



## Leafy Greens Lessons

**Pillar: Healthy Eating**

**Division II**

**Grade Level(s): 3-5**

**Core Curriculum Connections: Language Arts, Math, and Science**

**I. Rationale:** Students are led through activities across the core curriculum by a team of five dinosaur characters dressed in baseball uniforms who are the "Cruciferous Crusaders" All-Star Cancer Fighting Baseball Team. Cruciferous vegetables such as broccoli, Brussels sprouts, and cauliflower, are members of the cabbage family; they get their name from their four-petal flowers, which look like a *crucifer*, or cross. Other cruciferous vegetables include arugula, bok choy, collards, kale, mustard greens, rutabaga, turnip greens, and watercress. Other leafy greens such as spinach and red and dark green lettuce are also cancer fighting vegetables.

### II. Activity Objectives:

1. Students will understand nutritional benefits of cruciferous and leafy green vegetables.
2. Students will understand cancer-fighting elements in cruciferous and leafy green vegetables.
3. Students will encourage the increase in consumption of cruciferous vegetables and leafy greens at home.

### III. Teacher Information:

Introduce students by asking them why food is important to us (to help us grow, be strong, be healthy, and have energy for school and play). Refer to Canada's Food Guide. Most people do not eat enough vegetables. Ask students to name vegetables they ate yesterday. Explain that vegetables such as cabbage, spinach, broccoli and kale are very good for you and can be prepared in different ways so they taste great!

Following a healthy diet can play a big role in cancer prevention. According to the Canadian Cancer society it is estimated that over one third of all cancer-related deaths could be prevented by a healthy diet. Vegetables and fruit are key foods in a healthy diet. Research suggests that people who eat at least 5 servings of vegetables and fruit per day cut their cancer risk in half when compared to those who consume one serving or less. Vegetables are especially nutrient dense. Calorie for calorie they pack more vitamins, minerals, fiber and other cancer fighting agents than any other food group. Cabbage family (cruciferous) and leafy green vegetables are particularly powerful cancer fighters.

The following lesson plan activities offer many ideas for teachers to adapt within their grade level core curriculum. A [student portfolio](#) master begins the collection of opportunities for new learning experiences.

Possible community and parental involvement offer variety to the everyday lessons. Fun in the classroom is a guarantee as well as the reward of contributing to a child's healthy nutritional habits for a lifetime.

## Language Arts #1

Have students read "Student Introduction" introducing the Cruciferous Crusaders and then discuss the benefits of eating leafy green vegetables (better health, preventing cancer).

**OBJECTIVES:** Students will develop reading comprehension skills while learning the nutritional benefits of cruciferous vegetables.



Now, we're going to throw you a few "pitches". See how many you can hit. Put your score in the box provided.

1. The big word that stands for the cabbage family vegetables \_\_\_\_\_ .

Hit \_\_\_\_\_ Strike \_\_\_\_\_

2. Broccadactyl gets his power source, fiber, from \_\_\_\_\_ .

Hit \_\_\_\_\_ Strike \_\_\_\_\_

3. Kale-O-Don gets his strong arm from kale which gives him lots of \_\_\_\_\_ .

Hit \_\_\_\_\_ Strike \_\_\_\_\_

4. Our 1st and 2nd basemen are team favourites because they provide us with the low calories or \_\_\_\_\_ .

Hit \_\_\_\_\_ Strike \_\_\_\_\_

5. Spinachraptor gets his tremendous power from \_\_\_\_\_ .

Hit \_\_\_\_\_ Strike \_\_\_\_\_

6. The Cruciferous Crusaders can help your body to fight against \_\_\_\_\_ .

Hit \_\_\_\_\_ Strike \_\_\_\_\_

I got \_\_\_\_\_ Hits!

