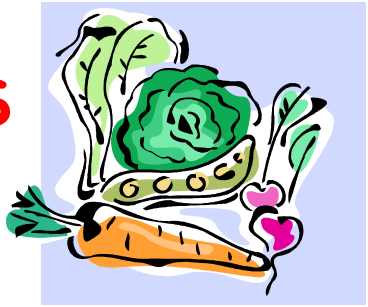
PLANT PARTS



THEME: Grab Quick and Easy Snacks
NUTRITIONAL FOCUS: Vegetables
GRADE LEVEL: Kindergarten

OBJECTIVES:

1. Students will learn about the *Food Guide Pyramid* by class discussions and activities.
2. Students will learn about plants and plant parts by participating in class discussions and completing activities.
3. Students will learn about numbers and counting by completing activities.
4. Students will demonstrate their understanding of sequencing by illustrating the steps in a food experience.
5. Students will develop listening skills by listening to stories.
6. Students will become familiar with a variety of foods by singing songs.
7. Students will accept a variety of snacks in their diet by participating in food experiences.
8. Students will develop an appreciation of physical activity by imitating movements.

CURRICULUM CONNECTION: Art, Health, Listening, Mathematics, Music, Physical Education, Reading, Speaking, Science

Fine Arts Standards

Music— Standard One: Students will use the performance of music as a means for creative expression and communication.

Visual Arts— Standard One: Students will understand and use visual arts as a means for creative self-expression and interpersonal communication.

Health Education Standards

Standard One: Students will understand health promotion and disease prevention concepts and practices.

Life Science Standards

The student will:

1. sort living from non-living things.
5. describe changes that are part of common life cycles.
9. describe ways that plants and animals depend on each other.

Measurement Standards

The student will:

7. compare temperatures of different objects

Number Sense Standards

The student will:

1. count and group numbers, objects, and simple events.

Nature of Science Standards

The student will:

1. actively participate in science activities.

Patterns, Relations, and Functions Standards

The student will:

1. sort and classify objects according to similar attributes.
2. identify common attributes found in different groupings.

Physical Education Standards

Standard One: Students will develop competency in all fundamental movement skills and proficiency in some movement forms.

Standard Three: Students will participate in physical activity to achieve and maintain a health enhancing level of physical fitness.

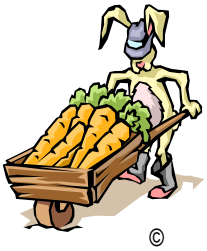
Reading Standards

The student will:

1. name all upper and lower case letters and identify the representative sounds.
10. identify patterns of rhyming words.
11. describe how books, stories, poems reflect things people do.
13. identify the characteristics of a variety of simple genres.
16. distinguish between "make believe" and "real" in print materials.

MATERIALS NEEDED:

- Parent Letter (included in lesson)
- Song: *Food Guide Song* (included in lesson)
- *Food Guide Pyramid* (included in lesson)
- *Jack and the Beanstalk*
- Art paper
- Crayons
- Student Handout *Seed Count* (included in lesson)
- An assortment of seeds for *Seed Count* activity (rice, popcorn, small beans and peas)
- An assortment of dry peas, dry beans
- Masking tape
- Song: *Beans and Peas* (included in lesson)
- Song: *Peanuts* (included in lesson)
- Construction paper
- White glue
- Rice
- *From Seed to Salad* by Hannah Lyons Johnson
- Student Handout *Leaves to Eat* (included in lesson)
- Green crayons
- *Peter Rabbit* by Beatrix Potter
- Student Handout *Roots to Eat* (included in lesson)
- Orange, green, red crayons
- Head of cabbage
- Peanut butter
- Toothpicks
- One white potato and five sweet potatoes
- Song: *Sweet Potato* (included in lesson)
- Stalk of celery
- Container of low-fat cream cheese
- Raisins
- Student Handout *Ants on a Log* (included in lesson)
- Popped popcorn
- Student Handout *Popped Flowers* (included in lesson)
- Food for Plant-Parts Party: celery, radishes, carrots, lettuce, spinach, broccoli, cauliflower, and low-fat salad dressing, crackers
- Tent cards for labeling foods at the Plant-Parts Party (included in lesson)
- Heavy-weight paper for making the tent cards
- Parent/Student Survey (included in lesson)



BACKGROUND INFORMATION:

Healthy eating patterns start with the three food groups at the base of the *Pyramid*: grains, fruits, and vegetables. Eating a variety of grains (especially whole grain foods), fruits, and vegetables is the basis of healthy eating. Additionally, the recommendation is to go easy on foods that are high in fat or sugars.

