



Teacher Guide: Kindergarten

Lesson 1: Welcome to the Garden

Time Frame: September-October

Materials:

Teacher and student workbooks
Pencils, regular and colored

Lesson Goals:

- 1) Students are familiar with the location of basic items in the garden.
- 2) Students know how they are expected to behave and be safe in the garden.
- 3) Students are introduced to a routine they will follow in the garden
- 4) In doing the Garden Survey worksheet, students will start to consider what characteristics allow us to classify items as living or not.

Class Introduction

- 1) Welcome students to their garden.
- 2) Use the Garden Time page in the teacher workbook to discuss how their time in the garden will be spent. Establishing a routine will make it easier to manage the class.
- 3) Review the Student Agreement in their workbooks. Have them initial or check each item.
- 4) Discuss how to be safe in an area where their might be Black Widow spiders. ("Do not put your hands in places you cannot see.")

Group Activities.

Garden Work

Garden Survey (Do as a group.)

Table Work

Decorate Notebook
Black Widow worksheet

Save the last 5 minutes to clean up. (Tools, pencils and journals put away)

Garden Time

1 Sit

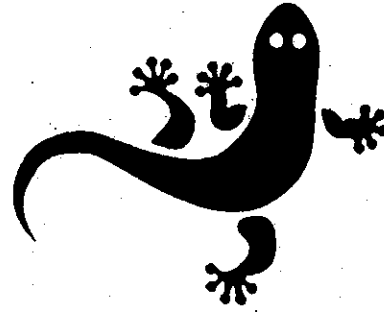
2 Listen

3 Groups

4 Switch groups

5 Cleanup

Gecko Garden
Outdoor Science Lab
Student Agreement

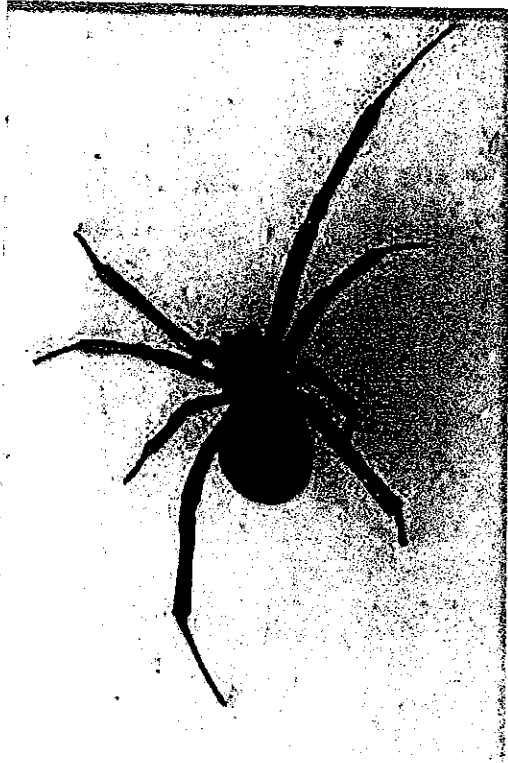


I agree to...

- 1) Use a quiet voice;
- 2) Not run;
- 3) Always keep the working end of tools down;
- 4) Ask before picking or eating any plants;
- 5) Keep my hands out of places I can not see;
- 6) Wash my hands when I am finished gardening;
- 7) Respect plants, animals and each other.

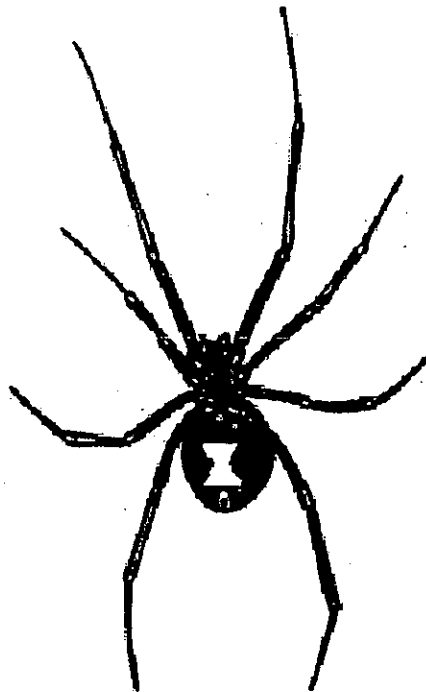
Black Widow Spider

Back
(dorsal)


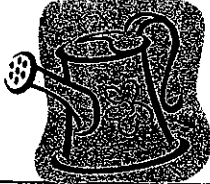
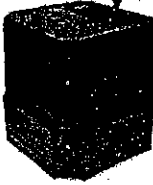

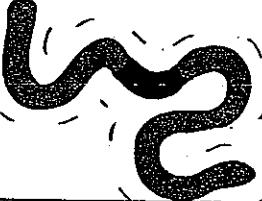



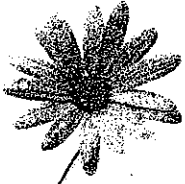
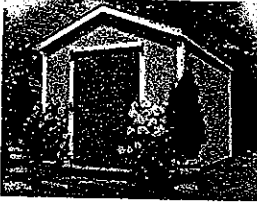

