

Using a Pizza to Bring Agriculture into the Classroom

From Garden...To Table

by Liz Purdy and Gale Smaith



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Summer Institute for Educators 2010

This document is the result of the author's participation in the BC Agriculture in the Classroom Foundation's Summer Institute for Educators in 2010. This third year level course in curriculum design is offered every other year through the University of British Columbia's Faculty of Education's Office of External Programs.

In the summer of 2010 the Foundation partnered with the Teachers of Home Economics Specialist Association – THESA – and the Office of External Programs to make the Summer Institute a part of the Home Economics Education Diploma Program. This program consisted of 10 three credit courses that closely examined the Home Economics Curriculum IRP's and explored creative ways to address the learning outcomes.

Participants (30 educators from a variety of secondary disciplines and from many regions of the province) were based at the BC Ministry of Agriculture and Lands Abbotsford Agriculture Centre in Abbotsford, BC. As a result of visits to local farms and through intensive classroom work they developed a number of teaching strategies drawn from the agricultural, environmental, economic and nutritional concepts featured in the IRP's.

Participants taking the course for credit created teaching modules such as this to share with other educators around the province.

The BC Agriculture in the Classroom Foundation is supported by the BC Ministry of Agriculture and Lands as well as the agricultural community. Participants were sponsored for their farm tours as well as their meals (prepared by our Summer Institute chef using fresh and delicious local products).

Visit the BC Agriculture in the Classroom website at www.aitc.ca/bc for further information on this and our many other exciting programs or to order additional resources for your classroom.

Thank you for bringing agriculture to your classroom. We hope that you too will find it a great teaching tool to enhance your lessons.

www.aitc.ca/bc

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Using a Pizza to Bring Agriculture into the Classroom

Resource Synopsis

Since students are always so excited to make pizza, it provides an ideal “hook” to introduce students to the food system and where our food comes from. This is a series of activities that may be used together or individually revolving around the ingredients in a pizza. It includes planting a pizza garden and several recipes for making a pizza with local ingredients and other teaching activities for using a pizza to explore agriculture.

Target Audience

- Middle and Junior Grades

The Goals Of These Activities

- for students to understand where their food comes from and what foods are produced in British Columbia
- for students to grow some of the food they eat
- for students to prepare a pizza using as many ingredients produced locally as possible

Outline of This Resource

1. Pizza – from Farm to Plate - teaching activities related to a pizza that explore where food is produced and processed in B
2. Make a Pizza Garden – directions for planting vegetables and herbs that can be used in making pizza either in a container or in a garden plot
3. Celebrate with Pizza – recipes for making different variations of pizza
 - Make a pizza with a tortilla and fresh tomatoes
 - Make a fresh pizza sauce
 - Make a pizza with a pita and home made pizza sauce
 - Make a pizza with a yeast bread crust
4. Possible Extension Activities
5. References

Activity 1

Pizza – from Farm to Plate

Materials Required:

- chart paper and markers
- copies of Fish and Food in BC Poster Size Map (order free from BC Agriculture in the Classroom (BCAIRC), <http://www.aitc.ca/bc/index.php?page=resource-order-form>)
- copies of Grow BC (also order from BCAIRC or download free http://www.aitc.ca/bc/index.php?page=bcs_agriculture)
- computer with internet access

Procedure

- a) What Am I? Use the following “What Am I?” to have students guess what the topic of the day is.
- My name comes from a word that means flat bread
 - In the beginning only starving peasants put tomatoes on me because most people thought tomatoes were poisonous
 - I usually have the three colours of the Italian flag (red, green, and white) because that was what was used in a special one of me made for a Queen in 1889
 - The average Canadian eats approximately 12 kilograms of me per year
- b) Create a mind map tracing pizza ingredients to the source
- Present a picture of a pizza or a pizza box and ask students in small groups to create a mind map on chart paper with the word PIZZA in the middle and the name of the ingredients all around the edges (e.g., crust, tomato sauce, cheese, toppings)
 - Have them to break each ingredient down further to its parts, e.g., crust – flour, vegetable oil, yeast; tomato sauce – tomatoes, herbs; cheese – mozzarella, cheddar, feta; toppings – salami, pepperoni, ground beef, green peppers, mushrooms, etc.)
 - Continue this process until you get to the agricultural product (e.g., flour – wheat; pepperoni – pigs/hogs; cheese – milk - cows). Summarize: Most of the ingredients in a pizza started out on a farm
- c) Can we make a pizza using only ingredients made in BC?
- Provide students in groups with the Agriculture, Fish and Food in BC Poster Size Map (order free from BC Agriculture in the Classroom, <http://www.aitc.ca/bc/index.php?page=resource-order-form>) or make copies of the map on page 9 of Grow BC, a resource book that has information on almost all BC Agricultural products (It can be downloaded free from BCAIRC, http://www.aitc.ca/bc/index.php?page=bcs_agriculture). Have the students highlight all the ingredients on the pizza that could be from BC. Have students design a BC pizza

