

## Exploring Global Cabbage Needs

Introductory Lesson: 45 minutes, on-going investigation: 12 weeks

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### Standards Addressed:

AL SS 1 ) Locate the prime meridian, equator, Tropic of Capricorn, Tropic of Cancer, International Date Line, and lines of latitude and longitude on maps and globes.

- Interpreting information on thematic maps

Examples: population, vegetation, climate, growing season, irrigation

AL Sci 13 ) Display data graphically and in tables to describe typical weather conditions expected during a particular season (e.g., average temperature, precipitation, wind direction).

14 ) Collect information from a variety of sources to describe climates in different regions of the world.

AL Math 19 ) Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot where the horizontal scale is marked off in appropriate units — whole numbers, halves, or quarters. [3-MD4]

### Materials:

#### For the Class-

Book: *The Cabbage Soup Solution* by Erika Oller

Small spray bottle

String

Ruler

Small scale

Colored pencils

Station Cards (printed and placed at each station)

One head of each if possible: Napa cabbage, Savoy cabbage, Green cabbage, Red cabbage

If possible: samples of sauerkraut and pickled cabbage (small ramekins with lids for example)

#### Per Student-

Passport document(printed)

Medium recycled box (ex. Shoe box size)

3-4 cups of garden soil

Paper centimeter ruler

Cabbage coloring page/label

Cabbage care page

Medium envelope

### References:

*The Cabbage Soup Solution* by Erika Oller

Or read aloud:

<https://www.youtube.com/watch?v=g4u0XH9lsWM>

India graph:

[https://commons.wikimedia.org/wiki/File:India\\_mumbai](https://commons.wikimedia.org/wiki/File:India_mumbai)

Morocco:

<http://www.midelt.climatemps.com/graph.php>

England:

<https://www.toppr.com/ask/question/how-are-temperature-and-rainfall-data-plotted-on-a-graph/>

China:

<http://www.weather-guide.com/China/Beijing-Weather-Averages.html>

Ireland:

<http://www.weather-guide.com/city-weather-b/Belfast-Weather.html>

	<p>Brazil:  <a href="http://www.weather-guide.com/city-weather-d/Sao-Paulo-weather.html">http://www.weather-guide.com/city-weather-d/Sao-Paulo-weather.html</a></p> <p>Bonnie Plants Cabbage Program logo:  <a href="https://bonniecabbageprogram.com/">https://bonniecabbageprogram.com/</a></p>
<p><b>Vocabulary:</b>          Academic: (verbs, adjectives &amp; adverbs): compare, analyze          Content: (Attached to the standard) Latitude, Longitude, Bar graph, Line graph, Average temperature, Average, precipitation, Circumference, Weight, Height</p>	<p><b>Literacy Connection:</b>          Speaking: Students will actively engage in discourse throughout the lesson.          Writing: Students will write the answers from activity in their <b>passports</b>.          Listening: Students will listen for directions and to peers.          Reading: Students will read about different countries and interpret graphs.</p>
<p><b>Assessment</b>          Formative- Completion and engagement of stations activity. <i>Look to see if students are actively engaged in are answering questions correctly.</i>          Summative- Students will interpret data from stations to predict the best months to grow cabbage. They will also grow and care for their own personal cabbage.</p>	<p><b>Technology:</b>          iPads (or any device that can scan QR codes)</p>
<p><b>Lesson objectives:</b></p> <ul style="list-style-type: none"> <li>- Students will identify various countries on a world map</li> <li>- Students will describe locations using latitude and longitude coordinates</li> <li>- Students will interpret graphical climate data</li> <li>- Students will compare the effect of various climates in regard to cabbage growth</li> <li>- Students will explore how various countries use cabbage in meals</li> </ul> <p><b>Procedures:</b>          Detail specific steps and questions that will guide your instruction. Bold all scripting. Highlight any academic questions. Put brackets around behaviors or actions.</p> <p><b>Preparation:</b>          Teacher should set up six stations/tables around the room, one for each country. If possible, each station could be decorated with paraphernalia relevant to that country. At each station, place the two printed pages: one with information/instructions about the country, one with information/instructions about the cabbage associated with that country. Each station will need the following:</p> <ul style="list-style-type: none"> <li>• The appropriate colored pencils</li> <li>• Either a cabbage and measuring equipment or samples of prepared cabbage for students to smell and/or taste</li> <li>• Further details are on the station pages.</li> </ul> <p>Print a copy of the student passport for each student.</p> <p><i>Introduction-</i> Students will explore a variety of countries in regard to location, climate, availability of cabbage, and common recipes. The goal of this lesson is for students to build a stronger understanding of food commonalities and differences between cultures.</p> <p><b><u>ENGAGE:</u></b> <i>Whole Group Engagement Activity-</i> Read students <i>The Cabbage Soup Solution</i> by Erika Oller. An alternative is to play the read along video of the story on YouTube:  <a href="https://www.youtube.com/watch?v=g4u0XH9lsWM">https://www.youtube.com/watch?v=g4u0XH9lsWM</a></p> <p>Discuss the role of growing, preparing, and sharing food, specifically cabbage in this story, in the development and maintenance of friendships.</p>	