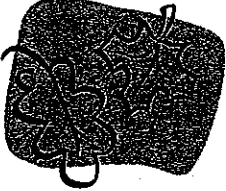


_____ legs

Front
(ventral)



Garden Survey

Picture	Word	Alive? Yes or No
	shovel	
	watering can	
	compost bin	
	trowel	
	worm	
	garbage can	

Picture	Word	Alive? Y/N
	flower	
	shed	
	tree	
	leaf	
	hose	
	insect	

Lesson 2: Soil Preparation

California Education Standards:

Time Frame: Nov. Dec.

Materials:

Teacher and student workbooks
Pencils, regular and color pencils
Gloves
Soil amendments: worm castings, compost
Tools: Shovels, rakes and hand trowels

Class Introduction:

Discuss tool types and safety – **NEVER** raise working end over head!
Discuss the Farmers' Market and the Crop Journal.
Discuss why plants need food (compost).
Discuss conservation and recycling as it applies to compost.

Explain Group Activities.

Garden Group:

1st group – Pull up any old plants and put in compost bin, turn soil and add compost

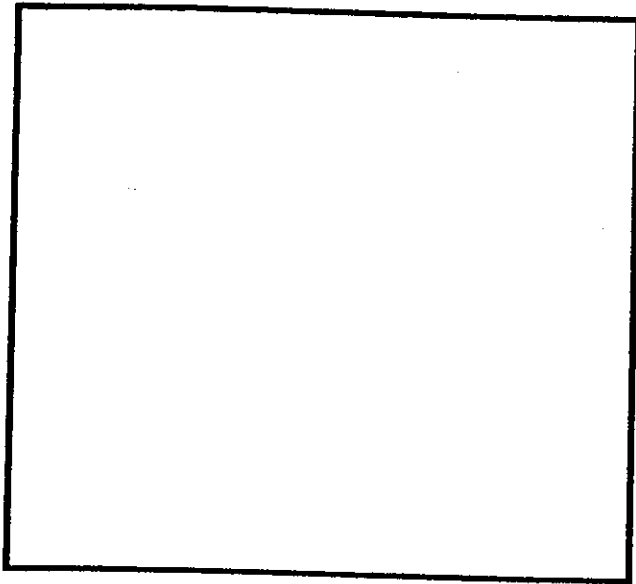
Table group:

Draw and write first entry in Farmers' Market Crop journal
(preparing the soil)

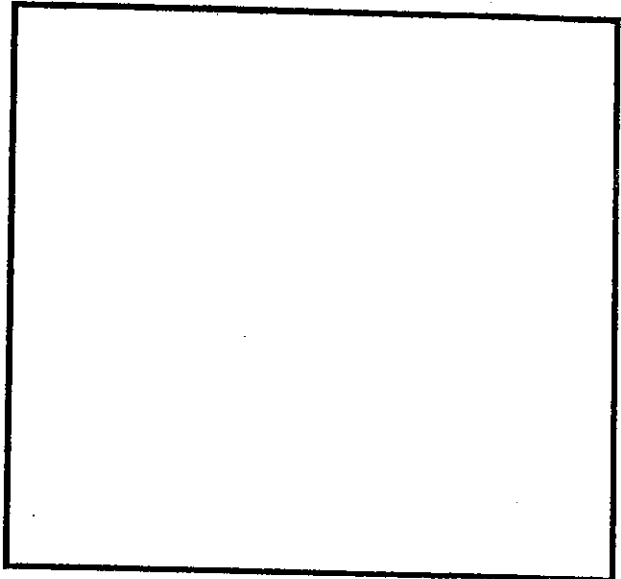
Divide into groups and switch after approximately 10 minutes.

Save the last 5 minutes to clean up. (Tools, pencils and journals put away)