The recommended number of servings from the "Bread, Cereal, Rice & Pasta Group" of the *Food Guide Pyramid* varies from six to eleven servings per day. The number of servings depends on your age. Children ages two to six years, women, and some older adults need six servings daily. Older children, teen girls, active women, and most men need nine servings daily. Teen boys and active men need eleven servings daily. Many of the serving sizes given on the *Food Guide Pyramid* are smaller than those on the Nutrition Facts Label. For example, one serving of cooked cereal, rice, or pasta is one cup on a food label but only ½ cup on the *Pyramid*. Some foods from the "Bread, Cereal, Rice, & Pasta Group" may have a lot of sugar or fat added. These foods can be a part of a healthy diet if they are used sparingly.

Fruits and vegetables are key parts of the daily diet. Eating plenty of fruits and vegetables of different kinds may help protect the body against many diseases. Fruits and vegetables provide essential vitamins and minerals, fiber, and other substances that are important to good health. Most people eat fewer servings of fruits and vegetables than are recommended by the *Food Guide Pyramid*. The *Food Guide Pyramid* recommends from two to four servings of fruit and from three to five servings of vegetables each day.

A serving from the *Vegetable Group*:

- One cup of raw leafy vegetables
- ½ cup of other cooked or raw vegetables
- 3/4 cup of vegetable juice

A serving from the *Fruit Group:*

- One medium banana, apple, orange, or pear
- ½ cup of chopped, cooked, or canned fruit
- 3/4 cup of fruit juice

PROCEDURES:

1. Share the Background Information with the class. Lead the class in a discussion of eating foods at meals and at snacks. Ask students to discuss the difference in a meal and a snack. Tell the students that they will be learning to make healthy choices when they choose foods for meals and snacks.

2. Send home *Homework Help #1* to inform parents of the *Plant Parts* unit of study.

3. Read the words from the first verse of *Food Guide Song* to the class. Discuss "nutrients" as mentioned in the song. We get nutrients from the foods we eat. Read the words from the second verse of the song to the class. Discuss the importance of choosing a variety of foods from the *Food Guide Pyramid* to get nutrients that we need. Read the words of the last verse of the song to the class. Talk about the five food groups of the *Food Guide Pyramid*.

4. Read the words again but stopping after each line for the students to repeat the words. Ask students to listen for the rhyming words in the lines. Sing the song together. Send home a copy of the song for parents to sing with their child.

5. Refer to the *Food Guide Pyramid* and identify the food groups. Inform the class that some of the food groups come from animals and some come from plants. Tell the class that they will be learning about foods that come from plants. We depend on plants for many of our foods.

6. Ask students to name familiar plant foods. Discuss the named foods and identify the food group for each food.

7. Read *Jack and the Beanstalk* to the class. Lead the class in a discussion of the story. Discuss how the beans in the story were thrown out the window and then grew into a bean plant. What caused the beans to grow? Identify the bean plant as a living thing that needs sunlight, soil, and water to grow. Talk about the heat generated from the sun that warms the earth. Discuss clouds that bring rain to the earth. Even though *Jack and the Beanstalk* is not real, and beanstalks don't grow this fast or this high, plants really do grow like magic when soil, water and sunlight are provided!

8. Identify the beans that Jack traded for as *seeds*. Ask students to name foods that we eat that are seeds: beans, peas, corn, rice, etc. What made Jack's bean seeds different from the ones we eat? Of course, they were *magic* beans that grew into a huge beanstalk that led up in the sky to where the giant lived.

9. Give students art paper and have them draw a bean plant with the leaves, stalk and roots. Instruct the students to put the sun and a cloud in the picture since the beanstalk would need sunlight and water to grow.

10. Discuss how being active is healthy. Tell the students that healthy eating habits and physical activity work together for better health.

11. Ask students to describe the physical activity in *Jack and the Beanstalk*. Did Jack run? Did Jack climb? Take the class to the playground and let them pretend to be Jack running from the giant

12. Provide an assortment of seeds such as rice, popcorn, small beans or peas. (Large beans will be harder to glue in place.) Provide students the *Seed Count* handout. Instruct students to glue the correct number of seeds in each box.