**EXPLORE:** *Main Activity-*

1. Teacher should explain how students will rotate through stations during this lesson and how students fill in their passport at each station. This is left to the teacher's discretion (ex. Rotate clockwise, when the timer goes off, when I ask you to rotate, etc.).
2. Students collect their passports and report to their assigned station: Brazil, Ireland, India, China, England, or Morocco.
3. Students work together to:
  - a. read about the country
  - b. locate and color the country **on their passport map**  
\*Brazil and Ireland require students to answer a latitude/longitude question on their passport
  - c. read/discuss the climate data line and bar graph
  - d. answer the graphical data question **on their passport**
  - e. read/discuss the local cabbage information
  - f. write the name of the recipe specific to that country **on their passport**  
\*India, China, England, and Morocco require students to measure a cabbage and record the data on their passport
4. When instructed, students rotate to the next station and begin reading about the next country

**EXPLAIN:**

*Whole class discussion* about their findings from the stations. Teacher should facilitate/guide conversation by asking leading questions but allow students to state opinions, share their data analyses, make arguments, and respond critically during the discussion

**ELABORATE:** *Planting personal cabbages*

1. Each student takes a recycled box, an envelope, a cabbage coloring page, and a cabbage care page.
2. While the teacher is delivering soil and cabbages to each table, students remain in their seats, color their cabbage "label", and glues their label and envelope to the sides of the box. They will also use this time to read/set up their cabbage care page.
3. The teacher allows students to place 3-4 scoops of soil inside their box and gives each student a cabbage to plant in their box.
4. Provide each plant a few squirts of water.
5. Once planting is complete, students record the first date, amount of water provided, room temperature and sunlight conditions on the care page. Encourage each student to make any initial observations about their plant. If possible, document "Day 1" with a photo of the student and their plant.

**EVALUATE:**

*Data Interpretation-* Students will use the information about water and temperature needs of cabbage to determine the best month(s) for cabbage growing in each of the six countries on their passport.

*Prediction-* Students will predict what growing conditions will result in the best cabbage for their personal cabbage.

***Extension:***

*Cultural-* Students will ask family members for a favorite recipe using cabbage. These can be shared with the class over the next several days.

*Graphing-* Students can create graphs from their Cabbage Care Page (ex. Double line graph of temperature and growth measurements)

**Cabbage Program Lesson Plan Template**

Select one of the following topics: before planting, planting process  
caring for your plant, harvest time.

**Attach instructional materials and examples used during lesson.**

# MY PASSPORT



## PERSONAL INFORMATION



Name: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Place of Birth: \_\_\_\_\_

Nationality: \_\_\_\_\_

Date of Issue: \_\_\_\_\_

Signature: \_\_\_\_\_



# PLACES I VISITED

## England



Write the name of the recipe  
from England.

\_\_\_\_\_

What I learned:

Notes:

# PLACES I VISITED

## Morocco



Write the name of the  
recipe from Morocco.

\_\_\_\_\_

What I learned:

Notes:

## PLACES I VISITED

### India



Write the name of the  
recipe from Italy.

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What I learned:

## PLACES I VISITED

### China



Write the name of the  
recipe from China.

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What I learned:

What I learned:



Write the name of the  
recipe from Brazil.

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Brazil

PLACES I VISITED

What I learned:



Write the name of the  
recipe from Ireland.

