

## TEACHER MATERIALS - Celery

### CONCEPTS:

Math, Science, and Technology

-Standard 1.1, 1.3- Scientific Inquiry

-Standard 4.6- Living Environment

ELA

-Standard 1.1- Listening and Reading

Career Development

-Standard 3a.1- Basic Skills

-Standard 3a.2- Thinking Skills



**OBJECTIVES:** At the end of this unit the student will be able to:

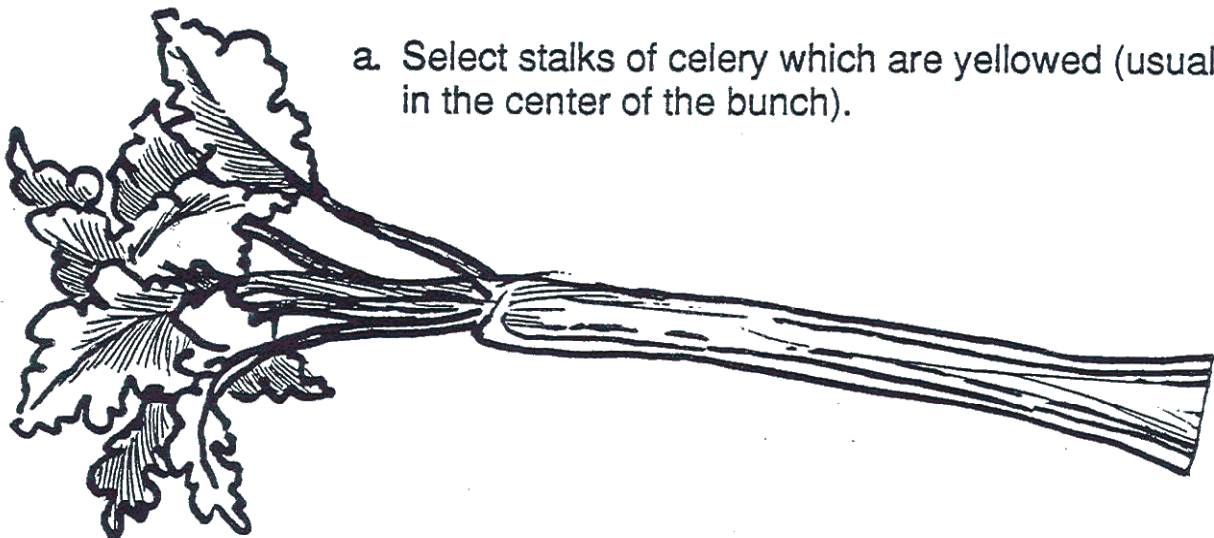
1. Describe how celery is grown.
2. Utilize the vocabulary words of these lessons accurately.
3. Discuss some of the uses of celery as well as the use they like best.
4. The students will understand that a plant's stem supports the plant and provides a pathway for water to move up the plant and for food travelling down to the plant's roots.

**BACKGROUND:** Roots take in water and nutrients. A plant's stem provides support and a pathway for sustenance. Leaves are the site of photosynthesis. Plants make and store food, produce shade, provide erosion protection, and give us oxygen. The food and oxygen production of plants provide two of the necessities of animal life.

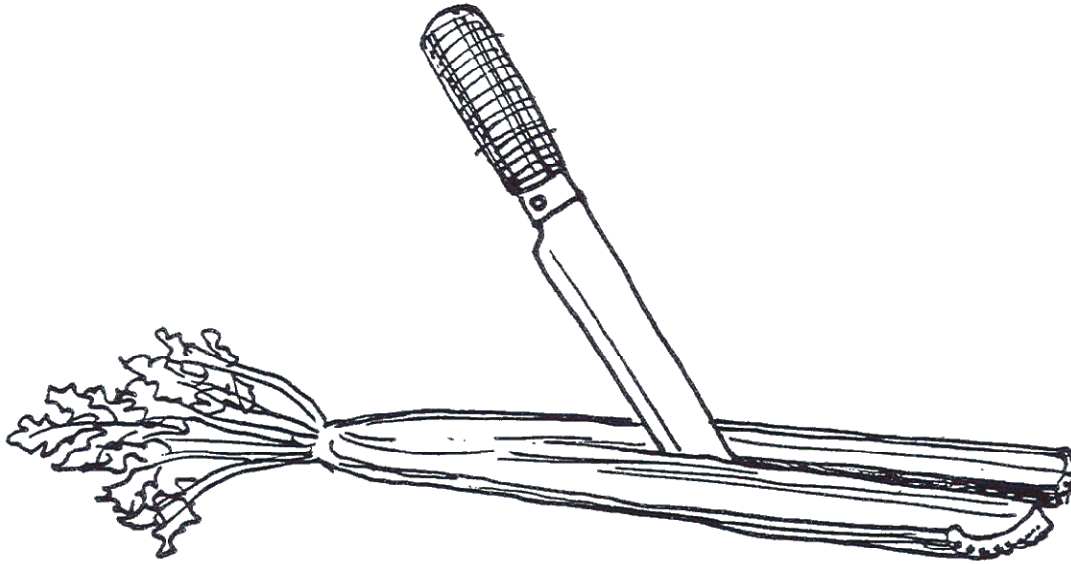
Children eat celery frequently. Most have little knowledge of the growth, production or processing of this crop. It is a crunchy, low calorie snack food and flavor enhancer for many other dishes. A basic understanding of this vegetable and the fact that we eat the stalk of this plant begins the process of teaching that food does not come from a factory or grocery store but rather, on farms.