d) Tracing the pizza ingredients from Farm to Plate

- Assign small groups of the students an ingredient in the BC pizza. Give them chart paper with the headings below to trace the ingredient from. Use the information about each of the commodities from Grow BC or use the information on BC Farm Products from A to Z on the BC Ministry of Agriculture and Lands website, <http://www.agf.gov.bc.ca/aboutind/products/> (scroll down to the list of food products from BC farms) as a reference. Flour is provided as an example

Name of Ingredient	Beginning Farm Product	Where Grown in BC?	What happens at the Farm?	How is the food processed and packaged?	Where could you purchase this ingredient?	What happens to this ingredient to become part of a pizza?
Crust – flour	wheat	Peace River, North Okanagan, Creston, Kootenays, Vanderhoof, Lower Mainland	Seeds are planted in the fall. The wheat is harvested in July and August. A combine machine separates the seeds from the chaff and straw. The seeds are transported to a grain elevator and eventually sold.	The wheat is purchased and it is transported to a flour mill. In BC, there are mills in Armstrong, the Lower Mainland and on Vancouver Island. At the mill it is cleaned, conditioned ground into flour, packaged in paper bags and then transported to retail stores.	Grocery Store, Natural Food Store	It gets mixed with yeast, water, sugar and oil to make a dough that becomes the crust.

Suggested Ingredients – canola (oil), tomatoes, green pepper, mushrooms, broccoli, eggplant, herbs (basil, oregano, parsley), onions, bacon, sausage, pepperoni, salami, ground beef

Activity 2

Make a Pizza Garden

[note: most of the ingredients in a pizza garden need to be planted in the spring, grown over the summer and harvested in the fall]

Preplanning and preparation:

- decide what type of garden – container or in ground.
 - a) Container gardening is ideal for growing in smaller spaces, or if you do not have access to land outside. Gather or purchase or build containers. Purchase potting soil. [Wheelbarrow or other containers with wheels are handy as you can move them to sunny spots and if there is danger of vandalism you can move them indoors or into a protected area in the evening.]
 - b) In ground is good if you have a location in the school yard, or a community garden within walking distance of the school. You might consider making a pizza shaped bed in your in ground garden and divide it into wedge-shaped sections and plant your vegetables and herbs in the different sections. Make sure you select a location that gets 6 to 8 hours of sunlight. Determine the location and prepare the soil. As soon as the frost is out of the ground and the soil is dry enough turn the soil, remove weeds, and break apart large clumps. Consider how the garden will be maintained over the school summer holiday.
- decide whether to start with seeds or with seedling plants. Seedling plants can be started indoors in the classroom in small containers (e.g., yogurt containers or milk cartons) as early as February or March. Purchased nursery plants often will grow faster and you should be able to harvest herbs after about three weeks, tomatoes and peppers after 12 weeks.

Materials Required:

- Seeds or seedlings of vegetables that you might include on a pizza: tomatoes (Roma), green pepper, onions
- Seeds or seedlings of herbs that are usually used in making a pizza: sweet basil, oregano, parsley
- For container gardens - Containers, soil, trowels and watering can
- For in ground gardens – Shovels, hoes, rakes, forks, trowels, watering can or sprinkling system

Procedure

- a) Start seedlings in the classroom:
 - Fill small containers with potting soil and plant seeds the depth suggested on the seed packet. Place in a sunny window or under a grow lamp or in a greenhouse if your school has one. Water regularly

[note: Seeds started indoors need to be introduced slowly to the climate outdoors. This process is known as hardening off. After the seedlings produce their first leaves place them outside in a sheltered area for a few hours a day. Bring them indoors at night. Each day leave them out a bit longer. After about a week put them in the sun during the day but keep bringing them in at night. Then leave them outside day and night for about a week. They are then ready to plant in the garden.]