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Ireland

PLACES I VISITED

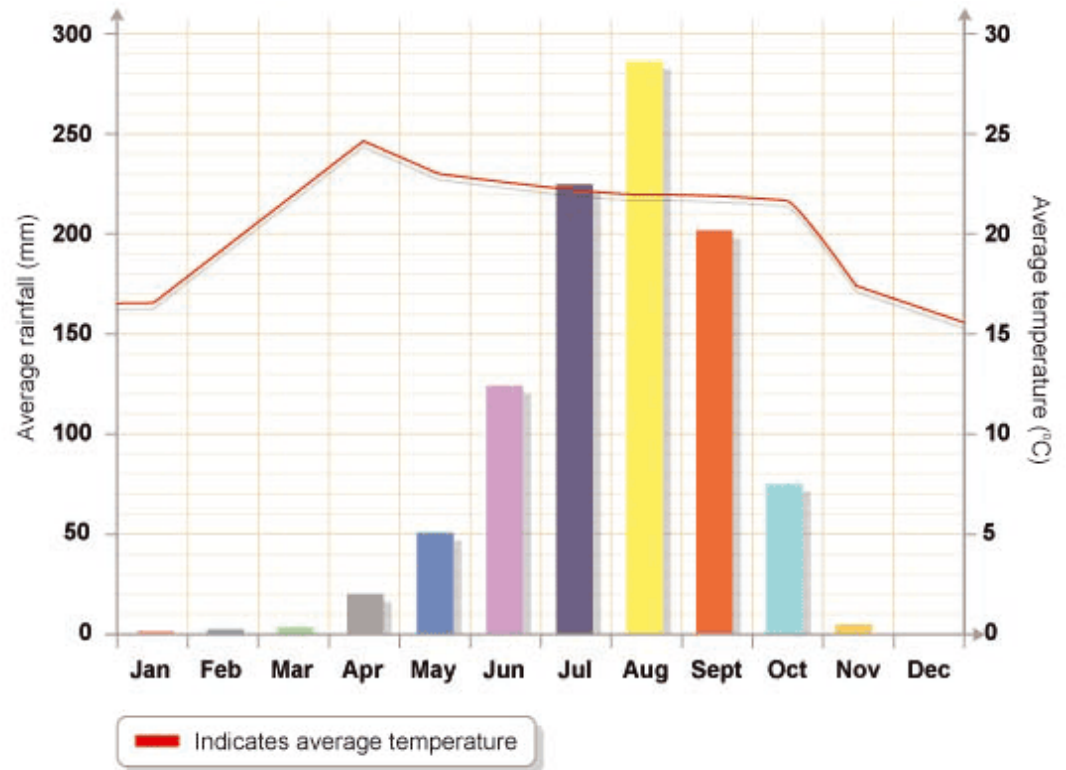
Country: **England**



Find England on your  
passport map.  
Color it **blue**.

Which month is the  
coldest?

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Use the scale on the table to measure the weight of the cabbage. Write your measurement on your passport.



Click on the QR Code on your “England” page in your passport for a recipe for  
**Bubble & Squeak**

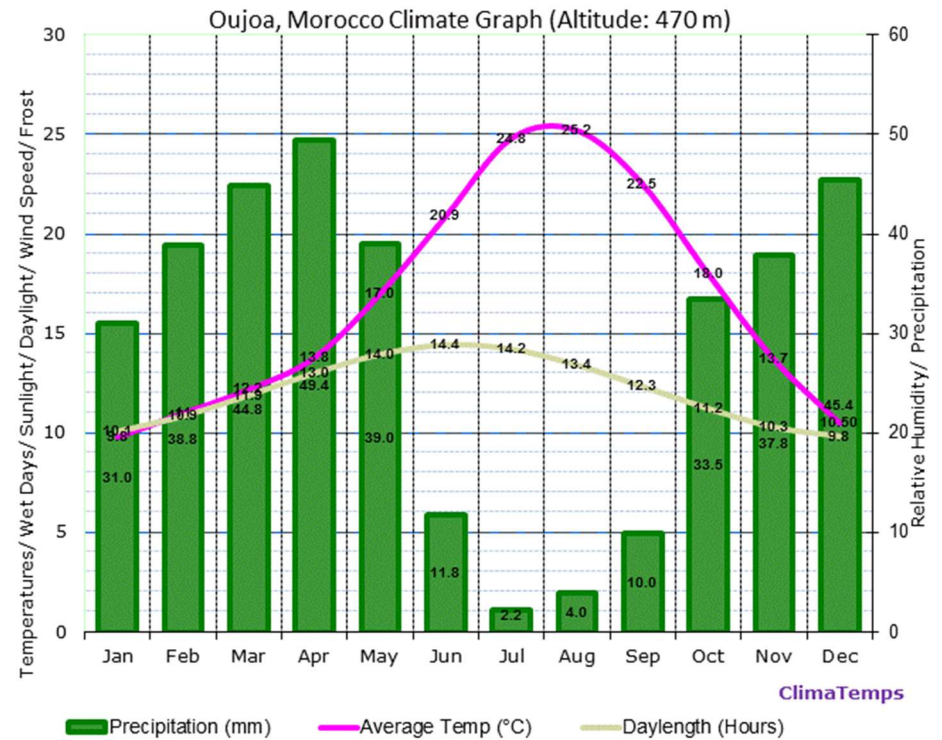


Country: **Morocco**



Find Morocco on  
your passport  
map.  
Color it **black**.

Which month had the  
highest temperature and  
the least amount of rain?





Use the ruler and string on the table to measure the circumference of the cabbage. Write your measurement on your passport.