13. Make *Seed Shakers* in class! Provide an assortment of dry peas and beans. Ask students to bring an empty soda can to class for making a rhythm instrument. When all students have a can, instruct students to count ten beans and ten peas to put in their cans. Use masking tape to seal the can.

14. Read the words of the song *Beans and Peas* to the class.

15. Show the students a variety of dried beans and peas. Notice that they are different colors and have different shapes. Explain that the word *substitute* in the song means that dried beans and peas can take the place of meat in the diet. This is because they give us protein. Explain that protein is a nutrient that we get from food.

16. Read the words of *Beans and Peas* again line by line. Ask the students to repeat the lines as they are read. Ask students to listen for rhyming words at the end of each line. Sing the song together. Sing the song a second time and add the sound of the *Seed Shakers*! Then use shakers to keep rhythm to a silent verse. Send home a copy of the song for parents to sing with their child.

17. Discuss peanuts as really being a part of the pea family. Inform the students that the peanut grows below the ground on the roots of the peanut plant.

18. Read the words of the song *Peanuts* to the class. Review the meaning of living and non-living things. Read the words again and ask the students to repeat the words. Sing the song together. Sing the song a second time and add motions to the verses. Instruct the students to point up when the words say "above the ground" and to point down when the words say "below the ground." Send home a copy of the song for parents to sing with their child.

19. Have students make a large "S" on a colored sheet of construction paper. Review the sound of "S" and identify the "S" sound as the beginning sound of *seed*. Trace over the "S" with white glue. Arrange grains of rice on the glue and allow to dry. Tell the students that rice is a seed that we eat.

20. Read *From Seed to Salad* by Hannah Lyons Johnson to the class. This book illustrates how children can work to plant, cultivate, and harvest a vegetable garden. Discuss the sequencing of growth. Can a vegetable be harvested before it is planted? Can a vegetable be eaten before it is cultivated?

21. Discuss the leaves of plants. Identify leaves that we eat. (Examples: lettuce, cabbage, spinach)

22. Provide *Leaves to Eat* to students. Instruct students to color the leaves that we eat green.

23. Read *Peter Rabbit* to the class and ask them to name vegetables that were grown in Mr. McGregor's garden. List vegetables named from the story on the chalkboard. Talk about the danger and risk that Peter had just so he could eat vegetables!

24. Discuss the activity in the story. Did Peter run? What would have happened to Peter if he had been out of shape? Establish that physical activity helps us stay healthy and fit.

25. Take the class outside. Let them pretend to be Peter running away from Mr. McGregor.

26. Identify lettuce and cabbage as leafy vegetables that Peter probably liked to eat from the garden. Peter was an animal that depended on plants for his food.

27. After listening to the story, prepare peanut butter cabbage rolls for a snack. Tell the class that they will be having "Rabbit Snacks" like Peter! To make the cabbage rolls, give each student a cabbage leaf and let them spread peanut butter on the leaf and then roll up the leaf. Secure the cabbage roll with toothpicks.

28. Ask students to identify the plant parts in the food. The peanut butter comes from a seed (peanut) and the cabbage is a leaf.

29. Discuss roots of plants. Identify roots that we eat. Examples may include: carrots, radishes, and beets. Provide samples of the plants for students to observe, if desired.

30. Provide *Roots to Eat* to students and instruct students to color the top part (leaves) of each plant green. The roots should be colored appropriately for each plant. Instruct students to use red for beets, orange for carrots, and red for radishes.

31. Read *Peter Rabbit* to the class a second time and ask them to name vegetables that were grown in Mr. McGregor's garden that were roots. Carrots and radishes were vegetables that Peter liked to eat that are roots.

32. Discuss how carrots grow under the ground and the leaves of the carrot grow above the ground. Show students examples or draw diagrams on the chalkboard. Compare the carrot to the cabbage. The cabbage has roots below the ground but the cabbage grows above the ground.

33. Provide the students with a sheet of white art paper. Instruct students to color the top part of the paper blue to represent the sky and the bottom part of the paper brown to represent the ground.

34. Using orange construction paper, have students cut out two carrots and paste under the ground (on the brown). Color two green tops for the carrots in the blue section. (The green tops of the carrots should meet the carrot at the point where the ground meets the sky.)

