



Slow Food USA®

Slow Food USA's **School Garden Curriculum**

Good

Enjoying the pleasures of healthy and delicious food
For Grades **K-5**

Gigia Kolouch

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Slow Food USA®

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Education

for Slow Food...

- ...is about **pleasure**, a light and convivial occasion to feel good and enjoy ourselves
- ...teaches the values of **slowness** and **respect** for our own and other people's rhythms
- ...is learning by doing, because **hands-on** experience increases and strengthens educational outcomes
- ...values the **diversity** of cultures, knowledge, skills and opinions
- ...recognizes everyone's needs, and stimulates the interests and motivations of each **individual**
- ...approaches topics in their complexity, favoring a **multi-disciplinary** approach
- ...means taking time to **understand, internalize** and **elaborate** one's own vision
- ...**encourages participation** by facilitating dialogue, self-expression, cooperation, listening and mutual acceptance
- ...is a **personal journey** that involves cognitive, experiential and emotional dimensions
- ...is nourished by its own **context**, giving value to memory, knowledge and local cultures
- ...**facilitates exchange** among local networks, reinforcing the sense of community
- ...**develops self-awareness** of everyone's own role and actions
- ...stimulates **curiosity** and trains **intuition** and critical **thinking**
- ...**promotes change**, generating new and more responsible thoughts and behaviors



Welcome

to Slow Food USA's *Good, Clean and Fair* school garden curriculum. In this Introduction you will find everything you need to begin gardening and cooking lessons with young learners the Slow Food way. We envision a progression of activities that moves from the personal to the social and from the local to the global.

What is Slow Food?

Slow Food
is an idea,
a way of
living and
a way of
eating.

In 1986, Italian journalist Carlo Petrini recognized that a proposed McDonald's restaurant in Piazza di Spagna near the Spanish Steps in Rome represented a threat to the Italian food culture of trattorias and osterias. Armed with bowls of pasta, Petrini rallied his friends to take a stand against the industrialization of food, and the social and culinary costs of homogenized eating. With this protest, Slow Food was born.

Slow Food is an idea, a way of living and a way of eating. It is a global, grassroots movement with thousands of members around the world that links the pleasure of food with a commitment to community and the environment. Slow Food seeks to create a dramatic and lasting change in the food system. We reconnect Americans with the people, traditions, plants, animals, fertile soils and waters that produce our food. We seek to inspire a transformation in food policy, production practices and market forces to equity, sustainability and pleasure in the food we eat.

Today, Slow Food has over 150,000 members and is active in more than 150 countries. In the USA, Slow Food is headquartered in Brooklyn, NY and there are more than 150 chapters and 2,000 food communities across the country.

The Purpose of Slow Food School Garden Curriculum

The concept of "conviviality" is at the heart of the Slow Food movement: taking pleasure in the processes of cooking, eating, and sharing meals with others. Education is an important step in gaining the appreciation for conviviality and the pleasure of sharing good food. Therefore, Slow Food School garden curriculum must include the following elements:



1

Activities and instruction regarding growing food

2

Activities that center around cooking and eating

3

Promoting the enthusiastic enjoyment of good, clean and fair food for all.



Slow Food provides a unique contribution to school gardens. By engaging learners on experiential and emotional levels, our garden programs provide a meaningful context for multidisciplinary education.

Our holistic approach allows the learner to understand the network of relationships between humans and the natural environment from a personal point of view.

School gardens are used for many other purposes, including STEM education, nutrition, food production, sensory learning and social connections. These are all praiseworthy efforts to link learners and the school community to the natural environment. A Slow Food school garden may include some or all of these activities, but its primary purpose is to fulfill the Slow Food mission; a Slow Food school garden links the pleasure of good food with a commitment to fairness in the community and a healthy environment. The curriculum is the place where the Slow Food mission is expressed in gardening and cooking activities.

The curriculum is divided into three parts, Good, Clean and Fair. Together they provide a full range of activities centered around the garden; from tasting activities, to cooking with garden produce, to sustainable gardening, to studying food systems, and activities that promote access to affordable fresh food. Please see the following chart to select lessons appropriate for specific age groups.

These activity guides assume that you already have a school garden, or an outdoor space. If you need help starting a garden, check out the Slow Food USA's *School Garden Guide* at <http://gardens.slowfoodusa.org>

	Good Enjoying the Pleasures of Healthy and Delicious Food	Clean Gardening for Sustainability	Fair Producing Food with Respect for Economic and Social Justice
Elementary School	Sensory Education Simple Cooking Techniques	Healthy Soils Wise Water Use Lifecycles of Plants and Insects	Community Justice: Youth Farmers Markets and Sharing with Food Pantries
Middle School	Food and Culture including recipes from around the world	Plants and Culture	Local and National Food Systems
High School	Advanced Cooking Techniques Sharing with Community	Garden Design and Sustainable Agriculture	Global Food Systems and Human Rights

How to Use the Lessons

We have combined observation-based lessons with skill-based lessons in a progression designed to increase learners' enthusiasm and knowledge of cooking and gardening. Adult leaders can be teachers, garden leaders, after school staff, interns or parents. They do not need to be cooking and gardening experts, but classes will be more successful if the leaders have experience with leading groups of young learners. Often lessons can be more powerful if leaders are learning along with the students. We provide you with the background information you need to lead a class. Additional resources are provided at the end of each section.

Although the lessons are meant to enhance learning with a school garden, many observation lessons as well as cooking lessons do not need a formal school garden. However access to some type of outside landscape is desirable.

Lessons are meant to be adaptable to the widest variety of conditions. They may be taught as single experiences, or as part of an ongoing in school or after school program. Many powerful cooking classes can be accomplished with simple tools and without the use of heat.

Good, Clean and Fair in the Academic Curriculum

The process-driven lessons contained in these volumes move through four stages of knowledge. The four fundamental skills of observation, research, experimentation and reflection promote learners who are creative, flexible and can engage in critical thinking.

OBSERVATION

Developing the ability to truly see what is happening in the environment is the fundamental skill to understanding. Both gardening and cooking rely on observation to develop judgment.

Intuition starts with observation. Learners can derive a shallow understanding of life cycles from lectures and reading books, but a deeper understanding starts with observing the small details of life at an intimate scale. Teachers and garden leaders can use the journal page **"What did you see today?"** (pages 42 and 123) to encourage reliable, detailed habits of observation every time they engage in garden related activities.

RESEARCH

Observation naturally leads to questions. These questions are powerful learning tools for further research and knowledge integration. Questions that come from the learners' own interest and first hand observation are more likely to ensure engagement in the learning process. There are many small mysteries in the garden that can be investigated by research. For example, *why tomato leaves are curled or black? What insect created holes in cabbage leaves?* Once learners



investigate these questions through research, they are often driven back to observation to confirm what they have learned. Research can also lead to experimentation or activity. For example, once a learner discovers that cabbage loopers may be the cause of damage, they can experiment with different methods of controlling the infestation.

EXPERIMENTATION OR ACTION

Observation and research provide the backdrop for a learner's desire to intervene in the environment. The teacher or garden leader can guide this intervention into the shape of an experiment. Experiments rely on skills developed over time. Just as a chemistry experiment relies on the skill to manage heat, test tubes and measuring, so a recipe relies on skills such as chopping, stirring and seasoning. Use the **"What did you do today?" journal worksheet** (pages 41 and 122) to record all actions while gardening or cooking. Have the learners focus on the process and the results of their actions.

REFLECTION

Reflection integrates observation, research and the results of experimentation into a synthesis producing knowledge. Make sure to leave time after every lesson for reflection about what has happened. This will allow the learner to take his experience and put it into context, allowing him to remember it in a deeper way. Reflection will lead to new questions and deeper engagement, providing the framework to develop critical thinking.





Good, Clean and Fair and Academic Standards

The Slow Food USA curriculum is compatible with many Common Core and Next Generation Science Standards (NGSS). School garden and cooking activities are most likely to work with standards in the following subject areas.

LANGUAGE ARTS

Promotes precise use of vocabulary. Use the **“What did you see today?” worksheet** (pages 42 and 123) to learn new nouns and adjectives and **“What did you do today?” journal worksheet** (pages 41 and 122) to learn new verbs.

Teaches how to describe sensory experiences precisely, to separate out opinions, likes and dislikes

Can be used to teach various writing forms including instructions, descriptions, stories and poetry.

Promotes research skills by using seed packets and websites to decode informational texts

SCIENCE

Promotes observation skills and note taking

Promotes use of drawing for explanation

Encourages experiential knowledge of lifecycles and connections between animals and plants

Teaches botany and taxonomy of plants, insects, arachnids and birds

MATHEMATICS

Uses cooking skills to understand measurements and fractions

Uses farmers markets to understand numbers and currency

Teaches measurement via plant growth, garden areas and planting rows

HEALTH AND WELLNESS

Expands food preferences for fresh fruits and vegetables

Promotes discovery of connections between environmental and human health

Promotes intuitive understanding of healthy cooking process



How to Cook with Young Learners

If you take the time to set up your classroom environment for cooking classes, you will be able to minimize anxiety and risk. Planning out the flow of the class, the placement of the learners, and having supplies ready will ensure that your classes are successful and enjoyable to both teachers and learners.

Set Up Procure the use of a sink for washing dishes.

The cooking area (if using heat) should be separate from the food preparation area and from the children, near an electrical outlet in the cafeteria.

Remove all papers, backpacks and books from surfaces.

Surfaces should be sanitized.

Divide learners into groups no larger than 8, with one adult per group.

Produce should be prewashed and placed in bowls.

Have a bowl or tray for scraps to put in the compost at the end of class.

Wait until AFTER you have talked about knife safety to pass out any knives.

Every learner who will be cutting should have his or her own cutting board.

Class Introduction

Make sure learners wash their hands before sitting down.

Every class should start with a safety refresher and kitchen rules.

Show learners where to put their scraps.

Briefly explain what you are going to make. Then explain only the first step in detail.

Before transitioning to a new task, make sure all learners are quiet and paying attention.

Ingredients for a Successful Cooking Class

1. Design activities to be hands-on as much as possible.
2. Every child should have something to do, which means that recipes should be simple to cook, but labor intensive.
3. Focus on one primary learning goal, with a few sub-goals that are less important.
4. De-emphasize reading instructions and measuring, unless that is your primary goal.
5. For picky eaters, encourage “tasting” or “experimenting” as opposed to “eating.”
Do more taste classes.
6. Give the learners an opportunity to be in control of the final flavor.
7. Give the learners opportunities to choose ingredients.



Safety in the Cooking Classroom

Before cooking in the classroom or cafeteria, talk about rules and special behaviors when using tools and heat. Engage learners in a discussion about what rules would be best to promote respect for the teacher, cooking process, safety and for each other. Cooking activities are popular with parents and volunteers. Ask them for help so that they can facilitate groups of learners, ideally no more than eight in a group.

The following simple rules are examples that you may wish to consider.

These simple guidelines will minimize risk of food-borne illnesses. These rules will help you to avoid cross contamination, keep food at safe temperatures and promote healthy habits. We recommend that you do not cut raw meat or seafood products with the young learners in order to minimize food safety concerns.

- Before the cooking class, learners must wash their hands with soap and water for at least 20 seconds.
- Wipe down all counter and table surfaces with a disinfectant.
- Do not let food sit at room temperature for more than one hour before class.
- Do not bring cooked food to the class.
Cook all ingredients during or just before the cooking class.
- Do not bring leftovers home.

If you would like to add meat to your dishes, you can try the following techniques.

Use slices of ham, chicken or turkey cut into cubes for flavor in stir-fries, wraps and soups. Use a small amount of sausage for flavor in soups or stews. If you would like to use boneless chicken breast or pork, poach it gently while the learners are chopping the rest of the ingredients. Let it cool, and then cut the fully cooked meat before adding it to the dish.



How to Garden with Young Learners

If you set up your garden for learners to visit and use, you will be able to minimize anxiety and risk outdoors. Planning out the flow of the class, the placement of the learners, and having supplies ready will ensure that your classes are successful and enjoyable to everyone involved.

Teachers and garden leaders can set the tone by introducing the garden as an outdoor classroom, with the same rules and behaviors as an indoor classroom. Discussing rules and expected behavior before going outdoors will result in a more productive and focused garden experience. If possible, reserve a part of your garden or a space near your garden for the class to gather as a group. You can read about more tips for garden design in the *Slow Food School Garden Guide*, <http://gardens.slowfoodusa.org>. Garden-based activities are popular with parents and volunteers. Ask them for help so that they can facilitate groups of learners, especially with the instructions. For more techniques about managing learners in an outdoor setting, refer to Life Lab's brief guide: <http://www.lifelab.org/wp-content/uploads/2003/04/OurdoorClassroomManagement2.pdf>.

Set Up Have any necessary tools and supplies ready before going outside.

Make sure there are clear path areas around the beds.

Divide the class into small enough groups so that each child has space around a plot to do the activity.

Connect any hoses or watering needed before the class.

Make sure learners visit the restroom and wash their hands before going outside.

Class Introduction

Every class should start with a safety refresher and garden rules.

Give any background information in the classroom, while the entire group is paying attention.

Give any specific directions outside, where learners can see and understand what they are doing.

Keep instructions brief and to the point. Give one instruction at a time.

Before transitioning to a new task, make sure all learners are quiet and paying attention.

Ingredients for a Successful Gardening Class

1. Design activities to be hands-on as much as possible.
2. Every child should have something to do, which means that you have enough garden space for all to participate.
3. Focus on one primary learning goal, with a few sub-goals that are less important
4. Encourage knowledge retention through journal writing.
Always leave time for observation and reflection.
5. Encourage learners to make decisions and record outcomes.



Safety in the Garden

Before going outside, talk about rules and behavior when learning outside.

Engage learners in a discussion about what rules would be best to promote respect of the living plants and animals in the garden as well as each other.

The following simple rules are examples that you may wish to consider.

General Outdoor Safety:

- Encourage garden activities in the morning, before it is hot.
- Bring water to the garden for learners to drink.
- Make sure all participants are wearing sunscreen.
- Remove all puncture vine (goat head) or other thorny weeds before learners use the garden.
- Keep first aid kit with Band Aids and antiseptic on hand.

Tool safety:

- No running in the garden.
- No children under aged 10 will be allowed to use long handled tools (shovels, hoes, rakes).
- Children will be encouraged to use their hands (as opposed to tools) as much as possible when gardening.
- Children will be provided with gardening gloves if exposed to thorns or other dangerous plant material.
- Closed-toe shoes must be worn at all times, no flip flops.
- All participants will be instructed as to proper handling of tools, including no running and carry tools face downward at their side.
- Children must be supervised when gardening.
- Participants who do not follow safety rules will not engage in gardening.

Food safety issues outdoors:

- No use of chemical fertilizers or pesticides in the vegetable garden.
- No use of raw manure as fertilizer.
- Soil testing will be done each year for lead (as part of science education).
- All produce will be washed before being eaten.
- All participants will wash hands, using proper hand washing techniques, after being in the garden.

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Introduction

Welcome to Slow Food USA's school garden curriculum promoting *Good* food for learners aged 6-12. We believe that education regarding *good* food encourages healthy food choices for all learners. *Good* incorporates knowledge of how the quality of food is affected by its freshness, cultural factors, preparation, cooking, and consumption. Activities in this manual use a wide variety of fruits and vegetables that learners can grow in a school garden, or purchase from a favorite source. These lessons will provide a background for young learners to develop their own intuitive sense of food and cooking, as well as promote enthusiasm for eating fresh fruits and vegetables.

All beginning cooks, including young learners, must understand the fundamentals of cooking. We believe that the fundamentals of taste, appreciation of ingredients and cooking skills are necessary before a novice cook starts using recipes. Once learners have internalized how to manipulate flavors and use basic skills, they will be enthusiastic cooks.

The key to creating pleasure and joy in cooking is to reduce the barriers of fear and anxiety by focusing on the processes of discovery, experimentation and taste.

Our approach evolved from the struggles we see every day around food and cooking. It is common knowledge that people worldwide are beginning to prefer fast food choices. These food choices, in combination with a lessening of physical activity are leading to an epidemic of obesity. Let's examine what people are choosing when they choose these foods, and why they are so attractive.

Fast foods have many appealing qualities. They are often high in salt, fat and sugar, substances that tend to provide comfort in an anxious world. Foods like doughnuts, pancakes, French fries and potatoes offer predictability and comfort as well as convenience in a complicated world. Learning to cook in this environment adds just another type of stress and anxiety.

In order to design an alternative to fast food, we need a cuisine that is equally pleasurable, comforting and attractive. In addition, we need a cuisine that contains components that fast food is lacking, such as accessibility to fresh and local ingredients, sense of accomplishment and achievement in creating delicious food and menus that represent current popular trends in eating. What if you could learn to cook from a young age, taking advantage of what you have on hand in a way that calms and enlivens as opposed to promotes stress? What if the delicious food you created was also a source of pride and joy as you shared it with family and friends? What if cooking lessened the worry and fear of modern life? Isn't that something we would all like to do?



The key to creating pleasure and joy in cooking is to reduce the barriers of fear and anxiety by focusing on the processes of discovery, experimentation and taste. This first module in this manual for young learners is designed to do just that.

The section of lessons, **Sensory Education**, opens up the world of flavor and lets the learner be in control of the final product. These are the first steps in being able to describe the flavor of food, which leads to the appreciation of fresh fruits and vegetables.



The second section of lessons, **Kitchen Skills**, gives learners an understanding of how raw ingredients become common foods. By using knife skills, cooking techniques, and simple food processing skills, learners will understand how a kernel of corn becomes a tortilla.

All of the lessons can be done in a school setting with minimal equipment. We recommend that learners be divided into groups of eight, with one adult in charge of each station.

Whether the class leader is a novice cook or an experienced one, we hope you all enjoy discovering the pleasures of cooking and eating together.



Tips for Lesson Planning

All activities have a simple guide at the top of the page to help with lesson planning.

The information includes:

- Estimated length of the activity, not including preparation time or transition time.
- Grade level(s) most appropriate from K-5
- Location of the activity (indoors or outdoors)
- Activity type
- Suggested optimal season for the activity

Use the following key as a guide to the Info bar.

KEY

TIME REQUIRED



15 minutes



30 minutes



45 minutes



1 hour

LOCATION



indoors



outdoors

GRADE LEVEL

GK-5

G2-5

G3-5

G4-5

ACTIVITY TYPE



Gardening refers to an activity that has a gardening purpose.



Sensory Exploration refers to a food activity whose purpose is to experience the sensory qualities of a food. It does not require assembly or heat, but may require some cutting or preparation.



Basic Cooking refers to a food activity that is simple to prepare, and requires heat.



Concept Exploration refers to an activity whose purpose is to examine, draw, discuss or experiment with a concept related to the garden or food.



Food Preparation refers to a food activity that requires assembly, cutting and some simple equipment but no heat.



Intermediate Cooking refers to a food activity that requires more complex preparation, heat, and is appropriate for ages 10 and up.

SEASON



Spring



Summer



Fall



Winter



1 Sensory Education



Slow Food USA®

Introduction

In order to provide an environment where learners can pay attention to what their senses are telling them, the educator must break through certain preconceptions.

Sensory education, including the sense of taste, forms the core of the Slow Food USA curriculum. If you do not have the resources or time for a full cooking class, introduce learners to foods through tasting. You can address most of the learners' misconceptions about trying new ingredients and new dishes with raw tasting exercises and simple recipe creation. These activities will be your most powerful tools for expanding food preferences and increasing enjoyment of healthy, fresh fruits and vegetables.

The following lessons provide a way for each learner to experience all five senses, in increasing complexity, through food and cooking. One purpose of the Sensory Education section is to allow learners to refine their observation skills by isolating and describing how they experience food through their sense of taste, smell, vision, touch and hearing. In order to provide an environment where learners can pay attention to what their senses are telling them, the educator must break through certain preconceptions. After all, they have been eating food for their entire lives and they think they know all about it. In fact, most of them might not have ever truly *tasted* their food.

Here are a few things that students may not know about food:

- They cannot tell how food tastes by how it looks.
- They might like something today that they did not like yesterday.
- Food ingredients do not always taste the same. Ingredients will taste differently depending upon the seasoning, cooking technique and combination of other ingredients.
- It is possible to like a dish (spaghetti sauce), even though a person “hates” one of the ingredients (onions).
- It is possible to change almost any ingredient or food into something you like.
- A specific ingredient will taste differently depending upon how it is cooked. Fresh, steamed asparagus tastes much sweeter than canned, boiled asparagus.

When infants are born, they are provided with all of their food. As they grow, their only choices regarding food are to say “yes” or “no.” Food becomes another area of struggle over power and control between parents and children. Sensory education programs are the first step to empowering children to take charge of their food. It allows them to experiment with new flavors without fear of pressure or ridicule. It gives them the tools to adjust simple flavors until they create something they like. One stumbling block to nutrition education is food neophobia, or the fear of trying new foods. Tasting can help eliminate that fear and change one's attitude from dread to anticipation.



Put yourself in the learner's shoes. Your parents give you food that they insist you eat. You look at it and it seems suspicious. If you have understanding parents, they might say, "it's ok, just try it." So you nibble on the very edge and say, "I tried it, I hate it." You only have two choices as a young eater, you can either accept what is given to you or reject it. When learners are exposed to the following tasting activities in school, it becomes more of a science experiment or a fun game. The goal is to figure out what kinds of things they like and what kinds of things they don't like and how to change them so that they become more appealing.

ACTIVITY PROGRESSION

The first activity, "Identifying the Five Basic Tastes," provides the foundation for the rest of the section. Many learners have a difficult time recognizing some flavors, especially sour and bitter. This first activity allows learners to realize that they can distinguish between different flavors by isolating them.

The next section, "Tasting Exercises," introduces learners to complex flavors, smells, and textures as they exist in their natural state. Over time, learners will become more aware of their senses while eating and begin to distinguish flavor characteristics that they prefer. They will develop new vocabulary skills in order to be able to more accurately describe their sensations when eating. This section concludes with the activity "Progressive Tasting," which allows learners to change the flavor of a produce item by adding sugar, salt and lemon. Manipulating flavors is the first stage in learning how to cook.

The third section, "Developing Personal Food Preferences," introduces a series of exercises in which learners combine flavors, textures and aromas to make delicious dishes. Developing flavor profiles, even in the raw form, provides them with the opportunity to refine their cooking skills.

Our real world approach to sensory education offers a unique experience for learners to master the complexity of tasting and cooking, while enhancing their ability to describe and distinguish the various elements of a dish.



Identifying the Five Tastes



Objective Learners will be able to identify, compare, contrast and describe the five basic tastes.

Background This activity helps participants to distinguish the five basic tastes (sweet, salty, bitter, sour and umami, or savory), differentiating them from the other senses, particularly smell. Smell is always a factor in taste perception, to the point that the term “flavor” is often used to describe aromas (i.e. hazelnut flavor, coffee flavor, etc.).

With the youngest ages, concentrate on recognizing the different tastes, and connect them to commonly eaten foods. If the learners cannot write, label the foods with a drawing/diagram and combine their verbal observations on a large sheet of paper.

For those aged 10 and up, compare different individual taste sensitivities and link them to individual food habits, thus establishing relationships between preferences and individual sensitivity. For example, those who prefer salty flavors may enjoy chips but dislike cake. Or those who are sensitive to bitter may dislike kale.

Materials **For each station:**
Juice from 1/2 lemon (sour)
1/2 teaspoon salt (salty)
1 teaspoon sugar (sweet)
1 tablespoon green or white tea concentrate (bitter)*
1/4 teaspoon Accent (umami)
Five 1/2 liter bottles distilled water
Pitcher tap water
Medium sized bowl
Small cup for each student (Dixie)
Sharpie
Paper and pencils
Flip chart easel or blank poster for recording the results
Five Tastes Worksheet (pg. 30) for each student

*Make the tea concentrate by boiling 4 bags of green or white tea in one cup of water for 10 minutes.

