

Exploring Plants

By: _____

Aligned with the common core English Language Arts and Math standards for the second grade.

Follows National Science Education Standards for K-4.

From Seed to Plant

All plants start as a seed. Seeds are a small plant covered with a covering called a seed coat. A seed has three parts: the **embryo**, a supply for **nutrients** and a **seed coat**. The embryo is a new plant that will grow when given what it needs. The nutrients are the food the plant needs. The seed coat helps protect the embryo from being hurt or from drying out. Inside the seed below you can see the first leaves.

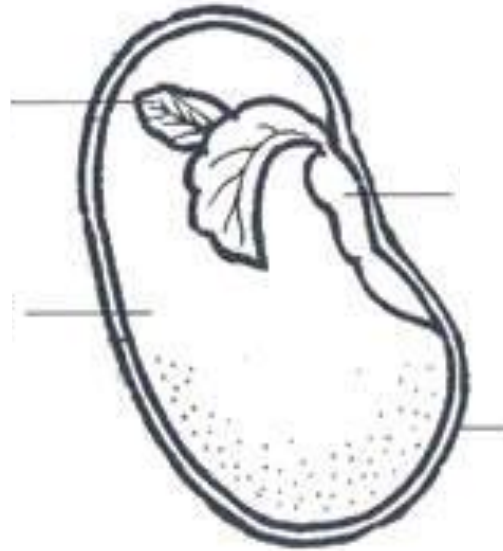
Label the seed.

First leaves

Embryo

Seed Coat

Nutrients

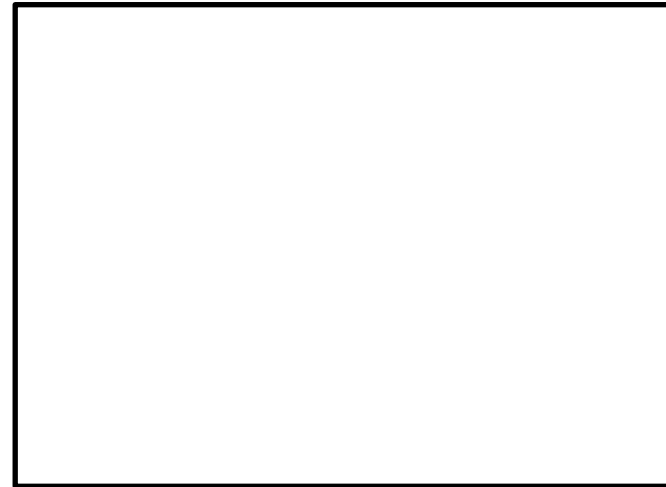


Magic Beans

We are going to use magic beans to help us see the inside of a seed. These "magic beans" are really lima beans! Follow the directions carefully so you can see the inside.

1. Put 1 cup of water in a clear, plastic cup.
2. Place 4 beans in the cup.

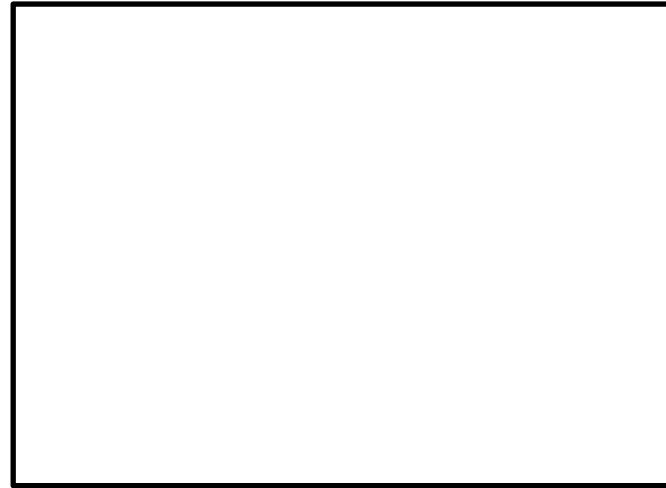
What does this experiment look like right now? Draw and label your picture.



3. Let sit overnight.
4. In the morning, remove the beans from the cup and place on a paper towel.

5. With your group, use your fingernail to remove the seed coat
6. Split the seed open. Once you have split the seed open, you will see the embryo.

What does your seed look like now? Draw and label your picture.



