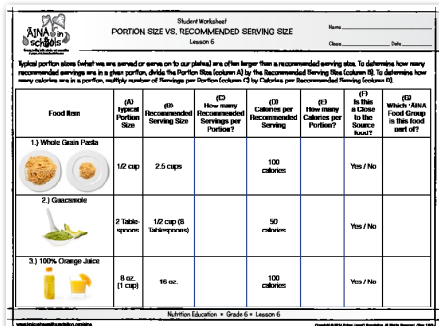
Larger eating containers can influence how much people eat. A study published in the American Journal of Preventive Medicine found that when people were given larger bowls and spoons they served themselves larger portions and tended to eat the whole portion, even when they aren’t any hungrier. Using smaller plates, bowls, and even serving spoons can help us keep portion sizes in control.

**TIP:** Bring in various sizes of plates and/or packaged foods/drinks to explore portion distortion with students, e.g. 12, 20, and 32 oz. Gatorades. Look at the serving sizes and have discussion with class about how container sizes might influence what we consume.

## RECOMMENDED SERVING SIZE

10 MINUTES

Have students turn to the Portion Size vs. Recommended Serving Student Worksheet.



Food Item	(A) Typical Portion Size	(B) Recommended Serving Size	(C) How many Recommended Servings per Portion?	(D) Calories per Recommended Serving	(E) How many Calories per Portion?	(F) Is this a Source Food?	(G) Which ĀINA Food Group is this food from?
1.) Whole Grain Pasta	1/2 cup	2.5 cups		100 calories		Yes/No	
2.) Guacamole	2 Table spoons	1/2 cup (8 Tablespoons)		50 calories		Yes/No	
3.) 100% Orange Juice	8 oz. (1 cup)	16 oz.		100 calories		Yes/No	

Portion Size vs. Recommended Serving Student Worksheet

*“Let’s fill in our worksheets to show just how different PORTIONS can be compared to RECOMMENDED SERVING and practice some math while we’re at it!”*

*“As we just saw, the PORTION that is put on our plate or sold in a store sometimes is much more than what actually counts as a RECOMMENDED SERVING.”*

*“Let’s all look at the #1 Pasta row together to figure out how many recommended servings are in a 2 ½ cup portion of whole grain pasta when a RECOMMENDED SERVING of pasta is equal to ½ a cup.”*

### DOCENT NOTE

Write math and answers on the board as you go along.

To figure out how many RECOMMENDED SERVINGS are in a PORTION, you divide the portion size by the recommended serving size.

*“So we have 2.5 cups of pasta divided by ½ cup (0.5) which equals 5 RECOMMENDED SERVINGS of pasta. Write down 5 recommended servings in Pasta Row column C.”*

### ACTIVITY KEY

1. C. 5, E. 500, F. Yes, G. Energy
2. C. 4, E. 200, F. Yes, G. Brain
3. C. 2, E. 200, F. Yes, G. Protective
4. C. 3.5, E. 350, F. No, G. Caution
5. C. 5, E. 1,000, F. Yes, G. Body-Building
6. C. 2.5, E. 250, F. No, G. Caution
7. Numbers 1, 2, 3, 5 (Pasta, Guacamole, Orange Juice, Steak)
8. Numbers 4 and 6 (Pretzels, Soda)

To figure out how many CALORIES are in a PORTION, you multiply the number of RECOMMENDED SERVINGS by the number of CALORIES per recommended serving.

*“So, if a ½ cup RECOMMENDED SERVINGS of whole grain pasta is 100 calories and we are eating 2 ½ cups which is equal to 5 RECOMMENDED SERVINGS, then how many total calories of pasta are we eating?”* Desired Answer: 500 calories!

*“Right! 5 RECOMMENDED SERVINGS multiplied by 100 calories is equal to 500 CALORIES. Write down 500 calories in Row 1 Column E.”*

*“So is this a close to the source food?”* Desired Answer: YES!