Click on the QR Code on your “Morocco” page in your passport for a recipe for

**Moroccan Cabbage Saute’**

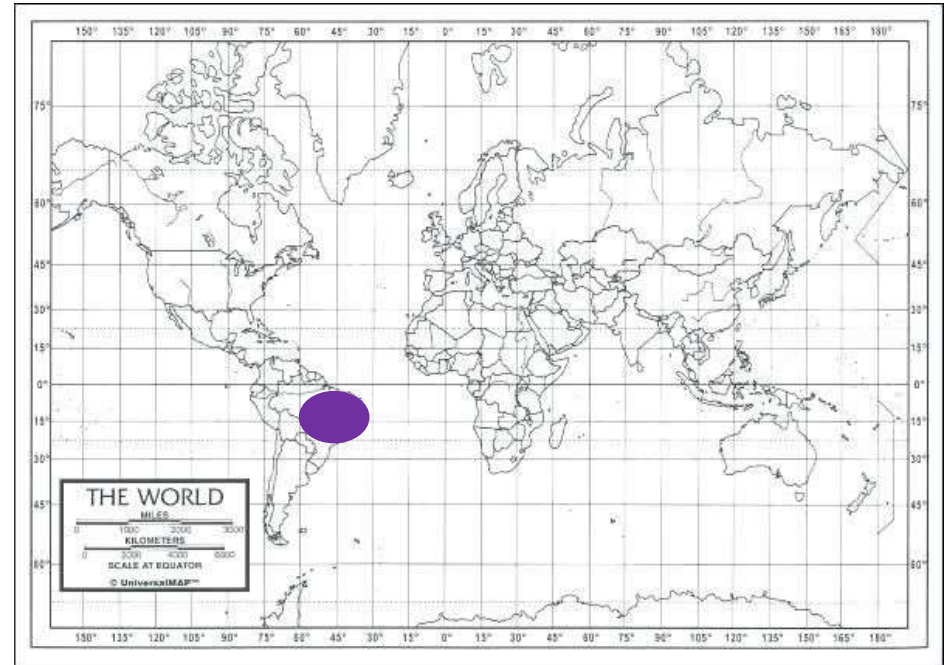




Country: **Brazil**



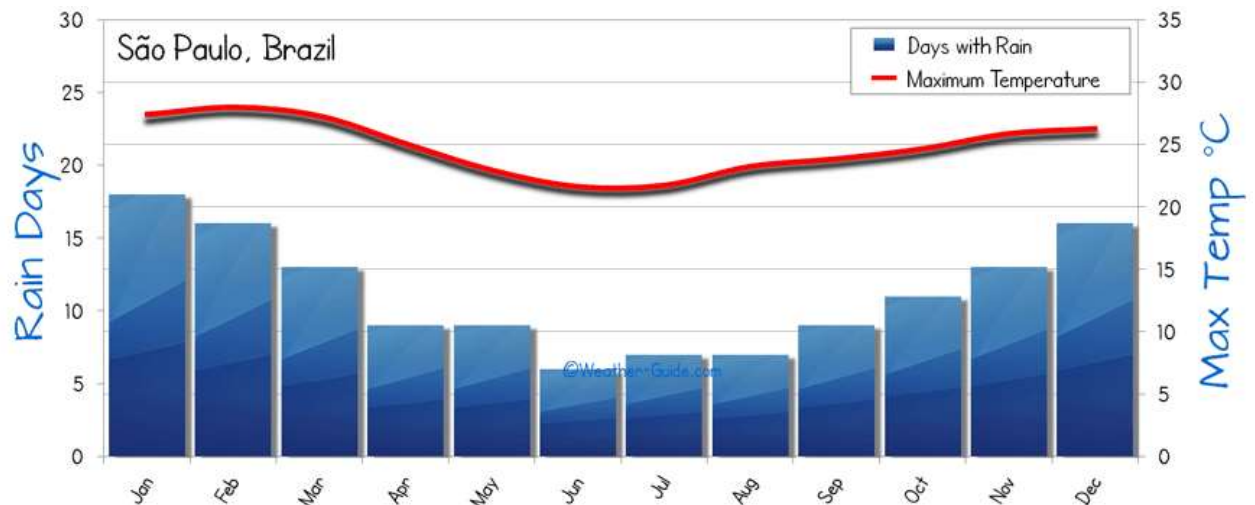
Find Brazil on your  
passport map.  
Color it **purple**.



Write the Latitude and Longitude  
for Brazil in your passport.

Which month gets the least  
amount of rain?

