WASHINGTON STATE UNIVERSITY
KING COUNTY EXTENSION

Outline of Lesson
Growing with Vegetables
Unit 1, Lesson 2
Grade 4-5

Lesson Time: **60 Minutes**

Lesson Outline:

1. **Food Label Detectives**
   - Read and compare food labels to determine nutritious snack choices

2. **Learning Contract**
   - Discuss appropriate gardening behaviors

3. **Plan and Plant an Indoor Food Garden**
   - Importance of planning a garden and how to plant seeds

4. **Maintaining the Indoor Food Garden**
   - What plants need in order to survive in the classroom

5. **Healthy Snack: Carrots**
   - Students need to eat at least 3 ½ Cups of fruits and vegetables every day in order to stay healthy

Student Learning Objectives:

By the end of this lesson students will:

- Be able to read and compare food labels.
- Demonstrate how to plan and plant an indoor vegetable garden.
- Know that they need to eat at least 3 ½ Cups of fruits and vegetables every day.

References:

- Kite, Patricia L. Garden Wizardry for Kids, New York. 1995. p.84-85.
- www.nutritiondata.com

This material funded in part by USDA-Food Stamp Program, state and local government agencies. *Basic Food* assistance helps people with low incomes.

Overview (for Teacher)

Pre-Class Preparation ⊗ *Items marked with this symbol may not be purchased using FSNE funding, nor included as part of cost share.*	⊗ Make a watering jug for your plants: a 16 oz plastic water bottle works best. Poke 5-8 holes in the plastic lid with a push-pin (poke from INSIDE the lid), replace the lid, and you have a great kid-sized watering jug. ⊗ Collect a 1 gallon jug (such as a milk container) for each learning team in your class. Cut off the top half of each jug off to make a planting container. Poke 8 holes in the bottom (from inside the jug) with a push-pin for drainage. • Divide class into the learning teams of 4 to 5 students.
Teacher Involvement During Class 	• Write down appropriate behaviors for Learning Contract. • Help students plant seeds in their containers during planting. • Assist in behavior management of students.
Post-Class Teacher Responsibilities	**Snack** • Have students wash their hands and clean their workspace. • Give students 2-3 carrots as a snack. Carrots make a quick and healthy snack instead of candy, cookies, and soda. • Ask students what amount of vegetables and fruits they should have in 1 day. (Answer: At least 3 Cups) **Maintain Indoor Food Garden** Keep *lights* hanging low – one inch from the soil, and one inch from the leaves once they sprout. • *Remind teams to water plants*: **Watering indoors**: Make sure to keep plants watered, but not over-watered. Seeds are very small, and they need to stay moist in order to sprout, but they also could get lost in the soil if they get too much water. The soil has the right amount of water if it feels moist like a sponge. We should water it until it is wet all the way to the bottom of the jug. • If class goes on break – water plants well, then pour one inch of water into the black tray to provide water during the vacation.
Vocabulary	**Calories**- a measurement of the amount of energy a food provides. **To Plan-** to put a plant or a seed in the ground so it will

	grow. **Map**- a detailed plan of an area, showing you what is there so you can understand it. **Furrow**- a shallow little row in the soil for planting. **Indent-** to make a shallow dent in something.
Critical Thinking Activity	None
Supplementary Activities	• Word Search "What's Growing" • Student Assessment
Web Resources	None
Suggested Books for Reading in the Classroom	• Creasey, Rosalind. Blue Potatoes, Orange Tomatoes: How to Grow a Rainbow Garden. Sierra Club Books for children, 1997. • Kuhn, Dwight. More Than Just a Vegetable Garden. Silver Press, 1990.

EALR & GLE Alignment

EALR	GLE	Lesson Applications
Science 1.2 Understand how components, structures, organizations, and interconnections describe systems 1.3 Understand how interactions within and among systems cause changes in matter and energy 2.1 Developing the knowledge and skills necessary to do scientific inquiry	1.2.1 Analyze how the parts of a system go together and how these parts depend on each other 1.3.8 Understand that living things need constant energy and matter 2.1.2 Understand how to plan and conduct simple investigations following all safety rules	The following apply to all Science GLEs: • Plan and Plant an Indoor Food Garden • Maintaining the Indoor Food garden
Health and Fitness 1.4 Understand the relationship of nutrition and food nutrients to physical performance and body composition 3.3 Use social skills to promote health and safety in a variety of situations	1.4.1 Identify how bodily functions and physical performance are affected by food consumption 3.3.1 Applies appropriate social skills to keep out of trouble and resist pressure from others	• Food Label Detectives • Plant and Plant an Indoor Garden • Healthy Snack: Carrots
Communication 1.1 Focus attention 1.2 Listen and observe to gain and interpret information 3.1 Use language to interact responsibly and effectively with others 3.2 Work cooperatively as a member of a group	*GLE not available at this time	The following apply to all Communication EALRs: • Plan and Plant an Indoor Garden • Food Label Detectives • Learning Contract
Reading 1.3 Build vocabulary through wide reading 3.2 Read to perform a task	1.3.2 Understand and apply content/academic vocabulary critical to the meaning of the text 3.2.2 Apply understanding of a variety of functional documents	The following apply to all Reading GLEs: • Food Label Detectives

