Lesson Plans for the Cameron Ranch School Garden Sacramento, California

**Kindergarten**

**Standards** –

What plants need to Survive

Relationship Between Plants and Animals

Patterns in Nature

Solutions to Lessen Effect of Humans on Earth

Weather Patterns (sunlight)

How Plants Change Their Environment to Survive

Measurable Attributes

**Lessons** –

Fall Scavenger Hunt – Start by having students collect leaves and put them in the paper grocery bags with the same color (mark grocery bags orange, red, etc. with construction paper). Sort leaves by color, size, shape, make a rainbow with the leaves.

Pumpkin art – Cut a pumpkin out of cardboard. Have students glue on dried corn and peas.

Make an Apple Garland

Do an Apple Taste Test – sweet, sour, tart?

Vegetable Prints

Duplication game – See if students can find a stick, leaf, pebble, weed, just like yours.

Go on a seed walk around the property.

Insect Hunt – Give each group of students 2 to 3 pictures of insects (can be simple black and white glued on an index card. Have them hunt for those insects. If you can get a count, make a class graph.

Pumpkin investigation – Get 3 to 4 pumpkins. As a whole group, guess the weight, count the lines, measure the height with counting cubes, guess which piece of string fits exactly around which pumpkin. Does it float?

Make watering cans from gallon jugs. Paint them with acrylic paint and punch holes in the lids.

Shape Scavenger Hunt – Give students paper shapes on an index card or on a string and let them hunt for these shapes in nature.

Create a garden tool kit – Make paper or material pouches (about 6 “by 9”). Let students color them. Fill them with a paper ruler, small magnifying glass, pencil, crayon, and small paper journal.

Spend time using the new garden tool kits. Students can measure, use magnifying glasses and draw in their journals.

Ladybug Art – Make a ladybug out of a paper plate and construction paper. Glue a short ladybug poem to the inside of the plate.

Alphabet Scavenger Hunt – Hunt for things that start with certain letters.

Do a Sensory Walk

If I were a tree – Give students a paper with a very light image of a kid. Have them use leaves, sticks, etc. from the garden and glue to creat a picture of how they might look as a tree.

Everything Counts in the Garden – Make a large number line from construction paper and string to 20. Put it on the ground. Ask students, What might you find in the garden? How can we count the things we find? Choose one item to count and draw it on a card (rocks, trees, flowers, benches). Then place card next to the number that matches how many of that item you found. ( Do a sample) After this, you can talk about the results.

**First Grade-**

**Standards** –

Parts of a Plant

Birds and Bugs

5 Senses

How Offspring Survive

Patterns

**Lessons**-

Pumpkin Lesson – Have students in group with large piece of butcher paper. On the paper draw a pumpkin. On the side list the basic parts of the pumpkin. Draw 10 circles on the paper. Start by having the students label the parts. Then they can count the lines, measure the height and the circumference with a tape measure. Collect pumpkins. Cut up one pumpkin and give each group a section. Let them count the seeds by 10s putting 10 seeds in each circle. Now to a whole class count, counting by 10s or doing an addition problem.

Color Matching – Get paper paint chip samples from the hardware store. Hand each student a paint chip and ask them to find that color in nature.

Create a Seed Mosaic

Be a Leaf Detective – Examine the shape, size, color and number of points in leaves.

Leaf Rubbings

Create a 3D picture of a tree using twigs, leaves, bark, petals.

Create a 3D picture of a creature using twigs, leaves, bark and petals.

Insect Safari – Give each student a paper with bugs on it that you will find in your garden (my paper looked like a bingo game). They are to look for bugs and keep a tally right on the paper of how many of which bug they saw. Then do a master graph with them, getting an estimated average (by a show of fingers) of how many of each bug. My graph had these categories – 6 legs with wings, < 6 legs no wings, > legs with wings, no legs.

Apple Prints – Follow through by discussing how they grow, what colors, tastes, when do they grow, and what are they used for.

Animal Birthday Party – Students pick an animal and write a birthday party invitation for that animal. Where would you have the party? What food would you bring? Presents?

Seed Spacing – Cut strips of newspaper. Make a “paste” with a mixer of equal parts of flour and water. Have students put daps of “paste” about two inches apart on newspaper strip. Press wildflower seeds into paste. Let dry and plant later.

Living Verses Non-Living – Make a class chart of living and non-living things in the garden.

Plant Comparisons – In small groups, students study one type of vegetable in the garden. They complete a chart with the plant name, numbers of plants, how tall, shape and color.