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Click on the QR Code on  
your “Brazil” page in your  
passport for a recipe for

# Cutido



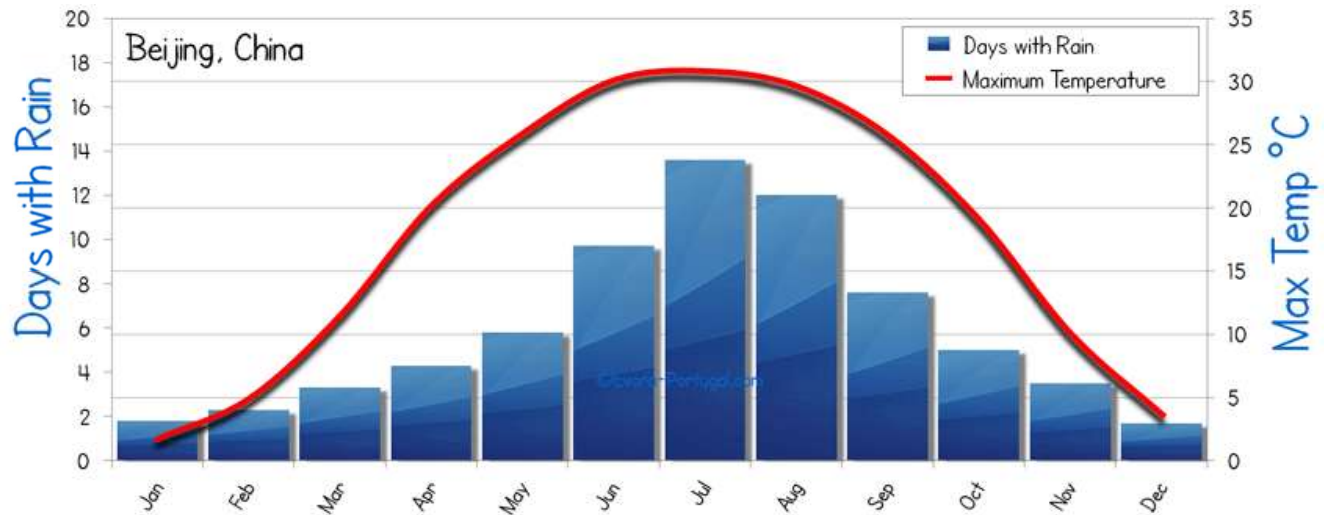
Country: **China**



Find China on your  
passport map.  
Color it **red**.



**Which months did the  
maximum temperature  
intersect with the  
days with rain?**







# Chinese Napa Cabbage



This hybrid Chinese cabbage (Optiko) grows into a large head of beautiful green leaves with a thick, pearly white midrib and a mild cabbage flavor. Also called Napa cabbage, it is typically used for stir-fry, but it is also great raw in salads. Good for fall planting, and also spring and early summer because it is slow to bolt. Grows best in full sun, but will tolerate partial shade and even appreciates it in spring in hot climates. Resistant to fusarium yellows.

Light	Full sun to part shade
Head size	11 inches by 5 inches
Matures	45 to 60 days
Plant spacing	12 to 18 inches
Plant size	18 inches tall and wide

Use the string and ruler on the table to measure the circumference of the cabbage. Write your measurement on your passport.



Click on the QR Code on your “China” page in your passport for a recipe for

## Kaiyang Baicai



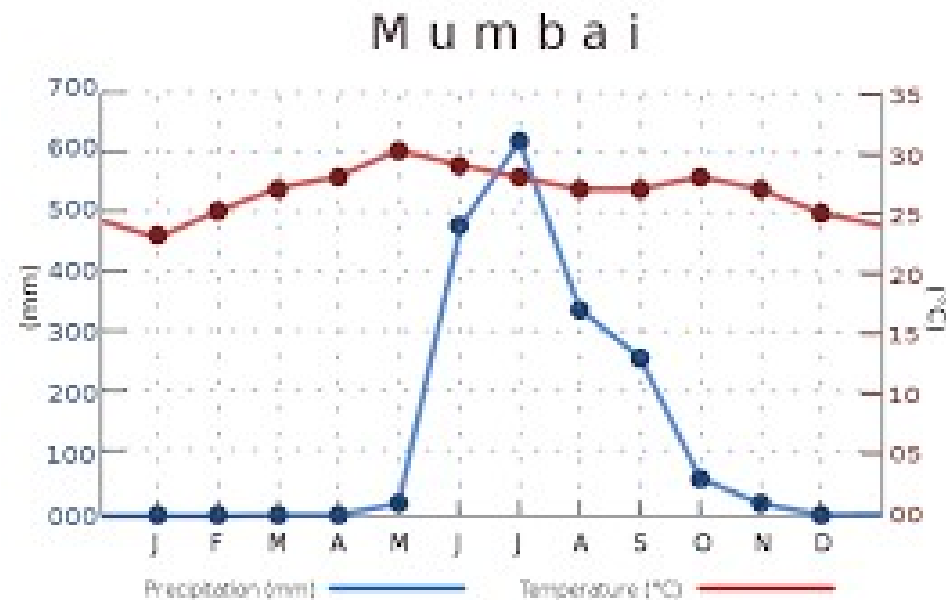
Country: **India**



Find India on your  
passport map.  
Color it **brown**.

Which month had the  
highest amount of rain?