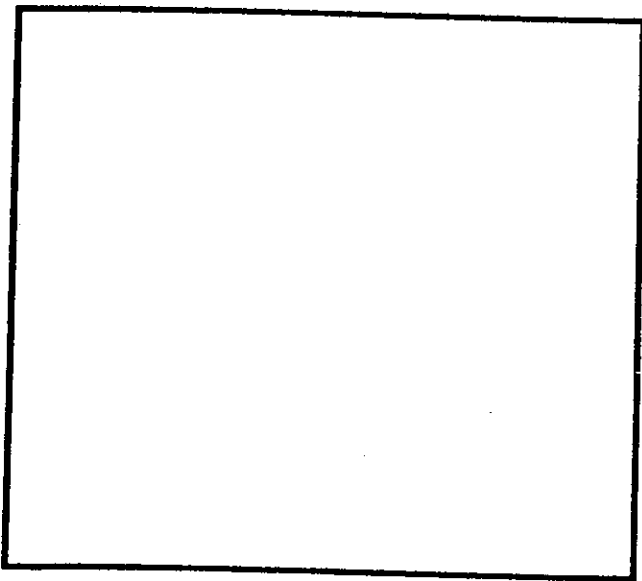
Farmers' Market Crop



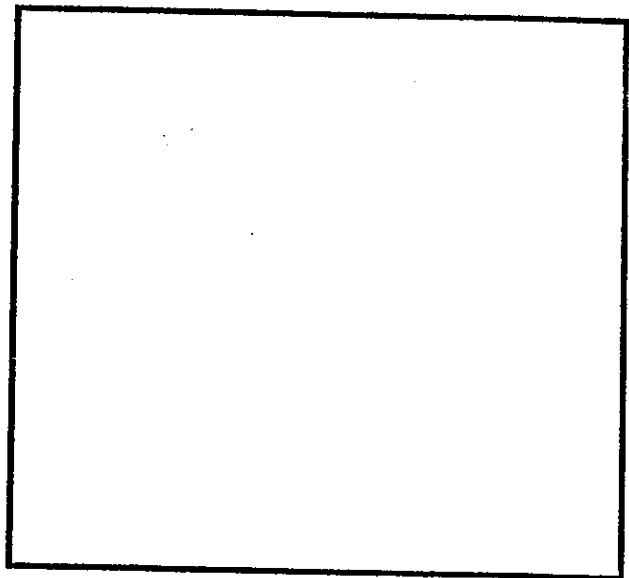
1 _____



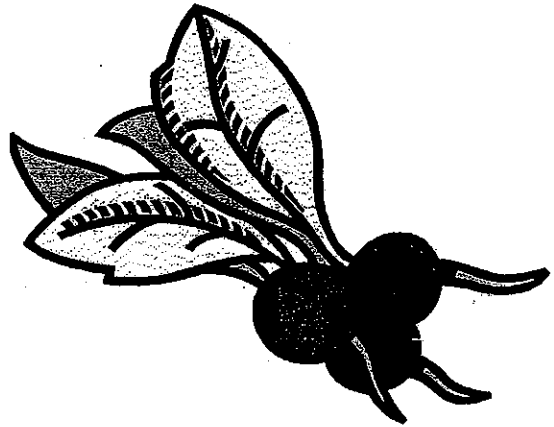
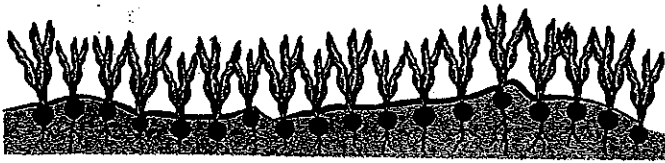
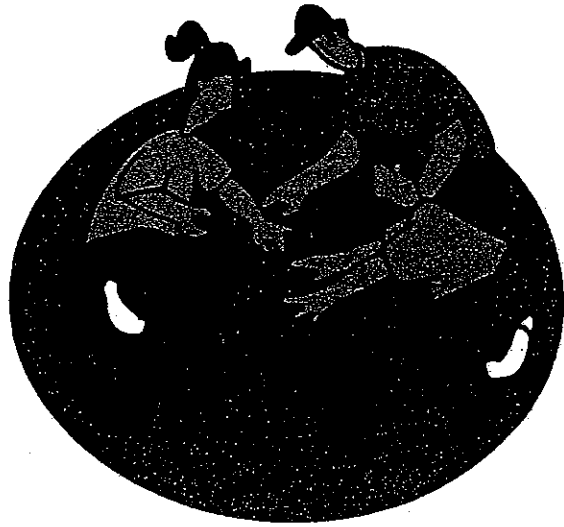
2 _____