**MATERIALS:** Celery stalks  
5 glasses or clear plastic cups  
Food coloring - red and blue  
Water  
Sunlight  
Copies of the celery pictures and "Celery"

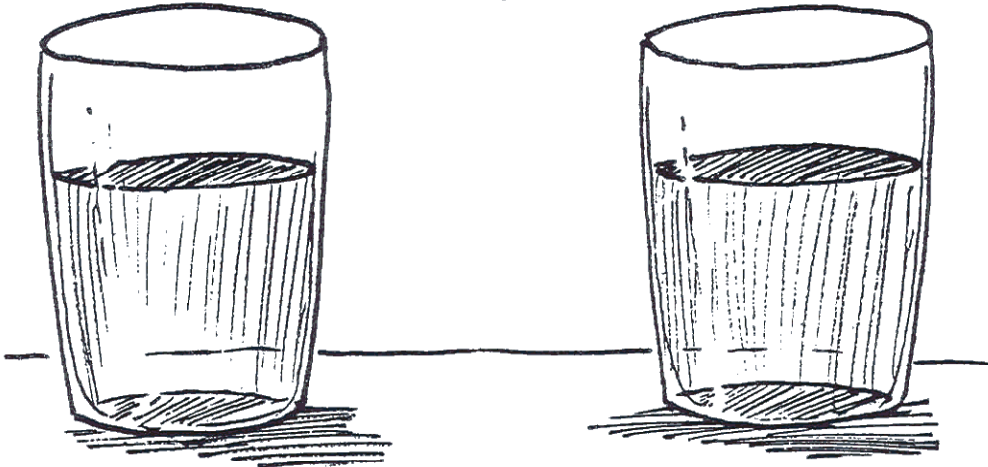
- ACTIVITIES:**
1. Have the students read pages 12 to 14 in "The Source" and the lesson "Celery" on pages 2-94 through 2-105 as this lesson progresses.
  2. Ask the students, "How does water move up a plant from the roots to the leaves?" Discuss it.
  3. Have the students conduct this "celery" lesson as follows:
    - a. Select stalks of celery which are yellowed (usually in the center of the bunch).



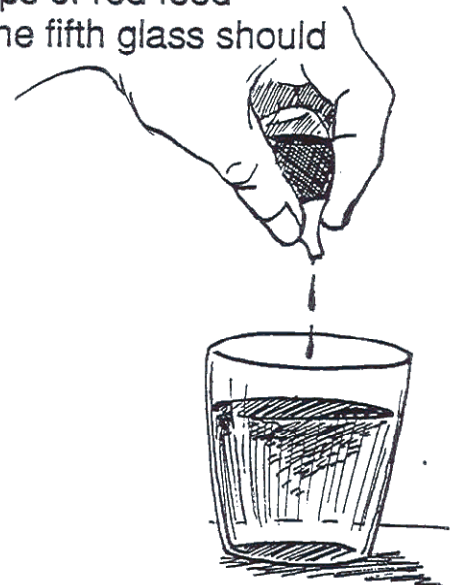
- b. Slice one celery stalk in half almost up to the leaves, another into thirds.



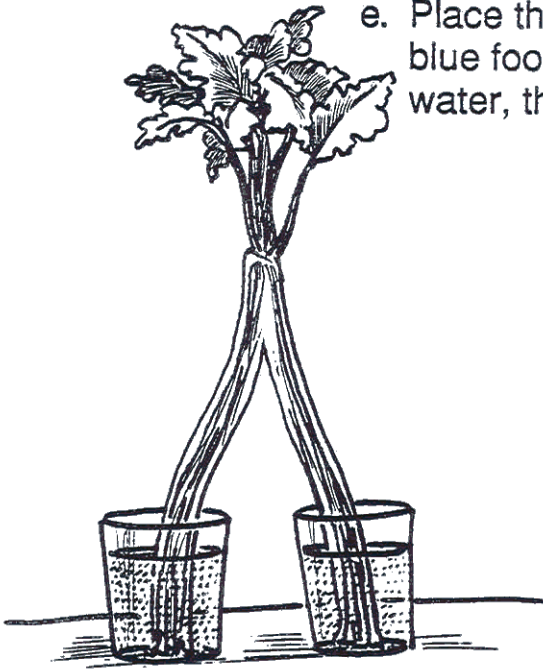
- c. Fill each of five glasses 3/4 full of water.



- d. In two glasses add three drops of red food coloring, in two, add blue. The fifth glass should contain clear water.