35. Identify the potato as a food that grows on the roots of a potato plant. Display a white potato. Ask students to name ways that they have eaten potatoes.

36. Tell the class that the sweet potato is another kind of potato.

37. Provide five sweet potatoes to bake in class. Wash the sweet potatoes and place in a toaster oven. Allow the class to peel the cooked sweet potatoes and serve as a special snack.

38. Say the words of the *Sweet Potato* song together. Read the words again and ask the students to repeat the words. Ask students to listen for rhyming words at the end of the lines. Sing the song together. Send home a copy of the song for parents to sing with their child.

39. Discuss the stem of a plant. Identify asparagus and celery as stems that we eat.

40. Conduct an “Ants on a Log" food experience using celery, low-fat cream cheese, and raisins. Wash a stalk of celery and demonstrate cutting the celery stalk apart into individual ribs.

41. Place the celery piece on a paper plate. Arrange the celery, a container of low-fat cream cheese, and a container of raisins on a clean table. Students should assemble their “Ants on a Log” using an assembly line method as the instructions are read aloud.

    Take a piece of celery.
    Spread cream cheese in the celery.
    Place ten raisins in the cream cheese in a row.
    Eat the “Ants on a Log!”

42. Provide students with the *Ants on a Log* handout. Instruct students to illustrate the four steps in making *Ants on a Log* in the boxes.

43. Ask students to pretend to be ants on a log and crawl.

44. Discuss flowers of plants. Identify cauliflower and broccoli as flowers of plants that we eat.

45. Show students popcorn kernels and ask students to identify the corn as a seed. Discuss how heat makes corn pop.

46. Make popcorn in class. As students enjoy the popcorn, ask students to identify which foods are hotter than others. Did Peter eat hot foods or cold foods? Pop enough corn to have some left for an art activity. Each student will need five kernels of popped corn.

47. Provide the *Popped Flowers* handout. Instruct students to draw a plant with a stem and leaves. Instruct students to glue five pieces of popped popcorn at the top of the stem to make a flower. Ask the students to determine if this would be a real plant. This is a make-believe plant because popcorn does not grow on plants already popped.

48. Prepare for a Plant-Parts Party. Using heavyweight paper, copy the tent cards. Cut out the cards and crease on the dotted lines.

49. Provide plant parts for students to create a plant-parts salad to enjoy. Each of the foods should be displayed with a tent card identifying the plant part. Provide several choices of foods for making the salad. A suggested menu might be carrot and radish slices (roots), celery slices (stems), lettuce and spinach (leaves), broccoli and cauliflower (flower), served with a low-fat salad dressing. Serve with crackers. Parents may want to provide some of the foods and/or attend the party. Let the students name the plant part choices made at the party.

50. Send the Parent/Student Survey home for a homework assignment. Parents and students must agree on the answers to determine the effectiveness of the *Plant Parts* unit.

EXTENSION ACTIVITIES:

1. Provide an assortment of seeds. Allow students to create a mosaic using white glue and seeds.

2. Grow a sweet potato vine in class. Suspend a sweet potato in a jar of water with toothpicks. Allow the bottom of the sweet potato to rest in water. Watch it make a sweet potato vine.

3. Ask the class to observe foods in the cafeteria that are served on their plates. Which ones are seeds? Which ones are roots? Which ones are stems? Which ones are leaves? Which ones are flowers? Let students illustrate a lunch according to plant parts. Hang the drawings in the cafeteria.

4. Invite a nurse or dietitian to the class to talk about being healthy.

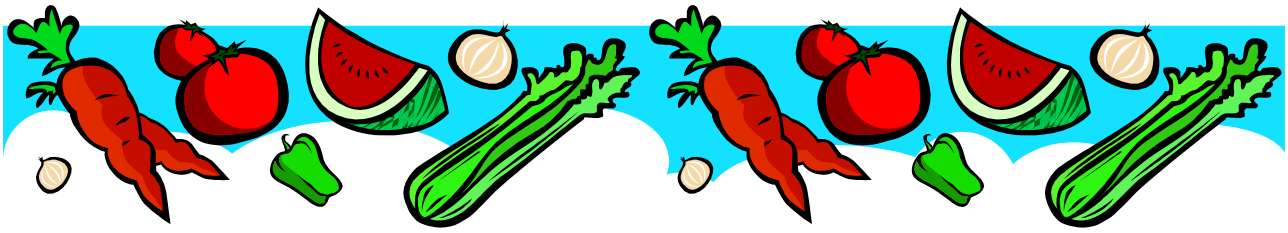
5. Invite a coach, physical education teacher, or gymnastics teacher to the class to talk about being physically fit. Ask the speaker to lead the class in participating in physical activities.