How is the seed that was soaked in water different from the dry seed?

(Scientists try to think of many answers to each question!)

What Plants Need to Grow

People who take care of plants are called gardeners. Some gardeners grow plants in the ground. Others grow plants in flower pots or on a farm. In order to be a good gardener, you must know what plants need to live.

Good gardeners know that plants must have water. Plants take water up through their roots. It travels from the roots into the stems and leaves.

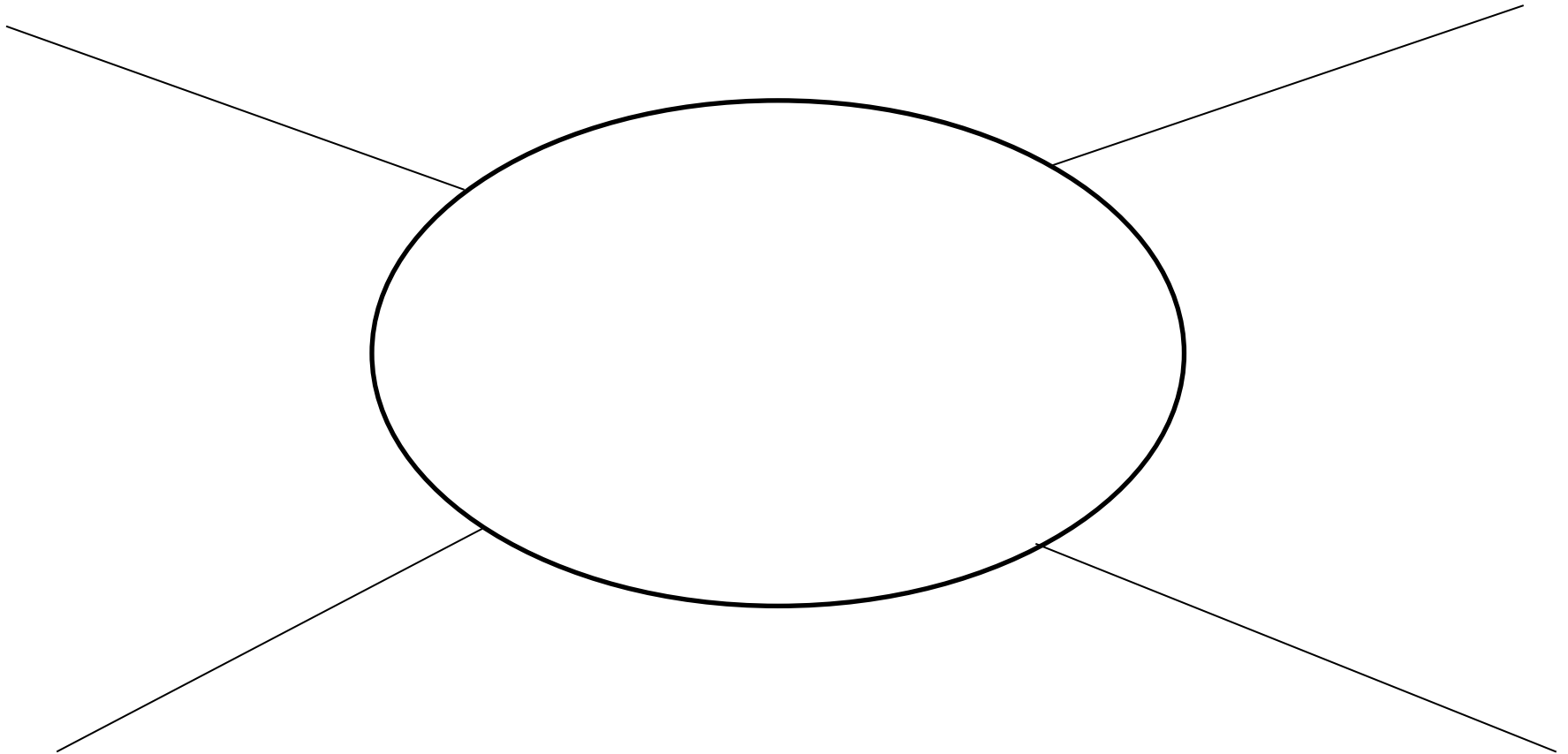
Gardeners also know that plants need nutrients. Nutrients are like vitamins for plants. The nutrients plants need are in the soil. They are mixed in with the water and travel up through the roots.