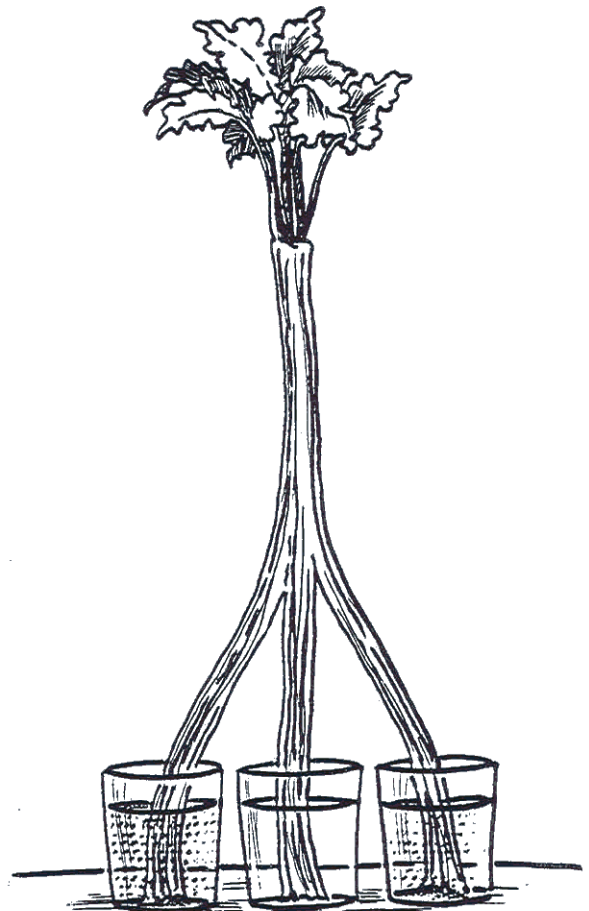


- e. Place the stalk cut in half into glasses of red and blue food coloring; one half into the glass of red water, the other into the glass of blue water.



- f. Do the same for the stalk cut into thirds; one third into the glass of clear water, one third into the glass of red water and the last into the glass of blue water.

- g. Place both stalks in direct sunlight and observe over a period of a few hours.





4. Make copies of the celery pictures.



5. As the color of the stalks change, have the students color the drawings and note the time by drawing a line across the picture and writing down the time.

6. After the color is very dark, lift the stalks out and cut out a cross section. The "strings" should be noticeably darker. These actually transport water up the stem. Cut a cross section where the stem is whole. The students should be able to see quite clearly which half is red and which is blue.

7. Discuss with the students the fact that the stem's job is to hold the plant up--this is why tree trunks are so strong. Ask what holds them up. Talk about bones and their skeleton and spine. Also discuss the obvious flow of water up from the roots and then conversely the flow of food down to the roots. Relate this back to the plants which store food in their roots.

8a. Try to color flowers using white flowers--mums, daisies, carnations, or Queen Anne's Lace (wild carrot).

b. Use blue or green food coloring to produce unusual colors of flowers.

c. Try colored flowers--yellow or pink show the contrast well with green or blue food coloring.

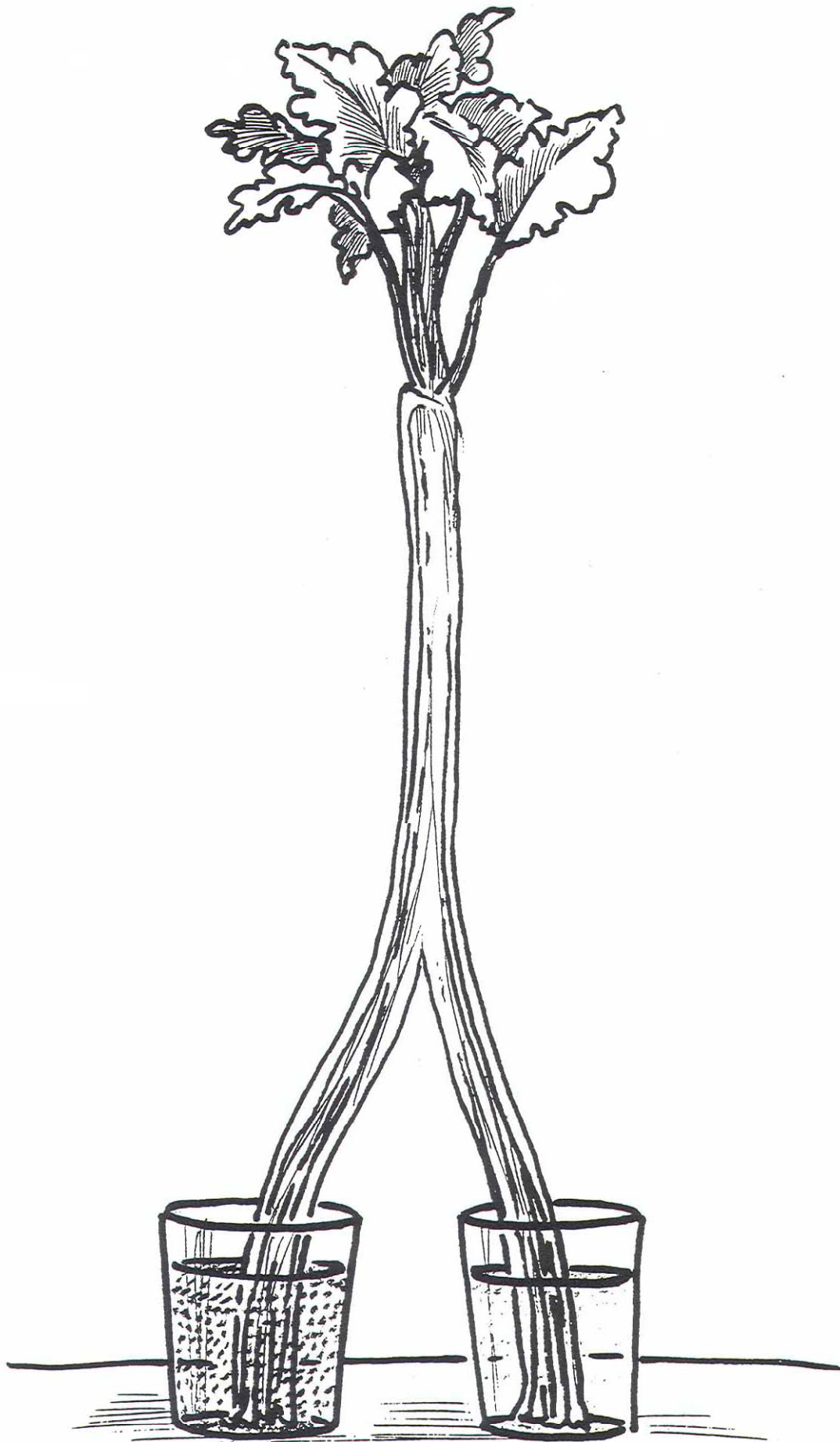
d. Discuss with the students the fact that this is the method by which florists produce colors of flowers which do not exist naturally. For example, before St. Patrick's Day, florists will place the stems of white carnations into pails of a strong green dye to produce green carnations (they may also spray them) which do not occur naturally.

