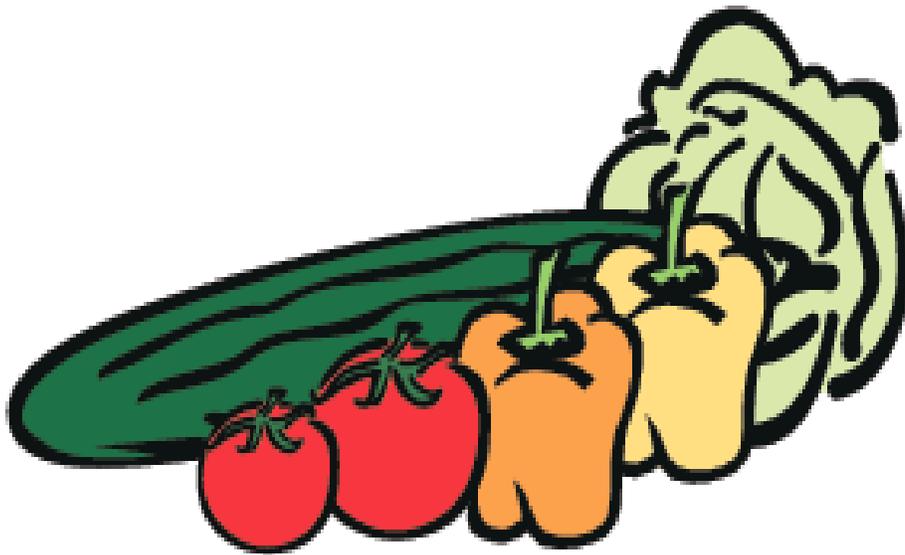


Hot House Foods
(A Unit for Food Studies)



Debra Schmidt – Summer Institute 2009

Modified by Gale Smith

(Image: BC Greenhouse Growers' Association, *Meet Your Greenhouse Veggies.*)

UNIT OUTLINE – HOT HOUSE FOODS

The lessons in this unit are designed to introduce student in Foods and Nutrition courses to the vegetables grown commercially in greenhouses in BC.

Lesson 1 - A Stroll Through the Greenhouse

An on-line scavenger hunt explores the greenhouse industry in BC.

Lesson 2 - Pick a Peck of Peppers (and Tomatoes)

A taste test of the variety of peppers and tomatoes grown commercially in greenhouses in BC and an exploration of the phytochemicals associated with the colour of the vegetables.

Lesson 3 – Dip, Dip, Away - Greenhouse Veggies make Great Snacks (Salsa, Tzatziki)

Recipes for two snacks that feature vegetables grown commercially in greenhouses in BC.

Lesson 4 – Get Stuffed Cold– Stuffed Mini Tomatoes

Recipes for two appetizers that features mini tomatoes grown commercially in greenhouses in BC

Lesson 5 – Get Stuffed Hot – Stuffed Peppers & Tomatoes

Create a recipe for a main dish that features vegetables grown commercially in greenhouses in BC

Lesson 6 – What makes Greenhouse Growing a Hot

Making the distinction between a greenhouse and greenhouse gases, researching the issues that face greenhouse growers; exploring the possibility for a school greenhouse.

Lesson 1

A Stroll Through the Greenhouse – A Web Based Scavenger Hunt

LEARNING OUTCOMES FROM BC MINISTRY OF EDUCATION IRP

It is expected that students will:

D1 describe a variety of food marketing techniques

D2 identify factors that affect food production and supply, especially in Canada today

E1 describe food-related occupations and careers

TIME REQUIRED

1 Class

MATERIALS / EQUIPMENT

Online Scavenger Hunt – note taking sheet

Computers with Internet access

Post-it notes

PROCEDURE

a) Accessing prior information and introducing greenhouse growing

In a think pair share ask students to list all the ways and places food plants are grown in BC. Discuss the different places they have listed and allow them to add to their lists.

Then direct students to classify their lists

- underline all those that require land directly (i.e., greenhouses and rooftop gardens require land but the plants are not grown in the ground);
- circle ones that don't necessarily require soil (i.e., some greenhouses that start seedlings for sale require potting soil but the large commercial greenhouses that grow food and the plants stay inside and are grown hydroponically);
- put a star beside those that could be organic (i.e., most outdoor gardens could be organic and greenhouses with soil could be organic but greenhouses that grown hydroponically use chemical nutrients so even though they seldom use pesticides preferring instead Integrated Pest Management they can never refer to their products as organic)

Review responses/questions together as class and announce that the focus for today will be on greenhouse growing.