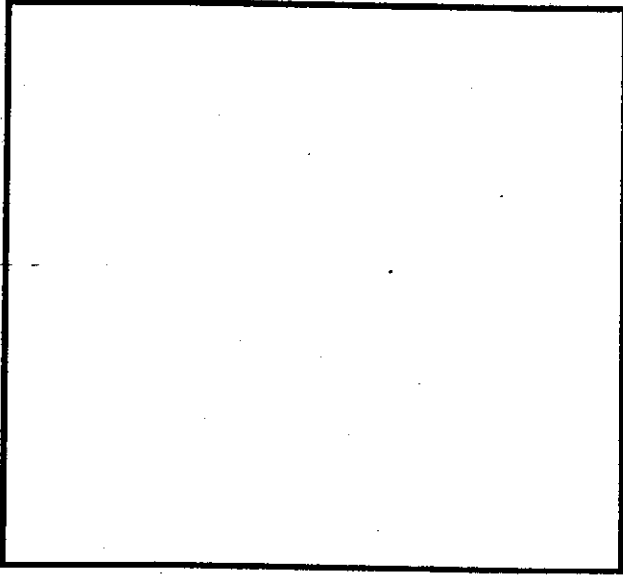
3 _____



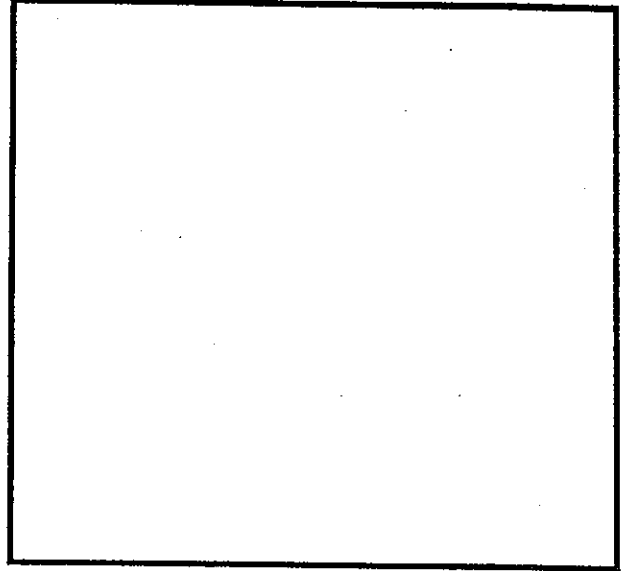
4 _____



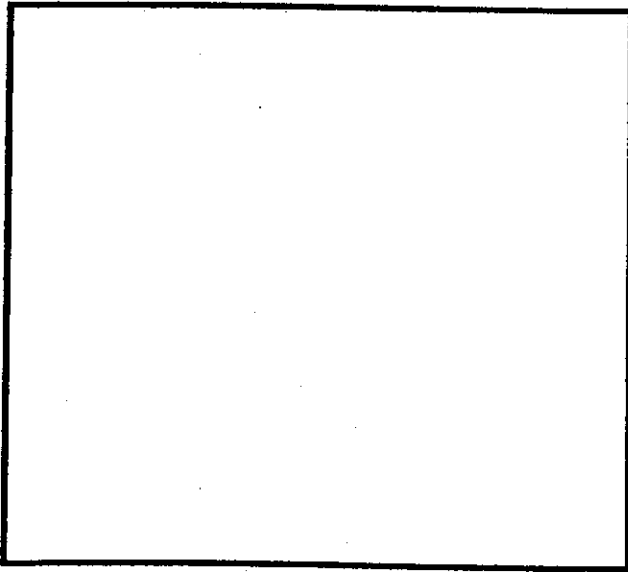
Farmers' Market Crop



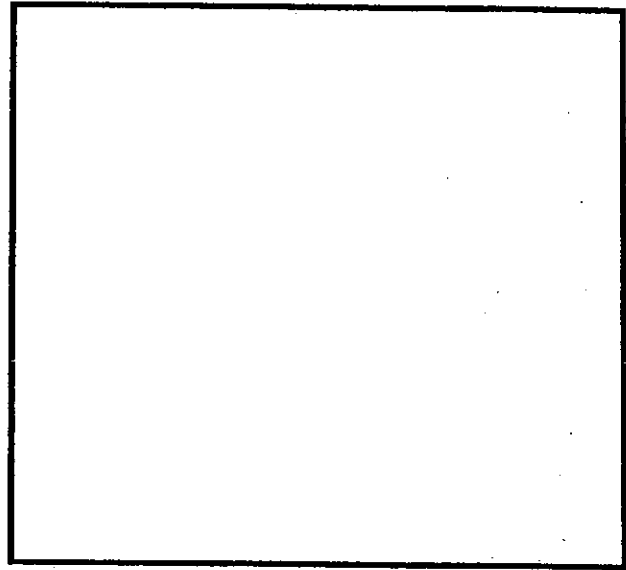
1 Dig



2 Plant



3 Grow



4 Harvest

Lesson 3: Seed Sort & Planting

California Education Standards: 2a, 2c, 4b, 4d, 4e

Time: 45 minutes

Materials:

Teacher and student workbooks

Pencils, regular

½ egg carton per student

ruler

seed mixture in bowl (4 different types - sunflower, radish, bean, Swiss Chard)

(buy bulk pinto beans and raw sunflower seeds from Henry's then

add a few packets of radish and Swiss Chard seeds to the mix

4 jars to store sorted seeds

garden bed with soil prepared.

Plan:

- 1) Discuss the importance of seeds and how they are different for different plants. Give each student a small scoop of the seed mixture and have them sort the different types into the cups of their egg carton. After they are sorted, place the sorted seeds into jars for storage for next lessons.
- 2) Have the students plant the sunflower seeds today, if time allows. All the Kindergarten classes will share one bed for the sunflowers. Mark off 1/3 of the bed for each class. Show students how deep to plant the seeds by measuring the depth on their finger.

Garden Group

Plant the sunflower seeds

Table group:

Draw seed pictures in their journal

Unfinished activities from last month

Divide into groups and switch after approximately 5 minutes.