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Click on the QR Code on your  
“India” page in your passport for a  
recipe for  
**Patta Gobhi Ki Sabzi**



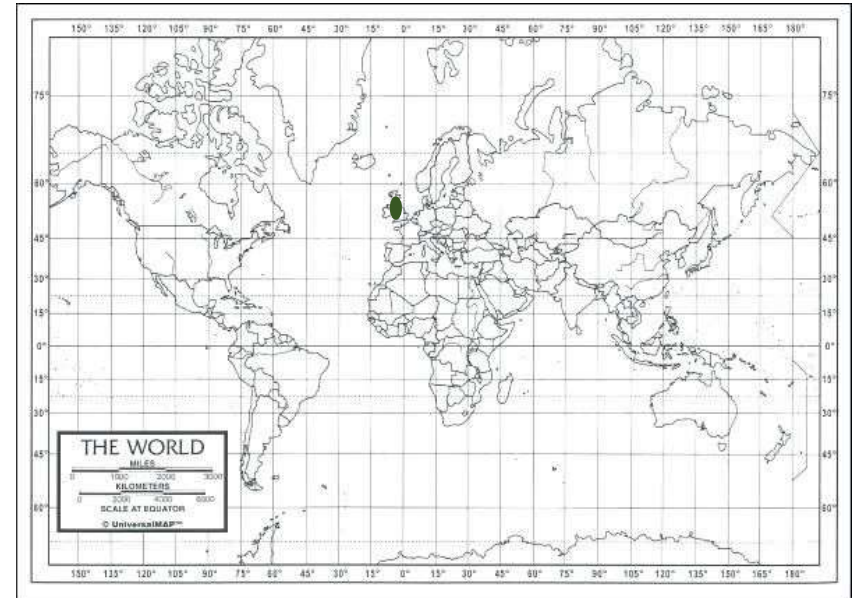
Use the ruler and  
string on the table to  
measure the  
circumference of the  
cabbage. Write your  
measurement on your  
passport.



Country: **Ireland**

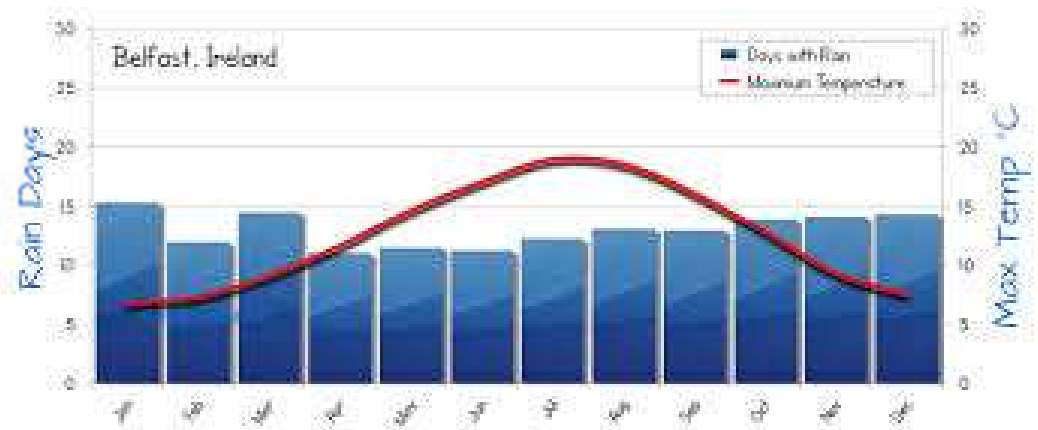


Find Ireland on your passport map. Color it green.



Write Ireland's Latitude and Longitude in your passport.