Preparation Prepare enough stations so that there are 6-8 learners in each group.

Number each of the five bottles on a table from 1-5. Add the prepared flavor (lemon, salt, sugar, tea extract, Accent) to each bottle. Screw the cap onto the bottle and shake until well mixed. Record which flavor is in each numbered bottle in a place where others can't see it.

Each station should have one empty bowl, one pitcher of plain water, the five flavored water bottles and one small cup for each participant.

Make sure everyone has washed his/her hands.

Activity

Pour a spoonful of bottle number one in each learner's cup. Have each person taste it. Have each learner match the number of the bottle next to the name of the taste on the worksheet.

After the learners have tried the liquid, ask them to think of foods that taste similar. Have each person make a list of the similar tasting foods under the name of the flavor on the worksheet.

After each taste, have the learners pour the excess liquid into the bowl.

Add a few tablespoons of tap water to their cups to rinse and dump into the bowl.

Pour the next flavor and repeat the process until everyone has tried each of the five flavors.

Discussion

Gather back together into one large group. Name some common foods such as olives, pickles, pretzels, bananas and ask learners what flavors are in those foods.

Discuss the following questions:

- Did anyone have a strong reaction to the bitter (tea) flavor? What was it like?
- Did anyone find it hard to distinguish between salty and sweet? Why?
- Which flavors were favorites?

Further Exploration

Try these additional experiments after the taste test:

Banning Bitter—The least favorite flavor, bitter, is often associated with highly nutritious foods such as greens, herbs and vegetables. Have learners try to lessen the bitter liquid by adding other flavored liquids to it. Which flavor works best to lessen bitter?

Flavor Balance—Mix all the flavors together to create a balanced flavor. What does it remind you of? Does it taste good?

This test was adapted from the Slow Food International food and sensory curriculum, *To the Origins of Taste* at http://www.slowfood.com/education/pagine/eng/pagina.lasso?-id_pg=25.

Poetry of the Senses



Objective Learners will be able to describe herbs using their senses and create a poem.

Materials Assortment of herbs, enough for each learner
1 blindfold for every two learners
Garden journals
Pencils

Preparation Make sure each learner has his own pencil and garden journal.
Divide the group into pairs. Students will take turns being the scribe and the sensor in this exercise.

- Activity**
1. The first student ties the blindfold over her eyes. Her partner gives her a sprig of herbs.
 2. The blindfolded student answers the following prompts while the scribe writes down the answers:
 - Use words to describe the scent of the plant.
 - Feel the plant with your fingers. Use words to describe the texture.
 - Taste a piece of the plant. Use words to describe the flavor.
 - What does the plant remind you of?
 3. After the first learner has finished the questions, repeat the exercise with a different plant and the second learner.
 4. Use the description words to write a poem.

Discussion Share the poems with the class and ask the learners, “What do you know about the herb that you didn’t before the lesson?”

From the Garden Harvest any strongly scented herbs including sage, rosemary, lemon balm, and scented geraniums. Harvest entire sprig instead of individual leaves.



Cucumber Tasting



Objective Learners will be able to describe how cucumbers grow, how to harvest them, what they taste like and list some distinctions between varieties.

Background If possible, choose a wide variety of cucumbers so the learners can experience types they may have never seen. Many varieties are not available in stores, so use cucumbers from your garden or a local farmers market. Suggested varieties are: Japanese, Armenian English, lemon, pickling, garden and white. For more details about growing and harvesting cucumbers, see the [Cucumber Worksheet](#), page 31.

Materials **For each station:**
Variety of cucumbers
Plate for each student
Bowl or platter for each variety of cucumber
Sheet of paper for each variety
Marker
[Tasting Worksheet](#) for each student (pg. 40)
[Cucumber Worksheet](#) for each student, printed double sided (pg. 31)
Pencils
Colored pencils

Preparation **Young learners or short on time**—Cut vegetables prior to the tasting. Place each variety in a labeled plastic bag. Make sure to save one whole cucumber of each kind to show them.

Older learners or more time available—Have them prepare vegetables into bite-sized shapes. Prepare enough stations so that there are 6-8 learners in each group.

Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized. Make sure everyone has washed his/her hands. Make sure each table has one container of each type of cucumber. Label each sample.

Have the learners write in the name of the variety they taste. After they taste a sample, have them indicate their response on the [Tasting Worksheet](#).

Activity For each type of sample, ask these four questions:

- How “cucumber-y” does it taste? Strong or weak?
- Is the cucumber crispy or soft?
- Is the skin thin or thick?
- Do the seeds have flavor? How would you describe their texture?

Discussion

Gather back together into one group. Discuss the results of the taste test.

There are several possibilities for discussion:

- Make a chart of the varieties tasted. Have everyone vote on which variety is the most crispy, the strongest cucumber flavor and the thinnest skin.
- Brainstorm a list of all of the words you can use to describe cucumbers.
- Brainstorm a list of all of the ways you can eat cucumbers.
- Why would a cucumber have thick or thin skin? What help will it give the fruit while it is growing?
- Read and share *Cucumber Soup* by Vickie Lee Krudwig. See the Recommended Children's Books on page 29.

From the Garden

Harvest a range of cucumbers including Persian, Japanese, lemon, Armenian, gherkins, pickling and market. You can also compare garden grown with supermarket cucumbers.



Salad Greens Tasting



Objective Learners experience the different families of salad greens, describe which ones are their favorites and list their properties.

Background There are four major families of plants that we use for salad. The first is lettuce, which is usually crispy and mild tasting, with a milky sap in the middle of the leaf. The second is the bitter chicory family including endive, frisée, chicory and radicchio. The third is the cabbage family, which includes arugula, mizuna and various cabbages. The last is the beet family, which also includes spinach and chard. One minor salad green family is the nasturtium, which also includes watercress.

This exercise is a good way to explore the importance of plant families. Be sure to provide examples of each type of green, so learners can compare them to one another and discover similarities within families. Typically if they like one member of a family, they will enjoy the others.

Materials **For each station:**
Variety of greens (try to get two from each family)
Plate for each student
Bowl or platter for each variety of green
Large platter or sheet pan
Sheet of paper for each variety
Marker
Salad Green Sheet for each student (pg. 33)
Lettuce Worksheet for each student (pg. 34)
Pencils
Colored pencils

Preparation **Young learners or short on time**—Wash all of the salad greens ahead of time. Sort into different bowls according to variety.

Older learners or more time available—Have them harvest the greens and thoroughly wash them. Sort into different bowls according to variety.

Prepare enough stations so that there are 6-8 learners in each group.

Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.

Make sure each table has one container of each type of green.

Label each sample.

Make sure everyone has washed his/her hands.

Pass out plates and copies of the **Salad Green Sheet** to learners.

Activity Have the learners try each type of green.

- On the large platter, have them group together types of greens that taste similar.
- Write down the greens that are in each group. Do they belong to the same family?
- Organize the greens from bitter to sweet. Did plants from the same families end up next to each other?

Discussion Gather back together into one group. Discuss the results of the taste test.

There are several possibilities for discussion:

- Make a chart of the varieties tasted. Have everyone vote on which variety is the most bitter. Which is the most cabbage-y? The most sweet?
- Make a chart of each plant family: Lettuce, Chicory, Cabbage, Beet and Nasturtium. Brainstorm words that describe the greens from each family.
- Notice the different colors of the leaves. Ask learners to point out the lightest and the darkest? Which ones have been exposed to more light? Which ones would you grow in your garden?
- Notice the difference in thickness and crunch in the leaves. Which leaves have the most water? Which would grow better in your garden?

Further Exploration Use the leftover greens to make a salad.

Follow the instructions on page 18 to create your own salad dressing.

From the Garden Harvest a wide variety of greens and lettuce. Use scissors to trim greens in order to encourage a second harvest.



Tomato Tasting



Objective

Learners will be able to describe how tomatoes grow, how to harvest them, what they taste like and distinctions between common varieties.

Background

If possible, choose a wide variety of tomatoes so the learners can experience types they may have never seen. Many varieties are not available in stores, so use tomatoes from your garden or a local farmers market. Suggested varieties are: Yellow Pear, Sungold, Zebra, Roma, Brandywine, Sweet 100s, Black Krim, Silvery Fir Tree. For more details about growing and harvesting tomatoes, see the [Tomato Worksheet](#) on page 36.

Materials

For each station:

- 4-6 varieties of tomatoes
- Plate for each student
- Bowl or platter for each variety of tomato
- Sheet of paper for each variety
- Marker
- [Tasting Worksheet](#) for each student (pg. 40)
- [Tomato Worksheet](#) for each student (pg. 36)
- Pencils
- Colored pencils

Preparation

Young learners or short on time—Cut tomatoes prior to the tasting. Place each variety in a labeled plastic bag. Make sure to save one whole tomato of each kind to show them.

Older learners or more time available—Have them prepare tomatoes into appropriate shapes.

Prepare enough stations so that there are 6-8 learners in each group.

Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.

Make sure each table has one container of each type of tomato.

Label each sample.

Make sure everyone has washed his/her hands.

Pass out plates and copies of the [Tasting Worksheet](#) (page 40).

Have the learners write in the name of the variety they are tasting.

After they taste a sample, have them indicate their response on the tasting sheet.

Activity

For each type of sample, ask these four questions:

- What color and shape is it?
- Is it sweet or sour?
- Does the number of seeds change in each type of tomato? Which do you prefer?
- If you don't like tomatoes, what words can you use to describe why you don't like them?

Discussion

Gather back together into one group. Discuss the results of the taste test.

There are several possibilities for discussion:

- Refer to a large map of the world. Using the **Tomato Worksheet**, mark the origin of the tomato. Brainstorm about dishes from different parts of the world that use tomatoes: Tomato sauce in Italy, ketchup in the US, stewed tomatoes in England, etc. Label all of the countries that use tomatoes.
- Brainstorm the ways you can eat tomatoes.
- Read and share *I Will Not Ever Eat a Tomato* by Lauren Child. See the Recommended Children's Books on page 29.

Further Exploration

Use the leftover tomatoes to make a salsa following the instructions on page 23.

From the Garden

Harvest a wide variety of tomatoes including Cherry, Grape, Plum, Zebra, Krim, Brandywine and Yellow. Compare garden grown tomatoes to supermarket tomatoes.



Apple Tasting



Objective Learners will be able to describe the identifying characteristics of apple varieties and compare and contrast their uses.

Background A wide variety of apples are available year round at most markets. Locally grown apples, as well as less common varieties may be available in the fall at your local farmers market. Apples provide a great opportunity to incorporate global trade and food miles into the discussion for this lesson. Take note of where your apples come from, especially in the summer months. Apples from the United States are picked in the fall, and often stored year round. Suggested varieties for the Rocky Mountain region are: Jonathan, Jonagold, Fuji, Braeburn, Macintosh, Honeycrisp. For more details, see the [Apple Worksheet](#) on page 38.

In general, crispy sweet apples are eaten raw, while more tart/soft apples are used in cooking. Often sweet apples do not retain their apple flavor when cooked.

Materials **For each station:**
Variety of apples
Plate for each student
Bowl or platter for each variety of apple
Sheet of paper for each variety
Marker
Tasting Worksheet (pg. 40) for each student
Apple Worksheet (pg. 38) for each student
Pencils
Colored pencils

Preparation Cut the apples just before the exercise so they will not get brown.
Note: avoid preparing them with lemon juice as it will change the flavor.
Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.
Make sure each table has one container of each type of apple.
Label each sample.
Make sure everyone has washed his/her hands.
Pass out plates and copies of the [Tasting Worksheet](#) (page 40).

Activity Have the learners write in the name of the variety they are tasting.
After they taste a sample, have them indicate their response on the [Tasting Worksheet](#).

For each type sample, ask these questions:

- How “apply” does it taste? Strong or weak?
- Is it crispy or soft?
- Is it sweet or sour?

Describe the color and shape

Discussion Gather back together into one group. Discuss the results of the taste test.

There are several possibilities for discussion:

- Make a chart of the varieties you tasted. Have everyone vote on which variety is the most crispy, has the strongest apple flavor, the sweetest, and tastes the most sour.
- Brainstorm session all of the ways you can eat apples. Can you think of any dishes that are not served as a dessert?
- Read and share one of the apple books from the Recommended Children's Books on page 29: *Apple Picking Time* by Michele B. Slawson or *Apples* by Gail Gibbons.



Progressive Tasting



Objective

Learners will be able to manipulate the taste of a basic ingredient, describe their preferences and the role of flavor in their preferences.

Background

A central skill in learning how to cook and enjoy healthy foods is to know how to manipulate the flavor of any dish. Learners will add flavors to any of the previous lessons (cucumbers, salad greens, tomatoes, or apples) in order to discover how different tastes go together, balance each other, and work together. They will also learn how to change a food they may not like into one they may prefer.

Materials

For each station:

Wedge of lime or lemon for each student
Small bowl with 2 tablespoons salt
Small bowl with 2 tablespoons sugar
Plate per student
Large bowl with sample sizes of a single produce item
Journals
Pencils

Preparation

Prepare enough stations so that there are 6-8 students in each group.
Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.
Give each person a plate.

Each table should have wedges of lemons or limes, a bowl of salt, a bowl of sugar and the bowl of produce samples.

Make sure everyone has washed his/her hands.

Activity

Plain: Give each learner one sample. Have them taste it, describe the flavor and record it in their journal.

Acid: Give each learner another sample as well as a lemon or lime wedge. Ask them to squeeze a few drops on the food. Have them taste it and see if they like it more or less. How does the flavor change? Record the results in a journal.

Salt: Repeat the process with the salt.

Sweet: Repeat the process with the sugar.

Combination: Now have them add a combination of the three ingredients. They should add a little of each until it reaches a flavor combination that they like. They should record the results of their inquiry in their journals.

Discussion

Gather back together into one group. **Discuss the following questions:**

- Which individual flavor was your favorite? Are there foods that you like that have a similar taste? Which combinations of flavors did you like the best?
- How did the food change when you added different elements of taste?
- What is the most surprising thing you learned about flavors today?



Developing Food Preferences

INTRODUCTION

After experiencing the differences between individual flavors, learners progress to combining flavors and ingredients in order to produce a dish. This is one of the most basic cooking skills. In this series, learners practice blending flavors by making simple, no heat dishes, allowing them to have control over their food. Food preference exercises demonstrate the purpose of an ingredient in a recipe, another important skill for budding cooks. Learners will start to understand the purpose of a specific ingredient and what it brings to the whole dish. This is hard for beginning cooks to understand. For example, instead of thinking of a tomato as just a tomato, an experienced cook would consider it to be a red, juicy ingredient with both sweet and tart attributes.

Food preference exercises are usually everyone's favorites. Learners work together in groups to produce new dishes without recipes. They enjoy the friendly competition between groups and love sharing their creations with their teachers and their friends.

Tips for cooking without recipes:

- Limit the size of the container for the experiments to ensure that learners will not make too much of the dish you are making.
- Make sure that you have the learners' full attention while you are giving them instructions. They need to understand the goals of the lesson before they begin.
- Allow everyone to decide how to combine ingredients.
- Encourage collaboration and talking as long as everyone is focused.
- The results are better if the learners can describe their reasons for incorporating each ingredient. It is important for them to consider what it contributes to the dish.
- Don't focus on what flavor is too strong in the dish. Instead, try to figure out what is missing. Help them correct flavoring mistakes by asking questions like: What stands out in this dish? Which flavors are missing?
- Use the Socratic method when teaching these classes. Pose provocative questions as opposed to intervening actively in the decision making process.

Create a Salad Dressing



Objective Learners will be able to make a simple vinaigrette dressing for a green salad, balancing sweet, salty, sour and bitter flavors.

Background Salad dressings are a great way to learn how to balance flavors. Green salads include four of the five basic flavors: sweet, sour, salty and bitter. The main flavors in dressings are salty and sour. In addition, dressings need fat to help coat the leaves, but also to calm the salty/sour combination. Sweetness, which can come in the form of fruit or sugar, also calms the sour and salty. Fats have the same effect as sugars. Cooks can lower fats by using sour ingredients that are more complex and mild, for example orange and rice wine vinegar instead of distilled white vinegar. In contrast, low fat commercial salad dressings include lots of sugar in order to calm the flavor of the inexpensive harsh vinegars because they have to compensate for the lack of fat. Greens provide bitterness in a salad. Most people do not prefer bitter flavors, even though they are associated with healthy foods like kale and spinach. Learners will enjoy these healthy foods after they learn to make a dressing they like.

To make salad dressing, everyone will select core ingredients from each of the four taste categories, following the dressing equation. They will adjust their recipe to match their flavor preferences. Use the dressings with a variety of salad green types. See the **Salad Green Tasting** (page 9) for suggestions. At the end, have everyone compare dressings to see which each person prefers.

Materials **For each station:**

- Cup or 1/2 pint jar to mix the dressing
- 4 cutting boards
- 4 paring knives
- Tasting spoons
- Fork to stir dressing
- Salad plates for each learner
- 1 fork for each learner
- 1 large bowl of salad greens, washed
- Selection of items from the **Create a Salad Dressing** list, page 20

Preparation **Young learners or short on time**—Prepare dressing ingredients ahead of time and divide into the number of groups.

Older learners or more time available —Have them prepare dressing ingredients at each table.

Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized. Wash, cut and spin dry the salad greens.

Divide the greens into bowls so that each group has one bowl.

Make sure everyone has washed his/her hands.

Divide the class into groups of no more than 8 learners.

This activity works best if the dressings between groups taste differently.
Give each group a unique set of ingredients.

***Note:** the most sanitary way for learners to try the dressing is to use a master spoon.
The master spoon stays in with the dressing and is used to pour a sample into each learner's tasting spoon. Each learner should have his/her own tasting spoon that is used throughout the exercise.

Eating and Evaluation

Bring all of the bowls of salad to the front of the class. Have the learners line up with their plates. Let them try salad from each group.

Ask the following questions:

- What are the strengths and weaknesses of each salad?
- Which flavors do you like the best?
- How do you think each should be improved?
- What surprised you about making your salad dressing?

Notice that each learner has different preferences. Discuss the variations in preferences, and how taste differs from person to person.

From the Garden

If time allows, harvest a wide selection of salad greens, as well as fresh leafy herbs like mint, basil, cilantro, dill, and chives. You can also add fresh garlic, onions and/or shallots.



Create a Salad Dressing

Use the following equation and table to create your own salad dressing.
 Make sure you have at least one ingredient from each column to create your dressing.

Salad Dressing =

Sour + **Salty** + **Sweet** + **Fat**

- Rice vinegar
- Cider vinegar
- Balsamic vinegar
- Lemon
- Lime
- Buttermilk
- Yogurt
- Tamarind
- Mustard

- Salt
- Olives
- Capers (preferably brined)
- Cheese (aged, hard)
- Soy sauce
- Anchovies

- (just a little)**
- Raisins
 - Sugar
 - Honey
 - Pears, apples
 - Berries
 - Orange
 - Fennel
 - Tomatoes (sweet/sour)

- Olive oil
- Canola oil
- Mayonnaise
- Avocado
- Buttermilk
- Sour cream
- Nuts*

Method

- Cut up any fruit or vegetables into small pieces (1/4").
- Start by adding the sour ingredients to the dressing container.
- Then, slowly (1/4 teaspoon at a time) add salt until it tastes more than just sour.
- Next add sweet ingredients in small quantities until the salad dressing flavor is toned down and less intense.
- Last, add the fat until your dressing is thicker, helping it to stick to the salad greens.
- Taste it one last time and adjust the seasonings if necessary.
- Toss the salad greens with just enough salad dressing to coat the leaves.

**Nuts are a common and serious allergen. Make sure no learners in your class have nut allergies before you include these ingredients.*



Create a Yogurt Parfait



Objective Learners will be able to use whole foods instead of sugar to make a sweet yogurt snack.

Background Often commercial brands of yogurt contain 25 or more grams of sugar, almost 5 teaspoons in 6 ounces! This makes plain yogurt a better choice, but often people do not like it because it is too sour. By making this yogurt parfait, participants will learn how to change a flavor they don't like into one they do by using whole foods instead of sugary ingredients. Use lowfat as opposed to nonfat plain yogurt, as the nonfat can often taste bitter. Look for yogurt with live cultures.

Materials

For each station:	
2 cups lowfat plain yogurt	4 cutting boards
1 cup whole grains	4 knives
2 cups fresh fruit (mixed)	6-oz. cups for each learner
1/4 cup dried fruit	8 spoons for each learner
1/2 cup nuts or seeds	1 bowl for each ingredient
Flavorings (see chart)	1 spoon for each ingredient

Preparation *Young learners or short on time*—Prepare additional ingredients ahead of time and divide into the number of groups.

Older learners or more time available —Have them prepare additional ingredients at each table.

Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized. Rinse the fruit. Make sure everyone has washed his/her hands. Divide the class into groups of no more than 8 learners. Use the equation on the following page to have each group create their own recipe.

Eating and Evaluation Have the learners taste the plain yogurt without the toppings. Do they like it? After everyone has tried the yogurt with the toppings, ask them: How has the flavor changed?

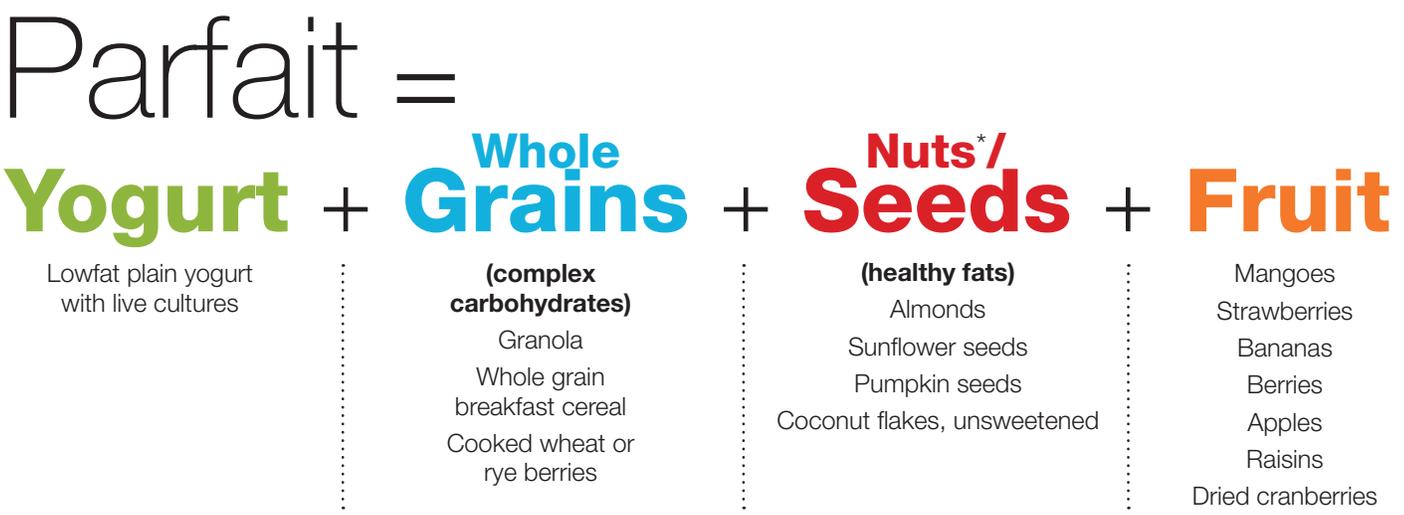
Use the USDA's <http://www.choosemyplate.gov/> to see which categories of foods the yogurt parfait belongs to. How many food groups are included in this one dish?

Exploring Further Bring in a few different kinds of fruit flavored yogurts. Show learners how to read the labels. How much sugar is in each type? Note that 4 grams of sugar is equal to one teaspoon. How much whole fruit? Look up you ingredients on <https://www.supertracker.usda.gov/foodapedia.aspx> to compare sugar content with commercial brands. Compare flavored yogurt to your yogurt recipe. Which one is a better food choice?