- b) Planting garden:

- Once the danger of frost is past, begin the growing season
- Plant following directions on seed packet or on nursery tags, then water deeply
- If desired, mulch around plants to keep moisture in and weeds out

- c) Caring for garden:

- Check the soil daily; if it's dry, water
- For container gardens. fertilize every two weeks with a diluted solution of 20-20-20 or organic fertilizer
- Clip basil and oregano to keep them bushy
- Train tomato vines up a teepee, lattice or stakes, pinching off the weakest shoots
- Weed regularly

- d) Preparing the garden for winter

- In the fall, pull up the annuals (tomatoes, basil) and dig in the mulch
- Plant garlic

Activity 3

Celebrate with Pizza

Nothing makes a project more fun than when you get to eat the end result. Here are four recipes for you to choose from.

- Make a pizza with a tortilla and fresh tomatoes
- Make a pizza sauce
- Make a pizza with a pita and home made pizza sauce
- Make a pizza with a yeast bread crust

Make A Pizza With A Tortilla And Fresh Tomatoes

Yield: 2-3 servings

Ingredients:

- 1 10" whole wheat flour tortilla
- 1 large or 2 medium tomatoes
- 250 ml/1 c. mozzarella cheese, grated
- 3 - 4 leaves fresh basil (chopped)
- 3 - 4 leaves fresh oregano (chopped)
- 3 - 4 leaves fresh parsley (chopped)
- 10 ml/2tsp. olive oil 2 tsp.
- Salt, Pepper, and Garlic powder, to taste
- (optional – thinly sliced green pepper, onions or mushrooms)

Directions

1. Preheat oven to 425° F.
2. Place the tortilla on a baking sheet.
3. Slice tomatoes as thin as possible and place in a single layer on top of the tortilla (if using green pepper, onions or mushrooms, place them in a single layer on top)
4. Sprinkle the grated mozzarella cheese on top of the tomato slices.

5. Sprinkle the chopped herbs over the top.
6. Drizzle olive oil evenly over the entire pizza.
7. Season with salt, pepper and a dash of garlic powder.
8. Bake for 10 to 15 minutes until cheese is bubbly.

TIP You can experiment with other cheeses and other vegetable ingredients

Make A Fresh Pizza Sauce

yields 125 mL (1/2 c.)

Ingredients:

- 15 mL /1 Tbsp. olive oil
- 10 mL/2 tsp. garlic
- 250 mL /1 c. ripe tomatoes
- 50 mL/1/4 c. fresh basil
- 15 mL /1 Tbsp. fresh oregano

Directions:

1. Mince garlic, basil, and oregano and put each into a separate custard cup.
2. Dice tomatoes.
3. Heat the olive oil in a heavy saucepan on medium-high heat.
4. Add the garlic and cook for 1 to 2 minutes, stirring constantly with wooden spoon. Do not allow the garlic to brown.
5. Add the tomatoes, basil, and oregano and bring to a boil.
6. Reduce the heat to medium-low and simmer, stirring occasionally, until most of the liquid cooks out. Cooking time will depend on the juiciness of the tomatoes.
7. When there is still some liquid left in the pan, carefully puree the sauce using a blender.
8. Put blended sauce back into the saucepan and bring it back to a boil, then reduce heat to medium-low and continue simmering until desired consistency.
9. Turn off heat and let the sauce cool. If not using immediately put in a container and refrigerate.

TIP Blending will break down the skin of the tomatoes. If making larger amounts you may want to blanch the tomatoes and remove the skin.

Make A Pita Pizza With Home Made Fresh Pizza Sauce

Yield: two servings

Ingredients:

- 2 whole wheat pitas
- 125 mL / 1/2 c. fresh pizza sauce (or herb and spices tomato sauce)
- 125 mL / 1/2 c. mozzarella cheese
- 2-3 (50mL / 1/4 c. each) additional toppings

(e.g., green pepper, red pepper, mushrooms, onion, pineapple, chorizo sausage, black forest ham, artichokes, olives, hot peppers, broccoli, etc.)