Fairy Houses – Clean small milk cartons. Cut off top and on side. Glue to a small paper plate. Students use this as a base to create a fairy house with nature from the garden. They can add a small painted rock creature later.

**Second Grade**

**Standards** –

Interdependency

Pollination

Biodiversity

Habitats

Water and Light

**Lessons**:

Fall Wreaths – Cut center out of a paper plate. Punch hole for a string. Have students glue leaves and seeds on it.

Parts of a Flower – Have students dissect a flower and label the parts.

Make Plant Markers

Label Tools and Their Uses

Create a Journal – Cut file folders in half. Fill with copy paper. Punch holes on side. Use a stick and small rubber bands to secure end.

Light – Make a rainbow with a garden hose and discuss what is happening with the light.

Woven Art – Cut slits into pieces of 5” by 5” construction paper. Have students weave in sticks and leaves.

Pollinator Party – Make pollinator masks using the cheap white paper eye masks (Oriental Trading Co.). Students can color and add paper wings or feathers to create a pollinator. Give each student a pipe cleaner to create legs (make an upside down “V” shape). Students take their legs and dip them in the different “pollens” (different colored grated sideway chalk in small containers) around the garden. Serve something with local honey!

Compare Seed Roots – Go pick weeds from the garden. Compare the roots. Learn about *tap* and *fibrous* roots.

Parts of a Bulb – Draw a large diagram of an onion and it’s parts. Give each group of students a half an onion. Let them identify the parts. Follow up by planting flower bulbs.

Estimating Seeds – Ask students how many seeds they think are in an avocado? a lemon? a pumpkin? Discuss the word “estimate”. Give each group a bell pepper or something easy to work with that has many seeds and paper. Have them write the name of the vegetable and estimate how many seeds they think will be in it/ Will the seeds be big our small? Then have them count the exact number of seeds. Finish by having them draw a picture.

Making Mulch – Have students crush up piles of leaves and add it to the garden. You can easily have a discuss on mulch and decomposing.

Animal Tracks – Print off color pictures from the internet of wild animals and their tracks. Teachers Pay Teachers has these for free. Have students match the animals with their tracks. Then make a fossil using homemade Play do and their hands.

Adjective Hunt – Make a chart (large construction paper) for each group with a box in the middle (about 4” by 4”). Ask the groups to draw a vegetable growing in the garden the middle of the paper. Now do a taste test and write adjectives that describe the vegetable all around the picture. For our students population, I wrote many adjectives around the box and they had to circle the words that fit that vegetable.

Symmetry in the Garden – Give students string and have them find things in the garden that are symmetrical.

Favorite Shades of Green – Have the students find their favorite shade of green. They record it in their journals.

It’s a Bug’s World – Have student’s lay on the ground and look up at the world. Be still for 10 minutes. What do you see? How do you feel? What do you hear?

Advanced Insect Safari – At this great, hunt for insects and discover which bugs hang out where.

Sense of Smell – Fill baggie with cotton balls dipped in different strong smelling spices. Put same cotton balls in small open containers (recycled sour cream tub) around the garden. Let students work in groups to see if they can match up the senses. Make yourself a cheat sheet. Follow up – Can they name the spice?

Seeds Everywhere – How do Seeds Spread? Talk about seeds moving by water, wind, clinging on humans or animals, and eaten by animals. Put old gloves on hands. Walk around the garden and see how many seeds you pick up.

Make a Pollinator Field Guide

Write some Garden Poetry

**Third Grade**

**Standards** –

Life Cycles

Looking at Data

Adapting to Your Environment

Natural Selection

Weather and Climate

Designing a Habitat

Animal Research

**Lessons –**

Scavenger Hunt with Compasses

Parts of a Plant – Bring in vegetables to show that we eat roots, stems, leaves, flowers, and fruits.

Nature’s Paint Sticks – Use leaves, sticks, petals as paint brushes.

Wind vanes – Print off a large compass (about 5” in diameter). Glue paper compass to old CD. Fold two paper clips at a 90 degree angle. Tape in middle of compass about ¼ it apart. Place cut wide straw (about 4 inches high) over the paper clips. Place thinner straw inside wide straw (so it can turn with the wind). Make thinner straw about an inch longer than the wide straw. Make a short slit on top of thin straw, length wise. Glue a paper rooster or arrow in slit.

Food Art – Get one inexpensive print of Giuseppe Arcimboldo, or bring it up on a screen. Show students his art. Divide students into groups. Spread out tarps. Put down a pile of fruits and vegetables. Have students identify the fruits and vegetables. Then have students create a bust on the tarp with the food. Do an art walk.