b) Student Activity – A Stroll Through the Greenhouse Scavenger Hunt

Have students work in partners. Direct one person to go to the BC Greenhouse Growers' Association's website and the other to the BC Hot House Website. They will each collect information under the following headings (5 W's and H): What Crops are Grown in Greenhouses in BC; Where are Crops Grown in Green Houses in BC; Why are Crops Grown in Greenhouses in BC; When are Crops Grown in Greenhouses in BC; Who is involved in Growing Vegetables (careers in Growing Vegetables in Greenhouses in BC); and How are Crops Grown in Greenhouses in BC (growing medium, nutrition, pollination, integrated pest management)

Once students have collected their information the partners will get together, share and compare information and create mind map on chart paper with all their information [refer to rubric for criteria].

c) Closure – Exit Slip

Students write one new thing that they learned about BC Hot House growing practices on post-it note and place on wall

ASSESSMENT STRATEGIES

Refer to rubric for mid map.

EXTENSIONS

Students track green house vegetable consumption for a 24 hour period.

REFERENCES

BC Ministry of Agriculture

http://www.agf.gov.bc.ca/aboutind/products/plant/grnh_veg.htm

A Stroll Through the Greenhouse Scavenger Hunt
Note Taking Sheet

What Crops are Grown in Greenhouses in BC

Where are Crops Grown in Greenhouses in BC

Why are Crops Grown in Greenhouses in BC

When are Crops Grown in Greenhouses in BC

Who is involved in Growing Vegetables (careers in Growing Vegetables in Greenhouses in BC)?

How are Crops Grown in Greenhouses in BC (growing medium, nutrition, pollination, integrated pest management)

Rubric for Mind Map

CRITERIA	PERFORMANCE INDICATORS (Observable descriptors indicating extent to which a criterion is met.)			
	Level 1	Level 2	Level 3	Level 4
Central Image	Present but difficult to separate from other information	Present but not clearly related to key idea	Clear use of picture or image that relates to key idea	Image stands out and grasps the key idea
Ideas radiate out from central image and from most to least complex	Some ideas are connected to and radiate out from center Some confusion in moving from most to least complex	All ideas radiate out from center Still some confusion in moving from most to least complex	Ideas clearly connect to central image and ideas Generally moves from most to least complex	Ideas clearly connect to central image and ideas Consistently and accurately shift from most to least complex
Depth of coverage	Bare minimum of content covered	Shows a basic level of coverage of key ideas only	Shows a solid grasp of most of the content	Shows a solid grasp of all the content covered
Ideas have key images	A little evidence of key images. Has only a few keywords	Images and keywords are evident, but either too few or some are imprecise	Images and key words clearly show an understanding and elaboration of the content	Images and key words clearly and dynamically show an understanding and elaboration of the content.
Colour or codes or links used to illustrate connections between concepts	A little use of colour, codes or links to illustrate connections between concepts	Obvious attempt is made to use colour, codes or links to enhance clarity and memory. Still some inconsistency of application	Clearly uses colour, codes, or links to clarify connections and to assist with remembering key ideas for most aspects of Mind Map	Effectively uses colour, codes, or links to meaningfully clarify connections for all aspects of Mind Map

Lesson 2

Pick a Peck of Peppers (and Tomatoes)

LEARNING OUTCOMES FROM BC MINISTRY OF EDUCATION IRP

It is expected that students will:

C1 demonstrate an understanding of nutrients and their relationship to healthy living

TIME REQUIRED

1 Class

MATERIALS / EQUIPMENT

Green, yellow, orange and red peppers cut into small bit sized pieces for taste testing.

Different types of tomatoes cut into small bit sized pieced for a taste test (e.g., Beefsteak, Campari, Cherry, Tomatoes-on-the-vine, Roma, Mini Roma and Heirloom).

Class set of **WHAT'S BENEATH THE SKIN - BLINDFOLD TASTE TESTING Record Sheet**

Tea Towels for blindfolds

Class set of **WHAT'S BENEATH THE SKIN – COLOUR ANALYSIS Record Sheet**

Make one copy of each of the **COLOUR INFORMATION SHEETS** (you may consider enlarging)

PROCEDURE

a) Introduction

Review Lesson 1 – e.g., “what vegetables are grown commercially in greenhouses in BC?” [Ans. Peppers, tomatoes, cucumber and lettuce] Which of these vegetables are the fruit of the plant? [Ans. Peppers, tomatoes and cucumbers] Why are cucumbers seedless? [because they are not pollinated] What vegetable starts off green and then changes colour based on the variety? [peppers] What colours do they change to? [red, orange, yellow, purple]

b) Student Activity - WHAT'S BENEATH THE SKIN - BLINDFOLD TASTE TESTING

Students brainstorm the types of words to describe smell, taste, and texture.

Have students work in pairs. Distribute the peppers and tomatoes for tasting and the **WHAT'S BENEATH THE SKIN - BLINDFOLD TASTE TESTING Record Sheet**

In partners, one will be blindfolded and the other will be the recorder.