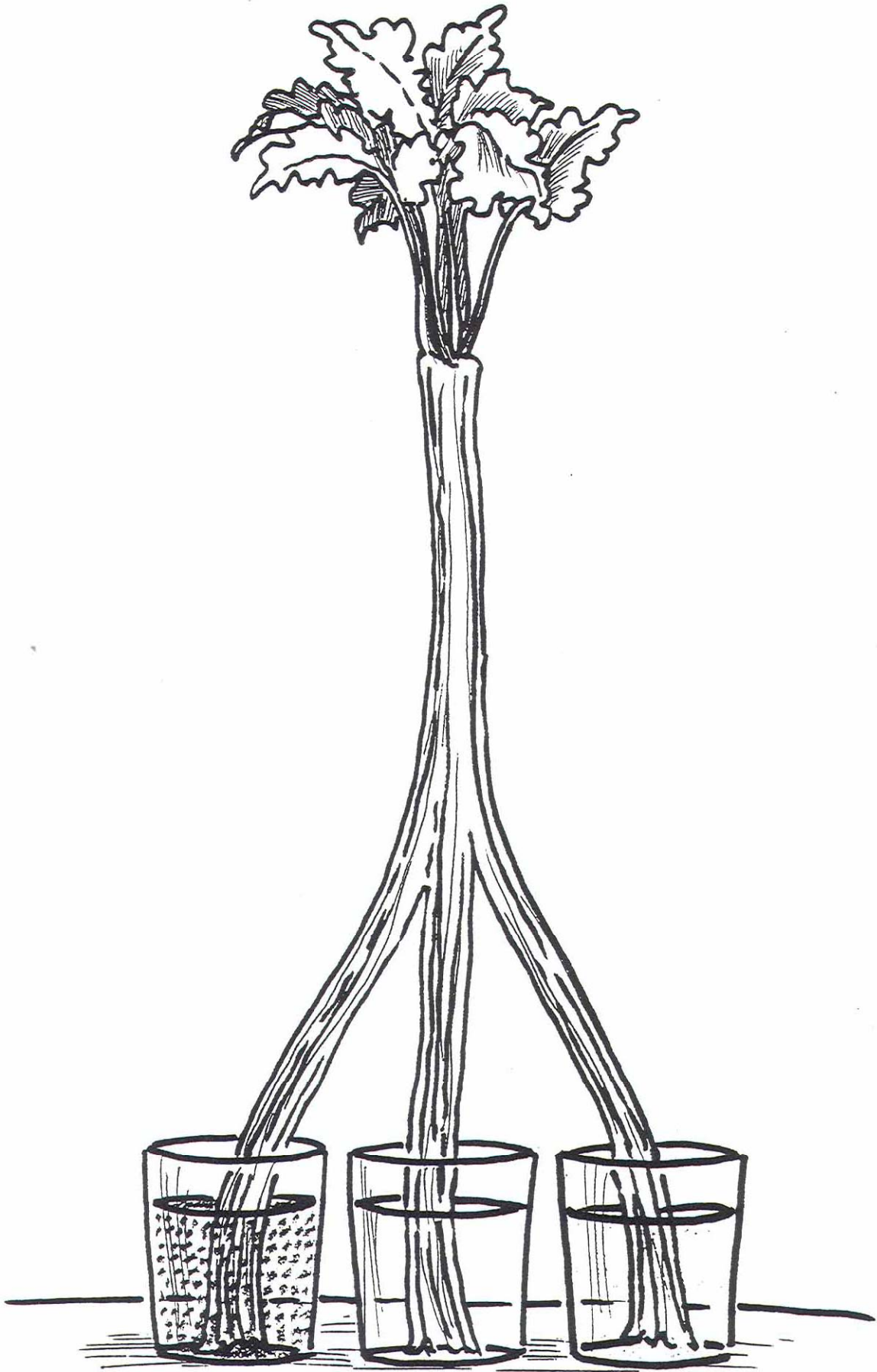


9. After completing the lessons on the parts of the plant, seeds, roots, the peanut and this lesson on stems, have the students complete the following worksheet.
10. Have the students complete the celery worksheet.
11. Have the students complete the pizza lesson in Social Studies.