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## Student Information



Hi, Boys and  
the team  
Cancer

CRUSADERS. My strength is in the  
content which you can get from

is a big word that stands for vegetables such as broccoli, Brussels sprouts, and cauliflower, are members of the cabbage family; they get their name from their four-petaled flowers, which look like a *crucifer*, or cross. Other cruciferous vegetables include arugula, bok choy, collards, kale, mustard greens, rutabaga, turnip greens, and watercress. Other leafy greens such as spinach and red and dark green lettuce are also cancer fighting vegetables. Our team is very important because we can help you have a healthy diet, AND we can help you lower the risk of developing certain types of cancer.

Let me introduce to you the other members of our All-Star Team:

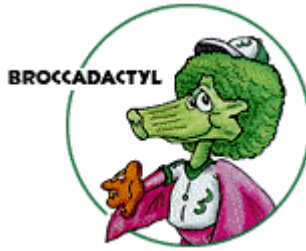
First is our pitcher, Broccadactyl. He has helped carry the CRUSADERS to the world championship because his power source is the fiber which comes from broccoli.

May I introduce the Red and Green Lettuceratops. They play 1st and 2nd base. The healthy, low calorie content of lettuce makes them a team favourite.

Our right fielder is the fantastic Kal-O-Don. He is a versatile team player and has lots of calcium from kale which gives him his strong right arm.

And say hello to Spinachraptor. He is our power hitter. He is known throughout the world for the power that comes from spinach.

Altogether, the mighty CRUCIFEROUS CRUSADERS Team can help you have a healthy body and fight cancer. So, won't you join our team and be on your way to better health?



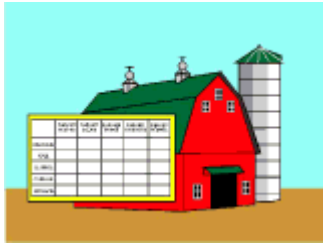
Girls! My name is  
Cabbagesaurus and I am  
captain of the All-Star  
Fighting Team -- the  
CRUCIFEROUS  
high mineral and vitamin  
cabbage. CRUCIFEROUS



## Language Arts #2

### WHO GROWS CABBAGE?

A Logical Conclusion



[Printable Game Board](#)

**OBJECTIVE:** Students will develop logical thinking skills.

#### **DIRECTIONS:**

1. Getting Started: ( 0 = Grows it, X = Does not grow it )
2. Read the first fact. Mark a large 0 under Farmer Scott's name beside the vegetable he grows (Kale).
3. BEFORE YOU GO TO FACT #2, put a large X under Farmer Scott's name beside all the vegetables he does not grow (broccoli, lettuce, cabbage, and spinach).
4. EACH FARMER GROWS ONLY ONE CROP, so put a large X in each appropriate box under the other farmer's names to show that they do not grow the vegetable Farmer Scott grows (Kale).
5. Now you have marks under all five farmer's names showing if they grow kale.
6. Now you're ready to do the same for Fact #2. Have Fun!