Students are given worksheets to record their reactions to the different peppers that they taste

Students taste yellow, orange, red and green peppers grown in greenhouses in BC

Partner records blindfolded student's comments and guess and then samples as well and adds comments to the record sheet.

The students switch so that the recorder is blind folded for the tomato taste test and the procedure repeated.

Have students complete the questions on the Record Sheet and then share their answers in a class discussion.

Ask by a show of hands "which peppers were preferred and which tomatoes were preferred?"

c) Student Activity - WHAT'S BENEATH THE SKIN - COLOUR ANALYSIS

Explain to students that recent research has revealed that in addition to vitamins and minerals there are natural compounds found in plants called phytochemicals that appear to be potent disease fighters due to their health promoting actions in the body. They are linked to the colour of the fruit or vegetable.

Have two pairs join to form a group of 4 for a jigsaw activity. Explain that each student will become the expert on one of the colours of the vegetables they have sampled – green, yellow/orange, red – and one will become an expert on blue/purple because there are purple peppers and tomatoes. In 4 corners of the room you have placed a copy of the colour information. Direct students to go to their corner to learn about their colour and one wedge on their handout as follows:

Leave the circle in the center blank.

In the next ring write the name of the colour.

In the third ring write the name of the phytochemicals.

In the fourth ring write the health benefits.

In the fifth ring write examples of fruits and vegetables for this colour.

After a certain length of time have students return to their groups and teach each what they know about their colour so that other members of the group can complete the WHAT'S BENEATH THE SKIN – COLOUR ANALYSIS WHEEL.

Since they did not sample and fruit or vegetable that was white/tan. Complete that section of the handout together with the class, either as an example at the beginning or at the end of the jigsaw activity.

To conclude the activity have the groups create a slogan to go in the center of the WHAT'S BENEATH THE SKIN – COLOUR ANALYSIS WHEEL.

d) Closure

Students share the slogans they created to remember to eat vegetables and fruits of a variety of colours.

ASSESSMENT STRATEGIES

Collect handouts for completion marks.

EXTENSIONS

The students practice the tongue twister Peter Piper and see who could say it the best:

Peter Piper picked a peck of pickled peppers;
A peck of pickled peppers Peter Piper picked;
If Peter Piper picked a peck of pickled peppers,
Where's the peck of pickled peppers Peter Piper picked?

For homework have students find out “what is a peck”. [A peck is a measure of capacity for dry goods, equal to a quarter of a bushel, equivalent to 8 US quarts or 8.81 liters in metric measures.]

Have students list all the fruits and vegetables they ate for a specific length of time and then categorize according to colour then make a plan to include the colours that are missing from their diet.

REFERENCES

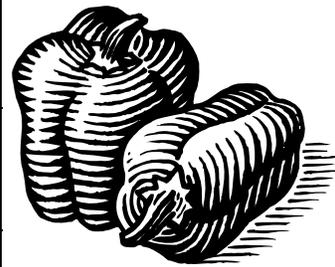
- Canadian Cancer Society - <http://www.5to10aday.com/>
- Heart and Stroke Foundation – www2.heartandstroke.ca
- <http://www.sunkist.com/5aday/colors/>

WHAT'S BENEATH THE SKIN - BLINDFOLD TASTE TESTING

Work in pairs. One will be the blindfolded taste tester and the other the recorder. Once the blindfold is in place the recorder will select a colour to give to the blindfolded taste tester and record the descriptive words the taster used to describe the flavor and texture. Then the recorder will also sample and add additional describing words to the chart.

Sweet Bells

	Flavour	Colour
Pepper # 1		Guess: What it really is:
Pepper #2		Guess: What it really is:
Pepper #3		Guess: What it really is:
Pepper # 4		Guess: What it really is:



