

Jr. Chef Club II

The Art of Tasteful Beverages

Lesson 3

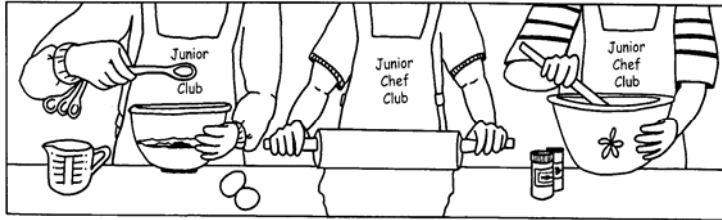


Objectives

After completing the lesson, students will be able to:

1. List two functions of water in the body.
2. State how much fluid should be consumed each day.
3. Recognize the benefits of drinking water rather than sweetened beverages.
4. Name three sources of water.

EALR	Program Integration
<p>Reading 1.3 Build vocabulary through wide reading.</p>	Read vocabulary words on board.
<p>Reading 3.2 Read to perform a task.</p>	Complete worksheet(s). Read a recipe.
<p>Communication 1.2 Listen and observe to gain and interpret information.</p>	Participate in hydration, dehydration and rehydration discussion.
<p>Science 1.2. Understand how components, structures, organizations and interconnections describe systems.</p>	Discussion of water and its function in the human body.
<p>Health and Fitness 1.4 Understand the relationship of nutrition and food nutrients to physical performance and body composition.</p>	Discussion of water's role in muscle/physical activity.
<p>Health and Fitness 4.2 Develop a health and fitness plan and a monitoring system.</p>	Daily water log activity and make plan for getting more water.
<p>Writing 2.3 Write in a variety of forms.</p>	Take notes during lecture. Write essay depending on worksheet selected.
<p>Math 1.2 Understand and apply concepts and procedures from measurement.</p>	Students convert grams to teaspoons. Students make graphs comparing sugar and nutrient content of various beverages using grams or percentages of daily allowances.
<p>Math 5.3 Relate mathematical concepts and procedures to real life situations.</p>	Students calculate how sugar content of various beverages compares to daily sugar allowance in order to choose healthful beverages.



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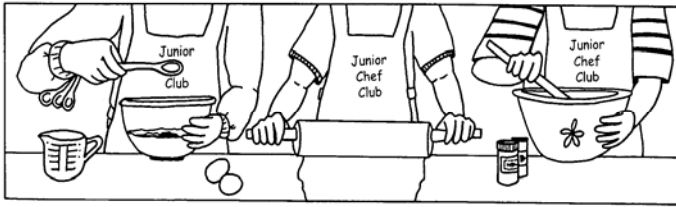
Classroom Supply List

Visual Aides

- Apron with pictures of water, healthy beverages, fruits and vegetables
- MyPyramid Poster
- Water Wally poster (or pie chart)
- 1 cup liquid measuring cup
- 2-quart pitcher
- Small mirror or glass to show breath
- Artificial grapes
- A few raisins in a baggie
- A few soaked, drained raisins in baggie (soak the night before in hot water)
- Bottle of red water, partially full
- Bottle of red corn syrup, partially full
- Bottle of pear juice (label removed)
- Bottle of apple Juice (label removed)
- Pictures of lungs and kidneys
- Assorted beverage containers—water, juice, juice drink, pop, milk, herb tea
- Sugar Budget Poster (10–12 tsp or 40–48 grams)
- Nutrition Facts Panel Poster
- Baggie with 17 teaspoons of sugar
- Sugar in Drinks Poster (bar chart showing amount of sugar in 8-ounce of pop, juice drink, milk, orange juice and water)
- Nutrient Comparison Poster (for beverages)

Handouts and Incentives

- Lesson Script
- Objectives and EALRs for Teacher
- Level II Cookbook
- Food model with blue “water” puzzle pieces
- Excellent Italian Soda Equations Worksheet
- Fabulous Fluids worksheet
- Parent newsletter
- Optional Activities:
 - Beverage Scavenger Hunt worksheet (included)
 - Think Your Drink (Washington Dairy Council: www.eatright.org) or poster paper to make similar nutrient charts and assorted drink containers
 - You’re The Chef recipe templates (included)
 - Blank lined paper for narrative writing assignment
- Incentive: Sport water bottles (if available)



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Cooking Supply List

Food Supplies

Makes enough for 25–30 samples of each recipe.