*“Circle Yes in column F.”*

*“And which ĀINA Food Group is this from?”* Desired Answer: Energy Foods!

*“Write down Energy Foods in the pasta row Column G.”*

*“Great job class! Now take some time to work with your seat partner to complete the rest of the worksheet.”*

Give the students 5 minutes to complete the worksheet while snack is being prepared.

## CLOSE TO THE SOURCE SNACK

5 MINUTES

Explain that today the students will get to taste a close to the source snack from the Brain Food category on their 'ĀINA Food Guide.

Begin passing out samples. Serve guacamole in tasting cups along with 3-4 cucumber chips on a napkin.

Engage the kids in talking about what they are experiencing as they eat.

Name each ingredient in the snack and ask some of the following questions:

- "Is this food close to the source? How do you know?"
- "Does this food contain **EMPTY CALORIES**?"
- "How can this food help your body?" (E.g., brain health, skin, growing taller, shiny hair, etc.)

If time permits, review the student worksheet answers with the class (see key on previous page).



### DOCENT NOTES

- Point out that anyone with a known allergy to any of the food items should not touch or sample it. By this age, kids should know this about themselves, but please bring it to the attention of the teacher who can make sure that any students with known allergies or intolerances do not receive a snack.
- You may use the Lesson Supply Bin lid as a serving tray.
- Give a snack to the teacher and any other classroom aides.
- Please refrain from verbalizing your own food preferences and be aware of your body language and facial expressions. These subtle cues have a big impact on a child's willingness to try foods!
- Encourage the students to try the samples. Remind them of the "no yuck" rule: they can choose not to try any foods they wish, but if they do try them, they must keep their personal opinions to themselves.



### 'ĀINA VIDEOS

Check out the 'ĀINA Videos for discussions on key concepts and directions to make the 'ĀINA Close to the Source Snacks:  
[kokuahawaiifoundation.org/ainavideos](http://kokuahawaiifoundation.org/ainavideos)

## CLOSING

3 MINUTES

### Provide a quick review:

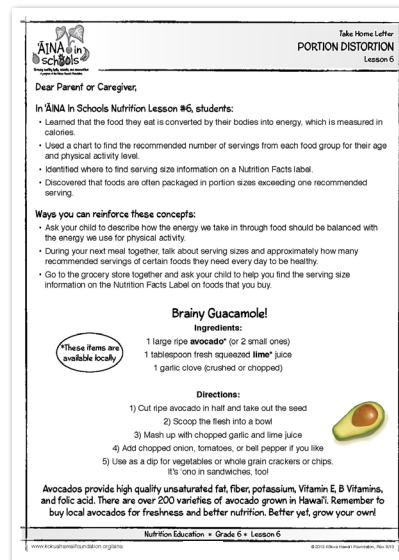
- Food is energy. CALORIES measure the FOOD ENERGY consumed by your body and the PHYSICAL ENERGY exerted by your body. It is best when these two things are in balance.
- Not all calories are the same, EMPTY CALORIES have no or few nutrients to benefit our bodies. So choose close to the source foods to maximize calories that have benefit for your body.
- Use your What is a Recommended Serving? Reference Sheet to be conscious of number of RECOMMENDED SERVINGS for each food group given your age and activity level.
- SERVING SIZE information is located on a Nutrition Facts Label but is often determined by the manufacturer ...so BEWARE!
- PORTION SIZES have increased over time and does not always equal a RECOMMENDED SERVING.
- Remember the ĀINA Food Guide--fill half your plate with Protective fruits and vegetables and trust your body signals to know how much food is right for you.

### Review the Take Home Letter and follow-up activities:

- “Share the take home letter with your family and try making the Brainy Guacamole together.”
- If the students did not get a chance to complete the student worksheet in class, the teacher may want to assign it as homework.
- Encourage students to create their own recipes using ingredients from the Body-Building Foods group. Students may use the ĀINA Recipe Challenge form at the end of their ĀINA Nutrition Student Workbooks to share their creations. Kōkua Hawai'i Foundation will select recipes to feature in future blog posts, newsletters, and cookbooks.