**ADDITIONAL RESOURCE:**

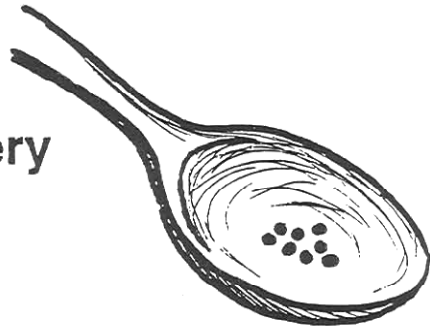
"Special on Sprouting", Scienceland, Vol. IXII, No. 98.





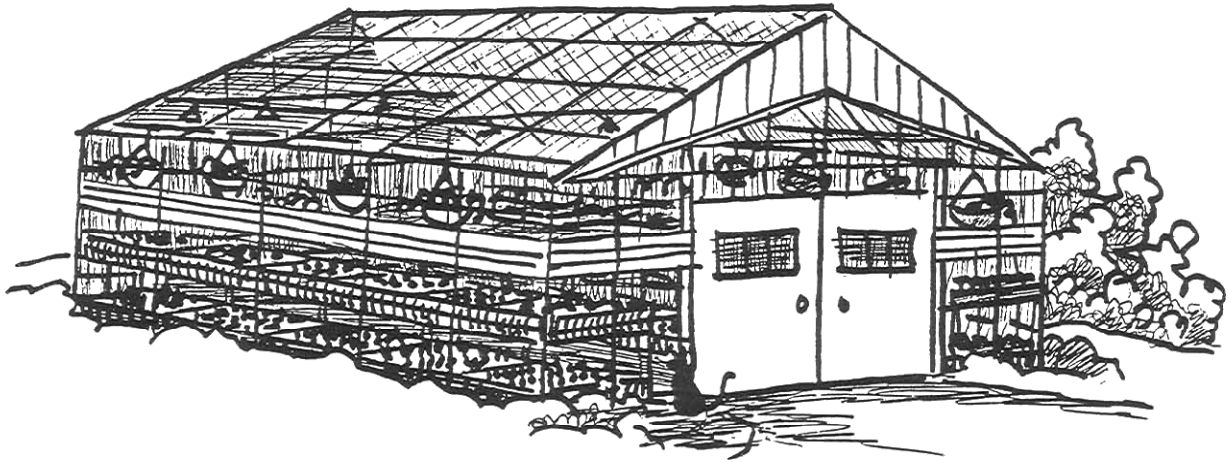


# Celery

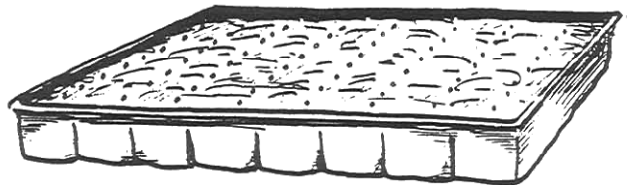


Celery is grown from tiny, little seeds.

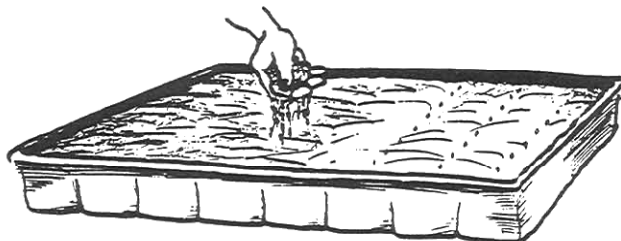
The seeds are grown indoors in greenhouses. These special houses are made of glass or clear plastic.