Preparation Outline

Activity Supplies ⊗ *Items marked with this symbol may not be purchased using FSNE funding, nor included as part of cost share.*	**Plant Part Poster** • Note cards • Tape • Marker **Garden Map** • Blank white paper for students to draw garden plan (1 per learning team) **Indoor Garden** ⊗ 6-1 gallon plastic jugs with tops cut off ⊗ Soil ⊗ Trowel (or use hands) ⊗ Popsicle sticks ⊗ Variety of seeds (lettuces, chard, kale, radish, bok choy, etc.) ⊗ Small paper cups labeled with seed name (it is easier for small fingers to grab seeds from paper cups than from the seed packets) ⊗ Empty flat seed trays to collect water from plastic jugs ⊗ Watering can **Healthy Snack** • 1 lb bag of baby carrots per classroom **Review** • Classroom Tasting Challenge checklist
Overheads	Compare Food Labels
Student Handouts	None
Teacher Handouts	• Word Search "What's Growing" and Key • Student Assessment and Answer Key
Changes for ELL Classes	Assign each student a planting job and have them do each step along with you as you model the activity.
Rainy Day Activity Supplies	None

Growing with Vegetables

Outline	Content
Introduction and Lesson Overview (2 Min)	Today in class, you will: • Learn how to read Food Labels and become "Food Label Detectives". • Plan and Plant an indoor garden. • Your teacher will give you carrots as a snack after class.

Food Label Detectives (15 Min)
• **Introduce concept of reading food labels**
• **Carrot food label**
	• Introduce food label to class. Explain that we are food investigators and it is our job to find the most nutritious snack foods. During some Food $ense classes we will look at a food label and act as food detectives.
	• Explain that all packaged foods have food labels. Food labels give us information about what ingredients and nutrients are in the food.
	• Put up carrot and chocolate chip cookie food label overhead. **Cover the cookie label so that only the carrot food label is showing.**
	• Point out vitamins and **calories**.
	  o Ask students if they know what calories are.
	  o Define **calories**: A measurement of the amount of energy a food provides.
	• The first thing we always look at are the calories.
	• **Ask students how many calories this food has. Then ask if they think 52 calories is a lot of calories.**
	  o Explain that we don't know if it is a lot of calories unless we compare it to another food.
	• **Ask students if they think these are nutritious calories.**
	  o Explain that we don't know until we look at the vitamins and other nutrients on the label.
	• Explain that calories give us energy and vitamins help our body grow and stay healthy.
	  o Some foods have lots of vitamins and nutrients, others don't have very many.
	  o Food with high amounts of Vitamin A, Vitamin C and fiber are generally healthy for us.
	• Point out and explain vitamins and minerals as a good way to decide if this is a nutritious snack.
	  o **Ask students which vitamin is the highest in this food?**
	  o This serving of carrots gives us 300% of the Vitamin A we need in a day. This is a lot! 100% is the amount that you need in one day, so this is enough Vitamin A for 3 days!

• **Chocolate Chip Cookie food label** • **Compare Carrot and Chocolate Chip Cookie food labels**	○ **Ask students if they think this is a nutritious snack.** We are getting 300% of our Vitamin A in 50 calories; it does seem like a nutritious snack. Let's compare it to another snack. • Uncover the second food label of **chocolate chip cookies.** Explain that we are going to decide which of these snacks is more nutritious based on the food label. • **Ask students how many calories this food has. Then ask if they think 138 calories is a lot of calories.** ○ It is more calories than carrots. • **Ask students if they think these are nutritious calories.** ○ Explain that we don't know until we look at the vitamins and other nutrients on the label. • Have students find vitamins on the chocolate chip food label. ○ **Ask students which vitamin is the highest in this food?** ○ This serving of cookies gives us 6% of the Iron we need in a day. ○ **Ask students if 6% seems like a lot.** It doesn't seem like a lot compared to 300%. • **Ask students if they think this is a nutritious snack.** ○ If time, create a tally for each food and assign points based on the following: Vitamin A, Vitamin C, Calcium, Iron, and Fiber content. ○ **Ask students to tell you which is the most nutritious snack: carrots or chocolate chip cookies.** • We will be looking at other categories in other lessons (fat, protein, fiber).
Learning Contract (5 Min) • **Brainstorm garden behaviors** • **Teachers write behaviors on note cards and tape to poster** 	**Review or Brainstorm Garden Behaviors** • **Belly Button Rule:** Tools should never be raised above the height of your belly button. This rule helps protect you and your classmates from accidentally being hurt. • **Never point or use tools at another student:** You will not work with garden tools the next time we are in the garden. • **Don't Pick Rule:** Do not pick anything from the garden without permission.