Which month gets the most rain? \_\_\_\_\_

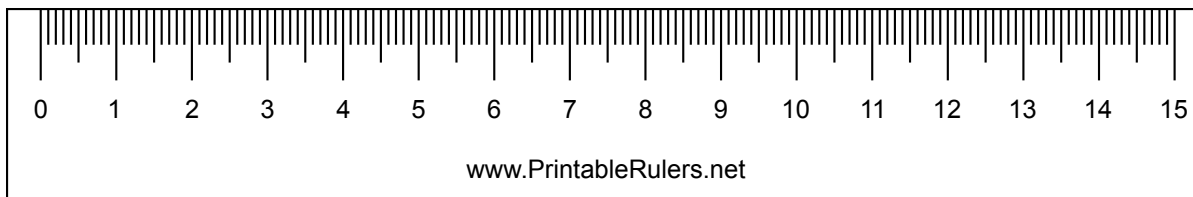
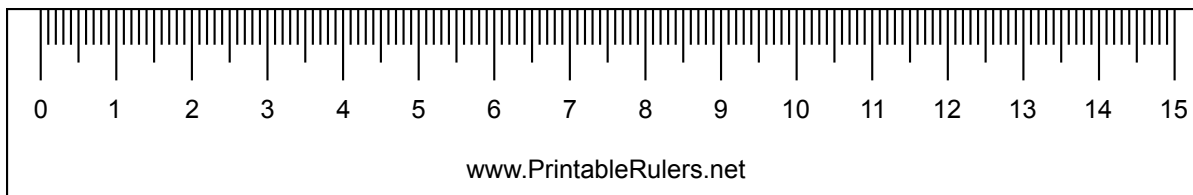
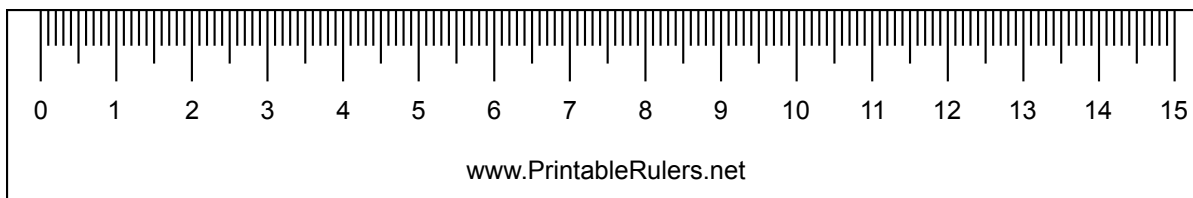
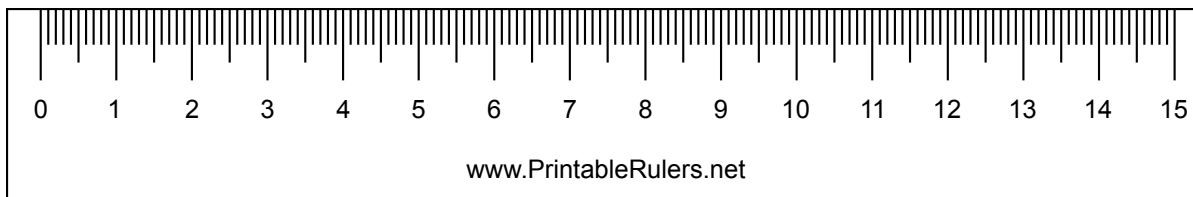
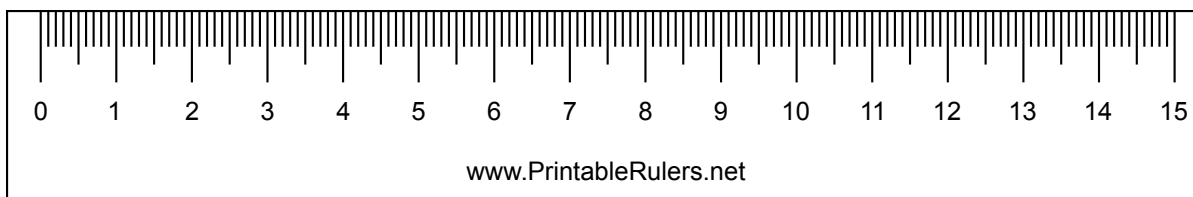
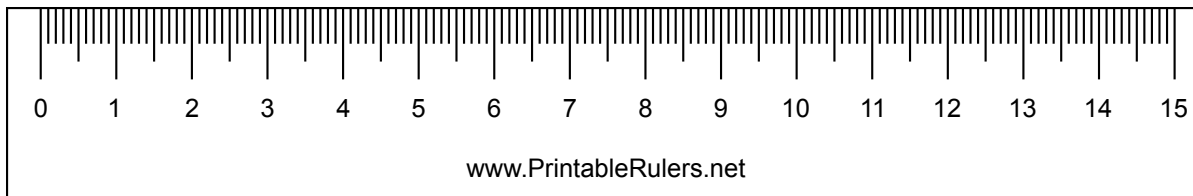
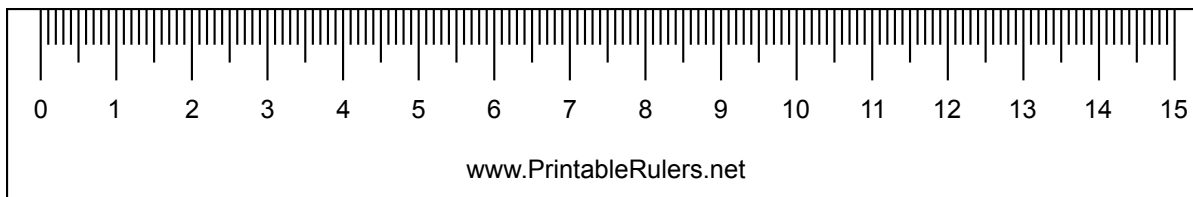