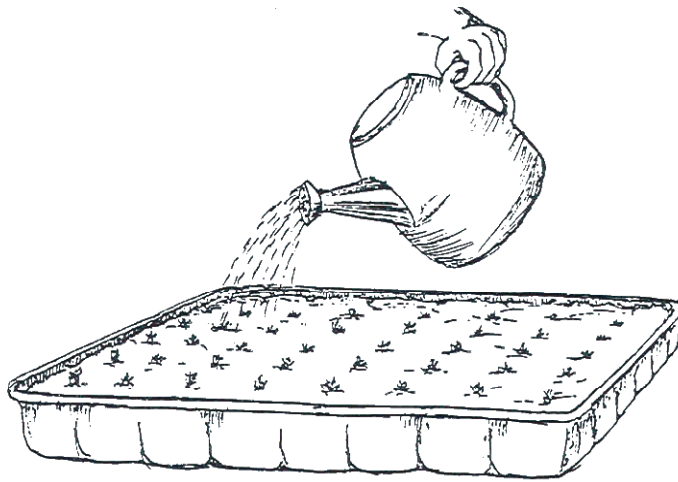


Each seed is placed in a flat,



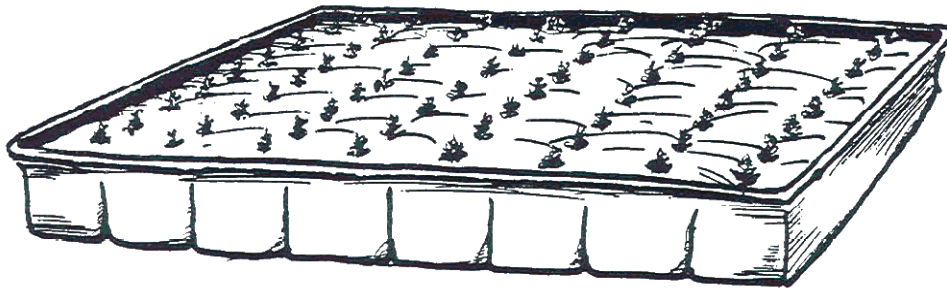
sprinkled with soil, and



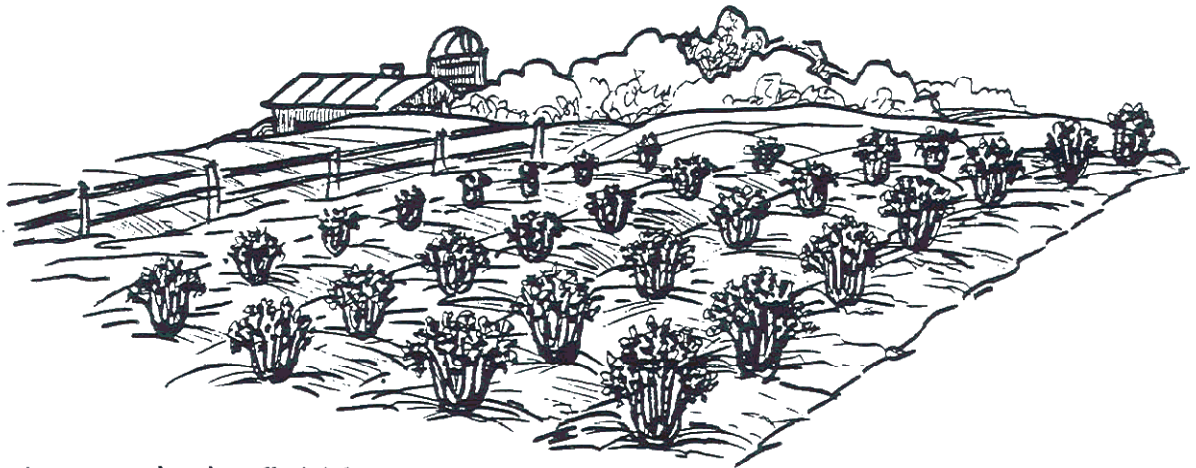


watered.

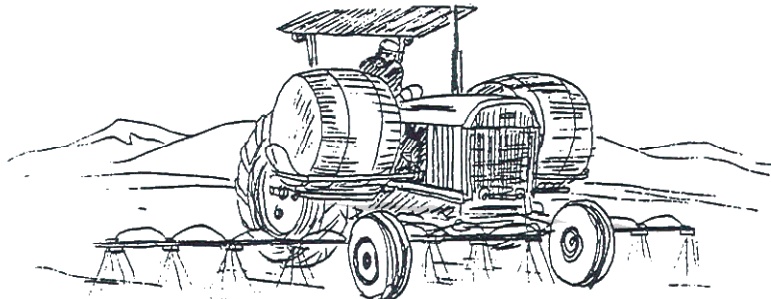
The seeds are kept warm. Very soon, they sprout.



After a few weeks, the small plants are sold to farmers. The farmers plant them in the field as soon as the danger of frost is past.