From the Garden Add mint to your parfaits or edible flowers like calendula, johnny jump-ups or marigold petals. This is a great recipe for fresh berries like strawberries, raspberries, blackberries, grapes or tree fruit.

Create a Yogurt Parfait

Use the Yogurt Parfait equation and chart to help create a healthy snack. Use the optional flavorings to help give the yogurt more of a sweet taste without adding sugar.



- + Flavoring**
- (optional)
- Mint
 - Cinnamon
 - Vanilla or lemon extract
 - Edible flower petals, such as violets and pansies

Method Cut all of the fresh fruit into bite-sized pieces

Put each ingredient in a separate bowl with a serving spoon.

Line up the choices at each table, starting with the yogurt. Give each learner a cup.

Learners choose what to put in their parfaits, alternating between yogurt, grains, nuts, fruit and flavorings.

**Nuts are a common and serious allergen. Make sure no learners in your class have nut allergies before you include these ingredients.*



Create a Salsa



Objective Learners will be able to make their own salsa, balancing sweet, salty, sour and bitter flavors.

Background Salsas are a great way to learn about balancing complex flavors. They contain all of the four basic flavors (sweet, sour, salty and bitter). The main flavors in salsas are salty and sour. Temper the intense combination of sour and salty by adding sweet ingredients such as fruit. Add bitter red chiles or pungent garlic and ginger to deepen the flavor.

Materials **For each station:**

- 1 medium sized mixing bowl
- 1 bowl with the produce for salsa
- 1 mixing spoon
- 1 bowl of tortilla chips to eat salsa
- 8 cutting boards
- 8 paring knives
- 1 master spoon and tasting spoons for each learner
- Small plate for each learner
- Selection of items from the **Create a Salsa** list on page 25.

Preparation **Young learners or short on time**—Prepare additional ingredients ahead of time and divide into the number of groups.

Older learners or more time available —Have them prepare additional ingredients at each table.

Wash the ingredients.

Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.

Make sure everyone has washed his/her hands.

Divide the class into groups of no more than 8 learners.

Activity Use the equation on the following page to have each group create their own recipe. This activity works best if the salsas between groups taste differently. Give each group a unique set of ingredients. For example, give the first group tomatoes, the second pineapple and the third tomatillos. Then make sure that every group has spicy peppers, lemons, limes and salt along with any other ingredients on the list.

***Note:** The most sanitary way for learners to try the salsa is to use a master spoon. The master spoon stays with the salsa, and is used to pour a sample into each learner's

tasting spoon. Each learner should have his/her own tasting spoon that they use throughout the exercise.

Bring all of the bowls of salsa to the front of the class. Have everyone taste each salsa.

Eating and Evaluation

Ask the following questions:

- What are the strengths and weaknesses of each salsa?
- Which flavors do you like the best?
- How do you think each should be improved?
- What surprised you about making your salsa?

Notice that each learner has different preferences.

Discuss the variations in preferences, and how taste differs from person to person.

From the Garden

Make the salsa in the fall using garden produce including mint, cilantro, basil, tomatoes, tomatillos, chiles, carrots, onions and garlic



Create a Salsa

Use the Salsa equation and chart to create a delicious fresh salsa. Choose a variety of ingredients from each category. If you like, you can structure the activity as a friendly competition between groups. After the salsas are made, use tortilla chips to sample them.

Salsa = **Salty** + **Sour** + **Sweet** + **Bitter/Pungent**

Salt
Salted pumpkin seeds
Salted sunflower seeds
Olives

Rice vinegar
Cider vinegar
Lemon
Lime
Tamarind*
Tomatillo

Coconut
Mango
Tomato
Orange
Papaya
Pineapple
Red/yellow pepper
Onion
Mint

Dried chilies or chili powder
Fresh spicy chile (jalapeño or Fresno)
Cilantro
Garlic
Ginger
Cactus leaves or nopales

Method

Cut all fruits, vegetables and flavorings into small pieces that will fit on a tortilla chip.

Mix together ingredients from the sweet, sour, salty and bitter/pungent flavor list to make a salsa. If the salsa tastes flat, it likely needs more salt. Remember to add the salt a small amount (about 1/4 teaspoon) at a time.

Taste the salsa with tortilla chips.

**Tamarind pulp can be found in Asian or Indian grocery stores as well as some natural food stores.*



Create a Pasta with Pesto



GK-5



Objective Learners will be able to make their own pesto pasta salad, balancing strong flavors.

Background Use this activity if you wish to create a savory dish without the sour flavors of the dressing and salsas. Each group will make their own herb based pesto and use it with pasta and vegetables to make a pasta salad.

The word pesto means “to pound or to grind into a paste.” The traditional Italian dish from Genoa is made from basil, Parmesan cheese, olive oil and garlic. The traditional Italian version can be found in Section 2 on page 88. The technique can be broadened to use almost any herb combination. Other cultures use similar ground pastes to flavor dishes, such as Thai curry paste, Spanish romesco sauce, and Mexican mole sauce. The primary flavors of a pesto are salty and bitter, from the herbs. Using hard, grated cheese, garlic and nuts provide the savory (umami) flavor.

Materials **For each station:**

- 1 large mortar and pestle
- Bowls for pesto ingredients
- 4 paring knives
- 4 cutting boards
- 1 mixing bowl for pasta
- 1 serving spoon
- 1 small plate for each learner
- 1 fork for each learner

Selection of items from the [Create a Pasta with Pesto](#) list on page 28

Preparation **Young learners or short on time**—Prepare additional ingredients ahead of time and divide into the number of groups.

Older learners or more time available —Have them prepare additional ingredients at each table.

Wash the ingredients.

Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.

Make sure everyone has washed his/her hands.

Divide the class into groups of no more than 8 learners.

Place the mortar and pestle on the table with a thick towel underneath to minimize noise.

This activity works best if the pesto made in each group tastes differently. Give each group a unique set of pesto ingredients. Each group can share the same vegetables.

Use the equation on the following page to have each group create their own recipe.

***Note:** The most sanitary way for learners to try the pesto is to use a master spoon. The master spoon stays with the pesto, and is used to pour a sample into each learner’s tasting spoon.

Each learner should have his/her own tasting spoon that they use throughout the exercise.

Bring all of the bowls of pasta to the front of the class. Have the learners line up with their plates. Let them try pasta from each group.

Eating and Evaluation

Ask the following questions:

- What are the strengths and weaknesses of each pasta salad?
- Which flavors do you like the best?
- How do you think each should be improved?
- What surprised you about making your pesto?

Notice that each learner has different preferences.

Discuss the variations in preferences, and how taste differs from person to person.

From the Garden

Almost any garden vegetable will taste good in a pasta salad, including tomatoes, chiles, cucumbers, celery, onions, and fennel. The following vegetables taste better blanched (boiled for 1 minute and then chilled) to reduce bitterness: broccoli, peas, cauliflower, fava beans, and corn.



Create a Pasta with Pesto

Use the pesto equation and chart to create a delicious fresh pesto. Choose a variety of ingredients from each category. If you like, you can structure the activity as a friendly competition between groups. After the pestos are made, make separate pasta salads to sample them.

Pesto = Flavorings + Salty + Herbs + Fats

Garlic
Shallots
Ginger
Lemon juice and peel
Sundried tomatoes

Salt
Anchovies
Capers, brined
Olives
Hard cheese
(Manchego,
Parmesan, Asiago,
or Peccorino)

Basil
Parsley
Rosemary (go easy)
Thyme
Oregano
Sorrel
Sage
Cilantro

Olive oil
Walnut oil*
Pine nuts*
Sesame oil
Pumpkin seeds
Pistachios*
Almonds*
Walnuts*

Pasta = Pasta + Pesto + Vegetables

Corkscrew
Bowties
Penne
Couscous
(does not need heat,
soak in equal amounts
of couscous to warm
water for 20 minutes)

Use pesto
made in class

(raw)	(blanched)
Tomato	Broccoli
Onion	Beans
Sweet pepper	Cauliflower
Celery	Peas
Fennel	Fava beans
Carrot	
Cucumber	

Method Select the ingredients to create your pesto.

First, put the garlic and 1/2 teaspoon salt in the mortar and pestle, as well as any nuts. Pound the ingredients up and down with the pestle until you have a thick paste.

Gradually add herbs and until you have a thick, smooth paste.

Stir in olive oil until the pesto becomes more like a thick sauce.

Chop up the vegetables and other ingredients.

While you are making the pesto, boil the noodles, drain and rinse them. If you want to cook any of the vegetables, add them to the boiling water one minute before draining the noodles.

Mix together the pesto, pasta, and chopped vegetables. Adjust salt to taste.

**Nuts are a common and serious allergen. Make sure no learners in your class have nut allergies before you include these ingredients.*

Teacher Resources

FOR CHILDREN

Anansi and the Talking Melon by Eric A. Kimmel

Apple Picking Time by Michele B. Slawson

Apples to Oregon: Being the (Slightly) True Narrative of How a Brave Pioneer Father Brought Apples, Peaches, Pears, Plums, Grapes, and Cherries (and Children) Across the Plains by Deborah Hopkinson (Author), and Nancy Carpenter (Illustrator)

Apples by Gail Gibbons

Cucumber Soup by Vickie Lee Krudwig

I Will Not Ever Eat a Tomato by Lauren Child

Mr. Putter & Tabby Pick the Pears by Cynthia Rylant (Author), and Arthur Howard (Illustrator)

No More Vegetables! by Nicole Rubel

Strega Nona's Harvest by Tomie De Paola

Tops and Bottoms by Janet Stevens

The Vegetables We Eat by Gail Gibbons

FOR ADULTS

The Flavor Bible: The Essential Guide to Culinary Creativity, Based on the Wisdom of America's Most Imaginative Chefs by Karen Page and Andrew Dornenburg

Field to Plate Food Education and Education Roadmaps by Amanda Archibald
<http://www.fieldtoplate.com/roadmaps.php>

To the Origins of Taste by Slow Food
http://www.slowfood.com/education/pagine/eng/pagina.lasso?-id_pg=25

Five Tastes Worksheet

Salty Bottle # _____

Sweet Bottle # _____

Sour Bottle # _____

Bitter Bottle # _____

Umami Bottle # _____

Experiment Results _____

Cucumber

Cucumis sativus



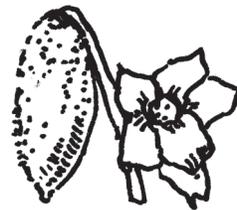
ILLUSTRATIONS: Barbara Feige



Japanese cucumbers



Garden cucumbers



Cucumber blossom



Cucumber seeds

Cucumber

Cucumis sativus

Part of Plant Fruit

Plant Family Cucumber/Cucurbitaceae

Languages **Spanish** *pepino* **Italian** *cocomero* **French** *concombre*

Origin India

Planting Plant directly in ground after all danger of frost has passed. Cucumbers can be planted in bowls, or in trenches. Sow seed 1/2" deep, about 8-12" apart. Try Armenian, lemon, white and Japanese for more diversity.

Cultivation Tips Easy to grow and not fussy about soil. They can be trained to grow up a trellis. Bushmaster and Spacemaker are good varieties for containers. Minimize overhead watering.

Harvest Ready for harvest 50-70 days after germination, depending on the variety.

History One of the oldest vegetables, cucumbers have been cultivated for over 4000 years. Cucumbers were first grown in India and were used in ancient Persia, Greece and Rome. They were introduced to Haiti by Christopher Columbus.

Uses Primarily used raw or pickled, in cold soups or salads. Compatible flavorings include fresh herbs like dill, mint, parsley and cilantro. Commonly paired with yogurt.



Radicchio



Dandelion



Treviso



Belgian Endive



Escarole



Frisée

Families of Greens

Chicory
Lettuce
Cabbage
Beet
Nasturtium



Freckles



Loose Leaf



Red Loose Leaf



Red Butter



Romaine



Lacinato Kale



Russian Kale



Curly Kale



Watercress



Spinach



Arugula



Red Chard



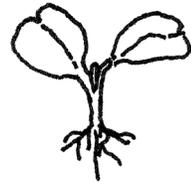
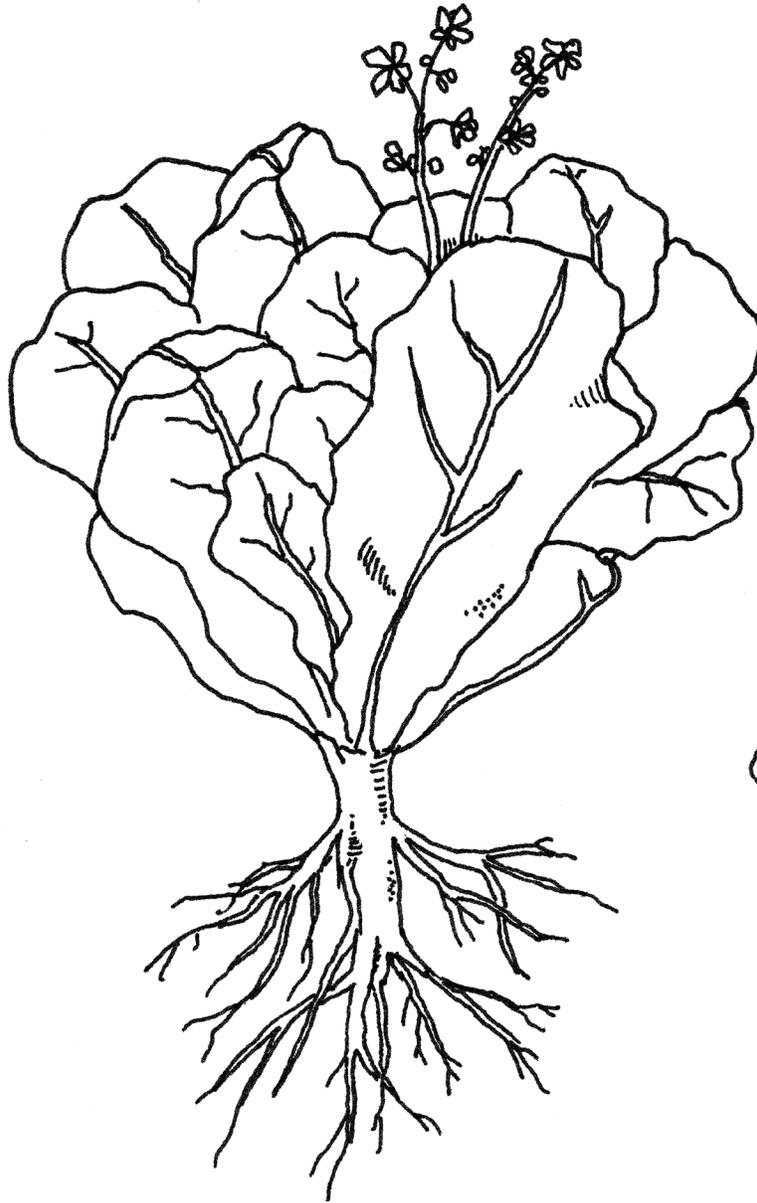
Beet Greens



Swiss Chard

Lettuce

Latuca sativa



Bibb Lettuce



Oak Leaf Lettuce



Freckle Lettuce



Romaine Lettuce

ILLUSTRATIONS: Barbara Feige

Lettuce

Latuca sativa

Part of Plant Leaves

Plant Family Sunflower/Compositae

Languages **Spanish** *lechuga* **Italian** *lattuga* **French** *laitue*

Origin Middle East/Egypt

Planting Lettuce likes sandy, rich soil. Direct sow outside in mid to late April. Broadcast seeds and thin to 4-6" apart.

Cultivation Tips Plant lettuce every 6 weeks for a continuous harvest. Loose leaf varieties can be cut 2-3 times before they bolt (go to seed). For late summer crops, cover with shade fabric or plant in part sun locations. Does not like heat. As soon as the plant bolts, pull it unless you are saving the seeds.

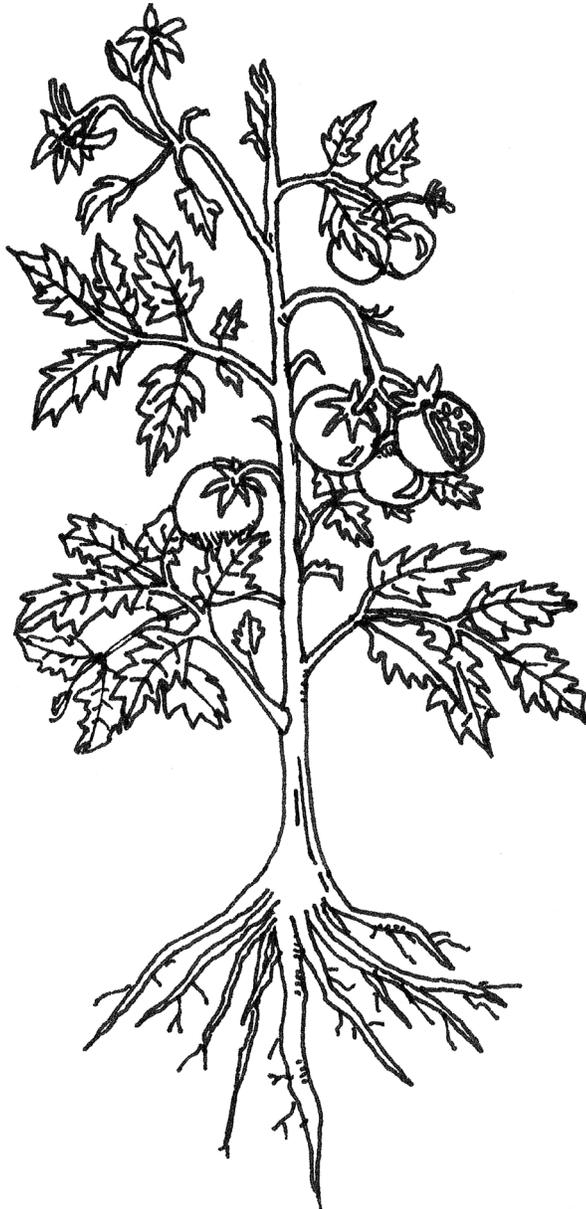
Harvest Every 6-8 weeks

History Ancient Egyptians enjoyed lettuce. Romans loved it, even cooked. The word *lettuce* comes from the Latin word for milk, because of the milky substance in the leaves.

Uses Used primarily in salads, although it is sometimes cooked in soups and egg dishes. Chinese varieties are always cooked.

Tomato

Lycopersicon esculentum



ILLUSTRATIONS: Barbara Feige



Cherry Tomatoes



Pear Tomatoes



Brandywine Tomato



Tomato seeds

Tomato

Lycopersicon esculentum

Part of Plant Fruit

Plant Family Nightshade/Solanaceae

Languages **Spanish** *tomate* **Italian** *pomodoro* **French** *tomate*

Origin Mexico

Planting Start seeds inside using warming mat, 10-12 weeks before last frost date. As they grow, transplant them into larger pots. Bury the plant when transplanting so that you only have 2 sets of leaves showing. The root system will be stronger. Transplant outside after all danger of frost has passed, burying the stems if the plant is leggy or scraggly.

Cultivation Tips Best varieties for Colorado include cherry tomatoes, small salad tomatoes and plum tomatoes. Try interesting heirloom varieties as opposed to hybrids, and you will be able to save the seeds. Tomatoes thrive on well composted soil, but not high in nitrogen. Minimize overhead watering. Support plants by tying to a sturdy trellis, create a tripod from 8' bamboo poles, or a round cage made from 10 gauge concrete reinforcing wire. Prune suckers and low branches.

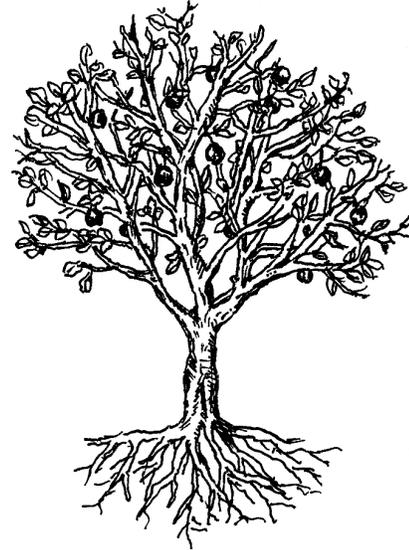
Harvest Early varieties are ready for harvest in 55-60 days from germination. Late varieties can take 90 days until harvest.

History Wild cherry tomatoes from the Andes region were the ancestors of the cultivated Mexican tomato. Both were described by early Spanish conquerors as being used in salsas. Tomatoes first traveled to Spain and then Italy, in the late 16th century. An early Italian cookbook from 1692 describes the first known Italian tomato sauce.

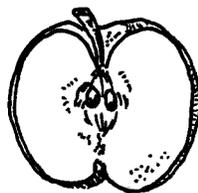
Uses Use cooked tomatoes in sauces, to add an acidic and slightly sweet flavor. Use them fresh in pasta and bean salads to help create a sauce. Roast them, halved, in a 275° oven until soft and caramelized.

Apple

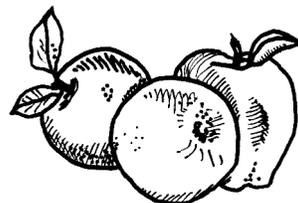
Malus pumila



Apple blossom



Apple section



Apple varieties



Apple seeds

ILLUSTRATIONS: Barbara Feige

Apple

Malus pumila

Part of Plant Fruit

Plant Family Rose/Rosaceae

Languages **Spanish** *manzana* **Italian** *mela* **French** *pomme*

Origin Caucasus (West Asia)

Planting Plant trees in spring before it is hot. Planting hole should be even with the bottom of the trunk; don't plant deeply. Plant two cultivars that bloom at the same time for best pollination. Try Jonagold, Honeycrisp, Harlan, Jonathan, Yellow and Red Delicious.

Cultivation Tips Mulch around trees and water in the winter, during warm spells. Apples often bear fruit every other year.

Harvest August-mid September

History The apple is one of the first cultivated fruits. The first written mention of apples is in Homer's *Odyssey*. A few varieties known to ancient Romans are still grown today. There are 7,000-8,000 named varieties. Only a small fraction of this diversity is grown commercially and available in a typical grocery store.

Uses Sweet and mild, apples are easy to add to many foods such as tarts, sauces, stews, and pork roasts. Cooking varieties keep their flavor and texture better when heated. Eating varieties are prized for texture and sweetness.

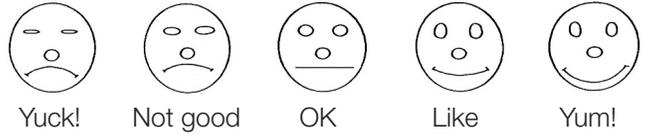
Tasting Worksheet

Name of food you are tasting _____

Type _____



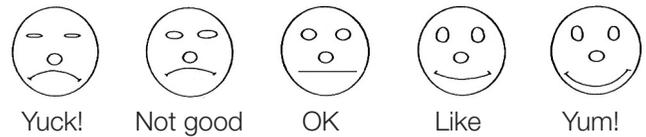
Type _____



Type _____



Type _____



Type _____



Type _____



Journal

Name of activity _____

What did you do today? *First... Second... Third...*

Favorite Verbs

Name _____ Date _____ Location _____

Journal

Name of plant or food _____

What do you see today? *I notice... I wonder... That reminds me of...*

Favorite Nouns

Name _____ Date _____ Location _____



2

Kitchen Skills & Tools



Slow Food USA

Introduction

After learners have mastered combining flavors to create appealing dishes, they must learn basic kitchen skills. Kitchen skills are physical actions that must be practiced to realize a sense of confidence and accomplishment. Children of all ages can learn skills appropriate to their developmental stage and body capabilities that will allow them to participate in food preparation. For example, a six year old might not be able to handle a sharp knife, but she can use her hands to tear up ingredients, or a butter knife to cut soft ingredients. These series of lessons will help learners aged 6-12 to develop lifelong skills so that they are comfortable and confident in the kitchen. Combined with their ability to properly flavor their cooking and knowledge of ingredients through gardening, they will become intuitive and joyful cooks.