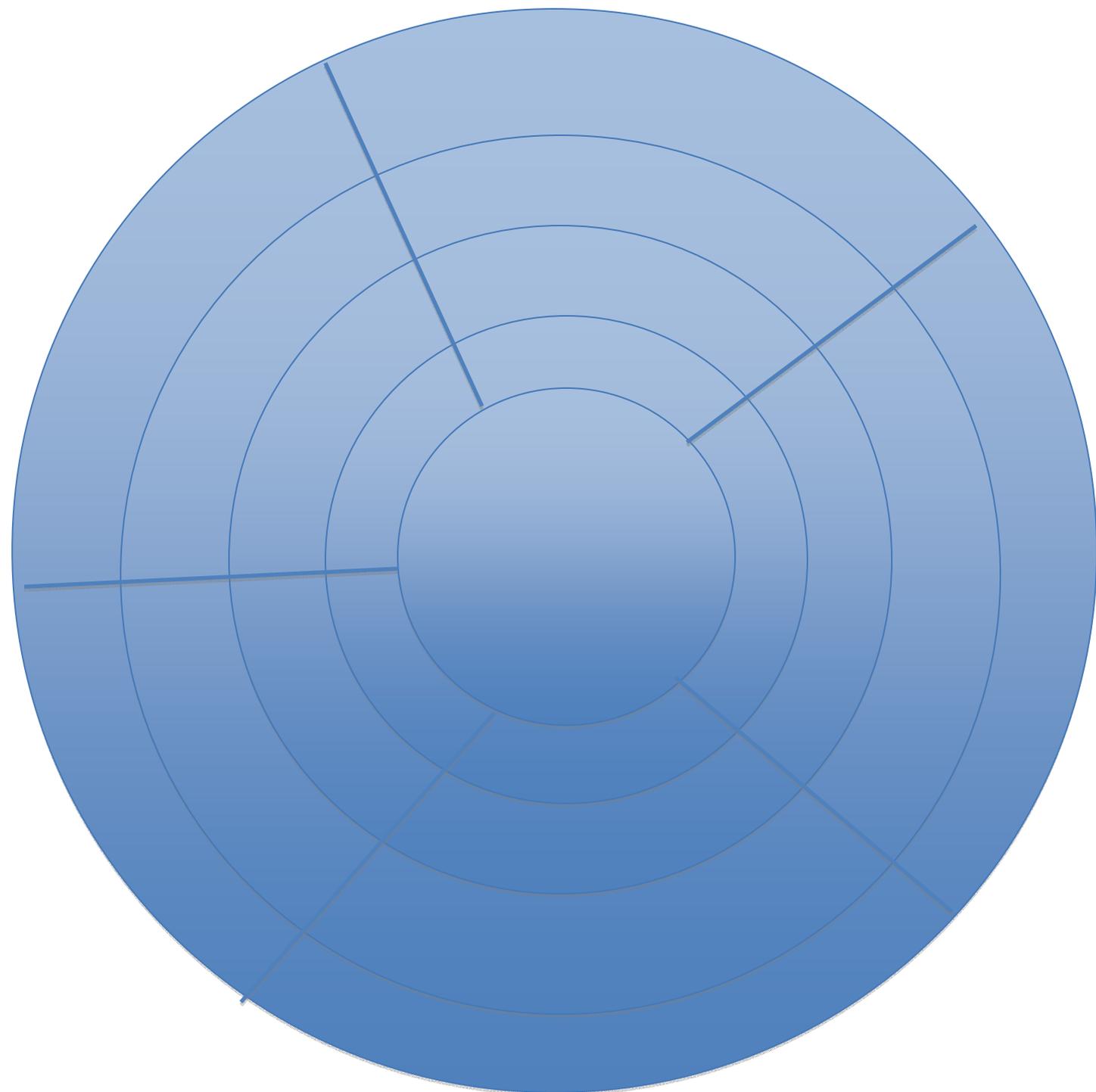
Switch Roles for the tomato taste test.

Pomme d'amore, or "apple of love"

	Flavour	Colour
Tomato # 1		Guess: What it really is:
Tomato #2		Guess: What it really is:
Tomato #3		Guess: What it really is:
Tomato # 4		Guess: What it really is:

WHAT'S BENEATH THE SKIN - COLOUR ANALYSIS

Fill in the wheel as directed



Red

RED fruits and vegetables are colored by natural plant pigments called *anthocyanins* and *lycopene*. *Anthocyanins* protect cells from damage and *lycopene* protects us from some diseases.

Include **RED fruits and vegetables** in your diet to help maintain:

- A healthy heart
- Memory function
- A lower risk of some cancers
- Urinary tract health

Some **RED vegetables** to try are: tomatoes, radicchio, red peppers, red cabbage, beets, radishes.

Some **RED fruits** to try are: strawberries, cherries, cranberries, raspberries, red apples, watermelon, rhubarb

ORANGE/YELLOW

Natural plant pigments called carotenoids and flavonoids usually color ORANGE/YELLOW fruits and vegetables. They increase bodily health in many different ways. Orange/Yellow fruits and vegetables also contain *folate*, a water-soluble B Vitamin that occurs naturally in food. Folate helps produce and maintain new cells and is especially important during pregnancy.

Include ORANGE/YELLOW fruits and vegetables in your diet to help maintain:

- A healthy heart
- Vision health
- A healthy immune system
- A lower risk of some cancers

Some ORANGE/YELLOW vegetables to try are: pumpkin, yellow pepper, orange pepper, carrots, winter squash, yellow summer squash, yellow potatoes, corn, yellow tomatoes

Some ORANGE/YELLOW fruits to try are: golden kiwi, apricots, mango, cantaloupe, grapefruit, papaya, peaches, oranges, pineapples, lemons, tangerines

GREEN

GREEN fruits and vegetables are colored by a natural plant pigment called *chlorophyll*. Some members of the green group, including dark leafy greens, green peppers, peas, cucumber and celery, contain *lutein*. Lutein works with another chemicals to help keep eyes healthy. Leafy greens also contain *folate* that helps reduce risk of birth defects. The *indoles* in broccoli, cauliflower, cabbage may help protect against some types of cancer.

