



Primary Lessons for Classroom & Garden

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We wrote this set of 16 garden lessons* with Primary (pre-kindergarten and kindergarten) students in mind. These lessons can be used in your classroom as an extension of the Practical Life (Grace and Courtesy), Science, Language, Sensorial and Math areas.

Lessons are in a format similar to that of traditional Montessori lessons. You might decide to lead your class through them, or you might consider having a parent or community volunteer take small groups of children into the garden to lead the lessons. They are simply written and easy to adapt.

Happy gardening!

** Lessons may be duplicated and used freely. Lessons may not be sold or in any "monetized" without written permission of George Watts Montessori.*

Grace and Courtesy in the Garden

Time:

Can be given any time and should be revisited as needed

Materials:

Samples of weeds, garden tools

Activity:**Day 1: Walking on pathways**

- Begin by showing and discussing the pathways of the garden.
- Take a silent walk around the paths, with hands behind backs, making very intentional steps to stay on the path.
- Ask children why it may be important to stay on the paths.

Day 2: Weeding (if time, can do this activity on Day 1)

- Show children a few samples of weeds that you have pre-pulled from the garden.
- Lead a conversation about why weeds are harmful by asking the children questions. Why are weeds bad? What do they take from other plants? Why does that matter? How can you spot a weed?
- Walk with children along the path for a “Weed Spy” game. Ask the children to silently walk through the garden looking for weeds to pull.
- When finished spying weeds, ask a few children to show you weeds they spied so that you can check for understanding.
- While looking at correctly identified weeds, show children how to pull them from the part closest to the soil (and perhaps twisting).
- Once confident that children know the difference between weeds and other plants, ask them to begin to pull weeds and place them in the compost bin.

Day 3: Using and returning tools

- Begin by showing children where the garden tools are located.
- After showing, give a simple explanation of the tools’ uses and their proper names.

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- Review the names of each tool.
- Review uses for each tool and ask children if they know any other uses of certain tools.
- Demonstrate how to use each tool.
- Demonstrate how to return tools to their proper place.
- Allow children to choose a tool to use and then make sure they return it to the proper location.

Sensorial Experiences in the Garden

Time:

Any

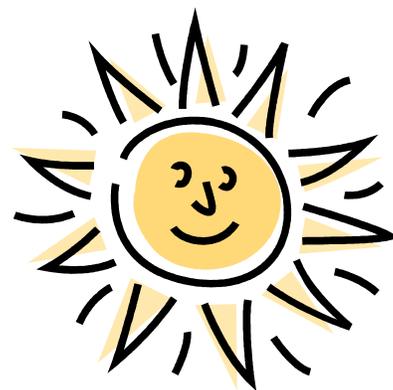
Activity 1: Tactile Walk



Materials (optional):

Poster board, markers, mystery box

- Lead children through the garden, stopping at a variety of plants. Show them how to feel the leaves or fruit.
- Ask them to describe how the plants feel.
- Ask them to compare the feeling of the plants to other objects.



Extensions:

- Make a poster of what the children felt and things they compared the feelings to. Display the poster in the classroom.
- Create a Mystery Box work. Take a few samples of leaves or fruit to place in the Mystery Box in the classroom, for students to identify.
- Ask children to describe the feeling of being in a shady spot in the garden. Do the same for an unshaded spot. Discuss what makes the difference.

Activity 2: Listening



Materials:

Book *The Listening Walk*, crayons, paper, digital voice recorder (optional)

- Begin by reading the book *The Listening Walk* to the children while sitting in the garden.
- Explain to the children that they will be taking Listening Walks through the garden.
- Allow the children to silently walk through the garden focusing on sounds (no more than 10 minutes).

- When they return you can either have a group discussion about the things they heard or they can use paper and crayons to draw the things they heard and then share them with each other.

Extension:

- Take out the digital voice recorder and ask children what sounds they could record. Some ideas may be the wind chimes, birds, the running water in the garden hose, etc.
- Once they have recorded sounds, they can play the recording for others in the class. Or the recording can be used as a sound guessing game.



Activity 3: Smell

Materials:

Smelling Bottles (optional)

- Before getting your group of children, take a walk through all of the garden areas and identify several plants with distinct smells.
- Once children are in the garden lead them through the pre-identified plants and allow them to smell them.
- Discuss what the smells remind the students of.

Extensions:

- Take samples of the plants to place in the Sensorial area as a work.
- Classroom teacher can give a Smelling Bottle lesson.

Activity 4: Sight



Materials:

Samples of leaves, fruit or vegetables.

- Divide children into pairs.
- Give each pair a sample and ask them to go on a scavenger hunt.
- Once the children have found the plant that goes with their sample, ask them to quietly sit or stand beside it. Walk to each group and briefly describe the plant they have identified.

- Repeat until each group has found each sample.

Extensions:

- Place pairs of samples into a basket that can be used as a visual matching work in the classroom.