Bee Boxes – Many bees are solitary. Have each student make a prototype of a bee box. Wash out small milk cartons from the lunchroom. Cut off the top but leave on one little section for an awning. Squish a quarter size amount of homemade Play Do in the bottom of the milk carton. Fill the milk carton with paper (not plastic) straws, cut to size.

Sun Prints- Watch the chemical reaction when you make a print with this sun paper. Buy a 12 pack of Sun Prints from UC Berkeley Lawrence Hall of Science.

Seed Art Paper – There are many recipes for this on line. I shred white copy paper with some color paper and soak it in water. Note: Newspaper just comes out gray. Take a handful and shape it on your own or use a cookie cutter. Push some seeds into in. Press on a piece of screen material to squeeze out the water. Let dry.

Nature Quilt – Each student colors a square of paper. Make a paper quilt.

Seasonal Crops – Learn about what grows in your area/state. Have students use a seasonal crop chart to learn when things

are harvested. I start simple with just taking about winter and summer.

Surviving the Winter – Make 3 signs – Hibernation, Adaptation, and Migration. Have students organize pictures or stuffed animals into these 3 categories as a whole class or in groups.

Board Game – have students create a board game based on different habitats or endangered species.

Plant Predators – In groups, students examine one type of vegetable plant in the garden. Complete chart – What is the plant name? How many plants are there? How many plants are damaged? How much of the plant has been eaten? How many plant predators do you think are eating these plants? What could be eating these plants? Follow up with a class graph.

Triangle Hunt – Talk to class about different types of triangles. Provide them with samples. Divide class into groups of three. Give them one long string. Ask them to make different triangles and find them in nature. Follow up with different shapes.

Life Cycle Pop Up Book – Fold a paper in thirds with side flaps overlapping in front. The top page is the title page. The inside pages have the life cycle and the adult insect in its natural environment.

Pressed Flowers – Make a bookmark with construction paper, flower petals and contact paper or a laminator.

Camouflaged – Find insects in the garden that are camouflaged and explain how they are adapting to their environment.

A Bird’s Eye View = Cut a paper frame from construction paper, about 10” by 8”. Give every student a frame, blank white paper, a clipboard, and color pencils. Students sit on the ground. They place the frame on the ground in front of them and draw exactly what they see. This can be challenging for them since they are used to drawing plants on the bottom of the paper, then sky and sun.

**Fourth Grade**

**Standards –**

Internal and External Sensory Receptors

Watersheds

Energy Conservation

Producing and Storing Energy

Converting Energy

**Lessons:**

Opposite Scavenger Hunt – Find things that are opposites something hard, something soft. Be creative!

Recognizing Seeds – Take seeds out of several vegetables and fruits. Put the seeds in a small container. Display the seeds and the food. Can they match the seed with the correct food?

Fungi – Take a piece of poster board and draw a diagram of a mushroom and label its parts. Discuss fungi and decomposers. Show students different mushrooms from the grocery store. Do a mushroom hunt. Make mushrooms from the soft modeling clay from Crayola. Make mushroom prints – let cap of a mushroom sit on white paper for 24 hours.

Phenology Wheels – Print off a phenology wheel from the internet. Explain that a phenology wheel is basically following the life cycle of a living thing. Have student observe and record date, time, location of the same tree, bush, plant, three times during the year.

Leaf Identification- Find leaves that are simple and compound. How do different leaves adapt to their environment.

Compare Seed Roots – Go pick weeds from the garden. Compare the roots.

Leaf Rubbings – Label your picture.

Sunflowers – Learn about the benefits of sunflowers. Dissect the flower and name the parts.

Trees – Discuss all the uses of trees. What are the parts of a tree? Display tree cookies and count the rings. Do a bark rubbing. Measure the circumference of the tree with your hands and then your feet. You can estimate the height of a tree by measuring its shadow. Discuss why this is only an estimate.

Tree Tag – Learn the names of trees in the area. Play tag. Twist – Students are safe when they touch a designated tree – i.e., You are safe when you touch the oak tree.

Seed Saving – Pick and dry seeds in the garden. Easy one we have tried – sunflowers, peas, marigolds. Make a pattern for a small envelope. Students can make their own envelope by cutting and gluing the paper together. Make sure they write their name, the name of the seed and the date on the envelope.

Reading Seed Packets – Get old seed packets at hardware store. Help students learn to read important information on the back of the packet.