Gardeners make sure their plants have light. Plants need light to make food. The leaves capture the sunlight and turn it into food.

When gardeners plant their seeds, they make sure they give each plant space. Roots need room to grow. If they are too close to each other, they cannot get enough water and nutrients. When leaves are too crowded, they can't get enough light.

It takes a lot of work to be a good gardener. Do you think you could do the job?

After reading "What Plants Need to Grow", fill out the web below. Your main idea is: What plants need to grow. Find four details that fit the topic.



What do you already know?

Have you ever seen the roots of a plant? Draw what you think they look like.

Form a hypothesis: Why do you think roots are important to the plant?

Learn:

Roots are a very important part of a plant. The roots help to anchor the plant into the ground. They also help get water and nutrients from the soil to the plant. Some roots are even good for eating!

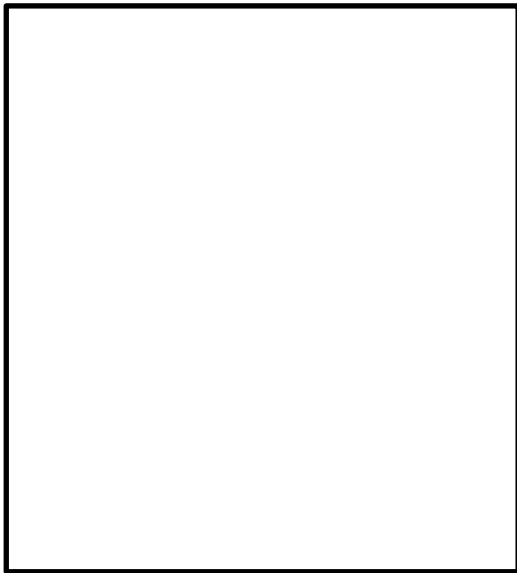
Roots We Eat

**Fill this page with words and pictures
to teach others the roots we eat!**

Colorful Carnations

We are going to use food coloring and carnations to watch how water travels through plants! Follow the directions carefully for a great science experiment. Draw a picture to show each step. Remember, scientists carefully draw and label their observations.

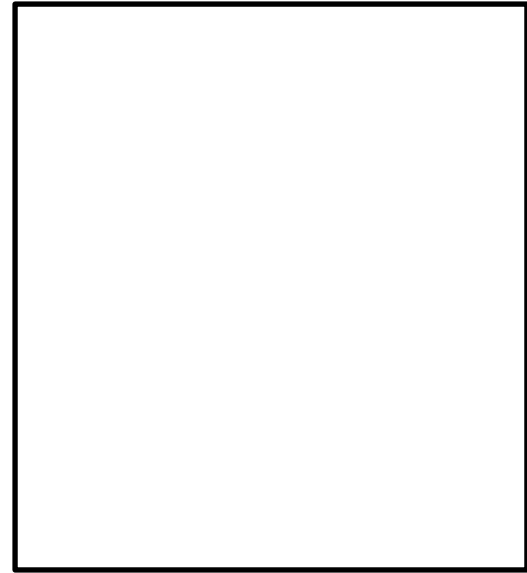
Place 1 white carnation in a vase with 1 cup of water.



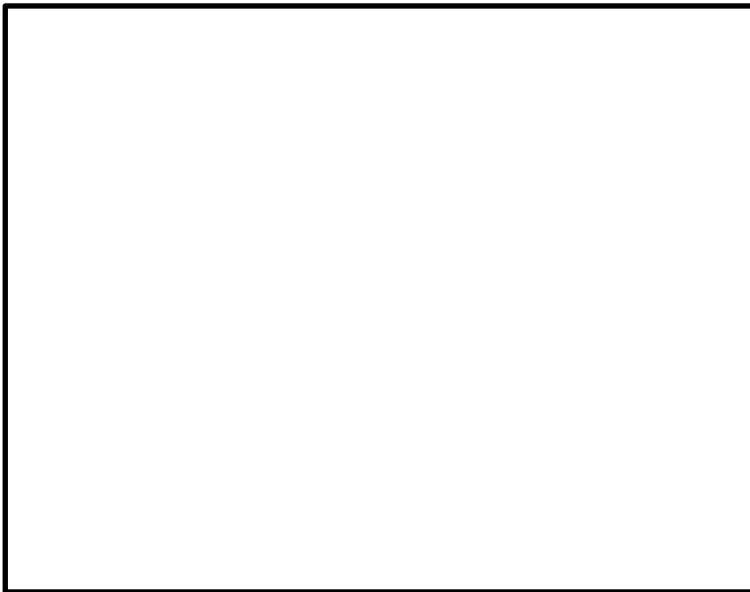
Place 10 drops of food coloring into the vase. Use the stem to stir the water.