The second objective of this section is to introduce learners to simple food processing. People have been using simple kitchen tools for thousands of years in order to expand their diet from foods found in nature to favorite dishes like noodles, tortillas, bread and sauces. Without these tools, wheat would be just a grass seed, soy beans would give us stomach aches and corn would not have become an international staple. With simple tools such as rolling pins, we can make noodles, tortillas and flatbreads from grains. We can combine flavors with a mortar and pestle to make traditional sauces like pesto, mole and Romesco. These tools allow humans to:

- Make food more digestible.
- Combine flavors in complex and satisfying ways.
- Allow food to be stored for a longer period of time.
- Make foods more nutrient dense.

Introducing learners to the mechanics of simple tools and food processing allows them to experience the basic innovation at the heart of human eating. Learners will also experience how simple machines work in the real world and what effect they have on everyday life.

Allow class time for the learners to take apart the machines in order to see how they work.

Have them draw the cooking steps and machine parts so they can begin to understand simple technologies and their affect on what we eat.





This section contains the following chapters:

KNIVES, PEELERS AND GRATERS

These important tools make big ingredients small. Learn how to choose which tool will work best for each recipe and how to safely use knives with learners of all ages.

FROM RAW TO COOKED

Learn basic cooking techniques in a school environment. Understand what different cooking techniques like blanching, braising and stir frying do to the texture and flavor of foods.



FROM GRAIN TO FLOUR

These multidisciplinary lessons include food chemistry, grinding flours and making simple baked goods. Explore the world of grains and seeds through recipe experiments for biscuits and pancakes. Use the information provided to show the difference between gluten and non-gluten containing flours, as well as the difference between baking soda and baking powder.

FROM CORN TO MASA

Discover the importance of corn in the Americas. Learn about the wide variety of dishes made from dried corn flour and masa. Use a molino to grind fresh masa, make tortillas, pupusas and tamales.

MORTAR AND PESTLE

Mortars and pestles are one of the most widespread, ancient cooking tools dating back several thousand years. Use them to make nutritious sauces using whole foods. Learners of all ages love using this tool.

ROLLING PINS

Every major world cuisine uses some type of rolling pin to create noodles, simple breads and pastries. Use these activities to demonstrate how mastery occurs with repetition. Give plenty of time for learners to try making the dishes more than once, so they can experience their improvement.

FOOD MILLS AND STRAINERS

Food mills and strainers make sauces smooth without flour, separate seeds from pulp and improve the texture of foods. Use them to make tomato sauce, apple sauce and chile based sauces.



From Big to Small: Using Graters, Peelers & Knives

BACKGROUND

Food preparation starts with changing the size and shape of raw ingredients, thereby changing their texture. Learners of all ages can participate in this fundamental skill by using a wide range of appropriate tools. Hands are the simplest and safest tools to tear up lettuce and other leafy vegetables. Even this simple activity requires good technique. For example it takes young learners a while to learn how to tear lettuce gently without crushing it. Once learners understand the role of texture and technique in cooking, they will be able to make foods that look beautiful and taste delicious. When selecting a tool you need to take the following into account:

TECHNIQUE

What is the proper technique for using this tool? How can learners use the tool in a safe and appropriate manner?

TEXTURE

Should the pieces be small and meld together, or should they be large and separate? Are they going to be raw or cooked? Which tool will best provide that texture given the age and abilities of the learners?

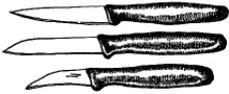
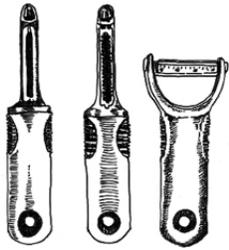
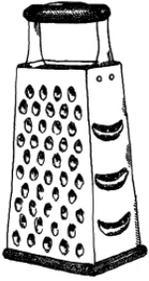
SAFETY

Follow these tips for handling sharp tools

1. Use the chart on the next page to select the appropriate tool.
2. Use cutting boards with a wet paper towel underneath to prevent slipping. When using a grater, make sure that it is resting on a cutting board. When using a peeler, make sure that the vegetable or fruit is resting on a cutting board.
3. If you are using a paring or chef's knife, make sure it is sharp. A sharp knife is safer than a dull one because it requires less pressure in cutting. If sharp, the knife will not slip as easily, and your hand will not tire as quickly.
4. Use a sawing motion, not a pushing motion to slice. Learners will not have to press as hard, will have more control, and have more even pieces.
5. It is difficult to cut large, hard items with a paring knife (sweet potatoes, large onions, squash), so when working with young learners it is best to have an adult cut these into quarters or strips and allow the young learners to make the final cuts.
6. In some cases, a large knife is actually easier and safer than a paring knife, such as when chopping or mincing.
7. Do not place sharp knives or tools inside the sink. It is best to wash them separately.



Which Tool Is Best?



TOOL	ACTIVITY	AGES
Hands	Tearing lettuce & herbs, breaking green beans	3 and up
Graters	Shredding hard vegetables for salads and fillings	7 and up
Peelers	Shredding for soups and salads	6 and up
Serrated Peelers	Peeling apples, tomatoes, peaches and knobby veggies	8 and up
Scissors	Cutting herbs and greens	5 and up
Butter Knives	Cutting strips of soft and precooked vegetables	5 and up
Lettuce Knives	Chopping full-sized soft and precooked vegetables	6 and up
Serrated Knives	Cutting tomatoes and soft fruit, strips of hard and soft vegetables	7 and up
Paring Knives	Cutting strips of hard veggies and full-sized soft vegetables	7 and up
6"–8" Chef Knives	Mincing	8 and up
8"–10" Chef Knives	Chopping full-sized vegetables	12 and up
Two-handed Mezzaluna	Mincing herbs and garlic	8 and up

Exploring Texture



Objective Learners will be able to choose a kitchen cutting tool that fits their needs.

Allowing learners to experiment with tools and choose the textures they like will encourage them to create their own dishes with precision. When choosing tools and ingredients, make sure to match them appropriately with learners' ages.

Materials **For each table:**

Assortment of tools from page 47, depending on learners' ages
Assortment of fruits and vegetables (greens, carrots, beets, zucchini, peppers, apples, herbs)
1 cutting board per child
1 lemon
Salt shaker
Olive oil
3 medium sized bowls

Preparation **Young learners**—Choose soft vegetables, greens and cooked vegetables, lettuce, green onions, beans, zucchini, cooked potatoes or sweet potatoes.

Older learners —Choose a wide variety of vegetables. Halve hard vegetables like sweet potatoes so they are flat.

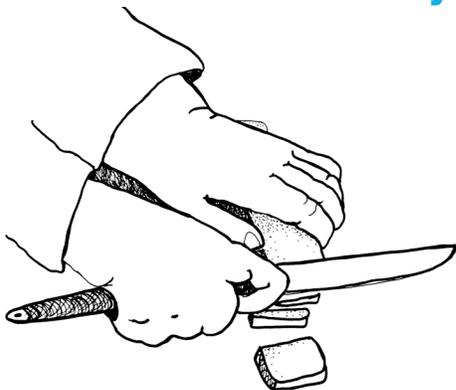
- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Wash fruits and vegetables. Place them in the center of the table.
- Make sure there is one adult helper per table.
- Each person should have a tool on a cutting board.
- Place the mixing bowls in the middle of the table.

Activity

1. Discuss safety rules with the learners. Make sure they are not touching the tools while you go over the safety rules.
2. Talk about one tool at a time. Everyone should take turns experimenting with the tool before moving on to the next.
3. Start with the graters and peelers before moving onto the knives.
4. Learners should use proper technique with all knives, even the butter and lettuce knives. Use the illustration on the left to demonstrate the proper way to hold the knife and ingredients.
5. When cutting, use a sawing motion with minimal effort, as opposed to pressing too vigorously.
6. If learners are not listening to instructions, stop the lesson and wait until they are calm.
7. As you prepare the ingredients, divide them into the three bowls according to size.
8. Add just enough oil to coat the ingredients and then sprinkle over lemon juice and salt to taste.
9. Taste each bowl of ingredients.

Discussion

Discuss the effect of texture on the ingredients. Do the different sizes of vegetables taste different? How do they absorb the flavorings? What kinds of food would be best for each size?



Vegetable Soup



Objective Learners will be able to cut many types of vegetables into small pieces and make them into a simple soup.

Background Make vegetable soup when you want to introduce learners to knife skills. Choose as wide a variety of vegetables as possible so that they can have practice cutting different sizes and shapes. Add canned beans for protein and fresh herbs for flavor.

Materials	For each table:	For the soup:
	8 cutting boards	2 large 5 qt pots
	4 knives	2 induction burners
	4 peelers	1 ladle
	Large platter of vegetables	Bowls and spoons for students
	Large bowl for chopped vegetables	
	Medium sized bowl for greens and herbs	
	Bowl for scraps for composting	

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Wash all of the vegetables.
- Make sure everyone has washed his/her hands.
- For easier cutting, boil large vegetables like potatoes, turnips or sweet potatoes ahead of time and leave them whole.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Set Up

1. Each table should have the same variety of vegetables. Place the vegetables on one platter and place the herbs and greens in a bowl.
2. Divide the learners so that they are in groups no larger than 8, with one adult per table.
3. For large, hard to cut vegetables, cut them in half or in quarters unless the learners are older than age 10.
4. Make sure that each learner has a chopping board and they are spaced apart from one another.
5. Pass out the knives when the learners are quiet and paying attention to the instructor.
6. The instructor should demonstrate how to cut each type of vegetable one at a time. Wait until learners are finished before demonstrating a new type.

Eating & Evaluation Ladle a small amount of soup into each bowl so that it will cool off more quickly. Let everyone taste the soup and add salt and herbs to their liking.

Read the book *Stone Soup* by Heather Forest. Compare your soup to the one in the book.

From the Garden Any vegetables appropriate for stew will work: zucchini, potatoes, peppers, eggplant (especially small varieties), winter squash, peas and green beans.

Recipe Vegetable Soup

Ingredients 5 lbs mixed vegetables
2 onions
4 cloves garlic
1 lb Swiss chard, cabbage or other greens
1/2 cup mixed fresh herbs (parsley, chives, basil)
2 tablespoons mixed fresh rosemary, sage or thyme
8 cups water or chicken broth
1-2 teaspoons salt

Method Cut all of the vegetables into small dice, starting with the ones that will take the longest to cook (those that are firmer).

As soon as the firm vegetables have been cut, place them in a pot with the water or chicken broth and bring to a simmer.

Meanwhile, cut up the greens by rolling each one into a cigar shape and slicing into ribbons. Tear the herbs into small pieces. Chop the onions and garlic.

Add the remaining vegetables along with the herbs to the pot and let it simmer for 10-15 minutes. Add more liquid if needed and salt to taste.

Variations: If you have time, while the soup is simmering, make some orecchiette on page 99 and add them to the soup to make vegetable noodle soup. You can also add canned white beans or chickpeas for a heartier soup.

Try puréeing the vegetables a bit with an immersion blender if the vegetable pieces are too large to fit on a spoon.



From Raw to Cooked: Cooking Techniques in a School Environment

Taking an ingredient from the raw to the cooked state transforms the texture and flavors of food. We cook with heat for many reasons: to make food safe to eat, to reduce strong bitter flavors, to meld flavors, to make food more digestible and more delicious. Throughout the world, humans have created and developed cooking techniques suited to their environment and culture. In China, where cooking fuel was scarce, they used the quick cooking wok to maximize short bursts of heat. In Europe communal wood fueled ovens were the places where villagers brought their bread to be baked.

The typical school environment does not have a kitchen or stove for students to use and yet the creative gardener and cook can create plenty of delicious foods for all to share. We recommend using an induction burner as a heat source. All of the recipes and activities in this book can be made with the induction burner and either a frying pan, flat-bottom wok or pot. For more information about specific safety guidelines, cooking equipment and supplies, please see Appendix B, pages 141-145 in the Slow Food USA's School Garden Guide. (<http://gardens.slowfoodusa.org/resources~#school-garden-guide>)

Cooking techniques that work well with induction burners include blanching, boiling, simmering, steaming, sautéing, pan frying, braising, stir frying, and skillet baking. This chapter explores cooking techniques we think are most useful: blanching, braising and stir frying. You will find examples of other techniques through out the Slow Food USA school garden curriculum.

The recipes are designed so that you can add any in-season school garden produce you have available. Encourage the learners to taste the dishes and determine adjustments to the amount of salt and other seasoning.

Use the following chart to explore cooking terms with learners. We do not recommend deep fat frying in a school environment both for health and safety concerns. We recommend using less than 1/4" of oil on the bottom of the skillet or wok for pan fry or stir fry dishes.



Cooking Techniques

TECHNIQUE	DESCRIPTION	REASON	USES
Bake	Cook in an oven	Dry heat makes a crispy outside and soft inside	Cookies, Cakes, Roasts, Pan roasted vegetables
Blanch	Cook for 1-2 minutes in boiling water, then chill in bowl of ice water	Removes peels, keeps produce crisp	Peeling tomatoes, peaches, nuts. Vegetables for salads, greens
Boil	Cook in boiling water	Wet heat makes food soft	Pasta, rice, starchy vegetables
Braise	First sauté, then simmer on low heat in a small amount of liquid for a long time	Concentrates flavor for stews	Stews, pot roast, chili, Chinese hot pot, artichokes, greens
Broil	Cook under high heat, usually 500°F or 550°F in oven	Browns quickly	Fish, toast, thin slices of chicken or beef, peppers
Grill	Cook over open grill either electric or charcoal	Adds smoky flavor and chewy/crispy texture	Steak, eggplant, mushrooms, zucchini, chicken
Pan Fry	Cook in a skillet in a small amount (1/4 inch) of fat on medium high heat	Browns and crisps the outside while keeping the inside moist	Cutlets, fritters, patties, vegetable or meat slices, usually large flat pieces
Poach	Steam in simmering water or other liquid	Adds flavor and moisture good for foods with little fat	Chicken, fish, shellfish, eggs
Sauté	Stir with oil in a pan and cook on medium-high	Adds flavor and reduces water, usually followed by a second technique	Sauces, soups, mushrooms, greens, onions, usually chopped or diced ingredients
Sear	Cook in a skillet on high heat sometimes with a small amount of fat (2-3 table-spoons)	Creates a dark brown crust on the outside, the inside is not cooked	Steaks, fish, used to peel peppers
Simmer	Cook with the burner on low, just barely bubbling	Makes food softer and more tender	Broth, soups
Steam	Cook over hot steam, not immersed in water	Retains color and flavor, very fast	Vegetables
Steep	Soak in hot liquid	Soften and bring out flavor	Dehydrated fruits or vegetables
Stir Fry	Like sauté, but over higher heat for a shorter time	Crispy, fresh flavors	Combinations of meat, tofu or vegetables

Raw vs. Cooked: How Does It Taste?



Objective Learners will be able to explain the difference between raw and cooked foods as well as give reasons for why we cook foods.

Background The cooking technique “blanch” comes from the French word “to whiten.” This technique involves boiling for a brief period of time, followed by immersion in a bath of iced or cold water. The ingredients are then drained. Blanching keeps vegetables crisp, makes them sweeter, keeps the colors bright and softens fibrous vegetables. It is also used to loosen the skins of tomatoes, peaches and nuts thereby making them easy to peel.

Pick three varieties of vegetables to compare raw and cooked ingredients if you have young learners. For older learners, pick more varieties and include those that are not usually cooked (lettuce, for example).

Materials **For a class of 24**

Induction cooktop	4 medium sized bowls
Large pot of water	1 cutting board for each learner
Slotted spoon or spider skimmer	1 knife for each learner
Large bowl of cold water or ice water	5 pounds of assorted vegetables to blanch

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Wash the vegetables.
- Make sure everyone has washed his/her hands.
- Divide the class into groups of no more than 8 learners.
- Start the large pot of water boiling so that it will be ready.

Activity

1. Have learners cut up all the vegetables into bite-sized pieces.
2. Split each vegetable into two piles.
3. Blanch one pile of each kind of vegetable, placing it first in the boiling water and then in the ice water. Use the spider skimmer to remove them from the water and place each type (drained) into a separate bowl for tasting.
4. Line up each variety with the cooked and the raw next to each other.
5. Have the learners pick one of each type of vegetable and try them.
6. Use the **Tasting Sheet** on page 40 to compare the raw and blanched vegetables.

Discussion **Ask the following questions:**

- What does the blanching do to the ingredients?
- How do the textures, flavors and colors of each vegetable compare before and after being blanched?
- Which do you like better?
- Do all of the vegetables taste better cooked?
- Which way would you cook each vegetable?

Blanching: Mixed Vegetable Salad



Objective Learners will understand the use of blanching in cooking and be able to create a simple salad.

Background Blanched vegetables are often used in France and Italy to make salads. In France, these are called “salades composées” (*salad compozay*). They last much longer than salads made with lettuce, sometimes served as lunch with a slice of bread and cheese or meat.

Materials **For a class of 24:**
Induction cooktop
Large pot of water
Slotted spoon or spider skimmer
1 large bowl of cold water or ice water
1 large mixing bowl for the salad
1 medium bowl at each table to collect vegetables
1 mixing spoon
1 jar with lid for salad dressing
1 cutting board for each learner
1 knife for each learner
Forks and plates for each learner



Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.
- Start the large pot of water boiling at the beginning of class so that it will be ready.

Set Up

1. Each table should have a pile of rinsed vegetables to peel and cut.
2. Each table should have an empty bowl to collect the prepared vegetables.

Eating & Evaluation

What are some of the different textures that are in the salad?

What are other ingredients that you can add?

Have the learners fill out the activity journal sheet on page 121 and describe the dish they have cooked.



Ingredients 2 lbs mixed vegetables to blanch (choose from broccoli, green beans, peas, kohlrabi, cauliflower, asparagus, spinach, swiss chard, kale, or bean sprouts)
4 green onions
1 15 oz. can garbanzo beans, drained
8 cherry tomatoes cut in half or 1 red bell pepper, chopped
1/4 cup parsley or mint, chopped

For the dressing:

1/4 cup red wine vinegar or lemon
1/2 cup olive oil
1 tablespoon honey
1/2 - 1 teaspoon salt
2 cloves minced garlic
1 tablespoon capers (optional)

Method Prepare the vegetables so that they are in bite-sized pieces. If you are using carrots or other root vegetables, peel them first. If you are using greens like kale or collard greens, remove the stems.

Slice the green onions. Chop the herbs. If using tomatoes, cut them into bite-sized pieces. If using the peppers, cut them into dice. Mince the garlic.

Place the vinegar, olive oil, honey, salt, garlic and capers into a jar with a tight fitting lid and shake.

Place all of the vegetables, the herbs and the garbanzo beans into a large bowl.
Pour the dressing over the vegetables and toss together.



Stir Fry: Black Beans with Rice Noodles



Objective Learners will understand the use of stir fry and be able to describe the stir fry technique.

Background Stir Fry is a Chinese cooking technique that involves cooking in a small amount of oil over high heat while stirring or tossing the ingredients. Usually the recipe calls for the wok to be heated first, then oil added along with flavorings such as ginger, garlic and chiles. Then the vegetables are added and cooked. Typically a cornstarch-thickened sauce is added which is simmered until thick. The dish is often garnished with green onions, toasted sesame oil or herbs. Common flavorings are five spice powder, fermented black beans, chili bean sauce, hoisin sauce and oyster sauce. Fermented black beans are preserved black soy beans used as a Chinese flavoring. You can also substitute a spoonful of black bean sauce.

Stir fry can be a challenging recipe for learners because all of the ingredients must be prepared before cooking and then the cooking must be done very quickly. Softer vegetables like zucchini and eggplant are easier to cut into matchsticks. Hard vegetables like carrots are more difficult and should be reserved for those with more experience.

If you would like some tips about cutting matchsticks, you can watch this video:
<https://www.youtube.com/watch?v=6OOKNdwyuKA>

Materials **For a class of 24:**
Induction cooktop
Flat-bottomed wok
Tongs
1 large bowl of warm water for the rice noodles
1 medium bowl at each table to collect vegetables
1 medium bowl for the sauce
1 small bowl for the garnish
1 mixing spoon
1 cutting board for each learner
1 knife for each learner
Forks and plates for each learner

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Eating & Evaluation

What are some of the different textures that are in the stir fry?
What are other ingredients that you can add?
Have the learners fill out the activity journal page and describe the dish they have cooked.

Recipe Black Beans with Rice Noodles

Ingredients

1 package rice noodles
2 inch piece of ginger, peeled
4-6 cloves of garlic
3 pounds vegetables (Choose from zucchini, eggplant, mushrooms, asparagus, broccoli, Brussels sprouts, bok choy, peppers and greens)
3 tablespoons canola oil or sesame oil (not toasted)

For the sauce:

1 tablespoon cornstarch
3 tablespoons soy sauce
2 tablespoons honey
1 tablespoon black bean sauce or
1 tablespoon fermented black beans
1 cup water

For the garnish:

1 bunch green onions
1 bunch cilantro or mint
2 tablespoons roasted sesame oil



Method

Soak the rice noodles in a bowl of warm water until they are soft, about 15 minutes.

Cut the ginger and garlic into thin slices. Place them in a bowl together.

Cut all of the vegetables into matchsticks and place them into a bowl.

Slice the green onions and chop the cilantro or mint and place them in a bowl.

Mix together the ingredients for the sauce.

Heat the wok on high and add the oil. Reduce the heat to medium high and add the garlic and ginger. Stir it a few times and add all of the vegetables. Turn up the heat to high. Toss the vegetables continuously with the tongs for 2-3 minutes until they begin to wilt. If they scorch, add 1/4 cup water.

Add the sauce and the rice noodles. Cover the wok with a tight fitting lid and simmer on medium high until the sauce is bubbling and the noodles soften, about 2 minutes.

Stir with the tongs.

Pour the stir fry onto a platter and garnish with the green onions, herbs and sesame oil.



Braising: Moroccan Vegetable Tagine



Objective Learners will understand the use of braising and be able to describe the braising technique.

Background Braising involves cooking meat or vegetables in fat until browned, followed by cooking in a small amount of liquid. The ingredients are cooked over low heat, covered, until everything is tender. Braised dishes are among the most popular foods of the world: Green Chile, Moroccan Tagine, Coq Au Vin, Boeuf Bourguignon, Chinese Hot Pot, and Lamb Stew. Poor people around the world use braising to make tough meat tender, extend expensive protein with less expensive vegetables and to add deep savory flavors. Braising can also turn tough vegetables like artichoke hearts, celery, leeks and fennel into smooth and savory treats. Braised dishes are often used as a flavoring to eat with starches like polenta, rice, millet, potatoes and pasta.

Materials **For a class of 24:**
Induction cook top
Large pot with lid
Wooden spoon or mixing spoon
1 large bowl for each group of 8 learners
1 cutting board for each learner
1 knife for each learner
Forks and plates for each learner

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned and sanitized.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Set Up

1. Divide the learners into groups of 8.
2. Each table should have a large bowl for the cut vegetables, knives and cutting boards for each learner and a pile of vegetables to cut.

Eating & Evaluation Use the book *Starting From Scratch: What You Should Know about Food and Cooking* by Sarah Elton (Author), Jeff Kulak (Illustrator) to help explain cooking techniques. Have the learners describe their favorite dishes and let their classmates guess which cooking techniques are used to create them.

Ingredients

4 lbs mixed vegetables (eggplant, carrots, zucchini, winter squash, potatoes, green beans, kohlrabi, turnips, or parsnips)
 2 onions
 5 cloves garlic
 2" piece of ginger
 3 tablespoons olive oil
 2 15 oz. cans garbanzo beans, drained
 1/2 cup raisins or currants
 2 cups water or chicken stock

1 tablespoon cumin
 1 tablespoon coriander
 1 tablespoon sweet paprika
 1 teaspoon cinnamon
 1 teaspoon turmeric
 1 28-ounce can crushed tomatoes*
 salt
 cayenne pepper (optional)

For the couscous:

3 cups whole wheat couscous
 3 cups hot water
 2 tablespoons olive oil

Method

Peel any carrots, turnips, potatoes or parsnips.
 Cut up the vegetables into large pieces, about 1" cubes.