Include **GREEN fruits and vegetables** in your diet to help maintain:

- A lower risk of some cancers
- Vision health
- Strong bones and teeth

Some **GREEN vegetables** to try are: asparagus, arugula, artichokes, broccoli, kale, collard greens, Chinese vegetables (e.g., bok choy), green peppers, green beans, lettuce, cucumbers, spinach, zucchini, green cabbage, herbs

Some **GREEN fruits** to try are: honeydew melon, green grapes, green grapes, kiwi, limes, pears, avocado.

BLUE/PURPLE

BLUE/PURPLE fruits and vegetables are colored by natural plant pigments called *anthocyanins* that protect cells from damage. And they are high in the class of chemical compounds called *phenolics* that protect us from some diseases.

Include **BLUE/PURPLE** in your diet to help maintain:

- A lower risk of some cancers
- Urinary tract health
- Memory function
- Healthy aging

Some **BLUE/PURPLE vegetables** to try are: eggplant, purple potatoes, and purple peppers.

Some **BLUE/PURPLE fruits** to try are: blackberries, blueberries, plums, grapes

WHITE/TAN

WHITE/TAN fruits and vegetables contain allicin, a photochemical that can help control cholesterol and its anti-bacterial properties help fight infections.

Include **WHITE/TAN** in your diet to help maintain:

- Heart health
- Cholesterol levels that are already healthy
- A lower risk of some cancers

Some **WHITE/TAN** vegetables to try are:
cauliflower, garlic, mushroom, onions, ginger,
parsnips, potatoes, shallots, turnips, jicama,
kohlrabi, white corn

Some **WHITE/TAN** fruits to try are: bananas, brown pears, white peaches, white nectarines

Lesson 3

Dip, Dip, Away - Greenhouse Veggies make Great Snacks (Salsa, Tzatziki)

LEARNING OUTCOMES FROM BC MINISTRY OF EDUCATION IRP

It is expected that students will:

A3 demonstrate the ability to accurately evaluate and follow a recipe using appropriate equipment and measuring techniques

A4 identify various types of equipment used for food preparation

A5 demonstrate organization and cooperation in partner and group work, including integration of planning skills

B2 use a variety of cooking methods to prepare food

C4 compare recipes to identify the healthier choice

D3 Describe the cultural origins of menus, recipes, ingredients, and meal etiquette of a variety of ethnic, regional, and local cuisines, as represented in Canada

TIME REQUIRED

1 Class

MATERIALS / EQUIPMENT

Ingredients for the recipes selected [Note: the Tzatziki is best made with Greek yogurt. If you are using regular yogurt then it should be strained in advance of the class to removed some of the liquid.]

Tortilla Chips for sampling the Salsa and Pita Bread for sampling the Tzatziki

Organize the ingredients in the usual manner for a foods lab.

PROCEDURE

a) Introduction

Use the following “Who Am I?” questions to see if students can guess the products they are going to make today:

Salsa

Some reports say I now am more popular than ketchup.

There is a form of dancing named after me.

In Spanish my name means sauce

Tzatziki

I am one of the few foods with two “z’s” in my name.

Variations of me have been around for 3000 years.

I am often used on grilled meats, especially lamb.

b) Cooking Lab – Fresh Salsa and Tzatziki

Organize your units so that each unit has two groups. Have one group make the Fresh Salsa Recipe and the other group make Tzatziki.

Have students set the table for sampling, sharing the two dips.

ASSESSMENT STRATEGIES

Regular Lab Evaluation Procedure

EXTENSIONS

Video – BC Agriculture in the Classroom “Food for Thought: Agriculture and Sustainability in the Lower Mainland” **“Put Your Money Where Your Mouth Is”** segment uses Salsa to explore the food system and food marketing.

FRESH SALSA

90 mL	1/3 cup	sweet onions, chopped
1/2		Jalapeno pepper, seeds removed, minced*
1		clove garlic, pressed or minced
250 mL	1 cup	tomatoes, chopped
180 mL	¾ cup	mixed red, orange, green bell peppers, chopped
25 mL	1 ½ Tbsp.	fresh cilantro, finely chopped
15 ml	1 Tbsp.	lime juice

1. Wash and prepare all ingredients. Place in a mixing bowl and mix well. Serve with a variety of tortilla chips.

* Warning – be very careful handling hot peppers. Use gloves if possible and do not touch any sensitive areas especially be careful to no touch or rub eyes.