Save the last 5 minutes to clean up. (Tools, pencils and journals put away)

<p>My seeds look like:</p>	<p>Seed 1</p>	<p>Seed 2</p>
<p>My plants look like:</p>		

GROWING PLANTS IN THE GARDEN

GRADE K
UNIT 2

Start With Seeds

LESSON 1

Content Objective	Learn characteristics of seeds
Life Skill Objective	Learning to learn by sorting and experimenting
Indicators	Sort and plant seeds
Subjects	Science, language arts
Materials	<p>Large variety of seeds for sorting (<i>rice, corn, soybeans, sunflower seeds, popcorn, birdseed, marigold seeds, 15 bean soup, etc.</i>)</p> <p>Bowls to hold seeds at learning stations</p> <p>Coconut or other very large seed (<i>optional</i>)</p> <p>Package of petunia seeds (<i>optional</i>)</p> <p>Small paper cups</p> <p>Egg cartons (<i>Students can bring them from home or supply two or three at each learning station.</i>)</p> <p>Eggshells for each student. (Tap small end of each egg and peel away the shell and lining. Empty the contents to form a small container. You may substitute small paper or plastic cups for the eggshells.)</p> <p>Permanent markers or crayons</p> <p>Fresh potting soil</p> <p>Grass seed (<i>such as bluegrass or annual or perennial ryegrass</i>)</p> <p>Teaspoon</p> <p>Large, clear plastic dry cleaner's bag (<i>optional</i>)</p> <p>Hand-held magnifying glasses</p> <p><i>How a Seed Grows</i> by Helene Jordan</p> <p>Evaluation (<i>from notebook pocket</i>)</p> <p><i>You may want to invite parents, school personnel, ISU Extension staff, media representatives, community and business leaders, neighbors, gardeners, or farmers to participate in this lesson. They can read to the class, assist with an activity, tell about their jobs and experiences, or bring materials for the lesson.</i></p>



(Place an assortment of seeds in tubs, bowls, or buckets on each table or at four or five learning stations.)
Seeds are everywhere! You'll find seeds in nearly every fruit. When you eat an apple, you'll find several brown seeds packed inside the core. Bite into a peach or a plum. The big pit inside is a seed. Cut into a tomato or split a green bean pod and what do you find? Seeds! Look under trees and you'll find tree seeds such as acorns or hickory nuts. If you break open a dried flower such as a sunflower, you'll find it loaded with seeds. *(You may want to show an apple core, sunflower seeds, orange section with seeds, seeds in grapes, corn, etc.)*

Seeds come from growing plants. Seeds have many characteristics. That means there are things about them that make them different and special. Seeds come in many sizes, shapes, and colors. Some seeds such as a coconut are very large – sometimes as big as your head! *(Hold up a coconut as a prop)*. Some seeds are so small that they look like dust. Millions of petunia seeds can fit in the spoon you use to eat soup! *(Pass around a clear package of petunia seeds.)*

(15 minutes)

D:

(Put two or three egg cartons at each learning station. Have the students scoop out a small cupful of seeds, and pour them into the open lid of the egg cartons. Give the students a few minutes to feel the seeds and look at them. Ask them what they noticed about the seeds.)

Were the seeds different colors, shapes, and sizes? Were some rough and some smooth? Look at the seeds under a magnifying glass. What do you see about the seeds that you didn't see before? *(Some have rough edges, small spines, etc.)*

Seeds can be rounded or pointed, smooth or rough, shiny or dull. They come in a rainbow of different colors – red, orange, green, yellow, blue, purple, black, and white. Some seeds such as certain sunflower seeds have stripes. Seeds such as bean seeds can be spotted or speckled, too.

Sort the seeds that are alike and different. Think about their sizes, shapes, colors, and textures. *(After they are finished, ask the students to share the characteristics they used to sort their seeds.)*

Seeds have characteristics that make them alike. What do these seeds have in common? They come from plants. They grow more plants. Each seed is a small special package with its own special characteristics. It contains a baby plant that will grow up to be the same kind of plant from which the seed was picked. A tomato seed becomes a tomato plant. An acorn from an oak tree becomes another oak tree. A marigold seed becomes a marigold plant.

Another characteristic of seeds is how they are used. Some seeds are food people eat. What are some examples of seeds that we eat? When we eat peas, corn, or rice for dinner, we are eating seeds. When we eat popcorn at the movies, we are eating seeds that were heated until they exploded! Inside a cucumber and raspberry are tiny seeds that we eat along with the fruit. Strawberries have tiny seeds all over, so we eat many seeds every time we eat a strawberry! Sunflower seeds and peanuts are tasty snacks. We eat seeds such as sesame and poppy on our rolls, hamburger buns, and breads. They add extra flavor to our sandwiches.

Some animals also eat seeds. Can you think of any animals that eat seeds? Seeds are the main food for birds, chipmunks, ground squirrels, mice, and other animals.

Lesson 4: Planting Seeds, Part 2

Time: February

Materials:

- Teacher and student workbooks
- Pencils, regular and color
- Seeds from last lesson

Class Introduction:

- Read 'How Do Bean Seeds Grow'
- Discuss the major plant parts and their functions: seed, root, leaf, stem and flower.
- As a group observe the bed that was planted last month.