Peel the garlic and ginger. Chop it roughly. Dice the onions.

Heat the 4 tablespoons olive oil in a large pot, add the onions, garlic and ginger.
 Stir for 5 minutes and then add the remaining vegetables.

Add the tomatoes, garbanzo beans, raisins or currants, 2 cups of water, cumin, coriander, paprika, cinnamon, turmeric, and 1 teaspoon salt. Cover tightly and let simmer for 15 minutes, until the vegetables are soft.

Meanwhile, place the couscous in a large bowl and cover with the hot water and olive oil. Let it sit for 10 minutes until the water is absorbed and fluff with a fork.

Add the tomatoes to the vegetables once they are tender. The vegetables will cook more quickly without the tomatoes. Adjust the salt and cayenne pepper to taste.

Spoon the vegetable tagine over the couscous.



Think Like a Chef



G3-5



Objective Learners will demonstrate their understanding of basic cooking by combining ingredients, flavors and cooking technique cards to create a dish of their own.

Background Chefs invent dishes by combining flavors with cooking techniques and fresh ingredients. They think of ingredients and flavors just as artists think of paint. Cooking techniques are similar to the tools that artists use to create their work. Learners can begin to understand the process of designing a recipe by using the recipe cards to describe their creations without cooking them. A following lesson could have the learners cooking the dishes they describe at home with their parents and reporting back to the class.

Materials **For each table of 8 learners:**
1 set of cooking cards
Colored pencils
Activity Journal Worksheet

Preparation Divide the learners into groups of 4-6 and explain the activity

Activity

1. Give each group a set of the following cards.
2. Have the learners pick one cooking technique, 3 flavors and at least 3 ingredients.
3. They must combine their cards to create a dish. Have them describe their dish, name it and draw a picture of what it would look like using the Activity Journal Worksheet.



Think Like a Chef Activity Cards

FLAVOR

Salt

FLAVOR

Basil

FLAVOR

Lemon

FLAVOR

Mint

FLAVOR

Pepper

FLAVOR

Cilantro

FLAVOR

Garlic

FLAVOR

Cinnamon

FLAVOR

Honey

FLAVOR

Parsley

FLAVOR

Maple Syrup

FLAVOR

Sesame

FLAVOR

Oregano

FLAVOR

Cumin

FLAVOR

Ancho Chile

FLAVOR

Vinegar

FLAVOR

Orange

FLAVOR

Olives

INGREDIENT

Zucchini

INGREDIENT

Raspberries

INGREDIENT

Onions

INGREDIENT

Green Beans

INGREDIENT

Carrots

INGREDIENT

Pinto Beans

INGREDIENT

Broccoli

INGREDIENT

Chick Peas

INGREDIENT

Apples

INGREDIENT

Rice

INGREDIENT

Potatoes

INGREDIENT

Celery

INGREDIENT

Peppers

INGREDIENT

Cabbage

INGREDIENT

Cucumbers

INGREDIENT

Radish

INGREDIENT

Tomatoes

INGREDIENT

Lettuce

INGREDIENT

Tomatillos

METHOD

Bake

METHOD

Blanch

METHOD

Pan Fry

METHOD

Boil

METHOD

Poach

METHOD

Braise

METHOD

Sauté

METHOD

Broil

METHOD

Sear

METHOD

Grill

METHOD

Simmer

METHOD

Steam

METHOD

Steep

METHOD

Stir Fry

From Grain to Flour

INTRODUCTION

Grinding flour from seeds and grains provides learners with a hands-on experience transforming a hard inedible seed into recognizable food.

These lessons can be used to:

- Introduce learners to the food system and how products get to the grocery shelf.
- Add an activity to enrich a class about a particular culture or country.
- As a hands on chemistry class, especially when studying acid and base.
- Incorporate garden produce in kid friendly recipes.
- Introduce learners to making, understanding and appreciating baked goods (especially the role of gluten in flours).

Many of these exercises use a molino flour grinder. A molino is a traditional hand grinder for making masa, the dough that creates tamales and corn tortillas, from dried whole corn. You can find a molino in most Latino or international markets. You can also order it online. Look for sources in the Supplies Appendix, page 112.

You can also use the molino to grind coarse dry flours. You can use any seed or grain. To make the flour finer, tighten the nuts that hold the grinding disk onto the machine.

SETTING UP YOUR FLOUR GRINDER

Working the grinder can exert a lot of force on the machine. Therefore it must be securely attached to a table in your classroom. For a more portable setup, mount the grinder permanently to a 1/2" thick piece of masonite or plywood. Then clamp the plywood on three sides tightly with "C" clamps. Monitor the grinder and connections while it is being used to make sure it doesn't become loose.



Grinding Flour



Objective Learners will be able to grind different types of grains and seeds and compare and contrast the gluten content of the resulting flours.

Materials

- Molino flour grinder
- Assortment of whole grains*
- Pen or Pencil
- Paper to label grains
- Shallow container to collect flour
- 1 small bowl for each type of grain
- 1 small paper cup for each grain
- 2 cups water
- 2 forks

*Suggested grains are: wheat (hard and soft), rye, barley, rice, quinoa, oats, buckwheat

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Review the **Types of Flours** chart on page 70 to know which flours contain gluten and which do not.
- Place each grain in a separate bowl.
- Using the **World of Starches** chart on page 69, label each bowl with the name of the seed or grain and the country of origin.
- Set up the grinder.
- Place a container under the grinder to catch the flour.

Activity

1. Grind each grain one at a time. If you have learners who are gluten free, grind the non gluten flours first. As you grind each flour, put it back in its original bowl. Make sure to grind all of one grain before adding another so that they are not mixed together.
2. Have the learners take turns grinding the flour. If you have a large group, the others can complete the *World of Starches Worksheet* on page 113, or the **Which Starch? Worksheet** on page 114 Use the charts on page 70 to help with the answers.
3. After the flour is ground, you will make a sample ball of dough for each type of flour in order to test the gluten. Add a few spoonfuls of one type of flour to a paper cup. Mix in water, a teaspoon at a time, until you have a ball of dough. Pass the balls of dough around one at a time.
4. If the flour has gluten, the ball of flour will be stretchy, bouncy, stick together and a bit springy. If the flour has no gluten, it will just break apart when you pull on it. Have the learners guess which balls of dough (types of flour) have gluten and which do not. Check the results on page 70 using the **Types of Flour** chart.
5. Follow this activity with either the *Griddle Biscuits* on page 73 or the *Pancakes* on page 74.

World of Starches

Amaranth—Latin America

Arrowroot—Asia

Barley—Middle East

Buckwheat—Central Asia

Chestnut—Europe

Chickpeas—Middle East

Common Millet—Central Asia

Corn—Latin America

Durum wheat—Middle East

Emmer—Middle East

Farro—Europe

Gram Beans—India

Kamut—Middle East

Lentils—Middle East

Mesquite—North America

Oats—Europe

Pearl Millet—Africa

Potatoes—South America

Quinoa—South America

Rice—Asia

Rye—Europe

Sorghum—Africa

Soy Beans—Asia

Spelt—Middle East

Sweet Potato—South America

Tapioca—South America

Taro—Asia

Yam—Africa

Yucca—South America

Wheat—Middle East

Wild Rice—North America



Types of Flours

Non-Gluten Flours

Amaranth*
Arrowroot**
Buckwheat*
Chestnut‡
Chick peas+
Corn*
Gram (Lentil from India)+
Millet*
Oats*
Potato**
Quinoa*
Soy+
Rice*
Mesquite+
Tapioca**

Gluten Flours

Barley-low in gluten*

Rye-low in gluten*

Wheat*

- WINTER WHEAT—high in gluten.
- SPRING WHEAT—less gluten than winter wheat, used for pastry.
- DURUM—also known as semolina, used for pasta.
- FARRO—ancient variety of wheat from Italy, used whole in salads and soups.
- EMMER—relative of Farro.
- KAMUT—large grained ancient wheat from Egypt.
- SPELT—ancient variety of wheat, higher in gluten than farro or kamut.

* Grains +Legumes ‡ Nuts **Tubers

What Does It Do?

Leaveners

Baking soda—Alkaline substance that helps bread or cakes rise. Needs acid to activate. Use buttermilk, sour cream, yogurt, lemon juice or vinegar in doughs that are leavened with baking soda.

Baking powder—Mixture of alkaline soda and tartaric or other acid; activated by water. It does not need added acid to make bread or cakes rise.

Eggs—Used as a binder and conditioner as well as leavener. Whipped egg whites lighten soufflés, cakes, pancakes, muffins.

Baker's yeast—Fungus which feeds on starch and sugar, transforming it to acid and producing carbon dioxide which makes bread rise.

Natural Yeast—Sourdoughs are made from airborne, naturally occurring yeasts. Other sources are fruit containing natural yeasts, such as grapes.

Fat/Liquid

- Fats tenderize the dough. However, too much fat makes the dough heavy. Fat coats the gluten and makes it difficult to rise.
- If you use a lower fat liquid like water or buttermilk, add solid fat like butter or lard.
- If you use heavy cream, crème fraîche or sour cream, do not add additional solid fat.
- Acceptable types of fat include lard, butter, non-hydrogenated vegetable shortening, bacon fat or oil.

Sweeteners

- Sweeteners tenderize and moisten the dough. If there is too much sugar, the middle will be overly moist and gooey.
- Sweeteners include fruit, white sugar, brown sugar, honey, maple syrup, agave, barley malt, and molasses.

Exploring Acid & Alkaline



Objective Learners will be able to choose between baking powder and baking soda in a recipe.

Background Both baking soda and baking powder add air bubbles to baked goods that help to make them fluffy and light. Baking soda is made from an alkaline substance, bicarbonate of soda. It cannot form bubbles on its own without the addition of an acidic substance. Cooks often add lemon juice, buttermilk or vinegar to create this reaction. If the correct amount of acid is not added, the baked good can end up tasting metallic and soapy. Baking powder already has the acid mixed in. When you add liquid or water, the bubbling reaction occurs. A common experiment involves mixing baking soda and vinegar together to create a “volcano.” This activity shows the learners how to use a similar reaction in cooking.

Materials

- Baking soda
- Baking powder
- 2 clear measuring cups or glasses
- 1 pitcher of water
- 1/4 cup vinegar



Preparation

- Put 1 tablespoon baking powder in one of the cups and 1 tablespoon of baking soda in the other.
- Have the vinegar and water available.

Activity

1. Pour water into both cups. Which one is bubbling? If it bubbles with water, is it the baking soda or baking powder?
2. Now add vinegar to the baking soda cup. What happens? Which cup has bigger bubbles? Which cup has a reaction that lasts longer? Why might there be recipes that have both baking powder and soda?

Further Exploration You can make your own baking powder and test the properties of the different acids by adding cream of tartar or ascorbic acid to baking soda. How much acid works the best?

Griddle Biscuits



Objective Learners will be able to create a biscuit recipe demonstrating their understanding of basic baking principles.

Background The difference between biscuits and bread is that biscuits are tender and flaky as opposed to the chewy texture of bread. Pastries, biscuits, scones, crumpets, pancakes, muffins and cakes all share the same characteristic. There needs to be enough gluten to hold the dough together, but not so much that it turns into a chewy cracker or tough sponge. Most recipes recommend using a low gluten pastry flour for biscuits, but a healthier option is a combination of whole wheat flour, unbleached white flour and any type of non gluten flour. Use the **What Does It Do?** Chart on page 70 to explain the role of each ingredient.

Think of this activity as an investigation as opposed to a recipe. It doesn't matter much if the dough is more or less wet, your biscuits will come out differently but edible.

Materials

- Induction cook top
- 1 medium sized bowl for each type of biscuit
- Cast iron or other heavy frying pan with lid and/or foil to cover
- 1 fork per biscuit type
- 1 metal spatula

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Have everyone wash their hands
- Divide the class into groups of 6-8 learners
- First review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Set-Up Let each group choose their combination of flours, as long as they have 1/2 gluten free and 1/2 gluten flours.

Have the learners write down which flours they used

Eating & Evaluation

Ask the following questions:

- Which biscuits do you like the best?
- Which biscuits have the most gluten (the chewiest) and which have the least (crumbly)?

Ingredients

2-3 cups unbleached or whole wheat flour
1/2 to 1 cup non or low gluten flour
1-2 teaspoons baking soda (needs acid to work) or baking powder
1/2 – 1 teaspoon salt
2 tablespoons – 1/3 cup butter, lard, or other solid fat
Egg (optional, makes the biscuit fluffier but more muffin like)
2-4 tablespoons sugar, honey, maple syrup or other sweetener, optional
Buttermilk or thin yogurt or kefir—enough to make a thick, slightly sticky dough

Method

If you have done the flour grinding activity, use a mixture of the flours you have made. Put all of the dry ingredients into the mixing bowl: the flour, salt, sugar and leavener. You can also add dry spices or citrus peel. If you are using butter, make sure it is cold. Cut it into small pieces and toss it into the flour mixture. Squeeze the butter pieces with your fingers until they are thin flakes. The butter melts during baking and will make the biscuits flaky. Too much butter will keep the biscuits from rising and make them heavy.

Stir in the liquid until the dough is thick but sticky. If you make the dough a little wet, the extra steam that is created during baking will make them rise taller. You can add currants, dried fruit or nuts at this stage. DO NOT stir much, just enough to get the dough into a ball, about 10 strokes.

Toss a handful of flour onto the plate. Scoop up ball of dough and plop it onto the floured plate. Turn it over and gently pat it flat. With floured hands, place the biscuit in a lightly buttered frying pan. Make each biscuit the same way, about the size of a golf ball.

Make all the biscuits the same way, allowing them to just touch in the pan. Cover the pan with a tight lid and cook on medium heat for 15-20 minutes. You can tell they are cooked by looking at the dough in between the biscuits. It should not be doughy, but should be opaque and firm. They may get some light color.

If you don't like biscuits with a crisp top, brush them with melted butter or milk and sugar before you put them in the pan.

**From
the Garden**

Pick herbs and make a compound butter to spread on the biscuits.
Make a seasonal jam or applesauce (page 109) to eat with the biscuits.

Pancakes



G1-5



Objective

Learners will be able to create a pancake recipe using principles of baking ingredients.

Background

Learning the family relationship between different baked goods makes it easier to recover from mistakes. Ingredients for pancakes are similar to those for biscuits, except they have more liquid and less fat. Muffins and quick breads are simply pancakes with additional sugar. All of these types of baked goods should be tender as opposed to chewy.

Making pancakes shows learners the effect of gluten. More gluten makes chewy, tough pancakes, too little gluten makes them fall apart. Use buttermilk or other fermented milk product to ensure that the pancakes will be tender. The slight acidity helps break down long, tough strands of gluten.

Materials

1 medium sized bowl for each type of pancake
1 whisk for each type of pancake
1 liquid measuring cup per pancake
Spoons
1 metal spatula per frying pan

Preparation

- Do the flour grinding activity first, or select a range of flours
- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Have everyone wash their hands
- Divide the class into groups of 6-8 learners
- First review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Set-Up

Let each group choose their combination of flours, as long as they have 1/2 gluten free and 1/2 gluten flours.

Have the learners write down which flours they used.

Eating & Evaluation

Ask the following questions:

- Which pancakes do they like the best?
- Which flours are their favorites?

Make applesauce to eat with the pancakes, as on page 109.

Recipe Pancakes

Ingredients

2-3 cups wheat flour
1/2 to 1 cup non or low gluten flour
1-2 teaspoons baking soda (needs acid to activate) or baking powder
1/2 teaspoon salt for every 2 cups flour
2-4 tablespoons sugar, honey, maple syrup or other sweetener, optional
1 egg for every 1-2 cups of flour
1 teaspoon vanilla or other flavoring for every 2 cups flour
Buttermilk or thin yogurt or kefir—enough to make a pourable batter
Maple syrup, applesauce, or jam for topping
Butter, for cooking

Method

If you have done the flour grinding activity, use a mixture of the flours you have made. Mix together all of the dry ingredients in a medium-sized bowl: the flours, salt, sugar, and baking soda or powder.

Beat an egg or two with some of the liquid. Add vanilla or other flavoring.

Heat the griddle or flat skillet to medium high heat. Once you start cooking the pancakes, you will have to adjust the heat to make sure they do not burn.

Use a whisk to stir the egg and liquid mixture into the dry ingredients. Add more liquid until you have a consistency anywhere between soft frosting and heavy cream. The texture will be more like a muffin if the batter is thick.

Grease the griddle or pan with a little butter. Spoon small amounts of batter onto the pan so that you can make more pancakes at a time.

They are ready to flip when the edges are dry and there are bubbles on the top that don't close up. Put the thin metal spatula all the way under the pancake, lift it up and then turn it all at once. Do not smash the pancake down with the spatula.

Let them cook on the second side for about a minute. Serve immediately with real maple syrup or warm applesauce, as on page 109.

From the Garden

Instead of sugar and vanilla, make savory pancakes by adding herbs or grated vegetables. Use sour cream or Greek yogurt as a garnish.



Polenta

 G1-5



Objective Learners will be able to explain what polenta is, where it comes from and how to cook it.

Background Romans ate a version of polenta made from barley, lentils or chestnut flour two thousand years ago. It has been a staple of northern Italian peasant diets ever since. After corn was introduced to Italy in the late 15th century, polenta replaced the earlier grains because the plant is so productive. A bright yellow-orange variety called ottofile (eight rows) creates the traditional Piemontese dish. Delicious with any sauce, you can also use it as a wheat-free substitute in lasagna and other pasta dishes.

Poor Italians who relied on polenta for their primary source of calories developed pellagra (“ugly skin”), a disease produced by vitamin B deficiency. Unlike nixtamal (see *From Corn to Masa*, page 78), which is changed to provide bioavailable B vitamins, polenta’s niacin is unavailable to humans.

Materials Induction cook top
1 large sauce pan
1 pitcher for water
Wooden spoon for stirring
Flour grinder or molino
Shallow bowl for collecting polenta
Shallow plates for separating corn



- Preparation**
- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
 - Set up the grinder. Place a container under it to catch the flour.
 - Make sure everyone has washed his/her hands.
 - Review the recipe so learners know what to do.
Do not have learners read the recipe while cooking.

Set-Up Bring a pot of water to a boil. The polenta will cook more quickly if you place it in hot water. Have the learners line up to take turns grinding the corn.

Eating & Evaluation Polenta takes a little while to cook. While you are waiting, read these books about corn to the class. Read *From Kernel to Corn Cob* by Ellen Weiss to watch how corn grows or *Corn is Maize* by Aliki. For grades 5-8 try *The Life and Times of Corn* by Charles Micucci.

Recipe Polenta

Ingredients Yellow or dried white dent corn* or 3 cups coarsely ground cornmeal or grits.
Water (4 times the amount of ground corn)
1 teaspoon salt per cup of corn
Cubes of mild cheese, Monterey Jack, mozzarella, provolone or taleggio (optional)
Butter (optional)

Method Loosen the settings on the molino so that the grind is very coarse.
Have the learners line up and take turns grinding the corn.

Once you have a small pile of corn, part of the group can winnow it, separating the grain from the husk. Spread it out on a shallow plate and shake it until the husk rises to the top and separates from the grain. Remove the husks by hand. Don't worry if some remains with the ground corn.

For every 1 cup of corn, add 4 cups of water in a large saucepan. Bring to a boil, stir in salt and reduce the heat to medium low.

Have the learners take turns stirring the polenta, it will require about 15 minutes of cooking.

If you like, after the polenta is cooked, you can stir in cubes of soft cheese like Monterey Jack and/or a few tablespoons of butter.

Spoon the polenta onto plates and add the topping you have made. You can use a simple tomato sauce, pesto or some grated cheese.

*In order to use corn from your garden, harvest and remove the husks.
Dry the ears for 2-3 weeks until the kernels can be easily removed from the cob.
If the corn kernels are not dried thoroughly before husking, they will mold in a container.

Note: You can also make polenta from coarsely ground cornmeal or grits.

From the Garden While you are waiting, prepare a sauce from herbs or other garden ingredients from the Mortar and Pestle section.

For a large class, divide into groups. Have one group make the polenta, and the second group make the Tomato Sauce on page 107 with tomatoes from your garden.

From Corn to Masa



INTRODUCTION

Throughout Mexico and Central America, corn is soaked to soften the hulls and rinsed before being ground into flour. The dried corn, or maize, is soaked in a mixture of water and lime (calcium carbonate), using a technique that is at least 3,500 years old. Corn soaked in this manner is called nixtamal, and when ground it is called masa. Through food processing, the corn becomes more nutritious as the B vitamins can be absorbed readily by the body. European countries such as Italy, who adopted the new grain enthusiastically without adopting the nixtamal process, found themselves with a diet poor in B vitamins, leading to pellagra (bad skin) where skin becomes swollen and red. Pellagra struck particularly hard in Northern Italy in the 18th and 19th centuries as poor farmers survived on little else besides polenta.

In order to make masa, you can use a Mexican Molino or you can use a flour grinder on a coarse setting. In order to make masa in class, you will need to soak the corn the day before and bring it in already rinsed.

Masa is the primary ingredient for many dishes throughout Latin America, including tamales, corn tortillas and the thick Salvadoran flatbreads called pupusas. Most are simple to prepare and appropriate for a classroom setting.

Masa Glossary

Antojitos: Various appetizers from Mexico made from masa and fillings

Arepas: Venezuelan masa cakes made from white cornmeal, fried and eaten stuffed or plain

Gorditas: Thick tortillas, stuffed with fillings and fried

Huaraches: Oblong masa ovals, fried and topped with various fillings, from Mexico City

Masa: Wet dough made from grinding fresh nixtamal

Masa harina: Flour made from dried masa

Nixtamal: Corn that has been soaked in lime and water, the hull removed

Posole or hominy: Corn that has been soaked in lime and water, the hull removed and then dried. It is cooked and eaten whole in stews or soups

Pupusas: Stuffed flatbreads from El Salvador made with no added fat, and then fried

Sopes: Thick disk of masa with pinched sides, pan fried and topped with filling

Tamal or tamale: Masa cake enriched with fat and broth, filled, wrapped in a corn husk or banana leaf and then steamed.

Tortillas: Flat breads made out of masa with no added fat and cooked on a dry skillet

GROWING CORN FOR MASA

Masa is made from dent or field corn, not from sweet corn like corn on the cob. It is a perfect crop for most school gardens, because it is ready in the fall, instead of the middle of summer like sweet corn.

Strains of corn that are good for masa include: Oaxacan Green Dent Corn, Hopi Blue, flour corn and dent corn. The widest variety are available from the Native Seed Search (www.nativeseeds.org). Make sure you try one that has a growing season that fits with your area.

PLANTING INSTRUCTIONS

Corn needs a good amount of nitrogen, so plant it in soil that has been amended with a fish/kelp meal or compost. You can also plant it with nitrogen fixing legumes such as black beans or fava beans. Midwest gardeners often grow corn on the tops of furrows to minimize soggy roots. Gardeners in dry states should try planting in rows that are 3-4 inches down, so that water will stay near the corn. Waffle gardens, which are submerged squares, are traditional in the Southwest. Plant it in rows that are dug 3-4 inches down, so that any rain water will stay and water the corn. Fill the trenches with water if you are watering by hand, or place drip tubing in the trench. You can also plant corn in the middle of a large circle, as with a three sisters garden. Again, it should be planted in a bowl, where water will collect. The three sisters garden also provides additional nitrogen to the corn in the form of companion beans.

Plant the corn about 6 inches apart, after the soil has warmed up in late May to early June. It should sprout within a week. Dent corn has fewer pests and is easier to grow than sweet corn. Wait to harvest the ears until the stalks are beginning to dry out. Make sure the kernels are dried before you remove them from the cob. They will come off easier if they are dry.