Banana Shake:

- 7 peeled and sliced medium bananas, frozen
- 21 cups reduced-fat or fat-free milk
- 3½ teaspoons vanilla extract
- Cinnamon (optional)

Excellent Italian Soda:

- 3 cans frozen 100 percent juice concentrate (1 grape, 1 orange-pineapple, 1 “tropical”)
- 2 2-liter bottles of sparkling water
- 7½ cups of low-fat or fat-free milk
- Bag of ice cubes

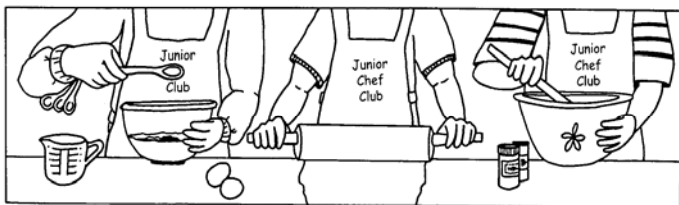
Serving Supplies

- 5-ounce drinking cups (2 for each participant)
- Napkins

Cooking Supplies

- 2 blenders
- 2 sets measuring spoons
- 2 liquid measuring cups (1 cup or larger)
- Several small mixing spoons
- Small paper drinking cups
- Paper napkins
- Small gloves

- Cooking table recipe
- Teacher tip sheet for cooking



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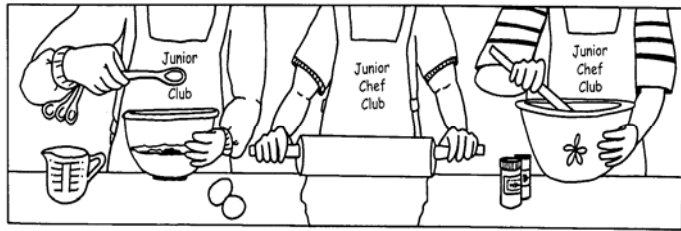
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Preparation Outline

<p>Notes for Preparing Visual Aides</p>	<p>Water Wally poster or pie chart poster (see photos). To make the Water Wally poster, draw an outline of a child on white poster board. Use blue poster board in the same shape to comprise about 65 percent of Water Wally's body. Cut this blue portion into pieces roughly proportional to the amount of water they represent:</p> <ul style="list-style-type: none"> Water loss via kidneys = 5 cups Water loss via skin = 3 cups Water loss via lungs = 2 cups Water loss via large intestine = minimal <p>Alternatively, draw a large circle on a white poster board. Use blue poster board in the same shape to comprise about 65 percent of the circle. Cut this blue portion into pieces roughly proportional to the amount of water they represent, as listed above.</p> <p>Pictures of lungs and kidneys included electronically.</p> <p>Food models with blue paper cut-outs representing the percent of water in each food. Select a variety of food models (pictures) from each food group; do not include beverages. Determine how much water is in the food. A list of foods and the percentage of water in each is included electronically.</p> <p>If you want to determine the water content of foods not on the list, go to the USDA National Nutrient Data Base: http://www.ars.usda.gov/nutrientdata. Click on "Search" and enter the name of one of your food pictures. Divide the grams of water by the grams in weight (items are listed by 100 grams of weight.) So for instance, the data base shows that an apple has 85.56 grams of water per 100 grams (of apple). So divide 85.56 by 100 to get 0.8556 then move the decimal point two places and round the number to equal 86 percent water. Make a piece of blue paper in the exact shape of the apple food model; the blue paper should comprise approximately 86 percent of the size of the apple. Write 86% on the blue paper and laminate. Repeat for additional food models.</p>
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	<p>Make enough food models for every student to have one, put five or six models in five or six envelopes depending on how many students are in the class. Have students work in small groups to match the blue water “puzzle” pieces to the food models they fit.</p> <p>Bottles: Add red food coloring to water and corn syrup to make the “hydrated” and “dehydrated” forms of “blood.” For the “urine” samples, use small bottles of apple and pear juice from the baby food section of the grocery store.</p> <p>Beverage container examples. Collect a variety of beverage containers: pop, sweetened and unsweetened waters, tea, sports drinks, etc. plus juice (regular and calcium-fortified) and milk (regular and flavored). Before the lesson, familiarize yourself with the serving sizes and amounts of sugar listed on various beverages.</p> <p>Sugar budget poster: Put 10 teaspoons of sugar in a small baggie and staple to a small poster board titled: Daily Sugar Budget.</p> <p>Nutrition Facts Panel poster. Included electronically; print on 11” x 17” paper or an overhead.</p> <p>Sugar in Drinks poster: Included electronically.</p> <p>Nutrient Comparison poster: Included electronically.</p> <p>Incentives: Either a sports water bottle available economically at discount stores.</p>
<p>Prepare Food Preparation area</p>	<p>Use fresh sanitizing solution to sanitize food preparation area (mist surfaces, let set one to two minutes then wipe with clean paper towel) and cover with parchment or waxed paper. Set out all cooking equipment and ingredients needed. (Keep chilled ingredients in refrigerator or ice chest until needed.)</p>