6. Cut the top off a carrot leaving about ½ inch of the carrot attached. Place the carrot top in wet sand or suspend in a jar of water with toothpicks. Place it in a sunny place and watch it grow.

7. Serve carrot sticks for an afternoon snack. Discuss how some raw vegetables such as carrots can help clean the teeth. Invite a dentist to the class to discuss how food choices can promote better dental health.

8. Place a rib of celery in water colored with red food coloring. Over several days, ask students to observe the color of the celery as the food color moves through the stem.

9. Read *Growing Vegetable Soup* or *Eating the Alphabet* by Lois Ehlert to the class.



EVALUATION:

Participation

- Did students listen to stories and participate in class discussions?
- Did students participate in art activities?
- Did students participate in sound recognition activities?
- Did students participate in singing songs?
- Did students participate in food experiences?
- Did students become more interested in participating in physical activity?

Skill/Knowledge

- Were students able to identify food groups on the *Food Guide Pyramid*?
- Were students able to identify plant foods?
- Were students able to draw a bean plant with the leaves, stalk and roots?
- Did students construct a *Seed Shaker*?
- Were students able to identify parts of a plant?
- Were students able to complete the *Seed Count* activity?
- Were students able to sequence the steps in making *Ants on a Log*?
- Did students learn about the parts of plants as determined by the Parent/Student Survey?

Behavior

- Did students accept and eat plant-part foods at the food party?
- Did students accept and eat plant-part foods at home as reflected in the Parent/Student Survey?
- Do students watch TV less and include more physical activity in each day as determined by the Parent/Student Survey?

ACKNOWLEDGMENTS:

Nutrition and Your Health: **Dietary Guidelines for Americans**
U. S. Government Printing Office
Superintendent of Documents
Mail Stop: SSOP
Washington, D.C. 20402-9328

Eat Smart. Play Hard.™
USDA Food and Nutrition Service
3101 Park Center Drive RM 1014
Alexandria, VA 22302-9943

Oklahoma Cooperative Extension Service
AG in the Classroom
Student Activities and Teacher Guides K-2
Division of Agricultural Sciences and Natural Resources
Oklahoma State University
Stillwater, OK 74078

Homework Help #1

Dear Parents,

We are beginning a unit called *Plant Parts*. In this unit we will learn about the parts of a plant that we eat. We want you to become involved in the things we learn.

We eat seeds of plants: beans, peas, corn, rice
We eat leaves of plants: cabbage, lettuce, spinach
We eat roots of plants: radishes, carrots, turnips, beets
We eat the stems of plants: celery, asparagus
We eat flowers of plants: broccoli, cauliflower

1. We will make seed shakers in class. Please send a clean, empty soda can for this activity.
2. There are several books that you may want to read to your child:
   The Turnip by Janina Domanska
   How a Seed Grows by Helene Jordon
   The Great Big Enormous Turnip by Alexcey Tolstoy
   Pumpkin, Pumpkin by Jeanne Titherington
3. We will learn several songs in class. Each time we learn a song, a copy will be sent home for you. Sing the songs together as you work and play at home.
4. We will learn about the food groups on the *Food Guide Pyramid*. Let your child help you when you shop for groceries. As each item is placed in the cart, ask your child to identify the food group in which it belongs.
5. Ask your child about snacks that we have prepared in class. Prepare them at home for a healthy snack.
   Rabbit Snacks: Take one cabbage leaf and spread peanut butter on the leaf. Roll up the leaf.
   Ants on a Log: Take a piece of celery. Spread low-fat cream cheese in the celery. Place ten raisins in the cream cheese in a row. (Can use peanut butter instead of cream cheese if desired.)
6. We will be planning a Plant-Parts Party in class. The students will be allowed to choose plant parts to make a salad snack. If you want to attend the party or provide some of the foods, please let me know.
7. We will also learn that physical activity is important. Children need one hour of physical activity each day. Help your child make smart decisions about physical activity. Encourage more play and less TV watching. Make family time an active time. Hiking, walking, gardening, playing games, riding a bike, swimming, and doing chores are some ways to increase physical activity.

