



# December

## ..... HARVEST OF THE MONTH ..... **CABBAGE**

### NC Standard Course of Study

#### Math:

**NC.3.MD.2** Solve problems involving customary measurement.

**NC.4.MD.1** Knows relative sizes of measurement units solve problems involving metric measurements.

#### NC Essential Standards

##### Science:

**4.L.2** Understand food and the benefits of vitamins, minerals and exercise.

##### Social Studies:

**3.G.1** Understand the earth's patterns by using the 5 themes of geography: (location, place, human-environment interaction, movement and regions)

**3.E.1** Understand how the location of regions affects activity in a market economy.

**3.C.1** Understand how diverse cultures are visible in local and regional communities.

**4.E.1** Understand how a market economy impacts life in NC.

**4.E.2** Understand the economic factors when making personal choices.

#### **Goal:**

Students explore food system by tracing the supply chain of local Warren County cabbage



#### **Activity Length:**

45-60 minutes



#### **Location:**

Classroom

### Materials needed:

- Head of cabbage
- *How Did That Get in My Lunchbox: The Story of Food* by Chris Butterworth

# Cabbage Life Cycle

Pass out “Cabbage Life Cycle” handouts and ask students to follow along as you read the script. (Alternatively, students can practice reading and take turns read the different steps of the life cycle.)

- Before it grows into a plant, what does cabbage start out as? **Seeds.**
- What does cabbage need to grow? **Sun, Soil, Water, and Air.**
- If we plant a cabbage seed in soil and give it water, after a few days it will start to grow **roots.**
- **Roots** provide a support system for the cabbage plant. They draw water up from the soil along with nutrients like potassium and iron to help the cabbage plant grow big and strong. **Roots** also keep the seedling in the ground and help it grow upright.
- After growing roots, the cabbage seed will “germinate”, meaning it sends up a **stem and leaves.** These are the first parts of the plant that we can see above ground.
- What are the main role of **leaves? Photosynthesis!** The leaves collect energy from the sun. The cabbage plant uses this energy to create food for itself.
- In cabbage, only the **outer leaves** grow wide and go through the process photosynthesis. The **outer leaves** are responsible for providing food to the whole plant. The **inner leaves** of the cabbage grow rapidly and instead of spreading out wide, they are tightly compacted and fold inward to form a head. A **head** of cabbage is what we eat!
- When the cabbage plant is ready to make new plants, it will grow small **flowers.** In the life cycle of leafy greens such as cabbage, this step is called **bolting.**
- Inside each flower are several more **seeds.**
- Each one of the new seeds has the potential to create another cabbage plant, and begin the cycle all over again!

## Supply Chain

Watch the video “Farm to Fork”

<https://www.youtube.com/watch?v=QkGbcMdvVVQ>

**Ask students to identify the different steps of the supply chain as seen in the video, arriving at the five main steps:**

- Plant: The farmer had to plant the seeds or seedlings
- Harvest: The farmer and his or her employees harvest the produce
- Transport: A driver had to drive them from farm to the store, market or processing facility
- Prepare: Someone (a processing facility, chef, family member) has to wash and prepare the food
- Eat: Finally, after all that work, YOU get to eat it!



# Harvest of the Month Moment!



Before diving into the lesson, introduce the featured produce!

If space, gather in a circle or around the poster. Feel free to use this space to share your own experiences with the harvest and celebrate what students know.

*The Harvest of the Month for DECEMBER is CABBAGE!*

*Cabbage is a member of the Brassica family along with cauliflower, brussels sprouts, and broccoli.*

*Cabbage grows well in the fall and winter months*

Ask students to find the harvest on the What's Growing On? Poster. If available, pass around the harvest and invite students to share observations (How does it feel, look, smell, sound? Does it remind you of another harvest we've done this year?).

Consider asking some warm-up questions for students:

*Have you tried it? When did you try it?*

*How does your family like to prepare this fruit/vegetable?*

*Do you have anything that you know about this harvest that you'd like to share?*

## What's Growing On?



### 1. What is a Food Mile?

**Warm-Up:** Ask students what they think a food mile is. Field answers, arriving at the solution that food miles are the distance food travels from where it is grown to where it is purchased or consumed. Food miles not only tell us how far food has traveled, but can help us understand the impact that the food system has on our environment.

Read *How Did That Get in My Lunchbox? The Story of Food* by Chris Butterworth.

Explain to students that they will be exploring how their favorite foods get from the farm to their fork in the next activity.

## 2. Non-Local vs. Local Cabbage

Explain, As you know, this month's Harvest of the Month is Cabbage. But did you know that most of the cabbage that we eat in the U.S. is grown in only 5 states? That means the cabbage has to travel a long way to our grocery store.

Nearly 80% of cabbage consumed in the U.S. is grown in California, Wisconsin, New York, Florida, and Texas. Use Google Maps to calculate the distance from one or more of those states to your school.

Jeff Bender is a farmer in Warren County, NC, who grows cabbage. Use Google Maps to calculate the distance from Bender Farms to your school.

Bender Farms: 110 Twin Hollies Lane  
Norlina, NC 27563

## 3. Mapping a Meal with Math

Explain, Now that we've seen the distance that cabbage travels before it gets to you, we are going to try to map an entire meal and see what the total distance is for all the different foods.

Split students into two groups. Give each group copies of either the "Chicken

Dinner" or "Steak Dinner" Worksheets. Work together using Google maps to figure out the approximate distance traveled by each ingredient, then invite students to add up the distance traveled by each ingredient to find the total number of miles the food has traveled to make a meal.

### MATH EXTENSION

For extra practice, have students calculate:

- What is the average distance traveled by the ingredients of this meal?
- What percentage of the total miles for the meal are traveled by each component?

## 4. Reflection

- What does it mean when we say that a fruit or vegetable is locally-grown? *It was grown closer to us, it did not have to travel a long way.*
- Why is it better for food to travel a short distance than a long distance? *It is fresher, it has less of chance of being damaged, less pollution from the trucks that are transporting it.*
- Where are some places we can go to get food that has been grown locally? *The farmer's market, the farm itself, or our garden at home.*

# Apple Coleslaw



## Ingredients

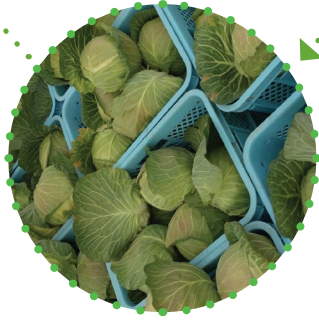
- Shredded local cabbage
- Grated local apples
- Shredded carrots
- Coleslaw dressing

## Instructions

Mix the apples, carrots, and cabbage in large bowl. Then add the dressing. Toss all of the ingredients together until they're thoroughly mixed.



# Cabbage Life Cycle



# MAPPING A MEAL:

## CHICKEN DINNER



Chicken is raised in *Arkansas*

\_\_\_\_\_ miles



Potatoes are grown in *Idaho*

\_\_\_\_\_ miles



Green Beans are grown in *Florida*

\_\_\_\_\_ miles

Total Distance \_\_\_\_\_

# MAPPING A MEAL:

## STEAK DINNER



Beef is raised in *Texas*

\_\_\_\_\_ miles



Potatoes are grown in *Idaho*

\_\_\_\_\_ miles



Brussels Sprouts are grown  
in *California*

\_\_\_\_\_ miles

Total Distance

\_\_\_\_\_