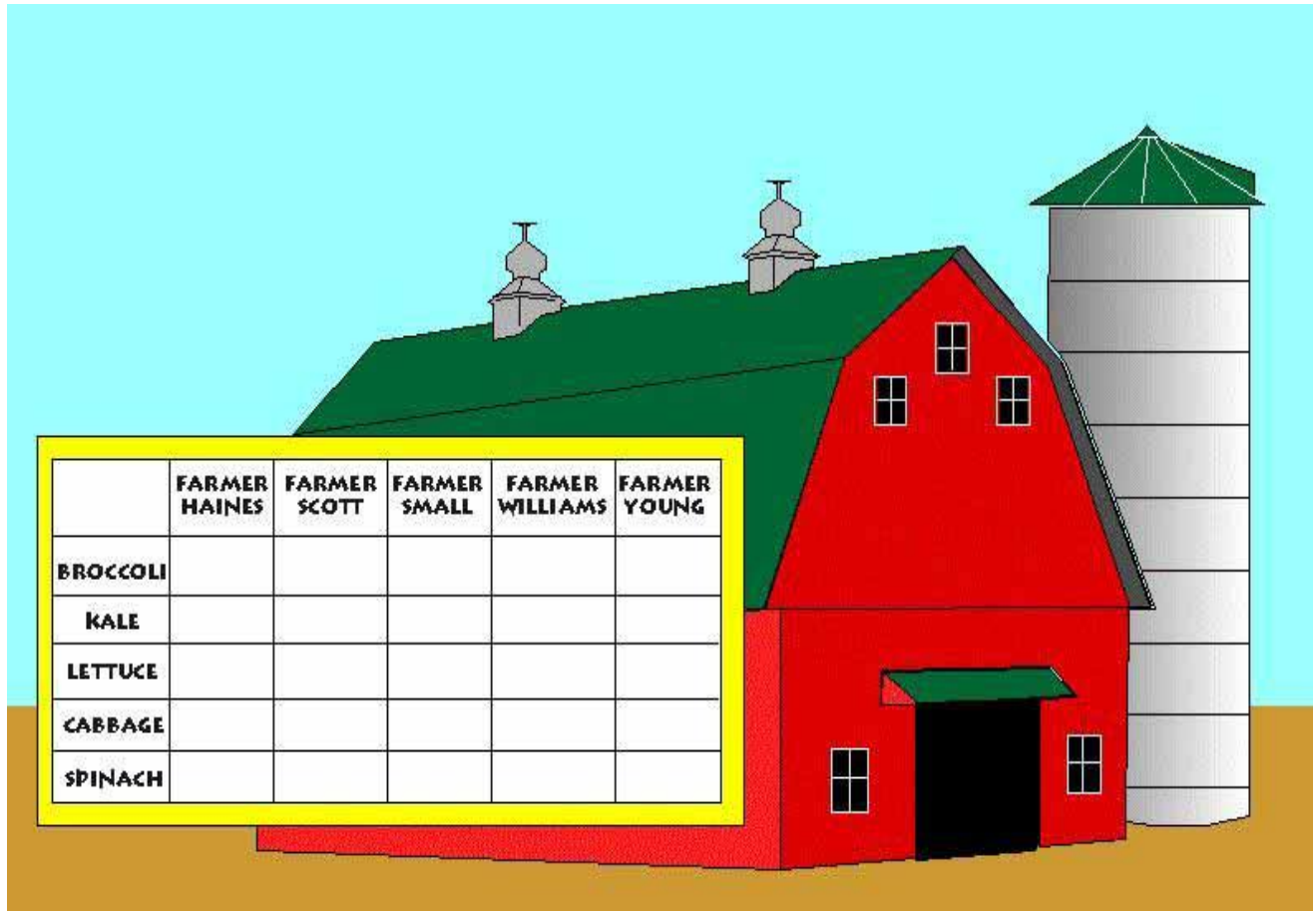
#### **FACTS:**

1. Farmer Scott grows kale, but does not grow broccoli, lettuce, cabbage, or spinach.
2. Farmer Young grows spinach, but does not grow broccoli, lettuce, or cabbage.
3. Farmer Williams does not grow broccoli or cabbage, but he grows lettuce.
4. Farmer Small grows broccoli, but does not cabbage.