Also, if the kernels are still wet, they will become moldy in a plastic bin or other deep container. They may take 2-3 weeks to dry.

Plan on doing a homemade masa class with garden-grown corn at the end of October or November before Thanksgiving. Once the kernels are dry, they can keep for 6-9 months. You can also save some seed for next year.

It is dry when the kernels can be easily removed from the cob. Do not grow more than one kind of corn in your garden if you want to save the seeds. They will cross pollinate and not breed true to the original strain.

PURCHASING CORN

Purchase dried corn in Mexican and Latin American grocery stores. It can be pink, blue, green or yellow. You can also use dried posole, which has already gone through the nixtamalization process, so just bring it to a boil, simmer for 10 minutes and turn off the heat. Let the posole



Fresh Masa & Corn Tortillas



Objective Learners will be able to explain what masa is, where it comes from and how to make corn tortillas.

Materials Induction cook top
Flour grinder (molino)
Shallow bowl for collecting masa
Mixing bowl for tortilla dough
1-2 tortilla presses (see image below), can be found in Mexican grocery stores
Heavy plastic bags for tortilla presses
Scissors for cutting plastic
Skillet

Preparation

- You must soak the corn the day before the class. See the next page for instructions. You may have the learners rinse the corn and remove the skins, or you may do that ahead of time as well.
- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Set-Up Make two groups: 1) grinding the masa and 2) shaping the tortillas. As soon as you have ground a bowl of masa, start some of the learners immediately making the tortillas. If you are short on time, grind some of the masa before class, so that you can make the tortillas first thing. Have the learners complete the grinding and continue making the masa in batches.

Eating & Evaluation

Suggestions for activities do to while waiting for your tortillas:

- Read the book *La Tortilleria* by Gary Paulsen or *Magda's Tortillas* by Becky Chavarria-Chairez. Both are available in English and Spanish.
- Talk about the different ways to grind corn: Metate, Metal grinder, and Factory.
- Use the **Corn Worksheet** on page 116 to talk about corn and the different varieties.
- Discuss the vocabulary terms on page 78.



Ingredients

For the masa:

2 lbs dried dent or flour corn kernels

1 tablespoon pickling lime (calcium hydroxide), found with canning supplies in the grocery store

Method

Rinse the corn and put it in a large pot of water. Bring to a boil. Stir the pickling lime into a cup of water and add to the corn. Let it simmer for about 15 minutes, until the peels are softened. Let the corn soak overnight, the day before class.

Drain the corn and rinse. Rub the kernels between your hands to remove all of the yellow husks. Rinse 3 or 4 times, until all of the yellow is gone. To save time, you can also do this before the class. Now you have nixtamal.

Grind the nixtamal in a hand grinder. Now you have masa.

To make tortillas:

Place the masa in a mixing bowl and grab a piece to see if it holds together. If necessary, add a bit of water until the masa will keep the shape of a smooth ball. If the dough becomes dry as you work, add a few more drops of water.

Grab some masa and roll it into a smooth ball about the size of a golf ball. Get a heavy plastic bag and cut 2 squares of plastic slightly larger than the tortilla press. Place the ball in between the two sheets and squeeze down. Peel off the top sheet of plastic. Place the tortilla in the palm of your hand with the remaining sheet of plastic on top. Pull off the sheet.

Quickly turn your hand over and plop the tortilla into a hot, ungreased skillet. Let it cook on one side until there are small brown spots on the bottom. Flip it over and press down with a balled up paper towel or kitchen towel. It should puff up. Let it cook for another minute and then remove to a plate. Repeat.

Note: You can also make fresh corn tortillas with masa harina, the dried form of masa. Masa harina can be found in the Mexican section of most grocery stores, or in most Mexican specialty grocers. Just mix water with the masa harina until you get a dough that sticks together. Knead it briefly and let it sit for 5 minutes. Add more water if necessary.

From the Garden

- Turn the tortillas into quesadillas, adding cheese and fresh vegetables. The possibilities include: cilantro, roasted chiles, grated squash or zucchini, sweet corn kernels, onions, garlic, chopped greens.
- Use tomatoes, tomatillos and/or chiles to make salsa as on page 23 of the Sensory Education Activity Guide.

Tamales



Objective Learners will be able to explain what tamales are, what ingredients they have and how to cook them.

Materials Induction cook top
1 5-qt pot with a lid
Steamer basket
Masa, as described on page 80
Shallow bowl for collecting masa
Standing mixer with paddle attachment
Spoons to spread masa
2 large mixing bowls

- Preparation**
- Soak the corn the day before the class. See instructions on page 81.
 - You may have the learners rinse the corn and remove the skins, or you may do that ahead of time as well.
 - Soak the corn husks in warm water in a large bowl or tub 1 hour before class.
 - Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
 - Make sure everyone has washed his/her hands.

Set-Up Make three groups: 1) grinding the masa, 2) making the dough and 3) making the filling.

As you complete the dough, start some of the learners immediately making the tamales. If you are short on time, grind some of the masa before class, so that you can make the dough first thing. Have the learners complete the grinding and continue making the masa in batches.

As soon as the learners make enough tamales for the class, begin steaming them, while the learners continue the process.

- Eating & Evaluation**
- Suggestions for activities do to while waiting for your tamales:
- Read the book *La Tortilleria* by Gary Paulsen or *Magda's Tortillas* by Becky Chavarria-Chairez. Both are available in English and Spanish.
 - Talk about the different ways to grind corn: Metate, Metal grinder, and Factory.
 - Use the **Corn Worksheet** on page 116 of the workbook to talk about corn and the different varieties.

Recipe Tamales

Ingredients

Fresh masa from page 81 (about 6 cups)
1 cup sunflower or corn oil or 1 1/2 cups lard
1-2 cups chicken broth
1 tablespoon salt

For the filling:

1 lb Mexican Chihuahua or Muenster cheese, grated
1/4 lb feta cheese, crumbled
1 cup chopped, roasted and peeled green chiles
1/4 cup toasted pumpkin seeds (optional)
1 pkg (about 40) dried corn husks

Method

Place the corn husks in a large bowl. Pour boiling water over them and let them sit while you make the dough and filling.

For the dough:

Divide all of the ingredients for the dough in half and mix in a large stationary mixer like a KitchenAid one half at a time. Using the paddle, mix together the masa, fat, broth and salt. Use just enough broth to make the masa smooth and fluffy, but not watery. Whip the masa on medium high until it is fluffy. You can check by placing a piece of dough in a glass of water. It should float.

For the filling: Mix together the grated cheese, feta cheese, green chiles and pumpkin seeds. Take a husk, smooth side facing up. Spread a thin (3/8") layer of masa over the mid section of the corn husk. Place 1-2 tablespoons of filling in the middle of the masa and press it down. Roll up the corn husk. Fold up the bottom (pointy) end of the corn husk. Be sure that the filling is surrounded by masa.

Put a steamer basket in the bottom of a large pot and add water up to the bottom of the basket. Place each tamale with the bottom (folded) side down and the open side facing up. After the pot is full, cover with a tightly fitted lid and bring the pot to a boil. Reduce to a medium heat and steam the tamales for 45 minutes, until they are firm and cooked through. Check periodically to see if more water is needed. Refer to this short video if you need assistance: <http://www.saveur.com/article/techniques/video-how-to-fill-and-roll-tamales>.



From the Garden

- Use the following garden vegetables for a filling: cilantro, roasted chiles, grated squash or zucchini, potatoes, sweet corn kernels, onions, garlic, chopped greens.
- Use tomatoes, tomatillos and/or chiles to make salsa for the tamales.

Pupusas



Objective Learners will be able to explain what masa is, where it comes from and how to make pupusas from El Salvador.

Materials Induction cook top
Masa, as described on page 80
2 mixing bowls
Cheese grater
8 cutting boards and small knives
2 peelers
2 mixing spoons
Skillet

- Preparation**
- Soak the corn the day before the class.
 - You may have the learners rinse the corn and remove the skins, or you may do that ahead of time as well.
 - Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
 - Make sure everyone has washed his/her hands.
 - Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

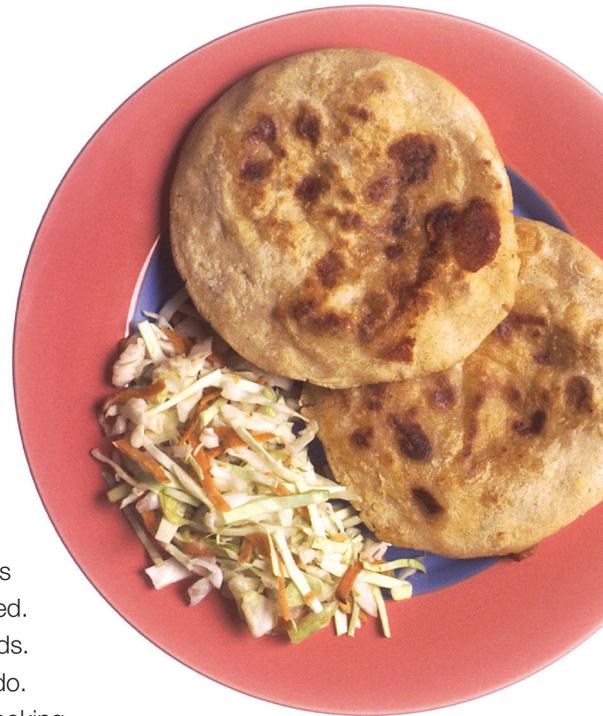
Set-Up Make three groups: 1) grinding the masa, 2) making the filling and 3) making the curtido.

All of the learners will be able to make a pupusa as soon as the filling is made. For a large class, use two induction burners and two skillets.

Eating & Evaluation

Suggestions for activities do to while waiting for your pupusas:

- Talk about the different ways to grind corn: Metate, Metal grinder, and Factory.
- Use the **Corn Worksheet** on page 116 of the workbook to talk about corn and the different varieties.
- Discuss the vocabulary terms on page 78 related to pupusas and antojitos.
- What other shapes can you make with masa and stuffing?



Recipe Pupusas

Ingredients 2 cups fresh masa made in class or using masa harina
2-4 tablespoons water
2 cups grated Monterey Jack or Mexican cheese
1/2 cup refried beans
1 cup grated vegetable (zucchini, squash, or carrots)

Method Mix together the fresh masa and a little water until the dough holds together in a ball when you squeeze it. Add enough water so that it does not crack when you pat it into a flat disk.

Grate the cheese and the vegetables. Mix them together with the refried beans for the filling.

To make 3-inch round pupusas, put about 1/2 cup of the dough in your hand for each pupusa. Roll into a ball and flatten in your hand. Put about 2 tablespoons of the filling into the middle of the dough. Work the edges up over the filling and again form a ball, completely enclosing the filling.

Flatten each ball to about 1/4 inch or less and cook the pupusas on a hot, lightly oiled griddle for about 3 minutes per side, or until both sides are lightly browned. Serve warm with **curtido** and hot sauce on the side.

Recipe Curtido (Cabbage Salad)

Ingredients 1/2 head green cabbage
2 carrots
1 white onion
1/2 cup cider vinegar
1/4 cup water
1 teaspoon salt
1 teaspoon dried oregano
1 teaspoon crushed red pepper flakes

Method Cut the core out of the cabbage and shred it with a knife like coleslaw. Peel and grate the carrots, or peel them into long strips. Peel the onion, cut it in half and then into thin slices.

To make curtido, combine all ingredients in a large bowl and mix well.

Simple Tools: Mortar and Pestle

INTRODUCTION

Societies all over the world have developed some version of the mortar (bowl) and pestle (pounder) in order to make sauces, grind foods and create spice blends. Learners love to use this tool, taking turns pounding ingredients into a smooth pulp. **Although modern cooks use a blender or food processor for many of these same recipes, a mortar and pestle has several advantages:**

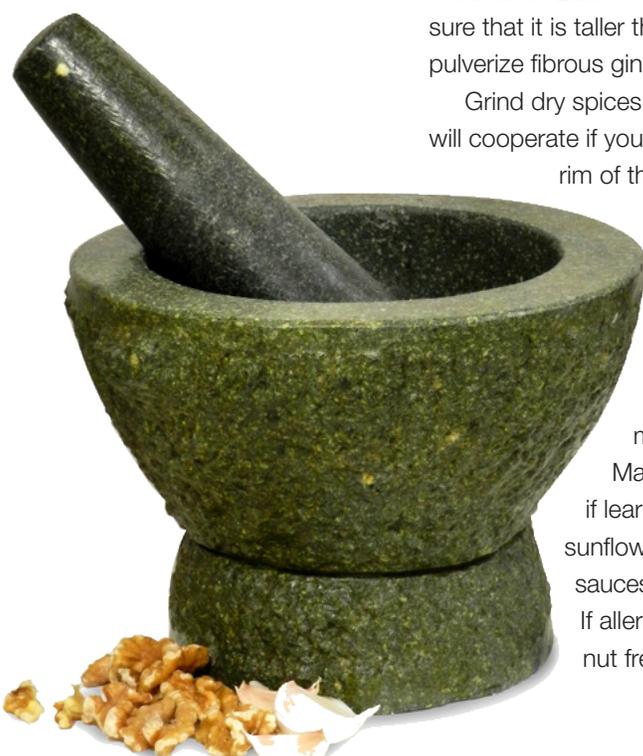
- Learners can take turns operating the tool, providing tasks for more people.
- It makes less noise than a blender.
- The flavors are blended together as opposed to being small pieces of chopped ingredients floating next to each other.
- You don't need electricity.
- Learners can see and feel how the sauce is created.
- Traditional sauces are more nutritious because they have whole foods like nuts, beans and herbs as opposed to flour, cream and butter.

In a blender, the ingredients stay separate and become merely wet. In the mortar, the cook marries the flavors, using the weight of the stone pestle. The ingredients become more than their individual parts. Make sure you buy a mortar and pestle large enough for your purposes. The small white one is mainly useful for grinding herbs or 1-2 cloves of garlic. The best mortars are made of granite or marble. Buy one from an Asian store, especially Thai or Vietnamese groceries. Gourmet cooking stores often carry the Italian marble version, as well as smaller ceramic ones. Mexican or Latin American stores may carry the basalt molcajetes. Whichever you buy, make sure that it is taller than 8 inches and heavy enough to break your toe. The first time you pulverize fibrous ginger slices into a frothy paste, you'll be hooked. Plan on spending \$30-\$50.

Grind dry spices with a circular motion. Tough wet ingredients like chilies, garlic or ginger will cooperate if you pound gently and consistently. You do not need to lift the pestle above the rim of the mortar, or the wet paste will slop everywhere. Use a spoon to scrape the sides of the bowl, keeping the flavorings in the middle. The clean up is simple—just rinse out the ingredients and then rub a half of a lemon and coarse salt around the bowl and rinse it out.

The following recipes provide a quick and simple flavor boost to garden produce. Since cooking equipment in schools is limited, you can create an extra sauce with no heat, therefore no need for an extra burner. Use the mortar and pestle with herbs, garlic, chiles, dried beans, nuts and seeds.

Make sure to check for nut allergies in your classroom before hand. Sometimes if learners are allergic to tree nuts, you can try sesame seeds, pumpkin seeds or sunflower seeds as flavor enhancements instead. Nuts and seeds provide body to sauces, healthy fats and minerals. For example, sesame seeds are high in calcium. If allergies are common in your school, keep a separate mortar and pestle for nut free cooking.



Mortars and Pestles Worldwide



Mortars made from various materials have varying functions. Cooks use the more porous surfaces, such as wood, lava rock, and earthenware, for dried herbs or grains. They use terracotta, stone and brass for wet pastes, and for dishes made with garlic or onions. Other common materials are brass, porcelain or wood.

EUROPE

Genovese Italians manufacture mortars specially designed to make pesto. Four rounded handles protrude from their edges. Apothecary-like porcelain bowls give the French a tool to crush garlic and bread crumbs for aioli. They have a handy spout, perfect for pouring garlicky mayonnaise onto food. Smaller 4-inch wooden mortars of most European countries are well adapted for crushing dried herbs.

MIDDLE EAST

Almonds, saffron, pepper and spices yield to the brass mortars of the Middle East. The cylindrical brass mortars of Greece and Syria pair with fresh herbs, such as mint, and sesame seeds. Porous wooden mortars work best for dried herbs, as well as spices such as cumin, coriander, cinnamon and cardamom. A 2-inch high basalt Iranian mortar is specifically designed for saffron threads.



INDIA

Indian food relies on ground pulses, grains and spices. The sil batta grinds grains and beans. Its flat stone table with ridges (the sil) has an oblong grinding stone (the batta) that functions like the Mexican metate. Cooks grind coconut, lentils, rice and hard spices on the stone. Other tools include the himan dasta, a bowl-shaped stone mortar that makes quick work of wet curry pastes; and an electric device designed to simulate traditional grinding.

ASIA

Thai cooks use earthenware mortars resembling terracotta flowerpots to grind dry spices. They use granite or basalt mortars to grind curry pastes, chilies, peanuts, garlic and ginger. Brass and aluminum are common and are used for dried spices. Japanese cooks prefer the suribachi, a glazed bowl with ridges engraved on the inside. They use the rough surface to grind gomasio, a traditional roasted sesame condiment.



MEXICO

As in Asia, traditional cooking techniques mandate different tools to grind, pound and puree chilies, corn and spices. The rectangular lava stone known as a metate combines with the spindle-like mano for grinding corn and masa. The molcajete is a short, squat mortar made from black basalt. It is used with the tejolote, an oblong pestle to grind chilies, seeds and spices. Do not use a lava molcajete for grinding wet pastes because it is too absorbent.



Classic Pesto Sauce



GK-5



Objective Learners will be able to use a traditional mortar and pestle and identify the uses of basil.

Background Classic Genovese pesto combines fresh basil, garlic, salt and nuts in a mortar and pestle, making creamy pastes. A gentle extra virgin olive oil makes a light sauce with an herbal punch. It is traditionally served with flat tagliatelle noodles or curled trofie, small potatoes and Romano string beans.

Materials Large marble or granite mortar and pestle for every 10 learners
Induction cook top
1 large pot
1 bowl for the basil leaves
1 large serving bowl
Tongs or spoons to serve pasta
Dish towel

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Wash all of the vegetables.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do.
Do not have learners read the recipe while cooking.
- Begin heating up the water for the pasta before class starts.

Set-Up Place the mortar and pestle at the end of the table with a folded up kitchen towel under it.

Place the basil in a pile in the middle of one table.

Place the string beans and potatoes on another table.

Divide the learners into two groups. One group will pluck the leaves from the basil plant and the other will trim the ends of the beans and cut the potatoes.

Pull learners from each group to pound the pesto while they continue with their tasks.

Eating & Evaluation Remind class to wait politely to be served before eating.
Have 3 or 4 learners volunteer to help pass out the samples.

Have the learners draw the process of making pesto, or, for older learners, write out the instructions. Discuss if they prefer the vegetables with the pesto sauce or plain.

Note: If you cook the potatoes ahead of time, this recipe does not need sharp knives. It is a good recipe for younger learners.

Ingredients**For the pesto:**

Basil
Salt
Garlic
Lemon juice
Pine nuts or walnuts (optional)*
Olive oil

For the pasta:

String beans
Potatoes, red or Yukon gold
Pasta
Parmesan cheese

**Method**

Remove all of the leaves from the basil plant. Do not use the stems or blossoms. If the leaves are old and large, remove the tough part of the leaf spine (the petiole) as well.

Smash 1-2 cloves of garlic, 1/2 teaspoon of salt and 1-2 tablespoons of nuts (optional) in a mortar and pestle. Pound up and down until you have a smooth paste.

Slowly add the basil leaves, pounding as you go. Alternate with a squeeze of lemon to keep the basil from turning black. You can keep adding leaves until the mortar is half full. Stir in olive oil until the pesto is a sauce consistency.

Meanwhile, cut the potatoes into thick slices. Remove the ends from the beans.

Bring a large pot of water to a boil. Add the pasta, potatoes and beans. Boil for 10-12 minutes, until the pasta is cooked.

Put the pesto in a large bowl. Add a few ladles of hot water to the pesto in order to get a saucy consistency. Drain the noodles and toss them with the pesto.

Toss the pasta with Parmesan cheese and serve.

**Check with class about allergies before using nuts or substitute raw, unsalted sunflower seeds for nuts.*



Romesco Sauce



Objective Learners will be able to use a traditional mortar and pestle and identify the uses of chiles.

Background The traditional Catalan sauce Romesco consists of chiles, roasted nuts and tomatoes with a bit of vinegar and salt. Romesco tastes delicious on a variety of vegetables. Try it as a sauce with gnocchi, pasta or polenta. If you prefer the sauce more spicy, add more of the red chile flakes. If your learners do not tolerate spicy foods, leave them out.

Materials **For each table:**
Large marble or granite mortar and pestle for every 10 learners
Dish towel
Bowl for the Romesco
Spoon or butter knife
Cutting boards for vegetables
Knives

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Wash all of the vegetables.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do.
Do not have learners read the recipe while cooking.

Set-Up Place the mortar and pestle at the end of the table with a folded up kitchen towel under it.
Divide the learners so that they are in groups no larger than 10.
Each group will first prepare the ingredients for the Romesco, and then cut up whatever vegetables you are going to cook.
Learners will take turns pounding the sauce while others are preparing the vegetables.
Remind class to wait politely to be served before eating. Have 3 or 4 learners volunteer to help pass out the samples.

Eating & Evaluation Have the learners draw the process of making the sauce, or, for older learners, write out the instructions.
Discuss if they prefer the vegetables with the sauce or plain.

From the Garden Serve the Romesco sauce with cooked green beans, sautéed summer squash, roasted winter squash, or potatoes.

Recipe Romesco Sauce

Ingredients 2-3 dried red chiles (like New Mexican or Ancho)
2 cups water
2 cloves garlic
3/4 teaspoon salt
1/4 cup roasted plain almonds or hazelnuts*
2 Roma tomatoes, cut into quarters
1 teaspoon apple cider or sherry vinegar
3 tablespoons olive oil



Method Bring the whole chiles to a boil in the 2 cups of water. Turn off the heat and let them cool. Remove the stems and seeds. Cut them into small pieces.

If you have a large mortar and pestle, use it. It is a lot more fun. Start with the garlic, salt and a few almonds. Pound them until they are a smooth paste. Slowly add the chiles, pounding in between each addition. Add almonds to keep the sauce from being too wet and messy. Keep pounding until you have added all of the almonds and chiles.

Gently grind in the tomatoes. After they are thoroughly mixed, stir in the vinegar and olive oil with a spoon. Serve with gnocchi, pasta, cooked string beans or bread.



**Check with class about allergies before using nuts or substitute toasted pumpkin seeds for almonds*



Thai Curry



Objective Students will be able to make a spicy chile paste and then a Thai style curry dish.

Background Thai Curry is one of those foods that make you feel blessed to have a mouth, nose and tongue with which to enjoy your food. The mortar and pestle releases all of its complex flavors. You can use either fresh green chiles or red chiles. Make the paste as spicy as you wish by controlling the amount of hot peppers you add. The final dish is not as spicy as you might think because of the cooling coconut milk in the curry.

This version substitutes commonly available ingredients for some of the Thai ingredients. If you have access to an Asian market, use traditional ingredients. If you don't have access to an Asian market, substitute ginger, anchovies, lemon zest and lime zest, for the fresh galangal, shrimp paste, lemongrass and kaffir lime leaves, respectively.

If you don't have a separate burner or rice cooker for rice, soak rice noodles in warm water and then add them to the curry at the last minute, simmering for a few minutes until they are soft.

Materials	Large granite or terracotta mortar and pestle	Knives
	Large bowl for veggies	Induction cook top
	Small bowl for curry paste	Wooden spoon
	Peelers	Wok, flat bottom
	Cutting boards	

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Wash all of the vegetables.
- Make sure everyone has washed his her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Set-Up Place the mortar and pestle at the end of the table with a folded up kitchen towel under it. Divide the learners so that they are in groups no larger than 10.