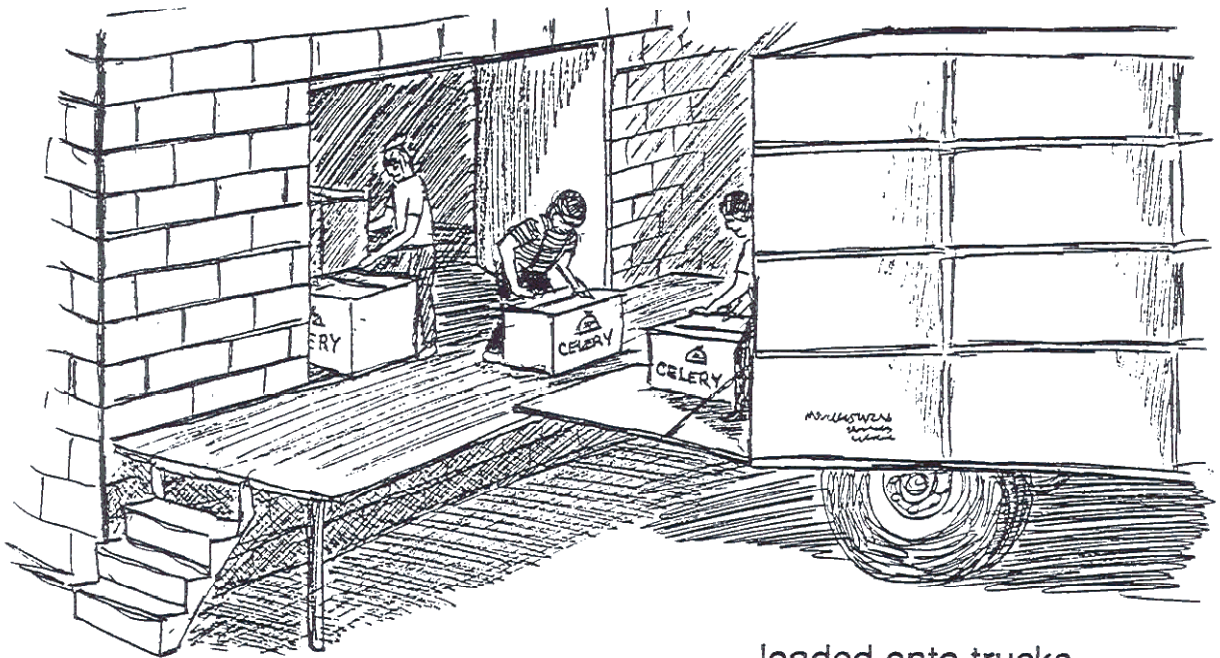
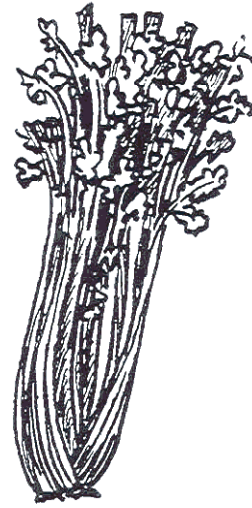
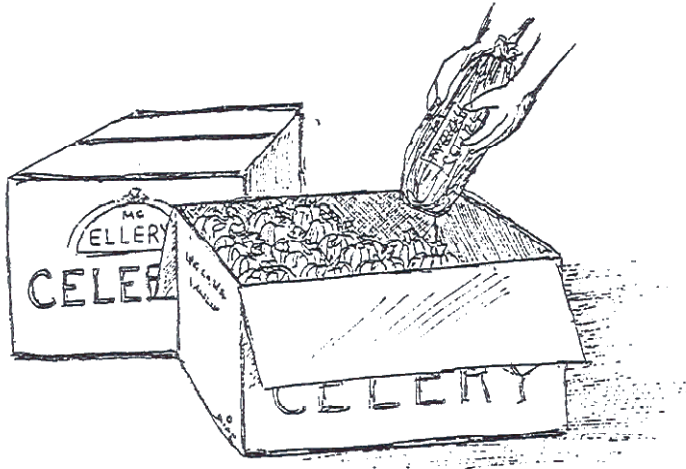
The plants grow in the field for three months.



They are sprayed to protect the plants from insect damage and diseases. They are fed with plant food (fertilizer) and watered.

When the celery is grown, it is cut,

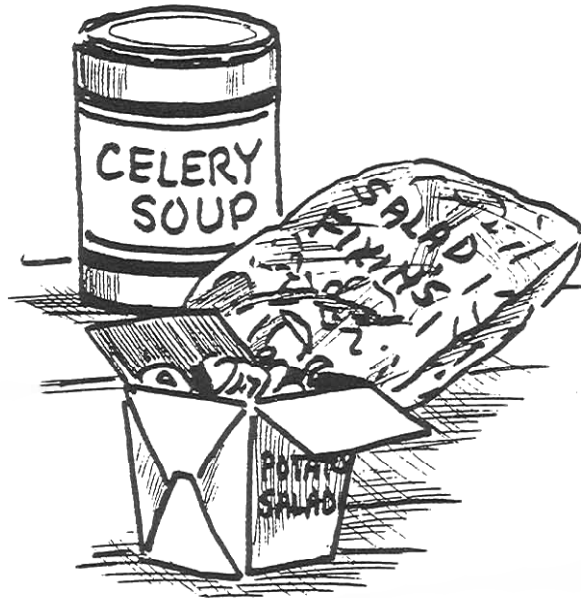
washed, boxed, and



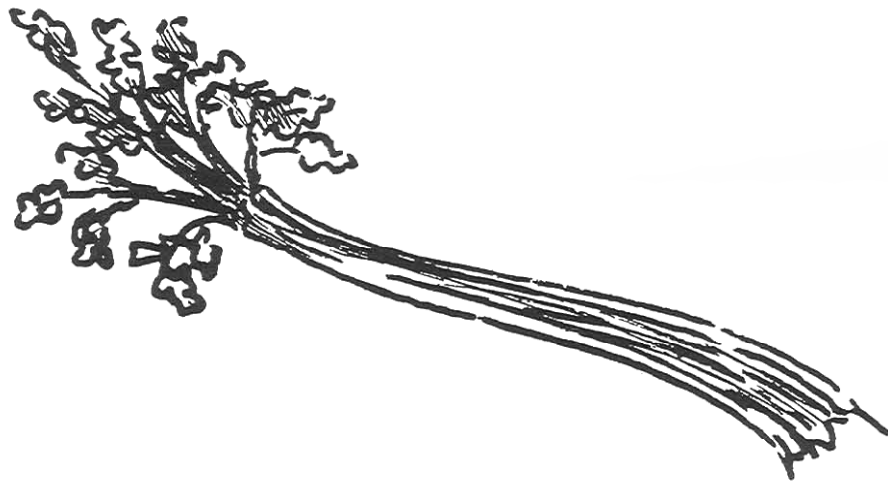
Trucks take the celery to be sold.

loaded onto trucks.