Equipment

Measuring spoons, dry measuring cups, custard cups, small mixing bowl, rubber spatula, metal spatula, rubber spatula, spoon, grater, chef's knife, cutting board, cookie sheet, oven mitts, 2 tea towels, 2 dish cloths, dish rack, pizza cutter, cooling rack

Directions:

1. Preheat oven to 375 F.
2. Put both pitas onto cookie sheet.
3. Spread tomato sauce onto pitas with a rubber spatula.
4. Grate mozzarella cheese onto cutting board and put into a small mixing bowl.
5. Chop additional toppings into bite sized pieces with Chef's Knife on cutting board.
6. Spread toppings out onto pitas.
7. Top pitas with grated cheese.
8. Bake for 10-15 minutes or until cheese is melted and pita is slightly darker in colour.
9. Cool for 5 minutes on a cooling rack.
10. Use pizza cutter to cut pitas into quarters.
11. Place onto plate and serve immediately.

Make A Pizza With A Yeast Bread Crust

Yield: small pizza (2-3 servings)

Ingredients:

Crust:

- 60 ml / 1/4 c. warm water
- 2 ml / 1/2 tsp. sugar
- 5 ml / 1 tsp. yeast*
- 30 ml / 2 Tbsp. vegetable oil
- 2 ml / 1/2 tsp. salt
- 50 ml / 1/4 c. whole wheat flour
- 180 ml / 3/4 c. all purpose flour

Sauce:

- 60 ml / 1/4 c. fresh tomato sauce

[or used canned tomato sauce and season with basil, oregano, garlic powder and parsley flakes]

Cheese:

- 125 ml / 1/2 c. grated mozzarella cheese
- 25 ml / 2 Tbsp. grated cheddar

Toppings:

- 2-3 (50mL / 1/4 c. each) toppings

(e.g., green pepper, red pepper, mushrooms, onion, pineapple, chorizo sausage, black forest ham, artichokes, olives, hot peppers, broccoli, etc.)

* either quick rising or traditional yeast. Both work well in this recipe.

Directions:

1. Preheat oven to 400°F.
2. Make the crust: mix warm water, sugar and yeast in a small mixing bowl and let stand until foamy; add vegetable oil, salt and whole wheat flour and mix well; add all purpose flour gradually until a soft dough forms; place on floured board and knead until smooth (about 5 minutes).
3. Prepare the sauce, cheese and toppings.
4. Grease a cookie sheet or pie pan. Place dough in the centre and press out into a circle shape. Add sauce, cheese and toppings.
5. Bake for 20 minutes or until crust is golden brown and cheese in the center is bubbly.

Other Activities and Extensions

1. If you plan a pizza garden with tomatoes, you might consider joining the Tomatosphere Project. Information about the project is on BC Agriculture in the Classroom website, and at: <http://www.tomatosphere.org/>

In this project students have the opportunity to grow tomatoes from two sets of seeds that are supplied by the project. The students compare the growth of the two sets of seeds and report the results. This project is sponsored by Agriculture and Agri-Food Canada, the Canadian Space Agency, Heinz Canada Ltd, HeinzSeed, Ontario Centres of Excellence, Stokes Seeds and the University of Guelph.

2. Consider taking a real or virtual field trip to where ingredients in the pizza are produced.
 - a) Real Field Trips – BC Agriculture in the Classroom has a listing of farms in the various regions of BC at: http://www.aitc.ca/bc/index.php?page=farm_tours
 - b) Virtual Field Trips

There is a link to several virtual tours on the BC Agriculture in the Classroom website, <http://www.aitc.ca/bc/index.php?page=virtual-tours>, for example:

- http://www.bcgreenhouse.ca/virtual_tour.htm - BC Greenhouse Growers' Association to see how tomatoes and green peppers are grown
- a free download of a dairy farm tour produced by the Province of BC Ministry of Agriculture and Lands titled Milk from the Farm to You
- <http://www.farmissues.com/virtualTour/> - beef cattle and pig farm tours produced by the Ontario Farm Animal Council -

3. Read or have the class read the Tale of Two Tomatoes - http://www.sectionz.info/ISSUE_3/. Then have them write the "Tale of Two ____ (name of another ingredient), comparing locally produced to imported.

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