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Lesson Script

INTRODUCTION

Follow-up last week's session on fueling physical activity. Ask whether students did any more physical activity or different types of physical activities. Praise and encourage students' improvements.

Hydration

Raise your hand if you like to do well in school. Good, most of you! I thought so! Raise your hand if you like to have plenty of energy to play or do sports or dance? Great!

Today we're going to talk about something that can help you learn and think better, not feel tired, and do better in sports or dance or playing. Raise your hand if you can guess what that might be. Call on a few students. If they say things that are healthy things, comment that yes, that can help too, but there's something else that will really do the trick: that something is WATER!

Today we're going to find out why you need water, how much you need and how to get it. And we'll talk about making smart beverage choices.

Have student helper distribute Jr. Chef cookbooks. Open your Jr. Chef Cookbook to the Art of Tasteful Beverages. We'll be making new things to drink today. Be prepared to take some notes on your notes page.

Your body is more than half water. (Show either Water Wally poster or pie chart with 4 blue wedges Velcroed on, indicating 65 percent water.) What do you think all this water does? What does your body use water for?

- Helps your muscles move. Keeps your muscles from getting tired. One of the first signs of not having enough water in your system is feeling tired.
- Helps your brain think and learn well—the brain needs it to work properly and it keeps you from getting headaches sometimes.
- Keeps your skin soft, glowing and moist.
- Helps all parts of your body work better. For example, cushions our joints so they don't hurt when we move or jump or bounce.
- Helps get rid of things your body doesn't need anymore, like when you go to the bathroom there are things in your urine you cannot see, but that your body doesn't need and must get rid of.
- Water helps keep our body the right temperature, that's why we perspire in the summer. As the water goes away, evaporates, from our skin, it carries away heat, so we feel cooler.

Where does all this water (point to poster or pie chart again) come from? There are three sources of water. Raise your hand if you can tell us one. Get ready to write the three sources of water in your notes.

Call on students—they usually give answers like pop or juice or milk—group that into one category and say, Yes, we get water from beverages. The things we drink are called beverages. We also get water from the food we eat. And we get it from one more place—water itself. (Often students will say the faucet or the hose or the bottle, keep at it or help them until they get “water.”) So in your notes you should have: 3 sources of water: food, beverages, water.