TZATZIKI

250 mL	1 cup	Plain Greek yogurt
1/3	1/3	BC Green House cucumber, shredded and squeezed dry
1	1	Garlic clove, minced
5 mL	1 tsp.	Fresh mint or dill, chopped
2 mL	½ tsp.	Olive oil
1 ml	¼ tsp.	Vinegar
Pinch		Sugar
		Salt & Pepper

1. Prepare all ingredients. Place in a mixing bowl and mix well. Serve with pita bread that has been cut into wedges.

Lesson 4

Get Stuffed Cold– Stuffed Mini Tomatoes

LEARNING OUTCOMES FROM BC MINISTRY OF EDUCATION IRP

It is expected that students will:

A3 demonstrate the ability to accurately evaluate and follow a recipe using appropriate equipment and measuring techniques

A4 identify various types of equipment used for food preparation

A5 demonstrate organization and cooperation in partner and group work, including integration of planning skills

B2 use a variety of cooking methods to prepare food

C4 compare recipes to identify the healthier choice

D3 Describe the cultural origins of menus, recipes, ingredients, and meal etiquette of a variety of ethnic, regional, and local cuisines, as represented in Canada

TIME REQUIRED

1 Class

MATERIALS / EQUIPMENT

Ingredients for the recipes selected

PROCEDURE

a) Introduction

Ask, “What is a hors d'oeuvre”? [Ans. An appetizer served before a meal. Literally means outside the main. Food served to stimulate the appetite. Sometimes referred to as a starter.]

b) Demonstration

Teacher demonstrates the key steps in the recipe:

- How to properly hard cook an egg –

Place cold eggs in a single layer in a saucepan. Cover with at least 1 inch (2.5 cm) cold water over top of the eggs. Cover saucepan and bring quickly to a boil over a high heat. Immediately remove pan from heat to stop boiling. Let eggs stand in water for 18 to 23 minutes. Drain water and immediately run cold water over eggs until cooled. (BC Egg Marketing Board)

- Cutting a small portion off the bottoms of each tomato so they will sit on a plate without rolling

- How to use a melon baller to remove the pulp from the inside of the tomato

- Alternate ways to fill the tomatoes – using a spoon, using a piping bag, putting filling in a plastic bag and cutting off a corner

b) Cooking Lab – Stuffed Mini Tomatoes

Organize your units so that each unit has two groups. Have one group make the Devilled Tomatoes Recipe and the other group make Corn Stuffed Tomatoes.

Have students set the table for sampling, sharing the appetizers (at least one each).

ASSESSMENT STRATEGIES

Regular Lab Evaluation Procedure

EXTENSIONS

Students could research other appetizer recipes or salads that use BC Hot House ingredients and plan a sampling buffet lab.

Devilled Tomatoes

1	1	Hard cooked egg, peeled
50 ml	¼ cu.	Grated mozzarella cheese
10 ml	2 tsp.	Sour cream or Mayonnaise
1 ml	¼ tsp.	Dijon mustard
1 ml	¼ tsp.	Vinegar
5 ml	1 tsp.	Fresh parsley, minced
		Salt & Pepper
4-8	4-8	Mini BC tomatoes (Cherry, Campari, or Mini Romas)

1. Wash tomatoes. Cut a small portion off the bottoms of each tomato so they will sit on a try without rolling. Slice off the tops of each tomatoes and scoop out centers with the small end of a melon scope to make a hollow yet sturdy shell.

2. Hard cook the egg then peel and mash the egg with a fork in a small mixing bowl. Add rest of the ingredients and mix well.

3. Place a spoonful of egg mixture in each tomato. Garnish with additional parsley or a sprinkle of paprika.

Corn Stuffed Tomatoes

4-8	4-8	Mini BC tomatoes (Cherry, Campari, or Mini Romas)
50 mL	1/4 cup	Grated Monterey Jack cheese
50 mL	¼ cup	Whole kernel corn (fresh or frozen)
50 mL	¼ cup	Cream Cheese, softened
1	1	Green onion, chopped fine (reserve some of the green portion for a garnish)
1 mL	¼ tsp.	Chili Powder

1. Wash tomatoes. Cut a small portion off the bottoms of each tomato so they will sit on a try without rolling. Slice off the tops of each tomatoes and scoop out centers with the small end of a melon scope to make a hollow yet sturdy shell.