Group Activities.

Garden Group

- Plant bean and Swiss Chard (and sunflower if not done already)
- Observe what is growing in the bed that they planted last month.

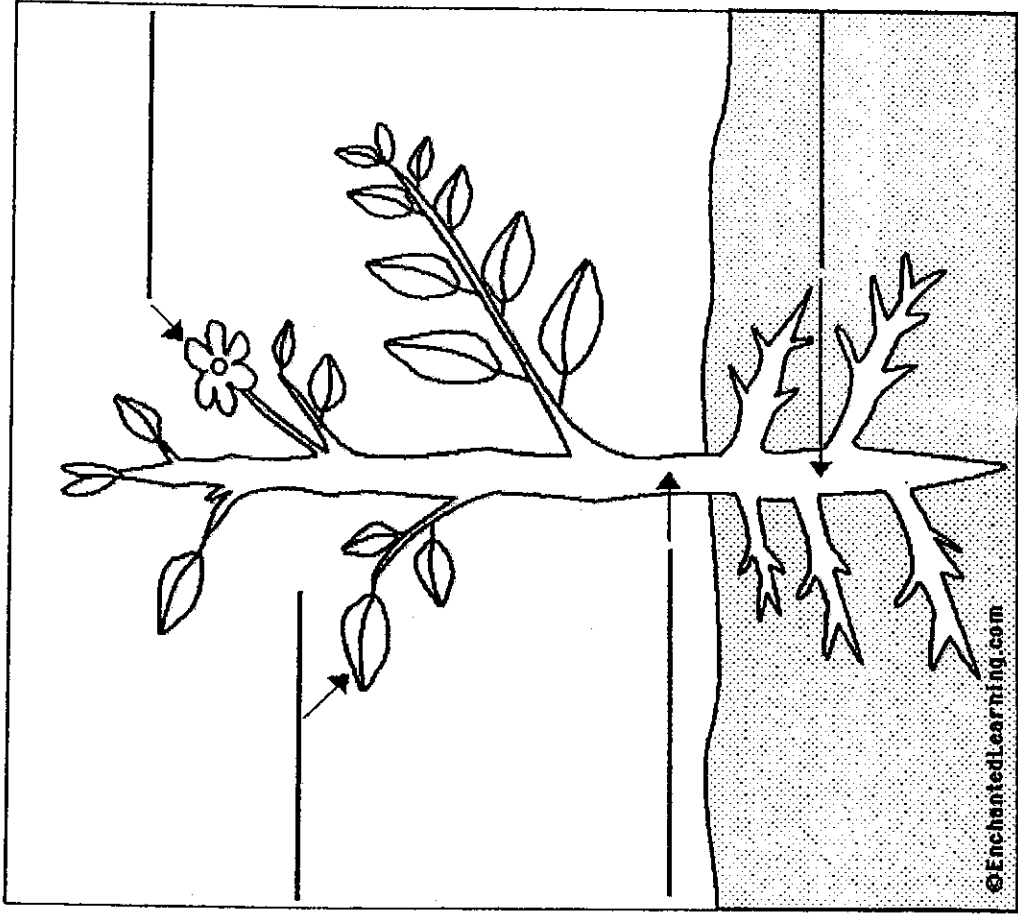
Table group:

- Plant Parts worksheet.
- Journal entry.
- Unfinished work from last month

Divide into groups and switch after approximately 10 minutes.

Save the last 5 minutes to clean up. (Tools, pencils and journals put away)

Plant Parts



Vocabulary

Flower

Leaf

Stem

Root

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What Grows From Seeds?

Most plants grow from seeds.
Seeds come in all shapes and sizes.
What kinds of seeds can you name?

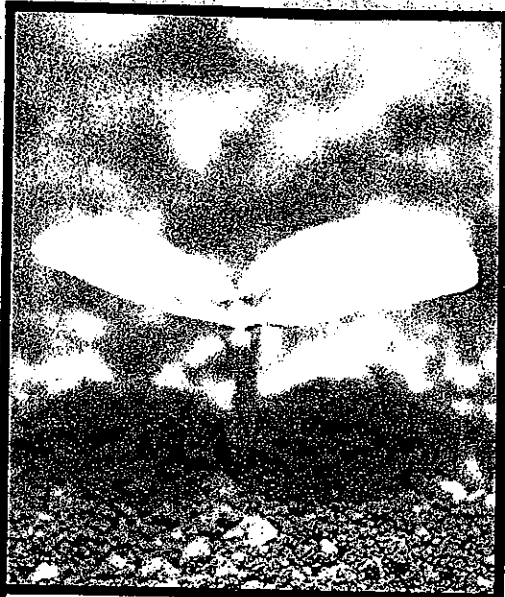


How?



Ruby - Sarsenberger/Grant Heilman

grows



Color Box/Image State

Soon, a stem and leaves grow.



Corbis

igger
ow?