Water in Food Activity

Here are some puzzle pieces for you to work on in your group. Inside each envelope are pictures of food, and blue shapes. You need to match up the blue shape with the picture of the food it fits best. (Show an example.) On the blue shape is written the percent of water in that food. You can think of it as the amount of water in that food. Give class about 3 minutes to put the puzzle pieces together, walk around and help groups as needed.

Bring the class back together and ask, hold up your food so that we can see it if it says it has 0–25 percent water (the percentage of water is written on the blue section). Look around, what kinds of foods are these? Repeat the question for 26–50 percent; then 51–75 percent; then 76–100 percent. Let’s think about the food we saw at each percentage. What kinds of food had the least water? (Grains and meats) What kinds of food had the most water? (Fruits and vegetables) In fact, we get about 2 cups of water per day, just from the water in the foods that we eat. Collect puzzles.

Jr. Chefs Cook

Read through today’s recipe as a group and discuss necessary cooking skills and safety techniques. Have Jr. Chefs prepare food while the rest of groups complete other learning activity.

Have selected Jr. Chefs wash their hands, put on gloves and prepare to make a variety of healthy beverage options. Possibilities include “Excellent Italian Soda” and “Banana Shake.” Jr. Chefs might also learn how to brew herbal tea.

Non-Cooking Students’ Activity

Continue Hydration Discussion

How much water do you need each day? Generally, it’s a good idea if elementary students drink about 7–8 cups per day of fluids, some of which needs to be water. Remember what one cup looks like? (Show 1 cup liquid measure). Eight cups would fill this container. Show 2 quart pitcher or container. Do you drink this much water and other beverages each day? (Maybe) Aim to drink about half of this as water, so maybe about four cups, and the other half from beverages, like the three cups of milk each day that *MyPyramid* recommends.

Where does the water go to and why do we need more each day?

We lose water:

- **through our skin** when we sweat. In fact, you lose water through your skin even when you're not sweating; it just evaporates off your skin all day long. (Remove the next to the smallest blue portion.)
- **through our lungs.** (Show picture of lungs.) What do our lungs do? They take air in and out so we can breathe. We lose a tiny bit of water every time we breathe out. Look, have you ever seen your breath on a mirror or glass? (Breath on mirror and hold it up for all to see.) That's a little bit of fog, of water from your lungs. (Remove next to the largest blue portion)
- **through our kidneys.** (Show picture of kidney.) We have two kidneys. They take the used up water and fluids in our body and hold on to the nutrients we need while getting rid of the waste products we don't need. The kidneys filter waste products into urine. Going to the bathroom is how we lose the most water each day. (Remove largest blue portion.) It's good for our kidneys to have plenty of water because it helps carry out things our body doesn't need any more called waste products. One way to tell that you're getting enough water is if urine is clear or light yellow when you go to the bathroom (show example of pear juice). If it's dark yellow like this (show example of apple juice), it's time to drink more water!
- **through our intestines.** Your intestines need a little bit of water to move the solid waste along. (Remove smallest blue portion.)

So now, with no water, your body would be dehydrated. Write that word in your notes. (Dehydrated) What does that mean? (Without water)

This is what dehydrated blood might look like—this isn't really blood it's pretend (show red corn syrup in a bottle and shake). It's dehydrated: it doesn't have enough water so it is thick and might not be able to pump through your body like it is supposed to. Without enough water, when you're dehydrated, you might get a headache, or might not be able to think as well as usual; or you might get tired sooner when you're playing or doing sports. Here's hydrated blood (show bottle of red water and shake). This "blood" has plenty of water. To keep your energy high, drink plenty of fluids, especially water. If you're playing, drink before you play, once in a while while you're playing, and after you're done playing.

Raisins are an example of a food that is dehydrated (show raisins). What food do these come from? Grapes (show plastic grapes). Grapes are hydrated, they have plenty of water. Fruits and vegetables that have a high water content are full of 'juice' when you bite into them, they might drip. We can soak these raisins to put back some water. (Show rehydrated raisins.) "Rehydrated" (write on board) means re-watered. Water is there once again.