**Did you help the CRUCIFEROUS CRUSADERS find who grows cabbage?**

**Who is it?** \_\_\_\_\_

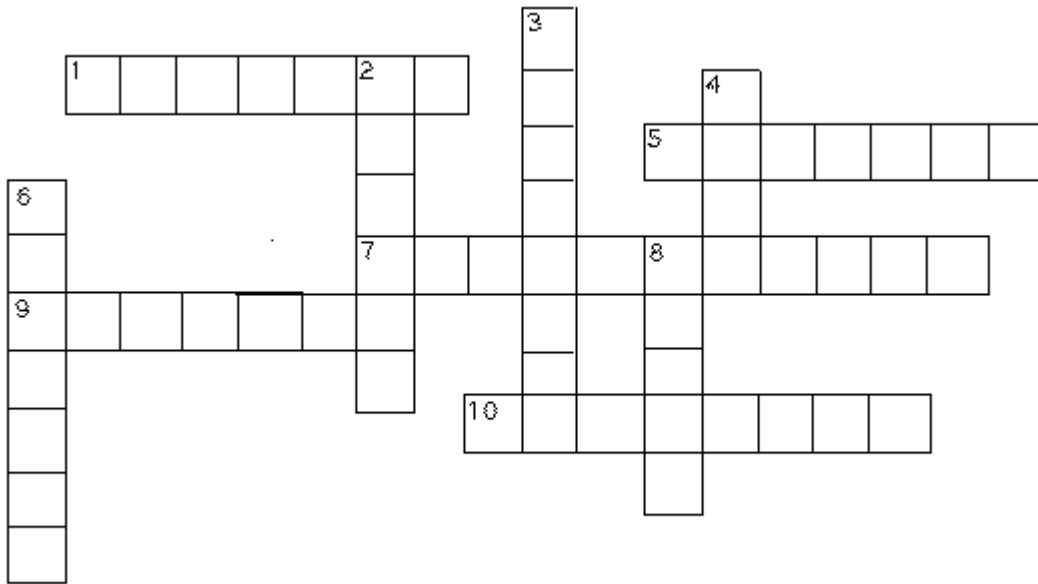
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	FARMER HAINES	FARMER SCOTT	FARMER SMALL	FARMER WILLIAMS	FARMER YOUNG
BROCCOLI					
KALE					
LETTUCE					
CABBAGE					
SPINACH					

## Language Arts #3

### CRUCIFEROUS CRUSADERS CROSSWORD PUZZLE



#### Across

- 1. Popeye gets his strength from \_\_\_\_\_.
- 5. Cabbagesaurus gets his strength from \_\_\_\_\_.
- 7. Join the \_\_\_\_\_ Crusaders by eating at least one leafy green vegetable a day.
- 9. A salad tastes great made from low-calorie \_\_\_\_\_.
- 10. Leafy greens are high in vitamins and \_\_\_\_\_.

#### Down

- 2. Eating leafy greens may reduce your risk of \_\_\_\_\_.
- 3. Green flowery vegetable shaped like a tree-\_\_\_\_\_.
- 4. Kale-O-Don gets lots of calcium from \_\_\_\_\_.
- 6. Lettuce is a great low-\_\_\_ vegetable.
- 8. Broccadactyl gets his power source, \_\_\_\_\_, from broccoli.

Use these words to fill in your Cruciferous Crusaders Crossword:

- |               |            |
|---------------|------------|
| • KALE        | • CABBAGE  |
| • CRUCIFEROUS | • FIBER    |
| • BROCCOLI    | • MINERALS |
| • LETTUCE     | • CANCER   |
| • SPINACH     | • CALORIE  |