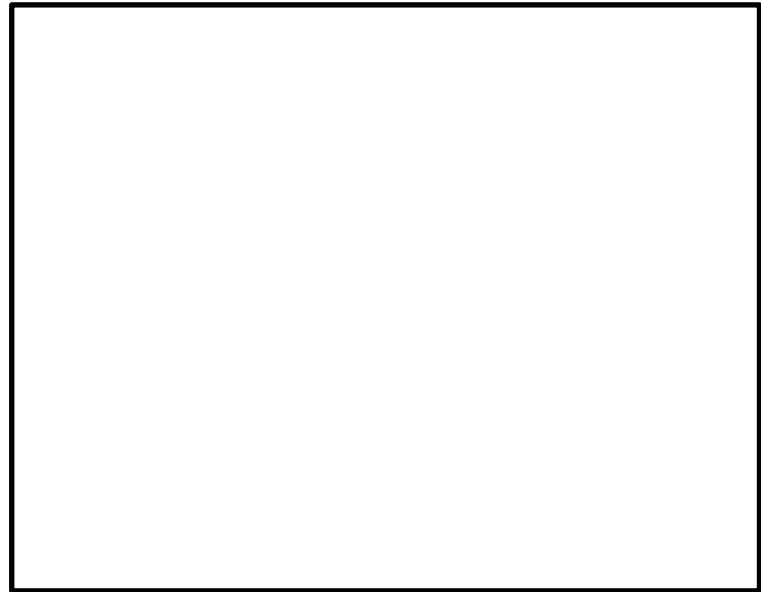
Let the carnation sit for one hour.



After one hour, move your carnation and vase to a safe place. Let the vase sit overnight. What do you predict will happen overnight? Draw a picture and write words to show your prediction.



In the morning, draw a picture and write words to show what has happened. Remember, it is ok for your prediction to be different from what really happens. This is part of science!



What did we learn?

Most plants drink water from the ground through their roots. The water travels up the stem of the plant into the leaves and flowers. The plant uses the water to make food. When a flower is cut, it no longer has its roots. But the stem of the flower still "drinks" up the water and provides it to the leaves and flowers.

Why do you think a flower can't live for long once it is cut off the plant?

Planting Seeds

We are going to plant seeds and observe how they grow. With your group, gather your supplies. You will need:

Cup

Soil

Water

Seeds

Measuring cups

Measuring spoons

1. Fill your cup with $\frac{3}{4}$ cup of soil
2. Put three seeds onto the soil.
3. Sprinkle 2 tablespoons of soil on top.
4. Pour 4 tablespoons of water onto the soil.
5. Place in the sunlight.
6. Water when the soil is dry.
7. Record your observations each day.

Making Observations

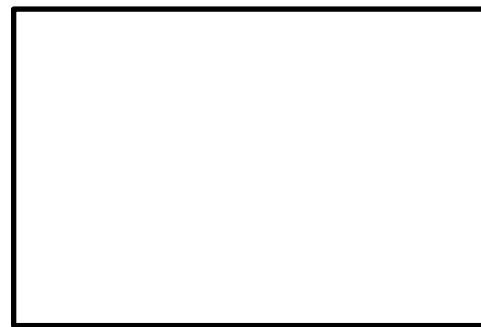
Draw a picture and use words to show what you see. Remember, scientists include measurements in their observations and use facts instead of opinions.

Facts are statements that are _____.

Opinions are things that people _____.

Date: _____

Date: _____



Date: _____



Date: _____



Date: _____



Date: _____



Date: _____



Date: _____



Date: _____



Date: _____



Pumpkins

Pumpkins are **popular** fruits that are grown all over the world. Antarctica is the only **continent** where pumpkins are not grown. Pumpkins are one of the most **popular** food crops in the United States of America. Over 1 billion are grown in our country each year!