2. Cream the creamed cheese in a small mixing bowl. Add the rest of the ingredients and mix well.

3. Place a spoonful of creamed mixture in each tomato. Garnish with green onion.

Lesson 5

Get Stuffed Hot – Stuffed Tomatoes or Peppers

LEARNING OUTCOMES FROM BC MINISTRY OF EDUCATION IRP

It is expected that students will:

A3 demonstrate the ability to accurately evaluate and follow a recipe using appropriate equipment and measuring techniques

A4 identify various types of equipment used for food preparation

A5 demonstrate organization and cooperation in partner and group work, including integration of planning skills

B2 use a variety of cooking methods to prepare food

C4 compare recipes to identify the healthier choice

D3 Describe the cultural origins of menus, recipes, ingredients, and meal etiquette of a variety of ethnic, regional, and local cuisines, as represented in Canada

TIME REQUIRED

2-3 Classes – one for teacher demonstration and cooking the rice; one for a food preparation lab where students make the recipe they have created. A third class to bake the product if class time is limited in which case the students would follow the recipe steps up to 4 and then refrigerated and bake the next day.

MATERIALS / EQUIPMENT

Copies of the **Create Your Own Recipe for Stuffed Peppers or Tomatoes for 2**

Copies of **Market Order**

Ingredients for the recipes selected

PROCEDURE

- a) **Introduction** – if possible show a selection of pictures of baked stuffed peppers and tomatoes
- b) **Demonstrate** – the whole recipe or techniques of the recipe that are new to students.
- c) **Students create recipe** – within the range of choices on the handout, have students create the recipe they will make
- d) **Students fill in a market order** – and hand in
- e) **Cooking Lab** - Students prepare the recipe following standard lab procedures.

ASSESSMENT STRATEGIES

Regular Lab Evaluation Procedures

Create Your Own Recipe for Stuffed Peppers or Tomatoes for 2

2	2	Large tomatoes (e.g., Beefsteak) or 2 large bell peppers (any colour)
7 mL	1 ½ tsp.	Vegetable oil
125 g	½ cup	Ground beef, chicken, or veggie ground round
30 ml	2 Tbsp.	Finely chopped onion
125 mL	½ cup	Cooked rice (brown or white)
80 mL	1/3 cup	Sauce (tomato sauce, chopped tomatoes and juice, tomato soup, ketchup, or red salsa)
2 mL	½ tsp.	Seasoning (chili powder; taco seasoning; or Italian seasoning)
f.g.	f.g.	Salt & pepper
30 mL	2 Tbsp.	Topping (grated cheese or breadcrumbs)

1. Preheat oven to 375 degrees F (175 degrees C).
2. Prepare tomatoes or peppers.
 - a) for tomatoes - Cut a thin slice off the top of each tomato. Leaving a 1 cm thick shell, scoop out and reserve pulp. Invert tomatoes onto paper towels to drain. [Note: pulp can be added to the filling.]
 - b) for peppers - core and seed green peppers, leaving bottoms intact. Place peppers in a microwavable dish with about 1/2 inch of water in the bottom. Microwave on high for 6 minutes. Then cool in cold water. [or cook peppers in large pot of boiling water for 3-5 minutes. Drain and rinse in cold water]
3. Heat oil in a frying pan and cook the ground meat until it is cooked through. Add onions and sauté until translucent. Add the cooked rice, sauce, seasoning, salt and pepper.
4. Fill the tomatoes or peppers with the mixture. Place upright in a baking pan or shallow casserole dish. Sprinkle tops with topping.
5. Add water to baking dish to a depth of .5 cm. Bake, uncovered for 20 to 25 minutes.

MARKET ORDER

Name(s) _____ Block _____ Date of Lab _____

Food Item being made _____

(order all groceries except for those normally in the unit)

Fruits and Vegetables

Item	Form (fresh, frozen, canned)	Amount
------	------------------------------	--------

Milk, Eggs and Dairy

Item	Amount
------	--------

Meat and alternates

Item	Form (fresh, frozen, canned)	Amount
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Breads, Cereals and Grains

Item	Form (fresh, frozen, readymade)	Amount
------	---------------------------------	--------

Miscellaneous

(e.g., spices)

Item	Amount
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Lesson 6 – What makes Greenhouse Growing a Hot?

LEARNING OUTCOMES FROM BC MINISTRY OF EDUCATION IRP

It is expected that students will:

D2 identify factors that affect food production and supply, especially in Canada today

E1 describe food-related occupations and careers

TIME REQUIRED

1 Class

MATERIALS / EQUIPMENT

Copies of the handout -

PROCEDURE

a) What makes greenhouse growing hot? concept clarification.

Introduce with the question “How many of you think that greenhouses are the cause of greenhouse gases?”

Have students refer to the handout. Ask them to study the diagrams and fill in the first box – what do they already know about the difference between a greenhouse and the greenhouse effect. Then have them complete the second box – what questions or what would they like to know about the difference between greenhouses and the greenhouse effect.

Have students do a think-pair-share of the questions or what they would like to know about greenhouses and the greenhouse effect. Make a list of their questions on the board or overhead.