Each group will first prepare the ingredients for the curry paste, and then cut up whatever vegetables you are going to cook.

Learners will take turns pounding the sauce while others are preparing the vegetables.

Eating & Evaluation Remind class to wait politely to be served before eating. Have 3 or 4 learners volunteer to help pass out the samples.

From the Garden Any vegetables appropriate for stew will work: zucchini, potatoes, peppers, eggplant (especially small varieties), winter squash, peas and green beans.

Recipe Thai Curry

Ingredients

For the chile paste:

- 1 dried mild red chile plus 1 tablespoon red pepper flakes or 2 spicy green chiles like serrano
- 1" piece of ginger or galangal, peeled and cut into pieces
- 1 clove garlic
- 1 teaspoon sugar
- 1/2 teaspoon salt
- 1 teaspoon coriander seeds
- 1/2 teaspoon whole peppercorns
- 3 anchovies or shrimp paste (optional)
- Zest of 1 lime, or 3 kaffir lime leaves
- Zest of 1/2 lemon, or 2 stalks minced lemongrass

For the curry:

- 1 onion
- 2 lbs vegetables (beans, yams, zucchini, peas, potatoes, sweet peppers or eggplant)
- 1 can of chick peas
- 1 can coconut milk
- 1-2 limes
- Salt or fish sauce
- 1/2 cup cilantro leaves, basil and/or mint

Method

For the chile paste:

Remove the stem and seeds from the whole dried chiles, if using them. Cut the chile up into small pieces. Cut the ginger and garlic into small pieces as well. Learners may use gloves when cutting chiles, or have the instructor cut them ahead of time.

Add the garlic, ginger, salt and sugar to a mortar and pestle. Pound them until they are smooth. Gradually add the rest of the ingredients, pounding after each addition until you have a smooth paste.

For the curry:

Cut the onion, and all of the vegetables into bite sized pieces.

Take the top, creamy layer of the coconut milk and add it to a hot frying pan. Add 1-2 tablespoons of the chile paste and cook for 2 minutes. Add the onions, vegetables and the rest of the coconut milk. Let the vegetables cook, uncovered, for 15 minutes, until soft. Add the chick peas.

Taste the curry and add lime juice and salt or fish sauce to taste. You can also add more curry paste if you want it to be spicier. Stir in the cilantro. Serve over noodles or cooked rice.



Mole Sauce



Objective Learners will be able to identify red chiles and create a mole-style sauce.

Background Mexican sauces rely on ground chiles, spices and seeds to create a rich flavor. This adaptation of the traditional mole sauce can be used with tamales, corn tortillas or in a bean and vegetable stew. Control the level of spice by adding more or less chipotle peppers.

Materials

For each table:
Large marble or granite mortar and pestle for every 10 learners
Cutting boards for vegetables
Knives

For the class:
Spoon to stir sauce
Saucepan
Strainer
Induction cook top

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Soak the chiles and let them cool before class starts.
- Wash all of the vegetables.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do.
Do not have learners read the recipe while cooking.

Set-Up Place the mortar and pestle at the end of the table with a folded up kitchen towel under it.

Divide the learners so that they are in groups no larger than 10.

Each group will first prepare the ingredients for the mole, and then cut up whatever vegetables you are going to cook.

Learners will take turns pounding the sauce while others are preparing the vegetables.

Eating & Evaluation Remind class to wait politely to be served before eating.
Have 3 or 4 learners volunteer to help pass out the samples.

Bring a selection of chiles to class. Use *The Great Chile Book* by Mark Miller to show the class the different kinds of chiles. Try to match the red chile with the green chile.
Which ones grow in your garden?

Mole sauce tastes great with late fall vegetables.
Add mole to a winter squash and black bean stew.

Recipe Mole Sauce

Ingredients

- 6-8 dried red chiles (guajillo, negro, mulato or ancho)
- 2 dried or canned chipotle chiles
- 2 cups water
- 3/4 teaspoon salt
- 2 cloves garlic
- 2 tablespoons raisins
- 1 cake Mexican chocolate (3 oz) or 1 tablespoon cocoa powder
- 4 cloves
- 1/2 onion
- 1/2 stick cinnamon
- 1/2 teaspoon black peppercorns
- 1 1/2 teaspoon cumin seeds
- 1/2 teaspoon oregano
- 1/2 teaspoon thyme
- 1 tablespoon sesame seeds
- 2 tablespoons almonds or pumpkin seeds*
- 3 tablespoons olive oil

**Check with class about allergies before using nuts or substitute toasted pumpkin seeds for almonds.*

Method

Break off the tops of all of the chiles and remove the seeds. Cut them into small pieces. Bring the whole chiles to a boil in the 2 cups of water. Turn off the heat and let them cool. Strain the chiles and save the water.

Chop the garlic, onion, raisins and chocolate into small pieces. Mix together the raisins, cinnamon, peppercorns, cumin, oregano, thyme and sesame seeds. Begin pounding the salt, garlic and almonds in the mortar and pestle. Add some of the chiles, then the spice mixture. Pound the ingredients until thoroughly mashed, and then slowly add more of each until they are all incorporated.

Heat the olive oil in a skillet and add the mole paste. Stir on medium heat and cook the paste slowly, until the flavors release and the paste gets thick. Turn off the heat.

Add the water from the chile soaking and whisk until you have a sauce. Add more water if necessary.

If you wish the sauce to be smoother, pour it through a fine mesh strainer or run through a food mill. Adjust salt to taste.

Note: For a richer flavor, toast the cinnamon, peppercorns, cumin, oregano and seeds in a dry skillet before grinding.

Use as a topping for corn quesadillas or tamales. Make a potato hash with cooked potatoes, chiles, zucchini and mole.



Rolling Pins

INTRODUCTION

Rolling pins are indispensable for making flatbreads, pastries, and pastas. All of these dishes have one thing in common; they need gluten in the form of wheat flour in order to keep them elastic and hold together when cooked. Dough that is cooked with dry heat, like in a frying pan or oven, makes pastry or simple bread. Dough that is cooked with wet heat, like boiling, creates noodles. Whichever cooking method you use, these simple doughs provide a delicious base for fresh produce, herbs and spices.

Rolling pins come in all shapes, each designed for a different dish. Etruscans from the 9th century BC were responsible for the first known rolling pins, long slender rods. They were used to make a dough similar to pasta. American rolling pins are usually wooden and roll around a central spindle. They are used for pies and biscuits. French rolling pins are long and have a taper at the ends. They are used as leverage to make round shapes and thin the centers of the dough. Italian ravioli pins have grooves to press into pasta creating ravioli in sheets. German Springerle pins mark outlines of Christmas cookies. Indian small rolling pins, with a swelling in the mid section, roll out round parathas and chapatis. Marble rolling pins are used for pastries, to keep the dough cool while rolling.



Rolling pins have several advantages in the learner kitchen:

- They provide plenty of activity for busy hands and are appropriate for a wide variety of ages.
- You can make breads in a skillet, using minimal space and energy, rather than an oven.
- They provide hands on busy work for learners so you can have more action and less lecture in a class.
- They provide an opportunity to engage in a repetitive process, building manual skills.
- Use rolling pins to make quick cooking flatbreads.

To make rolling pins for your learners, buy a 48" x 2" dowel and cut it into 12" lengths. Sand the edges and rub them with mineral oil. The short length helps to keep the learners from hitting each other while they are working. Do not bring out the rolling pins until you are ready to start the activity. Otherwise, the learners will be paying attention to their new tools and not to your instructions.

To clean the rolling pins, allow the flour to dry and brush it off. Scrape off any dried dough and rinse briefly in water. Do not allow them to sit in water. Reapply mineral oil as needed.

Fresh Pasta



G2-5



Objective

Learners will understand the proper consistency of pasta dough and be able to make their own fresh pasta.

Background

These quick fresh noodles need only boiling water to prepare. The simplest sauce is some chopped, fresh garlic, herbs and cheese.

If you plan to cook noodles with the tomato sauce (page 107) or a vegetable soup (page 49), follow these steps:

Make the dough

Make the sauce

Roll out or shape the dough

Boil the noodles

Mix everything together

Materials

For each group of 4 learners

4 rolling pins (See page 96 for suggestions)

Mixing bowl for each batch

Fork for each batch

For the class:

Induction cook top

Large pot for boiling water

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Make sure everyone has washed his/her hands.

Set-Up

Each group of learners should have a bowl with 2 cups of flour and 3 whole eggs in it. They should also have a fork and a cup with 2 or 3 tablespoons of water.

Remind class to wait politely to be served before eating.

Have 3 or 4 learners volunteer to help pass out the samples.

Eating & Evaluation

Read the book *From Wheat to Pasta* by Robert Egan.

How is what we did the same as the factory in the book? How is it different?

Pasta is an important part of Italian cooking. See if you can match the pasta shape to a good sauce using the worksheet on page 118.

Recipe Fresh Pasta

Ingredients 2 cups unbleached all-purpose flour*
3 eggs
2 tablespoons olive oil
Extra water, as needed
Salt for the boiling water

*For a more chewy noodle, substitute up to 1 cup semolina flour for the all-purpose flour. The noodles will be more difficult to roll out, so this is best for older learners.

Method Each group of learners should have a bowl with the flour and eggs (whole, not cracked) and a fork. Have the learners crack the eggs into the bowl and start stirring.

Depending on the age of the learners, have them measure the olive oil into the bowl, or have the teacher go to each station and add the olive oil.

After the dough is mixed, have the learners press the dough together to see if it will come into a ball. If it is too dry, add water a spoonful at a time until the dough comes together. Knead it into a ball.

Each station should divide their dough into pieces so that each learner can knead it for 5 minutes, until it is smooth and looks like play dough. It should not be sticky.

Bring all of the small pieces of dough together into one big ball. This will even out the consistencies of the various doughs. Rub it with olive oil, wrap it in plastic wrap and let it sit for 15 minutes. It is ready to be rolled out when the dough has relaxed.

Meanwhile, bring a large pot of water to a boil.

Cut the dough into pieces so that each learner has a piece.

Pat the dough into a round disk. Sprinkle a few tablespoons of flour in front of each learner on the tabletop. Start rolling out the dough. After each pass of the rolling pin, turn the dough over. When you roll out the dough, use enough flour so that the dough will not stick to the counter. You should end up with a piece about as thick as a post card. You should be able to see through the dough.

Sprinkle a thin layer of flour over the top of the dough. Loosely fold it over until you have a flat tube and cut roll into noodles with a sharp knife, following the guidelines on the next page. Scoop up the noodles with your fingers and gently shake them apart.

Cook them in rapidly boiling water, for 2-3 minutes or until they float to the surface and change from translucent gold to opaque ivory.



To make different styles of noodles:

- **Fettucine**—Cut into 1/4 inch strips
- **Linguine**—Cut into 1/8 inch strips
- **Papparadelle**—Cut into 5/8 inch strips
- **Farfalle**—Roll a flat sheet of pasta and then cut into 5/8 inch x 1 inch rectangles and pinch in the middle to form a bow.

If you do not have rolling pins, there are several noodles that you can shape by hand. Don't worry if they are not perfect, but try not to make them more than 1/8" thick.

- **Orecchiette** or "little ears"—Take a piece of dough about as big as the tip of your pinkie finger. Flatten it into a disk and press it against the counter and sort of drag it with your thumb. It makes a little saucer with a dip in the middle. See picture below.
- **Trofie**—Take a small piece of dough about as bit as the tip of your pinkie finger. Roll it into a snake, smash it flat and then twist it. They look like little corkscrews and are good with soup or pesto.
- **Pici**—Long rolled snakes, make sure that they are thin.

Serving suggestions:

Add chopped garden greens, beans or broccoli to the boiling water along with the noodles. Drain and toss with garlic, olive oil and chopped fresh herbs or pesto.

Make the vegetable soup (page 49) with mixed garden produce and add the noodles just before serving.

Serve with the tomato sauce on page 107 tossed with cooked garden vegetables.



Flour Tortillas



Objective Learners will be able to make their own flour tortillas and use a rolling pin.

Background Flour tortillas are a great way to keep hands busy while you are preparing a quick sauce or filling. They can be turned into quesadillas with cooked vegetables, used as scoops for beans or sauces, or filled like a burrito.

Each learner can easily mix their own dough, and then make two tortillas. Or, you can make one large batch of dough if you are short on time and then divide it up to roll out.

If you use fresh ground whole wheat, sift out the large pieces of bran.

Materials **For each batch of dough:**
1 mixing bowl
1 fork
Cup with a few tablespoons of water

For the class:
Induction cook top
Skillet
Spatula



Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.

Set-Up Divide the learners into groups of no more than 8.

If the class is small, each learner can have a small bowl and mix an individual batch of dough. For larger classes, make one batch of dough for eight and then divide to roll out.

Place a bowl filled with flour in the middle of the table so the learners can measure the flour.

Eating & Evaluation Remind class to wait politely to be served before eating.
Have 3 or 4 learners volunteer to help pass out the samples.



Recipe Flour Tortillas

Ingredients

For 8 servings:

1 cup unbleached all-purpose flour
1 cup whole wheat pastry flour, or regular whole wheat flour
4 tablespoons butter, chilled and cut into pieces
Water
1/4 teaspoon salt

For 1 serving:

1/4 cup flour
1 1/2 teaspoons butter
Water
Pinch of salt

Method

Take a cup each of all-purpose and whole wheat flours and add the cold butter cut into pieces. Add a pinch of salt. Break up the butter with your fingers.

Add cold water, a spoonful at a time, until the dough just comes together into a ball. It will be softer than the pasta dough, but not sticky. Don't stir it too much or the tortillas will get tough. Press it into a ball and let it sit for a few minutes to relax.

To make the tortillas, take a bit of dough the size of a golf ball and roll it out on a floured surface. Make sure to keep adding a bit of flour so the dough won't stick. Roll it out fairly thin. Do all of the tortillas the same way.

Heat a skillet on medium-high heat until it is hot. Add a tortilla and cook it on the dry pan until there are little brown spots on one side and it is bubbly. Flip it over and cook it on the other side. Put in on a plate and do all the other tortillas the same way. Stack them on top of each other to keep them warm.

Serving suggestions:

Turn the tortillas into quesadillas with refried beans and serve with garden salsa from the Sensory Education, page 25.

Make a quick filling with garden produce like diced winter squash, potatoes, chiles, zucchini, onions and herbs. Add chile powder, garlic and salt for seasoning. Serve wrapped like a burrito with a small amount of grated cheese.

Spread with cream cheese and add slices of tomato, cucumber, grated carrots and/or radishes for a fresh salad wrap.



Scallion Pancakes

 G1-5



Objective Learners will be able to make scallion pancakes and be able to make a complex flatbread using a rolling pin.

Background Scallion pancakes are addicting treats that are fun to make and can adapt to a wide range of ages. If you are having a hard time visualizing the steps, you can check out step-by-step photos at: <https://familystyles.wordpress.com/2009/09/07/my-new-addiction-dangerously-quick-and-easy-scallion-pancakes/>

Materials

For each group:

Cutting board
Knives
Mixing bowl for dough
Fork for mixing
Rolling pins
Brush for oil

For the class:

Induction cook top
Skillet
Knife to cut breads
Serving platter
3-4 small bowls for dipping sauce
Spoons for dipping sauce

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- If you have very young learners, cut the green onions ahead of time.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.
- Divide the learners into groups of no more than 8.

Set-Up

Divide each table into two groups:

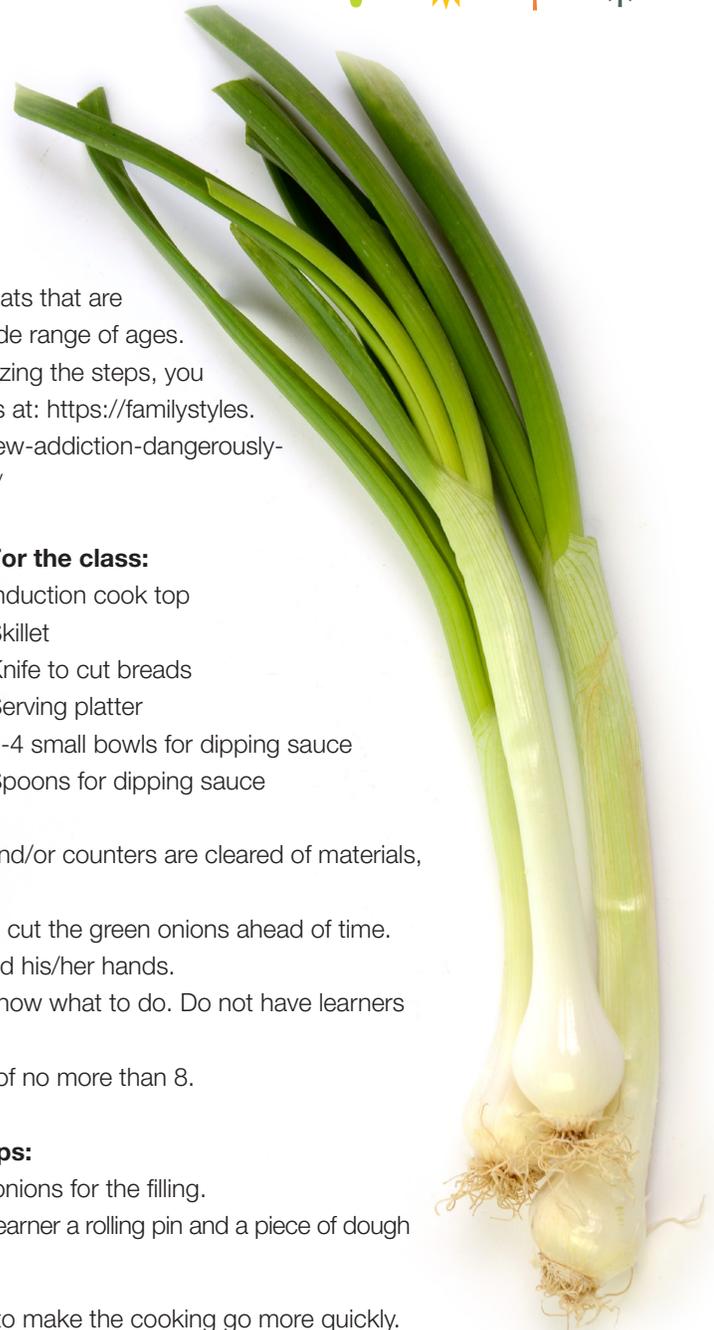
1) make the dough and 2) cut the onions for the filling.
Then clean the table and give each learner a rolling pin and a piece of dough to shape the bread.

Use two burners if you have them to make the cooking go more quickly.

Eating & Evaluation

Remind class to wait politely to be served before eating.
Have 3 or 4 learners volunteer to help pass out the samples.

Read "The Magic Pancakes from the Footbridge Tavern" in *Favorite Children's Stories from China & Tibet* by Lotta Carswell Hume and Koon-Chiu Lo.



Ingredients

2 cups all-purpose unbleached white flour
3/4-1 cup water
1/4 cup toasted sesame oil
Coarse salt
1 bunch green onions (scallions), very finely sliced
Vegetable oil for shallow frying

Dipping Sauce

1/4 cup soy sauce
1/4 cup rice wine vinegar
1 teaspoon toasted sesame oil
1 tablespoon grated fresh ginger

Method

Put the flour in a bowl. Add water until you have a dough that is like play dough or bread dough. The dough should remain soft. Take the dough out of the bowl and knead for 10 minutes, adding more flour if it is too sticky. Form the dough into a ball and put it in a bowl. Cover the bowl with a damp cloth and set aside while you slice the green onions.

Flour your work surface and knead the dough again. Divide the dough into 8 pieces. Roll out the dough until you have a thin circle. Keep turning it over and adding more flour to make sure it doesn't stick. Brush sesame oil over the dough and sprinkle it with the green onions and a little coarse salt. Roll it up so you have a long snake and pinch the edges closed. Now wrap it in a spiral to form a patty. Flatten the patty with the rolling pin and dust it lightly with flour. Make all of the dough this way.

On a floured surface, roll out one patty until you have a 1/4 inch thick round. You may need to dust it with flour.

Cover a 10" to 12" heavy skillet with a thick coating of oil and heat over medium-low heat. When it is hot, put in a patty. Cook it for about 2 minutes. Turn it over and cook the second side the same way for 2 minutes. Now turn back to the first side. Keep doing this until both sides develop reddish-gold spots. Remove with a slotted spatula and place on a plate lined with a paper towel. Add more oil whenever necessary. Serve hot, each scallion pancake cut into wedges.

Mix the ingredients for the dipping sauce together and serve.

From the Garden

Serve with a side of quickly braised Chinese greens like bok choy, mizuna and Gailan (Chinese broccoli).

Use other herbs besides the green onions, such as garlic chives, fennel fronds, cilantro, chives or parsley.

Use grated vegetables in the filling like black radish, zucchini, carrots, parsnips, or winter squash. Make sure to squeeze the water out of the grated vegetables before adding them to the filling.

Stuffed Parathas



Objective Learners will be able to make a stuffed paratha and use a rolling pin to craft a flatbread.

Background Chapatis, puri, parathas and naan are all forms of Indian flatbread. Chapati are similar to tortillas, but without the fat. Puri are fried puffy breads, sometimes stuffed. Parathas are flaky stuffed breads, cooked in a skillet. Naan has yeast and is cooked in a very hot tandoori oven. Parathas are the most flexible for garden cooking classes, since they allow for the use of a variety of garden produce.

Materials

For each group:

Cutting board
Knives
Mixing bowl for dough
Fork for mixing
Rolling pins
Brush for oil

For the class:

Induction cook top
Skillet
Knife to cut up breads
Serving platter
3-4 small bowls for chutney or sauce
Spoons for chutney or sauce

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.
- Divide the learners into groups of no more than 8.

Set-Up

Each group should cut up or prepare the filling first, before mixing the dough.

Then clean the table and give each learner a rolling pin and a piece of dough to shape the bread.

When the learners have finished cutting the filling ingredients, the instructor can cook them while they are making the dough.

Use two burners if you have them to make the cooking go more quickly.

Eating and Evaluation

Remind class to wait politely to be served before eating.

Have 3 or 4 learners volunteer to help pass out the samples.

Read the book *Everybody Bakes Bread* by Norah Dooley.

Ingredients

For the parathas:

1 cup whole wheat flour
1 cup unbleached white flour
1/2 teaspoon salt
 plus some more for sprinkling
2 tablespoons butter, chilled
Water

For the filling:

2 tablespoons butter or oil
1 1/2 tablespoons grated fresh ginger
1 1/2 cups finely chopped or
 coarsely shredded vegetables
 (cauliflower, potatoes, carrots, onions,
 or kohlrabi)
1 teaspoon garam masala*
1/8 teaspoon cayenne pepper
3/4 teaspoon salt

**Garam masala is a North Indian spice mixture available in spice stores and natural food markets. It contains cardamom, black pepper, cumin, nutmeg, cinnamon, coriander and cloves. You can make your own in a spice or coffee grinder.*

Method

Mix together the flours, salt and butter. Add enough water to make a dough that just comes together into a ball. It should be softer than pasta dough, but not sticky. Knead for 1-2 minutes. While the dough is resting, make the filling.

For the filling, heat the butter in a large frying pan. Add the ginger and vegetables and stir-fry for about 5 minutes. Add the garam masala, cayenne pepper and salt, stir well and take the pan off the heat. Divide the filling into 8 portions and set aside to cool.

Divide the dough into eight balls. Roll the balls out on a floured surface until they are 3 1/2 inches in diameter. Place a heaping teaspoon of stuffing in the middle. Gather the edges of the dough around the filling, and twist it slightly to form a closed ball. Flatten the ball, sprinkle with flour and roll out on a floured board until you have a 6-inch round.