Pumpkins grow on vines and start as a bright yellow flower. It is **necessary** for pumpkins to have warm weather and plenty of water. They are usually harvested during the months of September and October.

Pumpkins are grown for a **variety** of reasons including food, decorating and fun. Popular foods made with pumpkin include pie and breads. In the fall many Americans use pumpkins as a decoration. Some people even carve faces into pumpkins for Halloween! Other people create **competitions** centered around pumpkins. Some try to grow the biggest pumpkin. Others try to create machines that will throw a pumpkin the farthest.

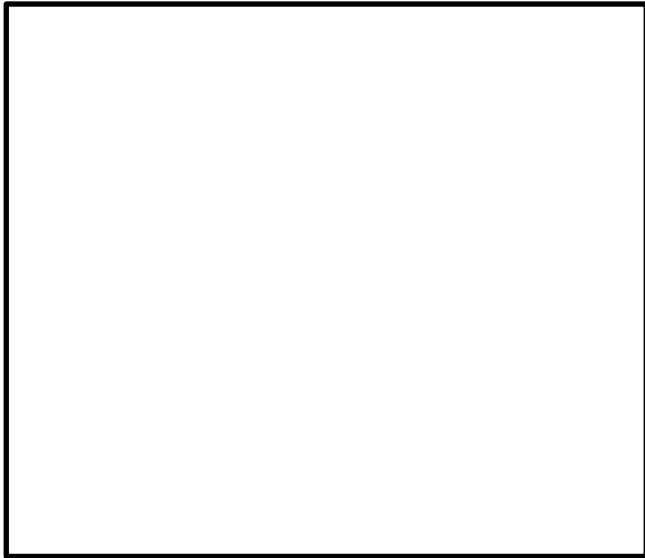
Pumpkins Vocabulary Work

Word: popular

Definition: _____

Synonym: _____

Picture

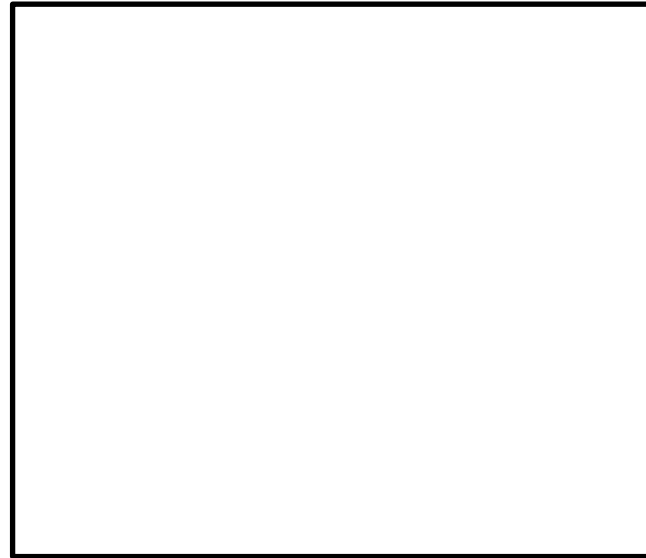


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Picture

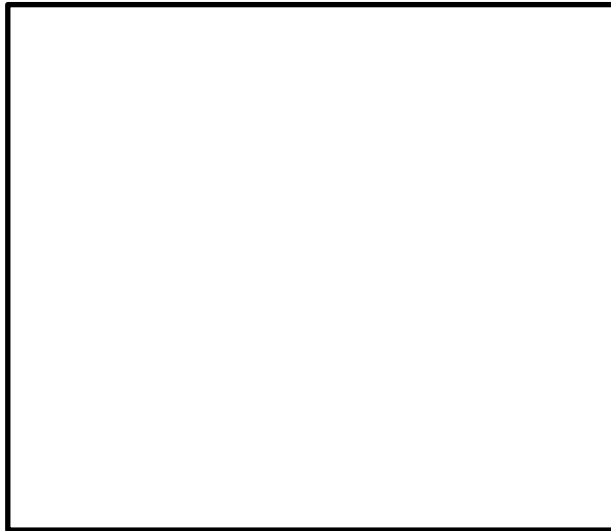


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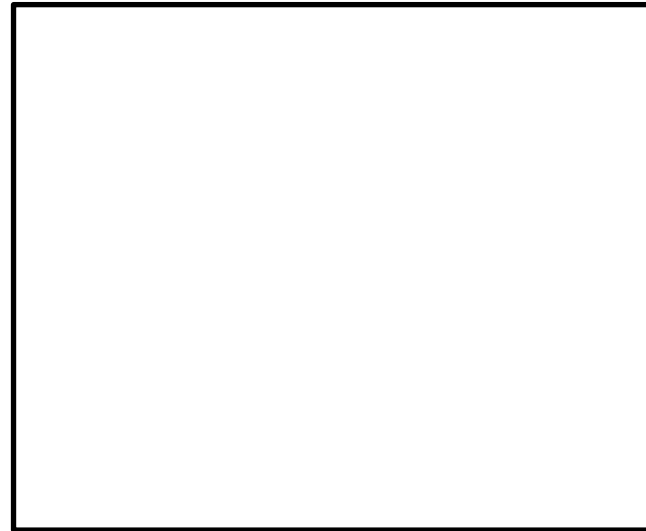


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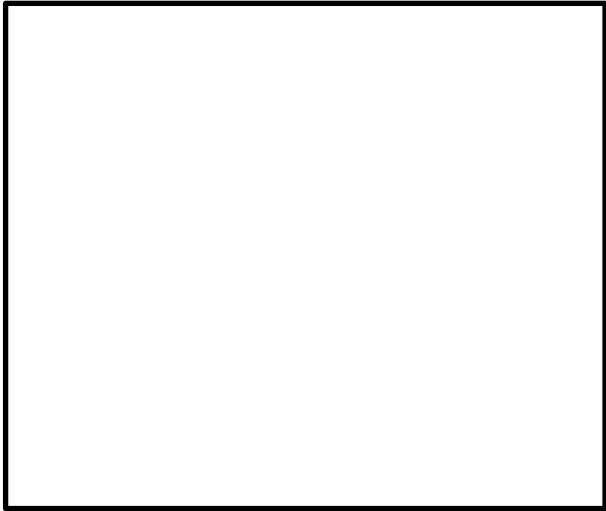