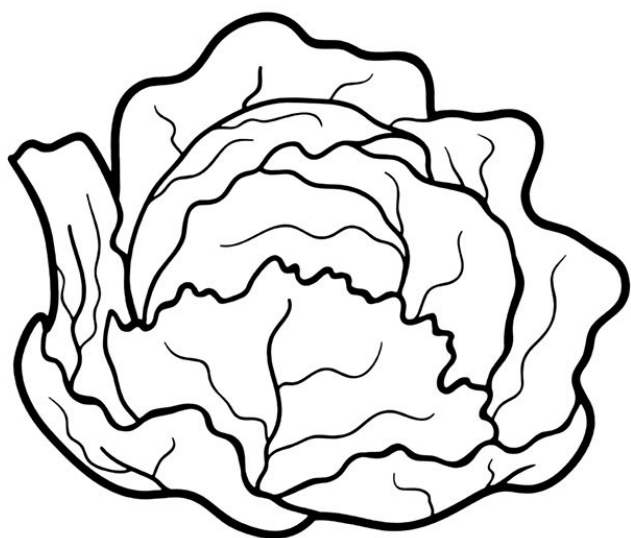


Click on the QR Code on your  
“Ireland” page in your passport for a  
recipe for  
**Corned Beef & Cabbage**

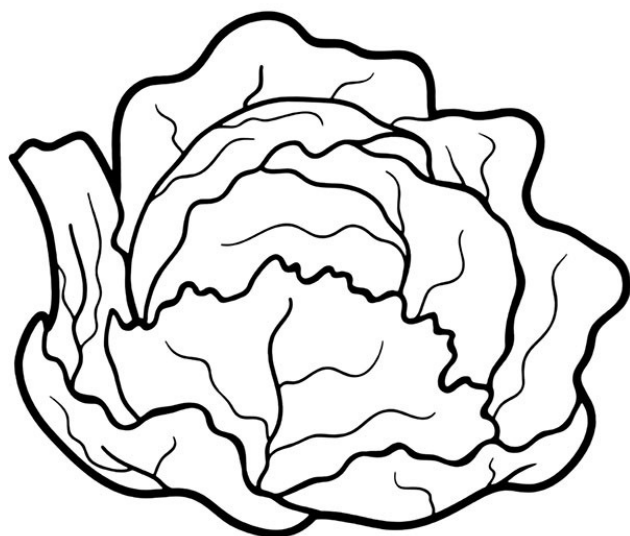


15 cm by 1 mm

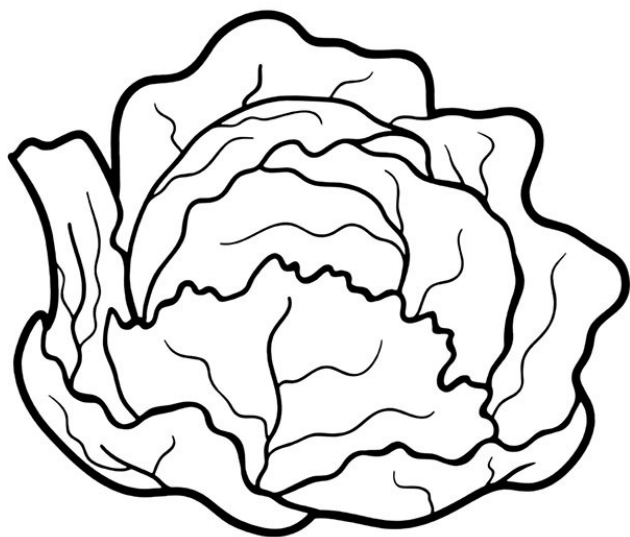




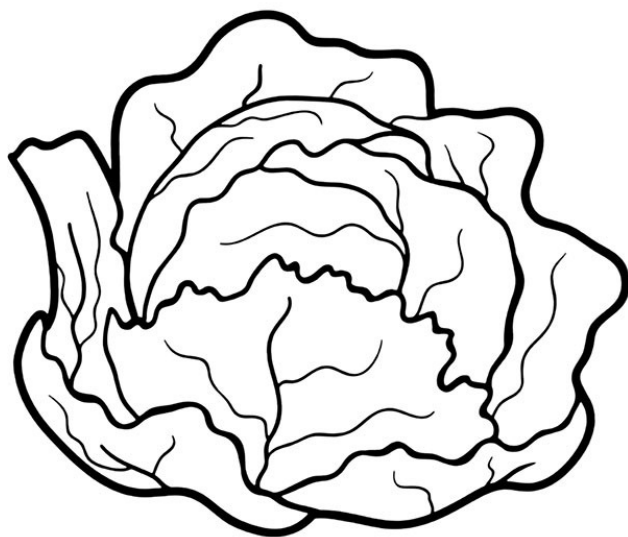
**CABBAGE**



**CABBAGE**



**CABBAGE**



**CABBAGE**

[illegible]