Sincerely,

FOOD GUIDE SONG

(To the tune of *Mary Had a Little Lamb*)

We need nu-tri-ents in our diet,

In our diet,

In our diet.

We need nu-tri-ents in our diet,

They make us feel just right.

No one food will keep us strong,

Keep us strong,

Keep us strong.

No one food will keep us strong,

The Guide won't steer us wrong.

One, two, three, four, and five,

Four and five,

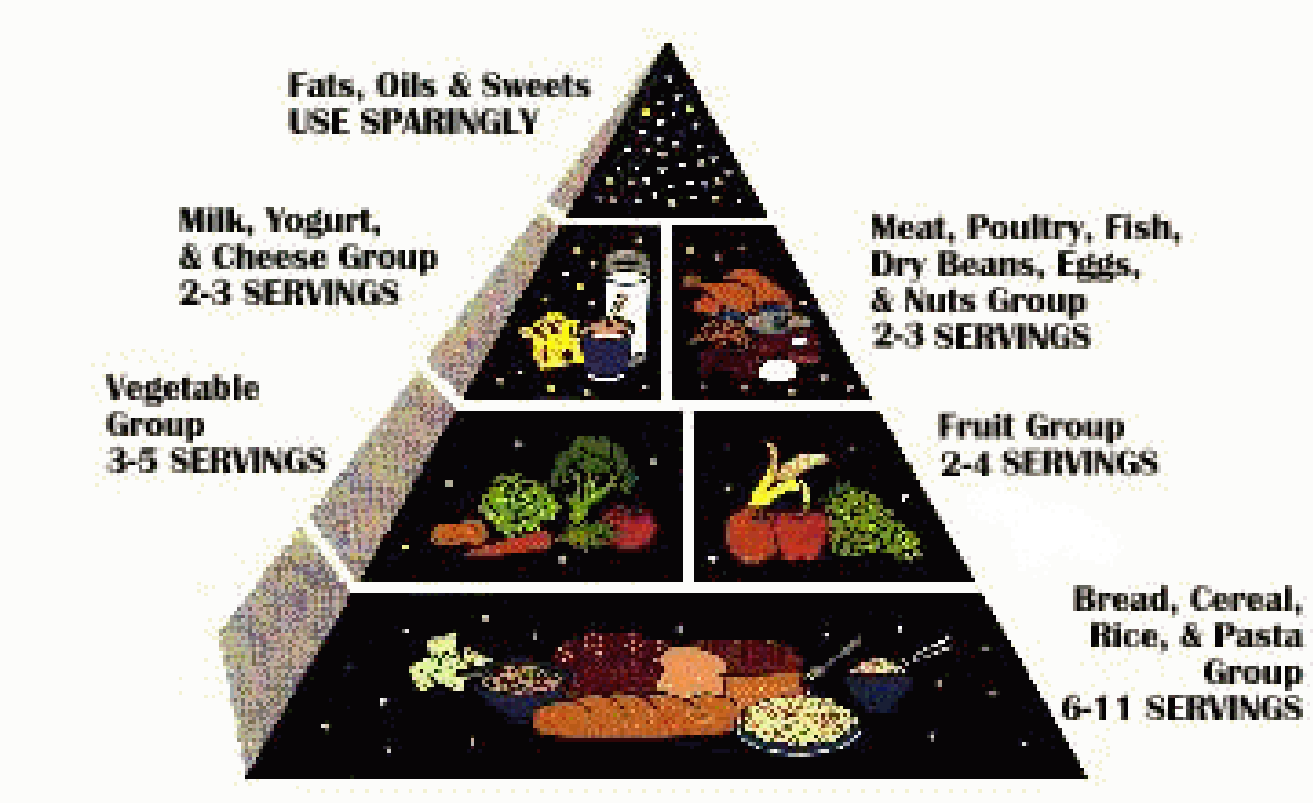
Four and five.

One, two, three, four, and five,

They help us stay alive.

Food Guide Pyramid

A guide to daily food choices.