## Language Arts #4

### ALL-STAR HEALTHY EATING HABITS



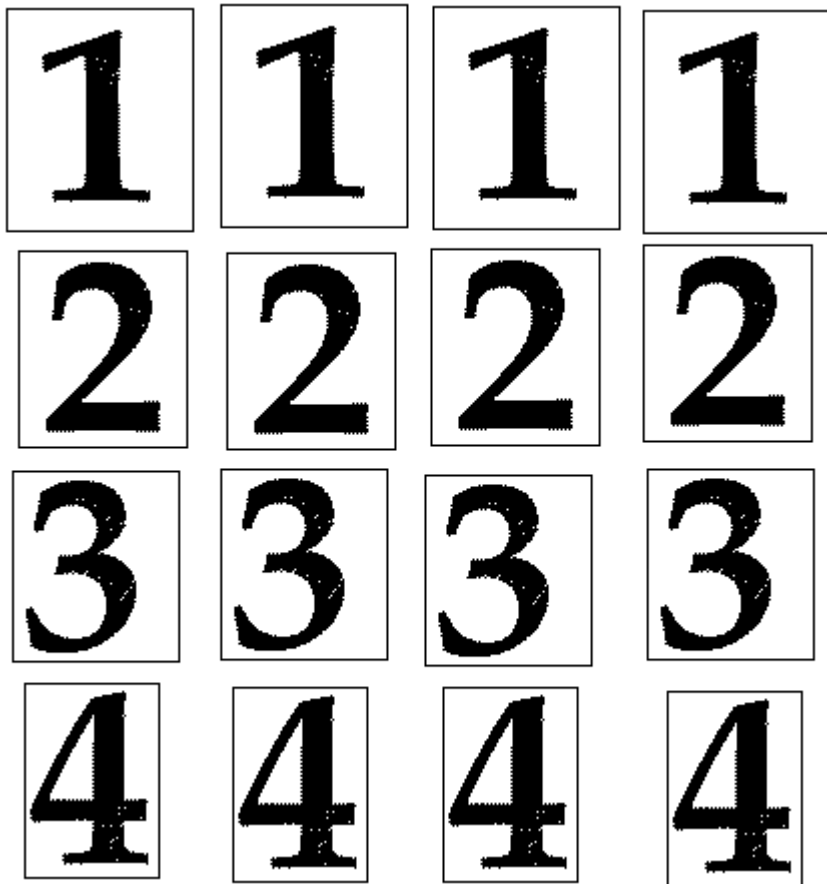
**OBJECTIVE:** Students will recognize healthy foods

#### **DIRECTIONS:**

1. Divide the class into groups of five or six students per group.
2. Copy one game board for each group of students. Colour and laminate, if desired.
3. Cut out numbers and put in a "hat".
4. Teacher allows student from Group 1 to pull number out of "hat". Group 1 students proceed to appropriate square and follow directions if they land on a non-leafy green food. If they land on a healthy leafy green, they stay there until their next turn.
5. Teacher proceeds to other groups and follows same procedure for Groups 2, 3, and 4; letting a different student from each group draw each time.
6. The first group to get back to START square wins.

<b>SOFT DRINK</b> GO BACK 2 SPACES	<b>BROCCOLI</b>	<b>KALE</b>	<b>COOKIE</b> GO BACK 2 SPACES	<b>RED LETTUCE</b>	<b>CABBAGE</b>
<b>SPINACH</b>					<b>GREEN LETTUCE</b>
<b>GREEN LETTUCE</b>					<b>SPINACH</b>
<b>CAKE</b> GO BACK 1 SPACE					<b>POP SICLE</b> GO BACK 2 SPACES
<b>CABBAGE</b>					<b>BROCCOLI</b>
<b>RED LETTUCE</b>					<b>KALE</b>
<b>CANDY</b> GO BACK 2 SPACES					<b>RED LETTUCE</b>
<b>KALE</b>					<b>BROWNIE</b> GO BACK 1 SPACE
<b>BROCCOLI</b>					<b>CABBAGE</b>
<b>CHIPS</b> GO BACK 1 SPACE					<b>KALE</b>
<b>START</b>					<b>CHIPS</b> GO BACK 1 SPACE
<b>FINISH</b>	<b>CABBAGE</b>	<b>RED LETTUCE</b>	<b>CABBAGE</b>	<b>RED LETTUCE</b>	<b>CHIPS</b> GO BACK 1 SPACE





## Language Arts #5

### LEAFY GREENS BINGO



**OBJECTIVE:** Students will recognize words connected with leafy greens lessons.

**DIRECTIONS:**

1. Hand out one [Bingo card](#) and one [word list](#) per student.
2. Have students copy words in random order onto the Bingo card so that no two students' cards are exactly the same.
3. Play "Bingo" by the teacher calling out one word at a time and students circling the word as they find it.
4. Winner will be the first student who circles five in a row, either vertically, horizontally, or diagonally. Remember to circle the free space in the center of the card!