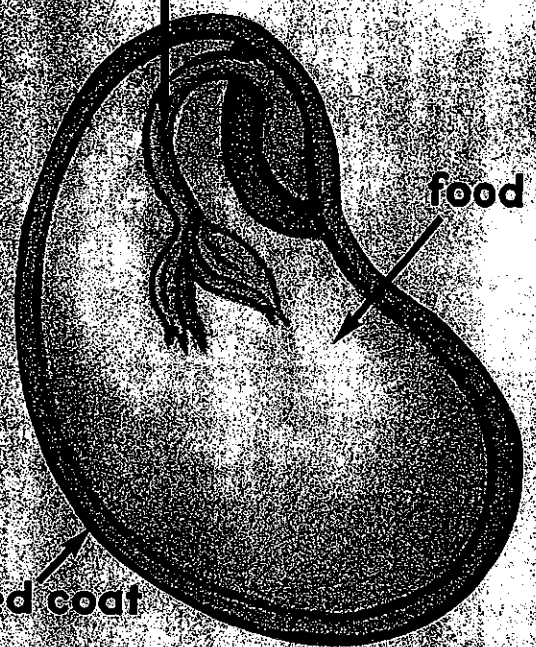
Jane Grunshaw/Grant Heilman

The plant grows green beans. New seeds are inside the beans.

A Seed Has Parts

A seed is the part of a plant that can grow into a new plant. A bean is one kind of seed.

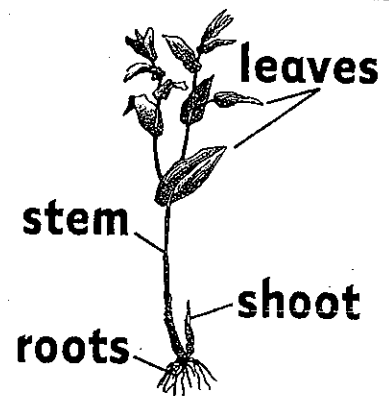
baby plant



Illustrations by Linda Cragwater

Look inside a bean seed. You will see a **baby plant**. You will also see **food** for the plant. The **seed coat** is the outside of the seed. The coat protects the baby plant and the food inside.

Week's Words



Lesson 5: Planting, Part 3

California Education Standards: 2b

Time: March

Materials:

- Teacher and student workbooks
- Pencils, regular and color
- Sorted Radish seeds from Lesson 3

Plan:

- Explain how the seeds will be planted.
- Explain how and where to do next journal entry.

Break into groups to plant and if there is extra time add one or both of the following activities.

- Find that Veggie Worksheet

- Read a garden related story such as:

- How Groundhog's Garden Grew, by Lynne Cherry

Groups:

- Garden Group

- Plant radish seeds

- Observe plants from past sessions.

- Thin and weed as needed.

- Table group:

- Farmers' Market Crop journal entry

Divide into groups and switch after approximately 5 minutes.

Save the last 5 minutes to clean up. (Tools, pencils and journals put away)

Name _____

Find That Veggie!

Vegetable	Bed Number	Part We Eat (circle one)
carrots		root, tuber, bulb, stem, leaf, flower, seeds
peas		root, tuber, bulb, stem, leaf, flower, seeds
potato		root, tuber, bulb, stem, leaf, flower, seeds
lettuce		root, tuber, bulb, stem, leaf, flower, seeds
onions		root, tuber, bulb, stem, leaf, flower, seeds
radish		root, tuber, bulb, stem, leaf, flower, seeds
		root, tuber, bulb, stem, leaf, flower, seeds

Lesson 6: Harvest Week

This year we are experimenting with new crops and timing. It is possible that all the crops may not be ready at the same time for the Farmers' Market. If the harvest dates do not align, be sure to enjoy the produce with your class or sell in the morning before school.

Time: April-May (can be divided into multiple visits)

Materials:

- Buckets of clean water for washing
- Colander for draining
- Scissors, child and adult
- Containers or bags for storing produce
- Rubber bands

Day 1: Radish Harvest

Show students the procedure for harvesting the radishes:

Pull ONE

Clean in bucket of water

Remove long, thin tap root with scissors

Place in container or bag.

(If they need to be stored more than a few days, leaves should be removed and put in compost. Can be stored for about 2 weeks in refrigerator -- without leaves)

Day 2: Beans

Cut beans with scissors.

Do not wash, just store in Ziploc bag in fridge.