Adapt a Seed – Students create a seed from forming a ball of foil the size of a walnut. They can attach other materials such as cotton balls, toothpicks, tape, coffee filters and more foil to see how far they can make it travel by wind (fan), water and humans.

Flower Comparison – Students draw, label, and list attributes of a flower in the garden. Pair students up to share similarities and differences. Make class graph, comparing size, shape, number of edges, number of petals, color.

Bird Watching – Discuss what makes a bird a bird. Have students sit quietly and bird watch. Younger children do better using their our eyes as opposed to binoculars. Provide them with a local bird guide. You can find these on the local Audubon Society website. Students can also stand near a tree and make a “pishing” sound for 2 minutes and it will attract birds. Make a bird’s nest!

Garden Art – Students draw a garden tool. Then turn the tool into a bird, a mouse, a flower. Let them use their imagination.

Make Seed Balls!

**Fifth Grade**

**Standards** –

Energy

Photosynthesis

Composting

Ecosystems

Food Web

**Lessons:**

Photosynthesis – While teaching about photosynthesis, students can do these two activities.

 Leaf Transpiration - Place a plastic bag over leaves on a branch and watch what happens.

 Leaf Chromatography – Dip a leaf in vinegar and lay it on a coffee filter.

Patterns in Nature – Give each student a piece of cardboard (about 4” by 4”). Cover one side with double stick tape. Students can wander the garden and carefully collect leaves and petals to place on cardboard. Encourage students to make a pattern. Place all cardboard on ground together to see beautiful patterns of nature.

Understanding Conservation –

 Soil – Have students collect a soil sample around the school/area in a pint size container. They can work in small teams. With a piece of construction or butcher paper, students pour soil onto paper and look for living and non- living things. They can record their findings. Discussion – How important is soil to our lives? How is soil made? How do farmers conserve soil? (rotate crops and livestock, plant things that need less water, no pesticides, recycle, mulch).

 Water – Show how erosion effects the land. Take aluminum lasagna pan. Fill it with soil and form a hill on one side. Let students gently pour water from a watering can (rain) on the soil. Now do it again but add moss, leaves, weeds or grass to the hill. Now what happens and why?

Compost Tea- This is easy to do. Put compost in a bucket. Have students slowly add water until it is the consistency or watery mud (doesn’t have to be exact). Wait 24 hours and use it to water the veggies in the garden. (I use it right away and it still gets the point across). Benefits – increase plant growth, improves the soil, no chemicals, keeps away diseases, considered “liquid gold”

Nature Boxes – Save boxes of any size with short sides. Have students find things in the garden, glue them in the box and label. This is a great fall activity when you can find pinecones and things. I bring different small branches and pinecones from my neighborhood. These can be stored in a classroom on a “nature table”.

Sheet Mulching – Take an area you are not planting in for a while or never where you want to keep the weeds down. Sheet mulching will keep the weeds away but keep the soil healthy for later. You layer the area with newspaper, then leaves, then cardboard (remove all tape and labels if you can), then mulch. This is a great fall activity because it’s easy to collect dry leaves. If you need to skip steps, cardboard and mulch alone will work.

Biodiversity Detective – Discuss biodiversity and ecosystems. Have students look at air level, ground level and below ground level. Have them divide a piece of construction paper into three sections. They can draw and label what they see.

Being a Smart Consumer – Have students read food labels and talk about eco conscience packaging.

Build a Compost Pile

Fall Nuts – Find nuts/seeds in the garden. I also bring in nuts with the shells on, hazelnuts, walnuts, almonds and pecans. I talk about the origins, nutritional value, and what we use them for. California is the biggest producer of almonds.

Food Nutrition – Student make a “billboard” to advertise a veggie or a fruit.

Cheeseburger From Farm to Fork - Our carbon footprint – I break students into groups. There are 4 categories – Bread, Cheese, Salad and Meat. They get envelopes with the jobs needed to produce one of those items. First, we make an educated guess of how many jobs/people are involved in getting the cheeseburger to their plate. Each envelope has the jobs (vet, dairy farmer, miler, machine buyer, cheesemaker, refrigerated truck driver). The students put their jobs in order and then we count the total jobs and talk about the energy or carbon footprint it takes to make a cheeseburger. Discussion – What would make a smaller footprint?

Do an Underground Food Web

Bake Lavender Muffins

Create a Field Guide

Build a Prototype of a Bat House Form a Shoe Box

Use a planting Guide to Plan a Spring Garden

Make Up an Amazing Garden Race Game