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### LEAFY GREENS BINGO Word List

- Broccoli
- Kale-O-Don
- Vitamin C
- Spinach
- All-Star Team
- Fiber
- Leafy greens
- Kale
- Low calorie
- Green lettuce
- Cruciferous
- Spinachraptor
- Broccadactyl
- Minerals
- Calcium
- Cabbage
- Lettuceratops
- Red lettuce
- Cabbagesaurus
- Healthy
- Cancer fighting
- Crusaders
- Vitamin B1
- Vegetables

# BINGO

		<b>FREE</b>		

## Math #1

### PROBLEMS AT THE BALLPARK

**OBJECTIVES:** Student will reinforce understanding of tables and organization of data.



1. Look at the chart below. Mr. Don has to study today's sales at the ballpark.

<b>Today's Sales at the Ball Park</b>	
Drinks	18
Popcorn	19
Hot Dogs	6
Cracker Jacks	0
Candy apples	3
Broccoli Bites	21
Ice Cream	5

- Which item sold the most?
- How many hot dogs and ice cream sold?
- Did more candy apples or ice cream sell?
- How many more bags of popcorn sold than hot dogs?
- How many fewer candy apples sold than drinks?
- How many total items sold today at the ballpark?

2. Mr. Don studied the ballpark sales for the month of July.

<b>July Ball Park Sales</b>	
Drinks	3742
Popcorn	3075
Hot Dogs	3502
Cracker Jacks	942
Candy apples	3954
Broccoli Bites	809
Ice Cream	207

- Make a table showing items in order from the most sold to the least sold.

1. Expose students to computer database. Have students track their daily intake of vegetables on a class database.

2. Create a variety of classroom graphs such as tables, pictographs, bar graphs, and pie charts to represent their daily intake of vegetables. Set goals for improvement.

## Science/Health #1

**OBJECTIVES:** Students will understand nutritional benefits of cruciferous and leafy green vegetables.



1. Refer to class textbook for SEED study. Cross section of seed will help students learn EMBRYO (tiny part of seed that grows into new plant). Explain that the rest of the seed contains stored sugars that it uses to grow and develop.
2. Discuss the basic needs of a plant (water, air, loose soil, sunlight). When the seed has what it needs, it GERMINATES (starts to grow and develop). Then PHOTOSYNTHESIS occurs (the way leaves of green plants make most of the sugars a plant needs). Grow lettuce, cabbage or broccoli plants from seeds in cups/cartons in classroom. Lettuce seed is 7-10 days to germination; planting depth - 1/4 inch; 82 days to harvest. Cabbage is 10-12 days to germination; 1/2 inch planting depth; 71 days to harvest. Broccoli is 10-14 days to germination; planting depth is 1/2 inch; 90 days to harvest. Withhold water from one and sunlight from another. Draw conclusions from measurements and graphs of growth of all the plants during the leafy greens study. Use food coloring and a heavy stalk leafy green or celery to show transportation of water through a plant.
3. Help students find articles in newspapers about weather conditions affecting the growth of crops (freeze, drought, etc.). Explain the impact on the cost of these foods to the consumer. (Prices may rise due to limited supplies damaged by nature.)
4. Arrange a tour of a local grocery store on delivery day. Try to tour a refrigerated truck and discuss food spoilage during transport. Have the produce manager explain the sprinkler system in the produce cases. Go on a scavenger hunt to find foods with leafy greens in them (slaw, sauerkraut, etc.).
5. Help students cut out pictures from magazines of healthy foods and people doing some sort of exercise. Discuss the importance of a nutritious diet and good exercise to stay healthy. Begin classroom discussion of the phrase, "You are what you eat!"
6. Why do we need to eat foods? We need energy from foods for work and play. The parts of food that help your body grow are nutrients. LEAFY GREENS contain Vitamin A, Vitamin C, Calcium, Iron and Fiber. These nutrients:
  - o help build strong teeth and bones
  - o help body to fight infection
  - o help the growth and health of hair and skin
  - o are fat free, cholesterol free, low in Calories and low in sodium
7. According to Canada's Food Guide, children aged 4-13 need 5-6 servings of vegetables per day. One serving = 1 cup of leafy raw vegetables or 1/2 cup of chopped raw or cooked veg. Have students demonstrate through standard measurements the amount of vegetables needed for a serving. The darker the leaf, the more nutritious the green.
8. Where do kids get energy? Food! Have students create a food link chain: farmer, processor, grocer, you!
9. Place a few peanuts or chips on one brown paper bag. Place a few dry lettuce leaves or broccoli on another bag. Explain that the oily spot on the bag is from the fat in the peanuts. There is no fat in lettuce or broccoli to leave a soil. Chart results using class database on a scale of 1 - 5 (1= no oil to 5=very oily).
10. Go to [Cruciferous Crusaders Scramble Activity Sheet](#)