Plan and Plant Indoor Garden (30 Min)	Discuss with class: why is it important to plan and map a garden? • Water accessibility • Amount of sunlight for plants • Plants have enough space • Encourage them to think about where they will plant each crop (should they plant all the broccoli together for example). • We are going to plant indoor gardens and grow vegetables for your class to eat so you can learn to increase the amount of vegetables you eat every day. Everyone needs to eat at least 3 ½ Cups of Fruits and Vegetables every day. • List 5-6 different vegetables on the board that they can choose from for their indoor garden plan.
• **Mapping in Learning Teams**	• Draw a sample plan of an indoor garden jug and a sample choice of what would go in it. Educator draws a sample on the board of a bird's-eye view into the jug (lines for rows, and write name of each plant on each row). • In learning teams students work together to choose three vegetables they want to plant. • Each learning team makes a map of their planting plan, labeling each type of vegetable they will plant, and where they will plant it. • Make Popsicle stick labels: have students write on these and label their furrows before planting.
• **Plant Seeds** 	**Planting Introduction** • **Spacing of Seeds:** Explain that when we plant inside, the plants are not going to grow to full maturity, so we can plant them closer together than we would if we were planting outside. For example how much space do you think lettuce needs to grow big? We'll be snacking on the "baby-sized" versions of the plants. Explain that we will be planting our seeds very close together. • **Explain Planting procedures:** Each student will plant 6 seeds, 2 seeds in each furrow. Demonstrate each job in front of the class. • Give each child a number corresponding to a job, and model each job before planting with students. • **Fill the jug with soil:** Have a student come up to the soil bucket and scoop potting soil into the jug, tapping its base on the desk in order it to settle the soil. Student returns to team. • **Make furrows in the soil:** Have a student gently

	smooth the top of the surface of the soil with one hand. With the edge of their hand have them push, or indent the surface of the soil approximately ¼". This is as tall as a pinky finger laying sideways in the soil. The student makes 3 furrows, one for each type of seed. The furrows should not be too deep or the seeds will get buried too deeply and not be able to sprout. • **Pass out seeds:** One student puts one type of seed into his or her own palm, and with thumb and forefinger, gives two seeds to each student. Repeat for all three types of seeds. Each student should have 6 seeds in their hand. • **Each student plants seeds:** Each student plants 6 seeds in the appropriate furrows. • **Cover up seeds with soil** • **Label each row:** One student makes labels on popsicle sticks of vegetable names and places the sticks in the appropriate rows.
Maintaining the Indoor Garden (8 Min) ⊗ *Items marked with this symbol may not be purchased using FSNE funding, nor included as part of cost share.* • **Wash Hands**	⊗ **<u>Grow Lamps</u>** • Explain that we are using lamps - which only approximate the sun. Thus, they need to hang very low, just one inch from the leaves of the plant. **<u>Watering indoors</u>** • Make sure to keep plants watered, but not over-watered. Seeds are very small, and they need to stay moist in order to sprout, but they also could get lost in the soil if they get too much water. • Demonstrate in front of class that water can be seen trickling down through the plastic jug, turn jug around so class can see all sides and see water flowing down to the bottom of the jug. • We should water each jug until it is wet all the way to the bottom. • Tips: When pouring water, count to three and stop in between watering, use a circular motion while pouring water from watering can. • Demonstrate to each team at their table how to water with the watering container that the teacher has made for the class. **Hand Washing** Remind students that they need to wash their hands after gardening. Each student should wash his or her hands with warm water and soap for 20-25 seconds.
Healthy Snack	• Show students the bag of carrots that you will leave with the teacher and explain that it is a healthy snack

	choice. Ask them to remind their teacher to serve them the snack. Students should wash hands before eating the snack. • Show the carrots and ask students which food group carrots are in (Vegetable). Explain that they need at least 3 ½ Cups of fruits and vegetables each day to stay healthy.
Review and Reflection • **Indoor Gardens** • **Classroom Tasting Challenge**	• **Indoor Gardens:** Have class report on the progress of their seeds and ask them to make a few observations. Talk about what to do next with the indoor plants (this may include thinning, changes in watering patterns, etc). • **Conduct the Classroom Tasting Challenge:** After tasting the <u>carrot</u> snack, ask students to raise their hands to show you how many students tasted, liked or did not like the snack. Record the number of students who raise their hands in the appropriate column on your Classroom Tasting Challenge checklist, out of the total number of students in class that day.