Thank the students for doing such a great job!

**THANK YOU!**



Take Home Letter

## DOCENT NOTES

- **Pack your trash!** Please leave the classroom cleaner than you found it by removing all lesson-based trash. We don't want to add any burden or extra trash for the teachers or custodians so please do not throw away any trash in the classroom garbage. Instead:
  - Collect napkins and any leftovers.
  - Uneaten guacamole or lime peels may be composted.
  - Use the garbage bag in the Lesson Supply Bin to remove all lesson-related food items from the classroom.
- Please do not leave any food in the supply bin. Perishable props have been known to get moldy and smelly when left in the bin after the last lesson.
- Please complete your online docent survey for this lesson. This is valuable feedback that helps to improve our program.
- Please collect student recipe submissions regularly and turn in to KHF staff at our next docent training.

## ADDITIONAL RESOURCES

### Lesson Plans & Curricula

- **“Foodie U: Mindful Eating for Families” Lesson Plans, Healthy Food Choices in Schools:** [healthy-food-choices-in-schools.extension.org/foodie-u-mindful-eating-for-families/](http://healthy-food-choices-in-schools.extension.org/foodie-u-mindful-eating-for-families/)  
A collection of six lessons focused on tuning into our body signals to truly enjoy our food and discern our body’s hunger levels.
- **“Supersized” Lesson, In Defense of Food Curriculum:** [pbslearningmedia.org/resource/ido/curriculum\\_11/lesson-5-supersized-in-defense-of-food/](http://pbslearningmedia.org/resource/ido/curriculum_11/lesson-5-supersized-in-defense-of-food/)  
In this lesson students examine portion sizes and how our eyes, as well as food companies, may deceive us in estimating a healthy amount to eat. Through popcorn experiments, along with a clip from *In Defense of Food*, students learn how to “small size it” and select healthier portions.

### Videos

- **“ĀINA In Schools Close to the Source Snack Brainy Guacamole,” Kōkua Hawai'i Foundation:** [kokuahawaiifoundation.org/ainavideos](http://kokuahawaiifoundation.org/ainavideos)  
This short video demonstrates how to make a delicious snack filled with high-quality fats with one of our favorite Brain Foods--avocado.
- **“HealthWorks! Healthy Living Series: Reading Food Labels”:** [youtube.com/watch?v=tB7BgszxLs8](http://youtube.com/watch?v=tB7BgszxLs8)  
This 3-minute video gives a clear explanation of food labels and the difference between portion size and serving size.
- **“Read Labels,” Nourish Video Series:** [nourishlife.org/2014/01/video-nadine-burke-read-labels/](http://nourishlife.org/2014/01/video-nadine-burke-read-labels/)  
Dr. Nadine Burke shares her tips on reading nutrition facts labels and ingredients lists.
- **“Reading Nutrition Labels for Kids Part 1 HPC: E12,” Katie Kimball:** [youtube.com/watch?v=KIN0E1nRpTE](http://youtube.com/watch?v=KIN0E1nRpTE)  
This 15 minute video for kids shows kids how to make sense of nutrition facts labels and ingredients lists. It includes a discussion of calories, fats, sugars, and other ingredients.

### Additional Resources

- **Keeping Portions Under Control:** [kidshealth.org/en/parents/portions.html](http://kidshealth.org/en/parents/portions.html)  
This article provides several tips on being more aware of portion sizes to avoid eating more than we actually want to eat.
- **2015-2020 Dietary Guidelines for Americans:** [health.gov/dietaryguidelines/2015/](http://health.gov/dietaryguidelines/2015/)  
US Dietary Guidelines are revised every 5 years and include recommendations on daily servings for different types of foods. The appendix includes recommendations for children based on age and activity level.

Find more at  
[kokuahawaiifoundation.org/ainalessons](http://kokuahawaiifoundation.org/ainalessons)