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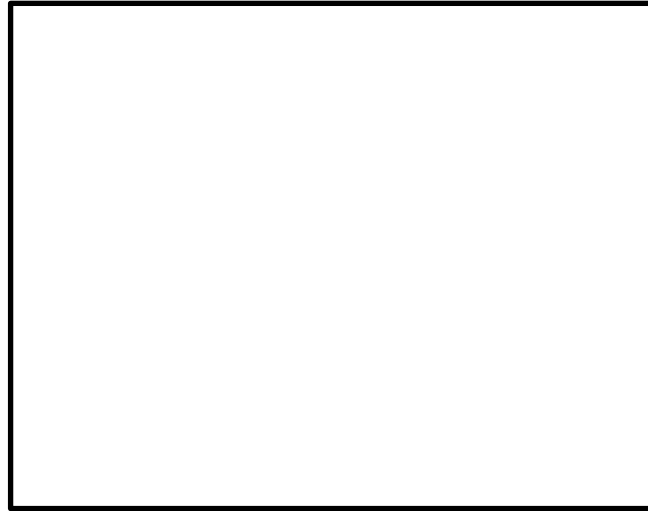


Word: _____

Definition: _____

Synonym: _____

Picture



Peanuts

A peanut is a legume that grows close to the ground. They grow best in warm weather and sandy soil. The plant has small, yellow flowers. Peanut seeds grow in a pod inside the flower. There are two or three peanut seeds inside each seed pod. The stem of the flower bends toward the ground because the seed pod is heavy. After the peanuts are pulled from the ground, they have to dry in the sun for many days.

George Washington Carver is an African American scientist who is famous for discovering many uses for peanuts. He was born in the state of Missouri around 1864. He invented over 300 ways to use peanuts. He invented peanut butter and created a way to make chili sauce and coffee from peanuts. He also made items like shampoo, hand lotion and glue from peanuts.

Visualize What You Have Read

(This means to make pictures in your head.)

What do you think a peanut plant looks like?

Draw a peanut pod with the peanuts inside.

What do you see when you think about *George Washington Carver*?