Lesson Materials
Growing with Vegetables

- **Compare Food Labels: Carrots and Chocolate Chip Cookies**

Supplementary Activities

- **Student Assessment**
- **Assessment Answer Key**
- **Word Search "What's Growing"**
- **Word Search Answer Key**

COMPARE FOOD LABELS:

Carrots

Nutrition Facts

Serving Size 1 cup, chopped (128g)

Amount Per Serving

Calories 52	Calories from Fat 3
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 88mg	4%
Total Carbohydrate 12g	4%
Dietary Fiber 4g	14%
Sugars 6g	
Protein 1g	

Vitamin A	308%	• Vitamin C	13%
Calcium	4%	• Iron	2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

NutritionData.com

Chocolate Chip Cookies

Nutrition Facts

Serving Size 1 oz (28g)

Amount Per Serving

Calories 138	Calories from Fat 61
	% Daily Value*
Total Fat 7g	11%
Saturated Fat 2g	11%
Cholesterol 0mg	0%
Sodium 84mg	3%
Total Carbohydrate 18g	6%
Dietary Fiber 1g	3%
Sugars 10g	
Protein 2g	

Vitamin A	0%	• Vitamin C	0%
Calcium	1%	• Iron	6%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

NutritionData.com

Student Assessment

Growing with Vegetables

Name:_____ Date:_____

Student Directions: Circle the best answer.

1. It's important to plan a garden so that
   a. plants will have enough space to grow
   b. the sun or indoor garden lights will shine on the plants
   c. water will reach all the growing plants
   d. all of the above

2. If plants don't receive enough water, they will
   a. grow too tall for the garden space
   b. die because they need water
   c. turn yellow in the sunlight
   d. all of the above

4. All vegetables
   a. come from the grocery stores
   b. were grown in the soil
   c. needed to be put into cans
   d. have no nutrients

5. Reading food labels
   a. isn't important because if it's from a store the food is good for you
   b. is important because it helps you find the most nutritious snack
   c. is too difficult for kids
   d. doesn't help you decide what to eat

Complete these sentences:

6. Two ingredients listed on food labels that can help me decide whether or not a food is nutritious are _____and _____.

7. In order for plants to grow and be healthy, besides healthy soil, they also need _____and _____.

Assessment Key

1. It's important to plan a garden so that
   a. plants will have enough space to grow
   b. the sun will shine on the plants
   c. water will reach all the growing plants
   d. all of the above

2. If plants don't receive enough water, they will
   a. grow too tall for the garden space
   b. die because they need water
   c. turn yellow in the sunlight
   d. all of the above

4. All vegetables
   a. come from the grocery stores
   b. were grown in the soil
   c. needed to be put into cans
   d. have no nutrients

5. Reading food labels
   a. isn't important because if it's from a store the food is good for you
   b. is important because it helps you find the most nutritious snack
   c. is too difficult for kids
   d. doesn't help you decide what to eat

Complete these sentences:

6. Two ingredients listed on food labels that can help me decide whether or not a food is nutritious are

_____and _____.

(Correct answers: fats, calories, etc.)

7. In order for plants to grow and be healthy, besides healthy soil, they also need

_____and _____.

Correct responses: Sunshine, water, space to grow

What's Growing on Around Here
Word Find

AMSVFSEASONNEDRAGSJM
EDERADISHCTFPEASBZII
TIWWYTSEVRAHHZLOCALL
AWAKOJKCIWSREPPEPCFO
NYNVUNKPBNOSAESLOOCC
IZQMACARONIEXWWRPCGC
MWARMSEASONQKJNIIXDO
RZZKOBIDPNWCLIMATEDR
EEVAKCECUTTELQSKSJBB
GXNUTRITIONFACTSSUOU
BSEOTAMOTLNRADNELACE

Words:

broccoli
calendar
climate
cool season
corn
garden
germinate
harvest
lettuce
local
macaroni
nutrition facts
peas
peppers
radish
season
tomatoes
warm season

What's Growing on Around Here
Word Find Answer

```
      SEASONNEDRAG
E  RADISH   PEAS   I
T    TSEVRAH LOCALL
A         SREPPEPC O
N       NOSAESLOOCC
I  MACARONI   R   C
MWARMSEASON   N   O
R           CLIMATE R
E    ECUTTEL      B
G NUTRITIONFACTS
 SEOTAMOT RADNELAC
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