Who is the celery sold to before it reaches you?



Celery we eat is the stem of the plant. Another word for stem is stalk.



This is a stalk of celery.

Name \_\_\_\_\_

## Celery Worksheet

Draw a line to match the picture to the best words:

tiny seeds

plastic house

flat

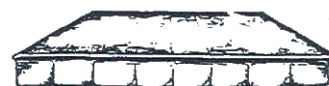
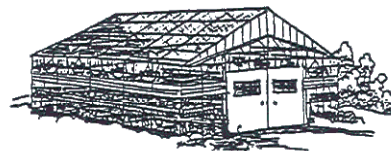
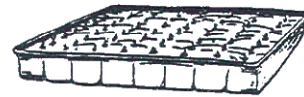
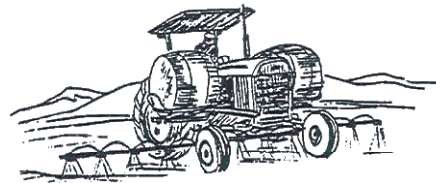
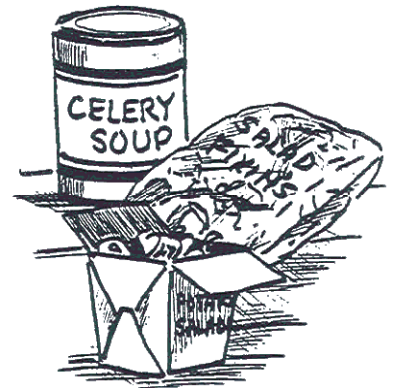
sprout

in field

sprayed

sold to you

one stalk





# Celery Worksheet

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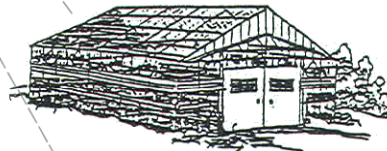
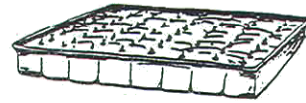
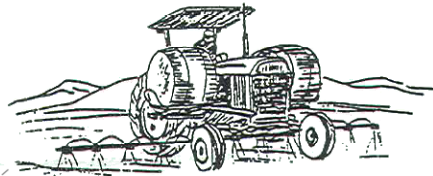
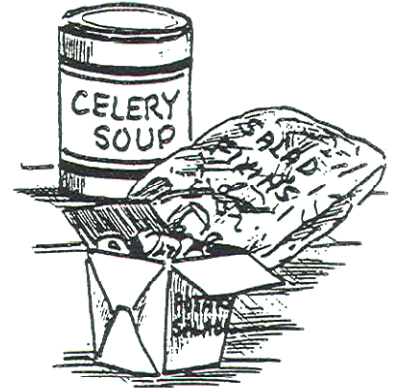
sprout

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## Information: Using Plants

While much of this information can be obtained by reading "The Source," several clarifications are required. Leaves, leaf structures, stems, modified stems, roots, tubers, rhizomes or bulbs, it is somewhat confusing to determine which is which.

- |        |                  |  |
|--------|------------------|--|
| Leaves | - for food       | - cabbage<br>lettuce<br>spinach<br>swiss chard<br>brussels sprouts                       |
|        | - for flavorings | - tea<br>oregano<br>parsley<br>bay leaf<br>basil<br>dill weed<br>spearmint<br>peppermint |
| Stems  | - for wood       | - trees of any type<br>bamboo  |
| Stems  | - for food       | - celery<br>rhubarb<br>sugar<br>maple syrup<br>asparagus                                 |
| Stems  | - for flavorings | - cinnamon   |

(It is the sweet juice of sugar cane and sap of the maple tree which we condense into sweeteners. We do not eat the stem proper. In other parts of the world, palm trees are tapped for sap to make sugar. Palm sugar is called jaggery.)



			soybeans linseed cotton seed peanuts
Seeds	- for flavoring	-	cacao beans coffee beans kola nuts (cola flavoring)
Fruits	- for food	-	melons apples oranges grapefruit grapes peaches tomatoes cucumbers plums pumpkins squash avocado pineapple
Flowers	- for food	-	broccoli cauliflower artichoke
	- for flavoring	-	cloves chamomile

Rather than try to explain all of these intricacies to second graders, we will leave it to your discretion to share what is appropriate for your students without creating confusion. We also did not include fungi or yeasts which we consume, corn syrup, and fructose made from corn or other flavorings which come from trees (birch beer, root beer) for the same reasons.

Name \_\_\_\_\_

## Using Plants

How many ways can you list for the use of these?

Leaves for food - \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Leaves for flavor - \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Stems for wood - \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Stems for food - \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Roots for food - \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_