Mini-lecture

Greenhouses are made of glass or plastic and are designed to hold heat inside. The transparent covering of the greenhouse allows visible light to enter unhindered, where it warms the interior as it is absorbed by the material within. The transparent covering also prevents the heat from leaving by reflecting the energy back into the interior and preventing outside winds from carrying it away.

The phrase "greenhouse effect" is simply a metaphor describing the ways greenhouse gases in the atmosphere can trap heat emanating from the earth just the way a greenhouse traps warmth for plants to grow. Greenhouse gasses absorb some of the heat. Greenhouse gasses include water vapor, methane, ozone, nitrous oxide, and carbon dioxide. The greenhouse effect is useful because trapping some energy keeps the temperatures on our planet mild and suitable for living things. Without our atmospheric greenhouse effect, earth's surface temperature would be far below freezing. However, when greenhouse gases increase they increase the greenhouse effect causing more heat to get trapped on the earth's surface and rising global temperatures. So there is concern about human activity that increases greenhouse gases especially the use of fossil fuel. But it is important not to confuse greenhouses

with the greenhouse effect. Greenhouses may contribute some greenhouse gases if they use fossil fuel for heat but they are not the main cause of greenhouse gases or the greenhouse effect.

Return to the list of questions students had from the second box and clarify any other questions they had.

b) What makes greenhouse growing hot? Reducing their environmental impact.

Explain that growing food in greenhouses is sometime a “hot” topic for environmental reasons. Assign students in small groups to research the ways greenhouse growers are addressing the following issues of concern related to greenhouse growing:

- water use
- use of toxic pesticides
- use of fossil fuels
- organic waste management
- light pollution
- excess packaging

Have students report out and then explain that although greenhouses can never replace the relationship established with the land and soil, the demand for food by the world’s increasing population will mean that greenhouses have a future in Canada and around the world.

c) What makes greenhouse growing hot? Schools growing food in greenhouses.

Have students research or visit schools that have greenhouses, e.g., <http://healthyeatingschool.ca/success-stories/>.

Have students design a greenhouse. Have them explore the school grounds and map out possible locations on graph paper, consider construction, heating, irrigation, shading, cleaning, pest management, requirements of workstation/s. Remind them of the importance of addressing all the issues of concern facing greenhouse growers.

Have students present greenhouse designs.

Extension

- make mini greenhouses from 2 liter pop bottles greenhouses to grow lettuce, spinach or herbs
- have students develop funding proposals and present to potential funders (school board, PAC, organization such as Evergreen)

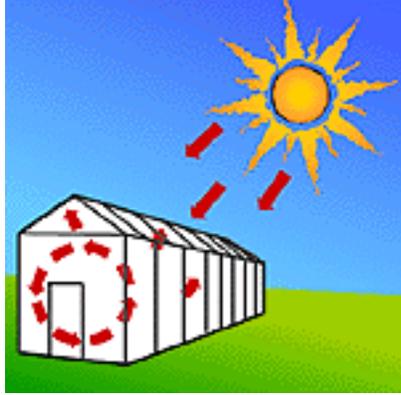
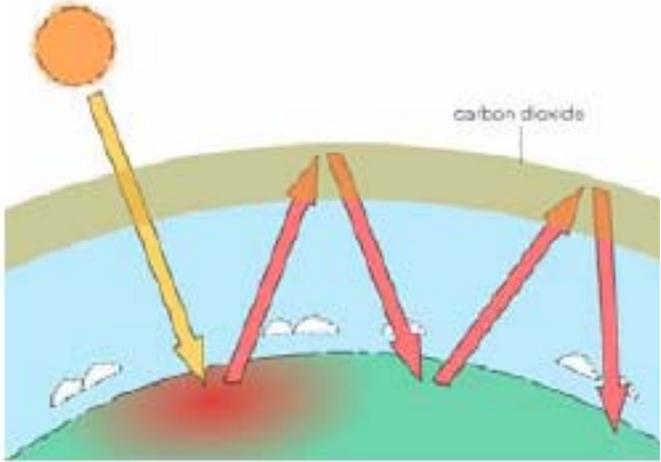
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Greenhouses, Greenhouse Gases, Greenhouse Effect – Making Distinctions

Greenhouse	Greenhouse Effect
	
<p>K – what do you know about how greenhouses work?</p>	<p>K – what do you know about the greenhouse effect?</p>
<p>W – what do you want to know about how greenhouses are different from the greenhouse effect?</p>	<p>W – what do you want to know about how the greenhouse effect is like a greenhouse?</p>
<p>L – what have you learned about greenhouses?</p>	<p>L – what have you learned about the greenhouse effect?</p>

Images - <http://www.familyeducation.com/>; www.onestopclil.com