Use the Food Guide Pyramid to help you eat better everyday… the Dietary Guidelines way. Start with plenty of Breads, Cereals, Rice, and Pasta; Vegetables; and Fruits. Add two to three servings from the Milk Group and two to three servings from the Meat Group. Each of these food groups provide some, but not all, of the nutrients you need. No one food group is more important than the others—for good health you need them all. Go easy on the fats, oils, and sweets, the foods in the small tip of the Pyramid.

Student Handout **Name**_____

SEED COUNT

Glue 5 seeds in the box. Write the number 5 in the box with the seed.

5

Glue 4 seeds in the box. Write the number 4 in the box with the seeds.

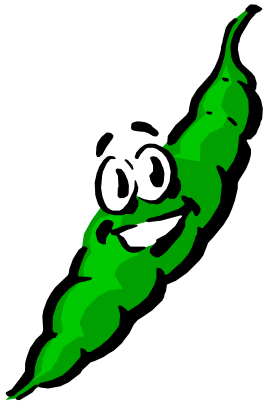
4

Glue 3 seeds in the box. Write the number 3 in the box with the seeds.

3

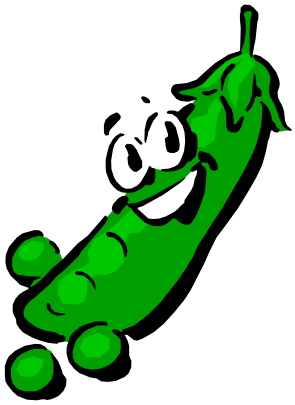
BEANS AND PEAS

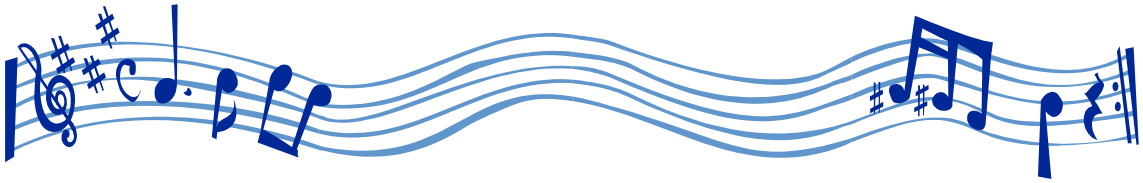
(to the tune of "Twinkle, Twinkle, Little Star")

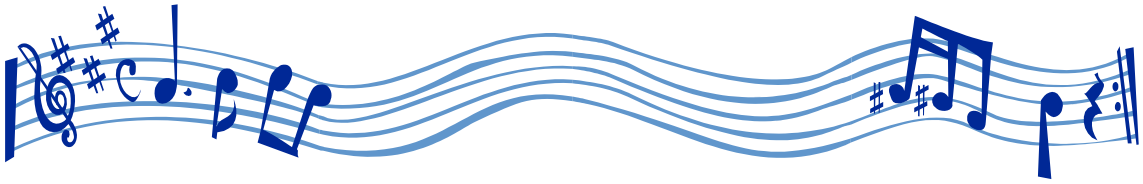


Beans and peas are great to eat,
They are such a tasty treat!
Black or red or large or small,
Why not try to eat them all?
Beans and peas are great to eat,
They can substitute for meat.

Beans and peas are great to eat,
They are such a tasty treat!
Black or red or large or small,
Why not try to eat them all?
Beans and peas are a special seed,
They have protein that we need.







PEANUTS

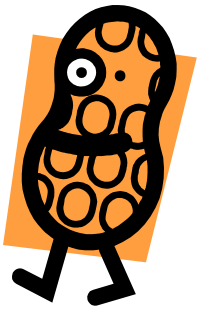
(To the tune of "Mary Had a Little Lamb")

Peanuts are so good to eat, good to eat, good to eat,
Peanuts are so good to eat, and make us grow strong.

Leaves and stems grow above the ground, above the ground, above the ground,
Leaves and stems grow above the ground,
On a peanut plant.

Peanuts grow below the ground, below the ground, below the ground,
Peanuts grow below the ground, on roots of peanut plants.

Peanut plants are living things, living things, living things,
Peanut plants are living things that give us food to eat.