So what should we do to get our body rehydrated? (Pick up empty Water Wally poster or pie chart poster.) Raise your hand if you have a suggestion of what we should do. Add back pieces of blue as students give responses: drink water, drink beverages, eat 'juicy' fruits and vegetables, and eat other foods. Responses should correspond to the three sources of water. Have the largest section of blue = water, the

next largest section = beverages, the third largest section from fruits/vegetables, and the smallest section from other foods such as meat and grains. Attach all sections as students give the responses, until pie chart is re-hydrated.

Smart Beverages

The beverages we choose can make a big difference to our health. Some of them have a lot of vitamins and minerals, others have none. Some of them have a lot of sugar, others have none.

Sugar in Beverages

Raise your hand if you know—why does it matter how much sugar we eat? Too much causes dental carries. Sugar is sometimes called empty calories—that means it gives us energy, or calories, but without any of the vitamins and minerals we need for a healthy body. A little sugar is okay, but too much can cause problems. Sugar makes things taste sweet, so if we eat high-sugar foods often we might eat too much—or more food than our body needs. Eating more food than our body needs might give us more energy than we use up in physical activity, so we might gain weight.

Here's a look at our Sugar Budget or Allowance. This is the maximum amount (or most) added sugar we should eat in a day. The sugar budget for students your age is about 10 to 12 teaspoons. (Ten teaspoons for those who eat less—typically younger students, or girls or less active students; twelve teaspoons for those who eat more—typically older students, or boys or more active students.) This is what that amount of sugar looks like (show sugar budget poster).

Now we're going to look at some examples. I have beverage containers to look at—everyone will get to look at one. (Distribute beverage containers.) We're using these brands just as examples—we're not saying any are good or bad.

What I want you to look at first is the amount of sugar in your beverage. Show where to find "Sugars" on large Nutrition Facts Panel poster.

Call on a student holding a soda can. Ask them how much sugar is in their beverage. It will be about 40 grams. Ask, is that a little or a lot? Hard to tell, isn't it. But we can change grams into teaspoons and then it's easier to tell. Write this in your notes (write on board):

$$\underline{\hspace{2cm}} \text{ grams} \div 4 \text{ grams/teaspoon} = \underline{\hspace{2cm}} \text{ teaspoons}$$

So if your beverage has 40 grams, how many teaspoons is that? Assist student with math so they don't feel uncomfortable if they don't understand immediately. 40 grams would be 10 teaspoons. How does that compare to our sugar budget? One can of soda uses up all, or just about all, of our entire sugar budget for the day doesn't it!

Now call on someone who has a 20-ounce soda bottle; preferably the same brand of soda as the can. How much sugar do you have in yours? It will be about 27 grams. Ask, "What makes the difference? Why is one 40 and one 27?" Ask students to check serving size. (Show on Nutrition Facts Panel poster. Point out where the Serving Size is located near the top.) The student with the can will say "1 can" so

then ask that he/she looks to see how many ounces are in the can: 12 ounces. Now ask the student with the bottle—their answer will be: Serving Size = 8 ounces. Ahh ha! The difference is in the serving size, isn't it? You ALWAYS have to check the serving size when comparing two items. How many servings are in the bottle? ($2\frac{1}{2}$). So if you drank the entire 20-ounce bottle, how much sugar would you get? ($2.5 \times 27 = 68$) 68 grams! That equals 17 teaspoons. Show baggie with 17 teaspoons of sugar in it. Is that more or less than your sugar budget? Nearly twice as much, isn't it?

Now call on someone who has a container that contains a clear beverage and has fruit pictures on the label. Ask them about how much added sugar is in it and the serving size. It will probably be 28 grams of sugar in an 8 ounce serving. Help students note that this beverage, even though it's made to look healthy (clear water with fruit on the label) contains NO fruit and has MORE added sugar than pop.

Look at a few more examples as time allows, especially those that are popular lunch box drink.