Place the paratha on the heated griddle. Let it cook slowly until its underside develops light brown spots. Turn and cook the same way on the other side. Now dribble 1 teaspoon of butter or oil along the edges of the paratha so it goes under it, and 1 teaspoon on top. Turn the paratha over again and cook for about a minute. In all, the paratha should cook about 5 minutes and not remain raw inside. Do all the paratha the same way, stacking them one on top of the other in the same piece of foil.

From the Garden

Parathas can be filled with almost any combination of vegetables. They should be grated or finely chopped and cooked before using as a filling. If the filling is watery, squeeze it over a strainer to remove the water before using or else your paratha will become soggy. Use tomatoes, onions, cucumbers and lemon to create a fresh chutney. Or mix together plain yogurt, mint and seeded cucumbers for raita to go with the parathas.

Food Mills and Strainers

INTRODUCTION

Modern sauces rely on flour or cream to make them thick and so strainers are not as important today as they used to be. However, these modern sauces are not as nutritious as those that were thickened with nuts, ground vegetables, chiles and bread. Such sauces were the basis of Medieval cooking, where a mortar and pestle and strainer were necessary tools for all good cooks. Create simple, rich tasting sauces by cooking ingredients until they are very soft and then straining them or putting them through a food mill.

Sieves, food mills and food strainers all help to simplify cooking sauces and condiments.

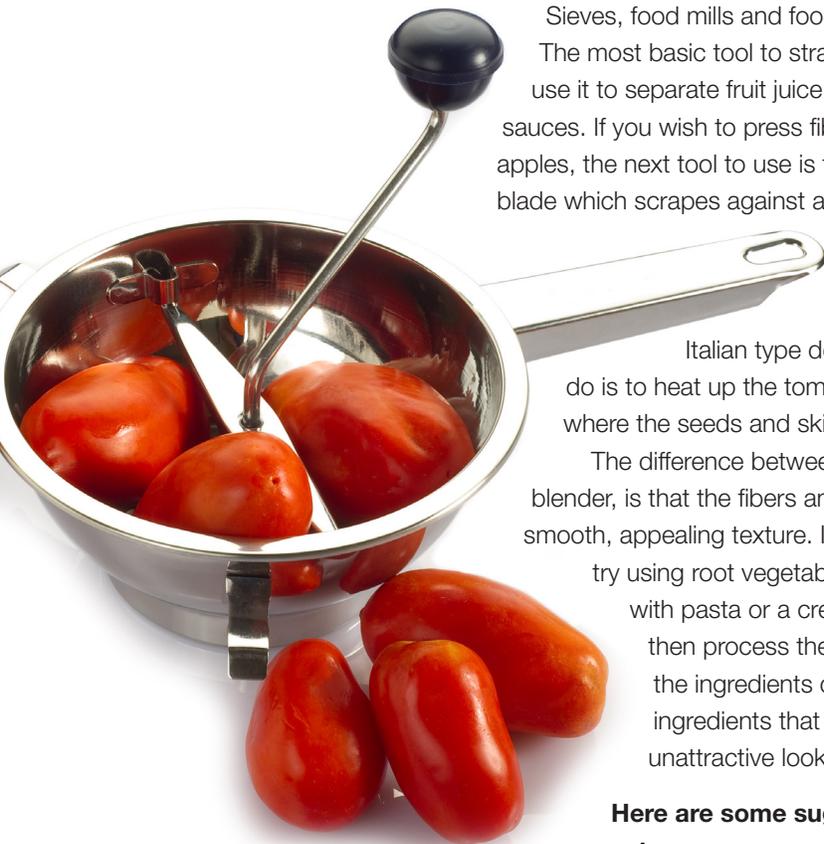
The most basic tool to strain unwanted material from a sauce is a wire mesh sieve. You can use it to separate fruit juice from seeds, remove chile skins from sauces, and lumps from sauces. If you wish to press fibers from starchy vegetables, or remove peels from apples, the next tool to use is the food mill. The food mill sits on top of a bowl or pot and has a blade which scrapes against a colander, leaving the seeds, peels and fiber in the mill, while the smooth pulp or sauce trickles through. For processing large amounts of fruit, such as apples, tomatoes, plums or cherries, you can use a food strainer. The most common type is the

Italian type designed to process tomatoes into tomato sauce. All you need to do is to heat up the tomatoes or other fruit and then crank it through the food strainer, where the seeds and skins will be separated from the juice and tomato pulp.

The difference between using a food mill or food strainer and a food processor or blender, is that the fibers and seeds will be strained out of your final sauce, creating a smooth, appealing texture. If you want to experiment with more produce-based sauces, try using root vegetables, onions, garlic, and dried beans as the base for sauces with pasta or a cream soup. Cook them first in broth or water until very soft, and then process them. One incidental benefit for use with young learners, is that the ingredients do not need to be very well chopped. Make sure you combine ingredients that have a similar color so that you do not end up with a gray or unattractive looking sauce.

Here are some suggestions for combinations that would make a great soup or sauce:

- Red chiles, winter squash, carrots, onions, garlic and salt
- Tomatillos, green chiles, onions, potatoes, zucchini and salt
- Carrots, yams, oranges, herbs, onions, garlic, lemon and salt
- Sunchokes, potatoes, leeks, onions, herbs and salt
- White navy, cannellini or butter beans, garlic, herbs, lemon and salt



Tomato Sauce



G2-5



Objective Learners will understand how to transform a raw tomato into a tomato sauce.

Background There are two ways to make tomato sauce. You can blanch the tomatoes, peel them, remove the seeds, chop them and then sauté them with garlic in olive oil. This results in a chunky sauce that is fairly thick but it is a lot of work. Or you can put whole tomatoes into a large pot and cook them until they are soft, about 15 minutes. Then run them through a food strainer. This results in a smooth sauce that is fairly watery unless you add vegetables or cook it for a long time.

Materials	For each group:	For the class:
	Bowls for diced vegetables	Two containers to catch tomato pulp and seeds
	Cutting boards	Large bowl for cooked tomatoes
	Knives	Food strainer or food mill
		Induction cook top
		Large pot with lid
		Wooden spoon for stirring
		Serving platter

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Set up the food strainer and clamp it to a table. Place one bowl under the conical end and one bowl to catch the pulp.
- To save time, the instructor can cook the tomatoes before class and put them in a large bowl to cool.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.
- Divide the learners into groups of no more than 8.

Set-Up Place the vegetables in the middle of the table.

If necessary, peel the onions and cut the larger vegetables in half for the learners.

Give each learner a knife and cutting board.

Eating & Evaluation Remind class to wait politely to be served before eating.

Have 3 or 4 learners volunteer to help pass out the samples.

Have the learners take apart the food strainer. **Ask the following questions:**

- How does it work?
- If you wanted to add a motor to it, what would it do?
- If you did not have this machine, how would you make the tomato sauce?

Recipe Tomato Sauce

Ingredients 5-6 lbs fresh tomatoes
1 bulb garlic
2-3 onions
1-2 lbs mixed vegetables (carrots, zucchini, peppers, eggplant, celery, or fennel)
1/2 cup fresh parsley and/or basil
1/4 cup mixed fresh herbs (thyme, rosemary, sage, oregano)
3 tablespoons olive oil
Salt

Method Take all of the tomatoes and put them in a large pot with 1" of water on the bottom. Bring them to a boil, and let them cook for 15 minutes, until they are soft. Turn off the heat and let them cool. Run them through a food strainer or food mill to separate the peels and seeds from the pulp. Save the pulp for the sauce. Save the tomato skins and seeds for the compost pile.

Meanwhile, chop up all the vegetables into small pieces. If you have older learners, this is a good opportunity to introduce chopping with a larger knife. If you have very young learners or limited time, chop all of the vegetables in a food processor.

Mince the parsley, basil and other herbs.

Heat the olive oil in a large pot. Add the vegetables and cook on medium high heat until they are soft. Stir in the tomato pulp and herbs. Let the sauce cook for 5-10 minutes and add salt to taste.



Apple Sauce



Objective Learners will be able to transform raw apples into applesauce and season it to their preference.

Background There are two ways to make applesauce. You can peel and core the apples, then cut them up and cook them for 15 minutes until soft. Or, cut the whole apples into quarters, cook them until soft and then run them through a food strainer to remove the seeds and peels. If you are using an apple with a dark red skin, like a Jonathan, your applesauce will be a lovely pink color.

Materials

For each group:

- Bowls for apples
- Cutting boards
- Knives

For the class:

- Two containers to catch apple pulp and seeds
- Large bowl for cooked apples
- Food strainer or food mill
- Induction cook top
- Large pot with lid
- Wooden spoon for stirring
- Serving bowl

Preparation

- Make sure all of the desktops and/or counters are cleared of materials, cleaned, and sanitized.
- Set up the food strainer and clamp it to a table. Place one bowl under the conical end and one bowl to catch the pulp.
- Make sure everyone has washed his/her hands.
- Review the recipe so learners know what to do. Do not have learners read the recipe while cooking.
- Divide the learners into groups of no more than 8.

Set-Up Place the apples in the middle of the table. If necessary, peel the apples and cut them in half for the learners. Give each learner a knife and cutting board.

Eating & Evaluation Remind class to wait politely to be served before eating. Have 3 or 4 learners volunteer to help pass out the samples.

While the apples are cooking, have the learners take apart the food strainer.

Ask the following questions:

- How does it work?
- If you wanted to add a motor to it, what would it do?
- If you did not have this machine, how would you make the applesauce?

You can also have the learners draw the machine in their notebooks.



Recipe Apple Sauce

Ingredients 10 lbs tart apples* such as Gravenstein, Jonathan, Jonagold or Macintosh
Juice of 1/2 lemon (optional)
1/2 – 1 cup sugar
1 1/2 teaspoon cinnamon
1/2 teaspoon cloves
1 teaspoon allspice

Method Cut the apples into large pieces. You do not need to peel them or remove the seeds. For young learners, cut the apples in half first, and make sure they are lying flat on the cutting boards.

Place the apple pieces in a large pot, along with 1 cup of water. Cover tightly. Turn the heat on to medium high and let the apples cook for 15-20 minutes, until soft and thoroughly cooked.

Put the apples through a food mill or food strainer to remove the skins and seeds. Add the spices and taste the applesauce. If it does not have enough flavor, add some sugar and/or lemon juice.

*If the apples are not tart, add lemon juice to taste.



Cooking Supplies

FOR TASTING CLASSES WITH NO HEAT

QTY UTENSIL	QTY CLEANING SUPPLIES
1 Bread knife	2 Brushes, vegetables
1 Chef's knife	2 Brushes, dishes
1 Steak knife	4 Cloths
16 Paring knives	1 Spray sanitizer
1 Butter knife	1 Dish soap
24 Flexible cutting boards	1 Dish gloves, pair
1 Colander	2 Wipes, Clorox
2 Plastic bowls	1 Garbage can
2 Large metal bowls	1 Compost container
2 Medium metal bowls	2 Paper towel, rolls
4 Small metal bowls	
4 Plastic platters	DISPOSABLES
2 Wooden spoons	Paper towels
4 Box graters	Paper plates, small
1 Large tongs	Plastic forks
6 Vegetable peelers	Plastic spoons
2 Serrated peelers	Napkins
2 Julienne peelers	
1 Kitchen shears	STAPLES
2 Serving spoons	Salt
2 Plastic dish tubs	Pepper
1 Can opener	Olive oil
2 Mortar and pestles, large	Cider vinegar
1 Metal strainer	Sugar or honey

FOR FULL RANGE OF COOKING CLASSES (RAW PREP AND THE USE OF HEAT)

QTY UTENSIL	QTY CLEANING SUPPLIES
1 Bread knife	2 Brushes, vegetables
1 Chef's knife	2 Brushes, dishes
3 Steak knives	4 Cloths
24 Paring knives	1 Spray sanitizer
3 Butter knives	1 Dish soap
24 Flexible cutting boards	1 Dish gloves, pair
1 Colander	2 Wipes, Clorox
2 Plastic bowls	1 Garbage can
2 Large metal bowls	1 Compost container
2 Medium metal bowls	2 Paper towel, rolls
4 Small metal bowls	
4 Plastic platters	EQUIPMENT
2 Wooden spoons	2 Induction cook tops
4 Box graters	1 Flat bottom steel wok
2 Large tongs	1 Large frying pan*
6 Vegetable peelers	1 5 qt pot*
2 Serrated peelers	1 1 qt pot*
2 Julienne peelers	2 Extension cord
1 Kitchen shears	Cart/storage bins
2 Serving spoons	1 Grain mill
2 Plastic dish tubs	1 Molino
1 Can opener	1 Food mill/strainer
2 Mortar and pestles, large	
1 Metal strainer	DISPOSABLES
2 Liquid measuring cups	Paper towels
2 Dry measuring cup sets	Paper plates, small
2 Measuring spoon sets	Plastic forks
1 Mesh skimmer	Plastic spoons
1 Potato ricer	Napkins
2 Whisks	Plastic bowls
1 Soup ladle	
2 Metal or plastic spatula	STAPLES
2 Cooking spoon	Salt
16 Rolling pins†	Pepper
	Olive oil
	Cider vinegar
	Sugar or honey

Suggestions based on class size of 24

†Make rolling pins from 1 1/2" dowels, cut into 1 foot lengths, sanded at the ends.

*Make sure all pots and pans will work with induction burners

Teacher Resources

SUPPLIES AND EQUIPMENT

We have found the following supplies and equipment to work well in a school setting. Here are some recommended sources.

Food Mill <http://www.oxo.com/p-476-food-mill.aspx>

Gourmet Sleuth has unusual cooking supplies and ingredients, including a Mexican molino for preparing masa as well as a selection of mortars and pestles. <http://store.gourmetsleuth.com> and for the grinder: <http://www.gourmetsleuth.com/shop/detail/corn-masa-grinder-molino-2>

Induction burners: We recommend using portable inductions burners for all cooking because of their increase in safety and energy conservation.

Penzeys Spices carries spices and spice mixes from all over the world. Order in the shop or online. <http://www.penzeys.com/>

Savory Spice carries spices and spice mixes from all over the world. Order in the shop or online. <http://www.savoryspiceshop.com/>

Sur La Table has food mills, mortars and pestles and rolling pins. <http://www.surlatable.com>

Thai granite large mortar and pestle <http://importfood.com/mortarpestle.html>

Victorio Model 250 Food Strainer is the best foodmill type of device for tomatoes and applesauce. <http://victorio.info/food-strainer.html>

You can also try the Roma Food Strainer

WonderMill Junior hand grain mill <http://www.thewondermill.com>

Cast iron griddle pan <https://www.lodgemfg.com/griddles-and-grill-pans/10-5-inch-cast-iron-griddle.asp>

World of Starches

Match the grain to its origin



Amaranth

Arrowroot

Barley

Buckwheat

Chestnut

Chickpeas

Common Millet

Corn

Durum wheat

Emmer

Farro

Gram Beans

Kamut

Lentils

Mesquite

Oats

Pearl Millet

Potatoes

Quinoa

Rice

Rye

Sorghum

Soy Beans

Spelt

Sweet Potato

Tapioca

Taro

Yam

Yucca

Wheat

Wild Rice

Which Starch?

Place the starch in its category

Grains

Nuts

Legumes

Tubers

Amaranth

Arrowroot

Barley

Buckwheat

Chestnut

Chickpeas

Common Millet

Corn

Durum wheat

Emmer

Farro

Gram Beans

Kamut

Lentils

Mesquite

Oats

Pearl Millet

Potatoes

Quinoa

Rice

Rye

Sorghum

Soy Beans

Spelt

Sweet Potato

Tapioca

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Yucca

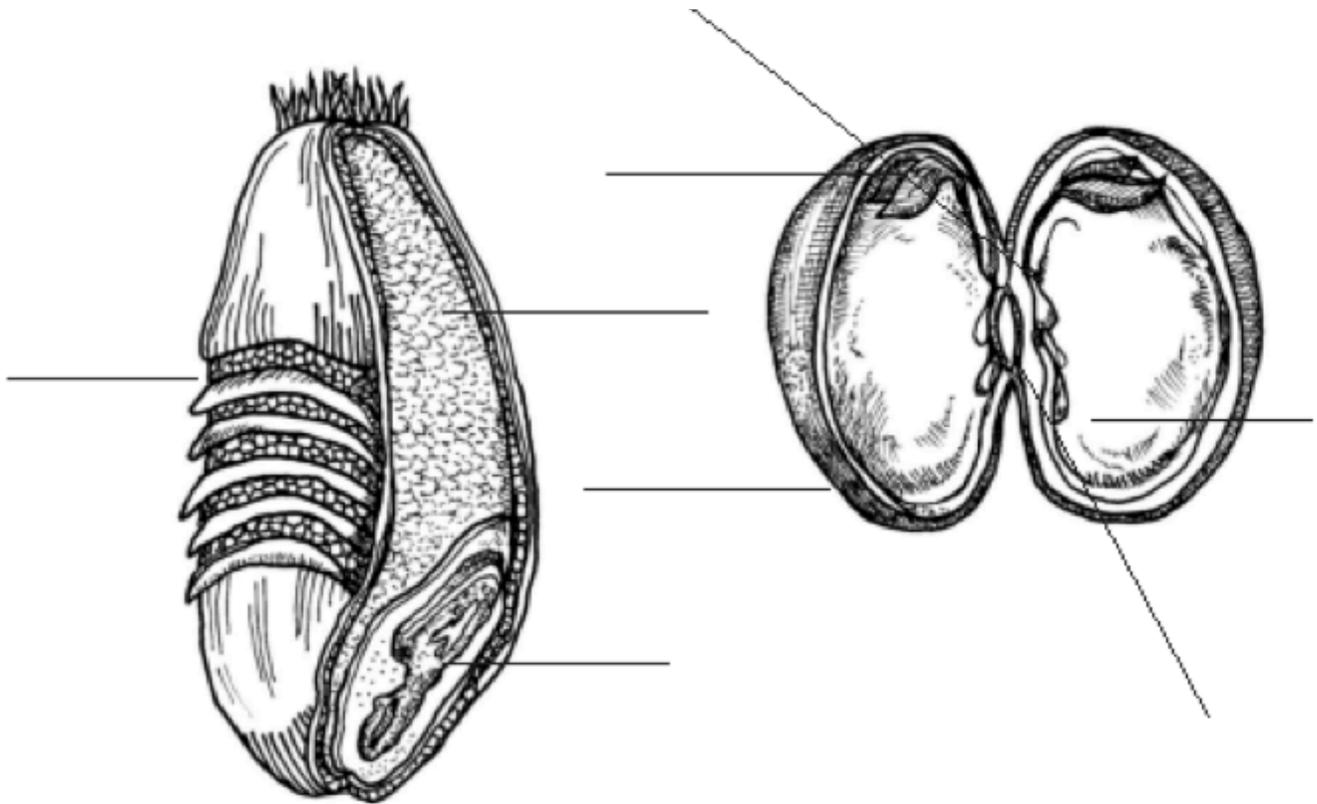
Wheat

Wild Rice

Seed Words

Grain Seed

Bean Seed



Seed Coat—the outside coating that protects the seed.

Endosperm—the part that contains flour and food for the seed.

Bean—the exterior layers of a grain that protects the seed and provides fiber.

Germ—the part of the grain that contains the embryo plant and nutrients.

Radicle—the root.

Kernel—a single grain.

Cotyledon—the part of the seed that contains food for plant growth.

Hilum—the scar on the seed coat that shows where the seed was connected to the plant.

Embryo—baby plant.

Corn

Zea mays

ILLUSTRATIONS: Barbara Feige



Dent, flour and sweet corn



Ear of corn with silk



Corn kernels



Corn germination

Corn

Zea mays

Part of Plant Fruit

Plant Family Grasses/Poaceae

Languages **Spanish** *elote (fresh) or maiz (flour)* **Italian** *granoturco* **French** *maïs*

Origin Mexico

Planting Plant outside after the soil is warm. In dry areas, plant in trenches or waffle gardens. Mulching helps preserve moisture. Make sure to plant at least 3 rows to ensure pollination. The tassel holds the pollen that fertilizes the kernels. Each piece of silk takes pollen to one kernel.

Cultivation Tips Best varieties for school gardens are dent or flour because they are ready for harvest in the fall. Try Hopi Blue, Hopi Pink or Oaxacan dent.

Harvest Sweet corn is usually harvested in July. Dry corn is ready in late September, before the first frost. Make sure kernels are completely dry before storing, they should come easily off the cob.

History Corn originates from Oaxaca, Mexico where there are still hundreds of varieties. The origins are obscure, but it is thought to have originated from the wild grass teosinte. Native Mexicans developed the process of nixtamalization (soaking dry corn in water with lime) in order to soften the pedicels and make masa, or corn flour. Masa allows humans to absorb the vitamin B in corn; in other areas of the world that rely on corn people often get vitamin B deficiencies, or pellagra (“ugly skin”).

Uses Fresh corn can be eaten whole, or used in salads and soups. Dried corn ground as masa is the basis for numerous Central American dishes such as tamales, tortillas, sopes, gorditas, pupusas, arepas and huaraches. Corn and beans provide the foundation of many traditional Native American and Mexican diets.

Pasta Shapes

Match the pasta to a sauce

In Italy there are hundreds of pasta shapes. Each one is made to go with a specific sauce. Look at the different shapes of pasta on the worksheet. What kinds of pasta do you think will go best with each type of dish? Think about why your choices will work. Write a type of noodle under each sauce on the worksheet.

Cream Sauce needs a pasta that is long and flat in order to stick to the noodles but not too much.

Heavy Meat Sauce needs a pasta that will hold its shape and has places to grab onto the sauce.

Light Marinara Sauce needs a thin noodle or shape that will hold the sauce but not be too heavy.

Pasta Salad needs a pasta that will hold its shape in the salad and stand up to other ingredients.

Soup needs a small pasta that won't break apart.

Bowties—Medium sized pasta that holds its shape

Ditalini—Small round pasta that is good with broth

Fettucine—Long flat noodles used in creamy sauces

Gemelli—Medium sized loose twists

Spirals—Thick corkscrew pasta that holds its shape

Orecchiette—Thick round disks that hold chunky sauce

Penne—Medium sized tubes that hold sauce

Spaghetti—Round long noodles for light sauces

Shells—Medium sized pasta that holds sauce

Stars—Very small pasta that tastes good in brothy soup

Trofie—Hand made twists

Wheels—Medium sized pasta with holes.

Pasta Shapes Worksheet

Match the pasta to a sauce

Heavy Meat Sauce

Light Marinara Sauce

Pasta Salad

Soup

Cream Sauce



Wheels—Ruote



Stars—Stelline



Spaghetti



Spirals—Rotini



Fettuccine



Gemelli



Penne



Trofie



Bowties—Farfalle



Shells—Conchiglie



Orecchiette



Ditalini

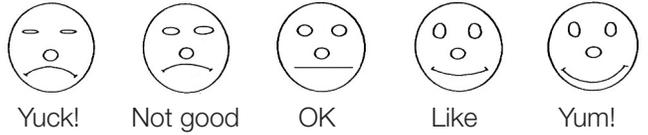
Tasting Worksheet

Name of food you are tasting _____

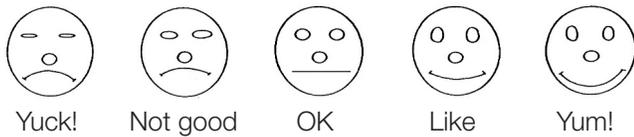
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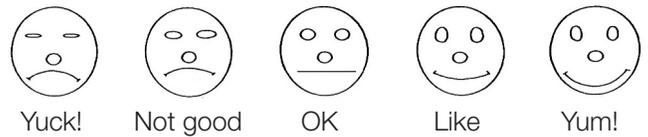
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Type _____



Journal

Name of activity _____

What did you do today? *First... Second... Third...*

Favorite Verbs

Name _____ Date _____ Location _____

Journal

Name of plant or food _____

What do you see today? *I notice... I wonder... That reminds me of...*

Favorite Nouns

Name _____ Date _____ Location _____