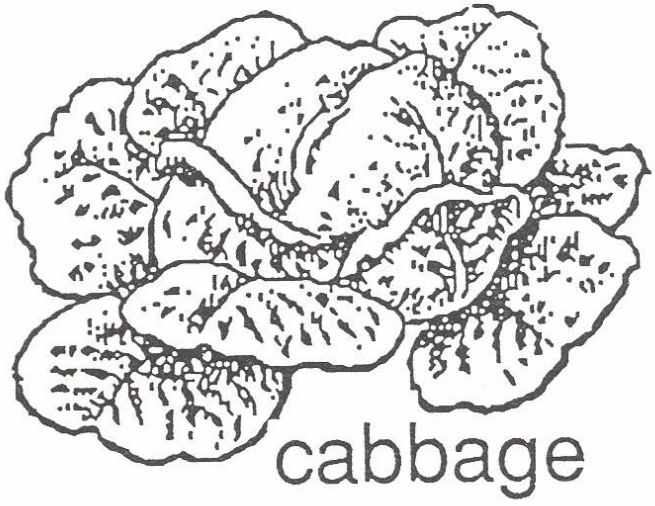
Student Handout **Name**_____

LEAVES OF PLANTS

Directions: Color the plants green.

lettuce

spinach



cabbage

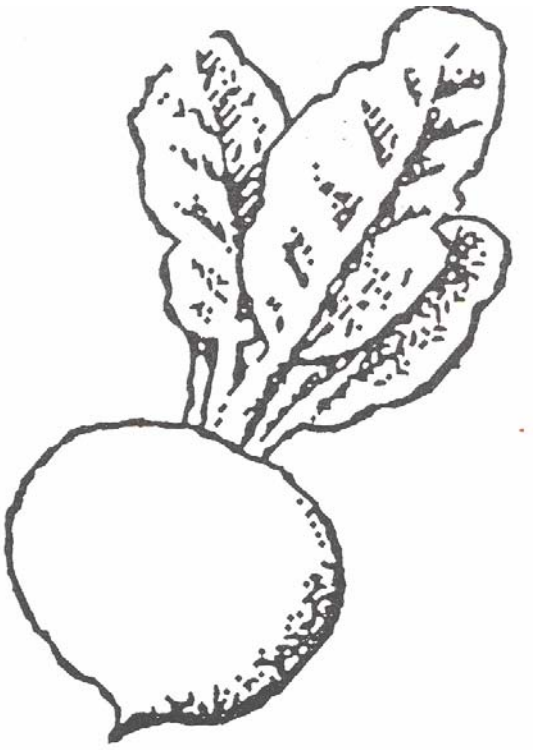
YOU EAT OUR LEAVES.

Student Handout **Name**_____

ROOTS OF PLANTS

Directions:

Color the leaves of the plants green.
Color the beet red.
Color the carrot orange.
Color the radish red.



YOU EAT OUR ROOTS.

Sweet Potato

(To the tune of "Jingle Bells" chorus)

Sweet potato, sweet potato, growing such a vine.
Sweet potato, sweet potato, are you doing fine?
Sweet potato, sweet potato, you are good to eat.
We are glad to have you for a very special treat!

Student Handout **Name**_____

ANTS ON A LOG

Directions: Illustrate the steps in making "Ants on a Log."

Take a piece of celery. **1**	Spread cream cheese in the celery. **2**
Place ten raisins in the cream cheese in a row. **3**	Eat the "Ants on a Log!" **4**

Student Handout **Name**_____

POPPED FLOWERS

Directions: Draw a plant that has a stem, leaves, and roots. Glue 5 pieces of popped popcorn on the top of the stem to make a flower.

LEAVES

STEMS

ROOTS

FLOWERS

Parent/Student Survey

Dear Parents: Please read the sentences on this survey to your child. Discuss each sentence together. When the two of you agree on the answer, help your child to color the answer for each sentence.

Directions: Think about what you have learned in *Plant Parts*. Think about what you do each day. Use a yellow crayon to color the ☺ or the ☹ for each sentence.

☺ means yes
☹ means no

I know the names of at least three plants that give us leaves to eat.	☺	☹
I know the names of at least three plants that give us roots to eat.	☺	☹
I eat plant foods every day.	☺	☹
I know the name of one plant that gives us flowers to eat.	☺	☹
I am trying to watch TV less and play more.	☺	☹
I like to play each day.	☺	☹
I know the name of at least three plants that give us seeds to eat.	☺	☹
I know the name of one plant that we eat gives us stems to eat.	☺	☹
I think kids need to learn about food groups.	☺	☹
I like to choose plant parts for snacks.	☺	☹