Nutrients in Beverages

Now let's switch gears and look at the nutrients in beverages. Show on the Nutrition Facts Panel poster where to find vitamins and minerals. If this section of the label is not on your beverage, it means that there are none of those nutrients in it. It's a good idea to choose beverages that have some nutrients in them. Call on a student with a juice label to say how much vitamin C is in a serving. Note that when the label says "100 Percent Juice" then you know the sugars are just the natural sugars in fruit that carry many vitamins and minerals. These are fine as long as we don't have too much juice—limit to one cup per day. If you like more juice than that, dilute it with water.

Call on someone with a plain milk label. Ask about calcium content. Again note that the sugars are naturally there, carrying nutrients. There are typically 11–13 grams of "Sugars" per cup of plain milk—but none of it is added sugar unless the milk is flavored, as in chocolate or strawberry milk. Compare calcium in milk to someone's juice label with calcium added; they may be similar, so juices with calcium added can be a good source of calcium—but limit juice to one cup per day because it's concentrated. Also call on someone holding one of the small flavored milk bottles. Ask them about sugars. Note that flavored milks have extra sugar added. Point out that it's healthiest to drink milk plain, but if you are going to flavor it, perhaps add your own flavoring so that you control how much sugar-containing flavor you put in it. Hopefully less than the high amount put in the bottled milks.

Show *Sugar in Beverages* poster and *Nutrients in Beverage* poster. Note that milk is high in calcium, but not a good source of vitamin C. Orange juice though, is just the opposite. Drinking a wide variety of healthy beverages will give you the nutrients you need without a lot of added sugar.

Show a few examples of beverages students might select without added sugar, such as a sparkling, flavored water with no sugar or sweeteners, or an herb tea. Smart beverages are those with little or no added sugars, and plenty of nutrients, as well as water.

Sample and Evaluate Beverages

Now let's taste the beverages the Jr. Chefs cooked up. Let students verbally evaluate the recipe and write their responses in their cookbook. They may also use colored pencils to color in the appropriate triangles of *MyPyramid*.

Fabulous Fluids

Distribute the *Fabulous Fluids* worksheet. Explain to students how to track their fluid intake for one week. Suggest that they also complete the back of the worksheet and bring it back next week.

Optional Activities

During the next week, suggest an activity or two for the classroom teacher.

- **Beverage Scavenger Hunt Worksheet** (included electronically) guides students to read and evaluate beverage labels to make a smart beverage choice.
- **Discovering Our Drinks:** Use Washington Dairy Council's *Think Your Drink* handout to stimulate group discussion of pros/cons of different types of drinks. Or have each group take one food label/drink bottle (milk, chocolate milk, juice, juice drink, sports drink, soda, diet soda, bottled tea, etc) and make a similar nutrient chart then share/present to the class. Distribute drink containers to each group (at least five for each group: water, milk, juice, juice drink, soda then chocolate milk, Snapple, tea, etc). Give each group/student a blank poster with 2 bar charts (one for sugar content, the other for major nutrients). Have students work in groups to fill in the information using their drink packages.
- **Narrative Writing:** Write a several paragraphs explaining to your teacher the importance of getting enough fluids each day and why you need more fluids every day.
- **You're The Chef:** Provide a worksheet with a recipe card template (included electronically). Have students develop their own beverage recipe based on those presented in class. Let them mix and match ingredients and preparation techniques to come up with a beverage combination that sounds good to them. Have volunteers share their recipe with the class.

One Step Further

- As a group or as a class, make a display which explains the recommended amount of fluids we need and explains the concept of hydration/dehydration. Display in your class or in the cafeteria to inform other students.

Review

Make sure objectives have been achieved. Ask students to raise their hand to answer:

- What does water do in the body?
- What are the three sources of water?
- How much fluid do you need each day? And about how much of that should be water?
- Why is it better to drink water when you're thirsty, rather than pop?

Closing

Distribute parent newsletter.

Collect Jr. Chef Cookbooks.

Distribute incentive – plastic, reusable water bottles (if available). Instruct students to wash water bottles EVERY day!