## Science/Health Activity #1

### CRUCIFEROUS CRUSADERS SCRAMBLE



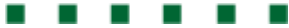
Leafy Greens contain  
Vitamins A and C,  
Calcium, Iron and Fiber.

Unscramble the underlined words below  
to discover what these nutrients do for you....

- help build gnsort ehett and enbos.
- help body to tifhg teionfcin.
  - help growth and health of rahi and niks.

## Science/Health #2

**OBJECTIVES:** Students will understand cancer fighting elements in cruciferous and leafy green vegetables.



The Canadian Cancer Society has urged all people to eat foods low in fat and high in fiber, vitamin A and vitamin C. Eating foods low in fat, cholesterol, salt and sugar, and high in fiber reduces the risk of heart attack, stroke, diabetes, obesity, tooth decay, and constipation. Following these guidelines should improve your chances for a long and healthy life. The National Cancer Institute reports that foods rich in vitamins A and C have been associated with the reduced risk of certain cancers, such as cancers of the larynx, esophagus, and the lung. The Canadian Cancer Society notes that cabbage helps prevent cancer of the colon and stomach.

Diet plays a big role in cancer prevention. It is estimated that over one third of all cancer related deaths could be prevented by a healthy diet. Vegetables and fruit are key foods in a healthy diet. Research suggests that people who eat at least 5 servings of fruits and vegetables per day cut their cancer risk in half when compared to those who consume one serving or less. Vegetables are especially nutrient dense. Calorie for calorie they pack more vitamins, minerals, fiber, and other cancer fighting agents than any other food group. Cabbage family (cruciferous) vegetables are particularly powerful cancer fighters.

1. Have students name ways that they have eaten cruciferous and leafy green vegetables (salads, casseroles, steamed, etc.) Take a poll of how many students ate vegetables yesterday. Brainstorm ideas for other ways to eat them.
2. Demonstrate proper hand-washing techniques. Then demonstrate washing leafy greens. Wash greens thoroughly by placing them in a sink filled with lukewarm (tepid) water and swish around. Remove any roots or stems, repeat washing. Pat dry on paper towels.
3. Extend personal hygiene concepts to show the need for sanitation regulations in food care and handling. Set up a tour of your school cafeteria kitchen and ask the manager to show the students sanitation procedures.

Go to Cruciferous Crusaders [Cancer Fighter Search Activity Sheet](#)

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## Science/Health Activity #2

### CRUCIFEROUS CRUSADERS CANCER FIGHTING SEARCH



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**Mystery Hint:** May I suggest cabbage?

#### Word List

- BROCCOLI
- CABBAGE
- CALCIUM
- CRUCIFEROUS
- EMBRYO
- ENERGY
- FIBER
- GERMINATE
- GREENS
- IRON
- KALE
- LEAFY
- LETTUCE
- NUTRIENT
- NUTRITION
- PHOTOSYNTHESIS
- SPINACH
- VITAMINS

#### Source:

- [The Leafy Greens Council](#)