Day 4: Swiss Chard

Cut base of leaves with scissors

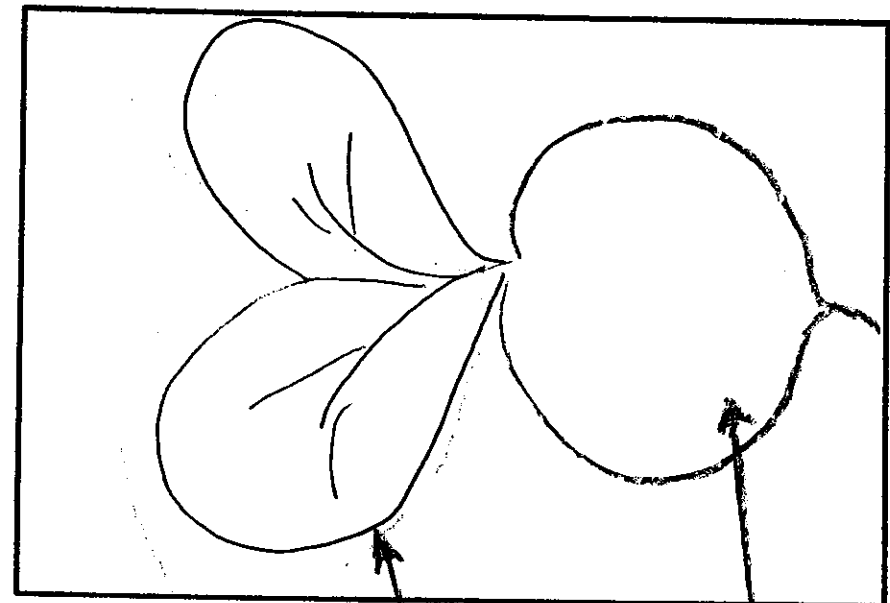
Parent – stack and rubber band in groups.

Keep cool.

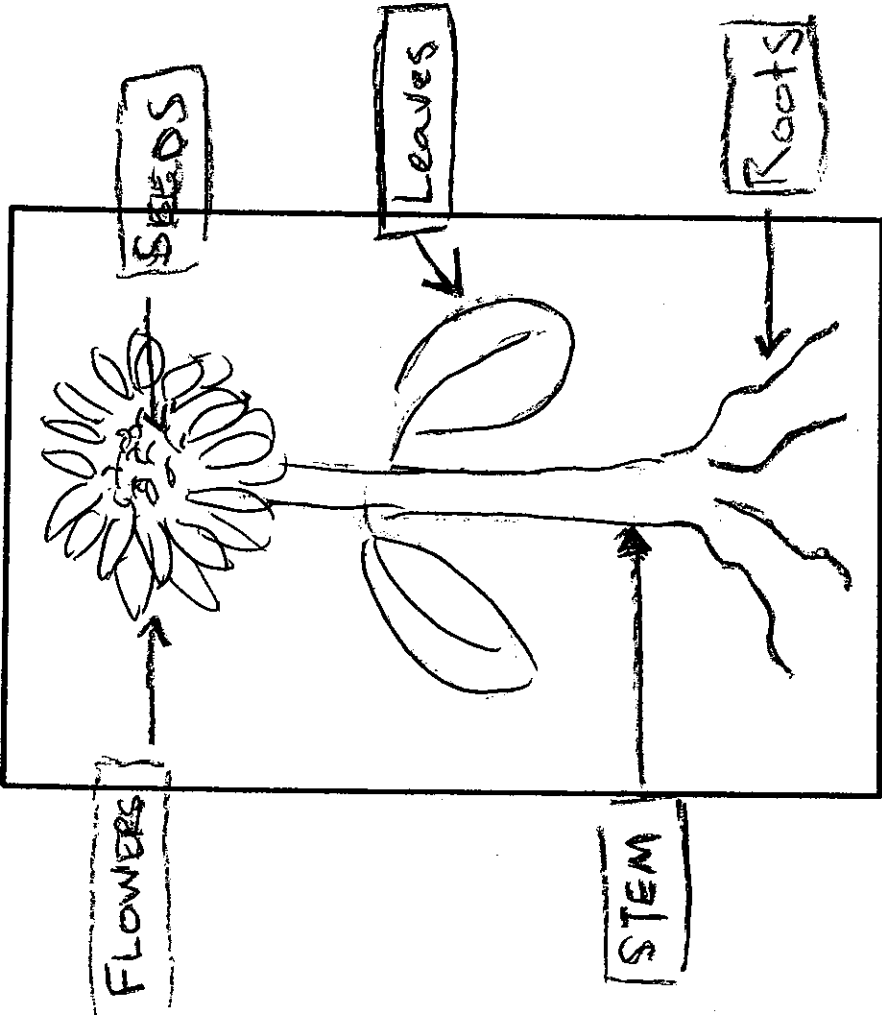
Day 4: Sunflowers

Cut flowers with long stems for bouquets. Students may need help if flowers are too tall. Store in a bucket of water in a cool place. Can be arranged into bouquets with other garden plants such as Sea Lavender and Eucalyptus – if desired.

Plant Parts



Radish



Sunflower

Lesson 7: Recycle: Return to Compost

Time: May-June

Materials:

Teacher and student workbooks
Pencils, regular and color
Tools
Gloves

Class Introduction:

Discuss the plant lifecycle: from seed to seeds.
Observe any remaining sunflowers, beans with seeds.

Group Activities.

Garden Group

Pull and/or dig up any old plants that are no longer producing and put in regular compost bins.

Table group:

Journal entry.
Unfinished work from last month.

Divide into groups and switch after approximately 10 minutes.

Save the last 5 minutes to clean up. (Tools, pencils and journals put away)