Activity 5: Taste



Tomatoes (or any harvestable plant)

- Allow the children to help harvest a large amount of cherry tomatoes.
- Have them use bowls from the classroom to wash the tomatoes.
- Allow children to practice Grace and Courtesy by having them share the harvest with their class.
- This activity can be used with any fruit or vegetable from the garden ready for harvesting. Make sure to demonstrate how to properly harvest each type.

Basil

Materials:

Basil, Parmesan cheese, pine nuts, garlic (can also be found in garden), lemon juice, olive oil, bowl, food processor, spoon, pasta, pot.

- Allow the children to harvest a large amount of basil (you will need enough for 2 cups).
- Wash the basil leaves and make sure all stems have been removed.
- Place $\frac{1}{4}$ cup pine nuts, $\frac{1}{4}$ cup olive oil and 3 cloves of garlic in the food processor. Chop.
- Add the basil leaves to the processor and chop.
- Blend in 1 tsp. lemon juice and $\frac{1}{4}$ cup Parmesan cheese.
- After pesto is made, take children to the kitchen and cook pasta.
- Once pasta is cooked, drain it and stir in the pesto. Allow every child to sample the dish.

Extension: Every class will have one cooking lesson per quarter with the school nutritionist.

Importance of the Sun, Water and Soil

Time:

Any. Will need three days for each activity.

Materials:

6 clear plastic cups, 6 plants that have already sprouted, soil, water, permanent marker, paper, pencil.

Activity 1: Sun

- Begin a conversation with the children about why they think the sun is an important part of the garden.
- Allow them to help place two sprouts into two separate clear cups (one sprout per cup).
- Add soil and water to each cup.
- Place one plant in a sunny spot of the garden.
- Place the second plant in the classroom closet where it will not be exposed to much light.
- Ask the children to observe the two plants each day and record as a group what they are noticing.

Activity 2: Soil

- Begin a conversation with the children about why they think soil is an important part of the garden.
- Allow them to help place two sprouts into two separate clear cups (one sprout per cup).
- Add soil to only one of the sprouts.
- Add water to both plants.
- Place both plants in a sunny spot of the garden.
- Ask the children to observe the two plants each day and record as a group what they are noticing.

Activity 3: Water

- Begin a conversation with the children about why they think water is an important part of the garden.

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- Allow them to help place two sprouts into two separate clear cups (one per cup).
- Add soil to both plants.
- Add water to only one of the sprouts and label it plant A, the other will be labeled plant B.
- Place both plants in a sunny spot of the garden.
- Ask the children to observe the two plants each day and record as a group what they are noticing. Continue to water plant A but do not add any water to plant B.

Extensions:

- Classroom teacher can give “Needs of Man” lessons.

Weight of Harvest

Time:

Any

Materials:

A variety of samples from the garden, dry-erase marker, small dry-erase board, scale or balance.

Activity:

- Label by name each sample to the group.
- Ask them to put the samples in order, by heaviest to lightest (in their opinion).
- Weigh each object and record the actual weight.
- Change the order if needed.
- Discuss with children why there may have been some changes or surprises.
- Ask them to use words like weight, dense, light, heavy, etc.
- Ask them to identify the heaviest and lightest samples.

Extensions:

- Repeat this activity with objects in the classroom.
- Classroom teacher can give Baric tablet lesson.



Identifying Plants That Attract Butterflies

Time:

Spring

Materials:

(optional) digital camera, printer, Butterfly life cycle works, book *Gotta Go! Gotta Go!*

Activity:

- Allow children to quietly observe the garden to watch for which plants butterflies are attracted to.
- After identifying them, lead a discussion about why butterflies are attracted to them (bright colors, nectar etc...)

Extensions:

- Allow children to take a picture of butterflies and the plants they like. Print the pictures, label them, and post them in the classroom.
- Teacher can give a variety of butterfly life cycle lessons.
- Read the book *Gotta Go! Gotta Go!* Discuss why it might be important for butterflies to migrate.



The Way Things Grow

Time:

Any

Materials:

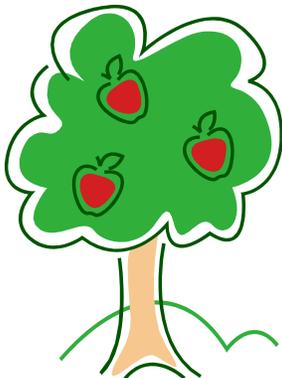
Poster board labeled at the top with "bushes, trees, vines, plants," digital camera, paper

Activity:

- Lead children on a walk through the garden and instruct them to pay special attention to the way things grow.
- Ask them to look for trees, vines, bushes and plants.
- When children notice a particular type of growth, help them identify it and then add its name to the poster under the proper classification.
- Lead a discussion with them about why certain things grow certain ways. For example, would pumpkins be able to grow on a tree? Would they be too heavy?

Extensions:

- Have children take pictures of different types of growth, print the pictures and have children add them to the poster under the appropriate category.
- If possible, sample a fruit or vegetable from each type of growth.
- Play a game where you call out a type of growth and every child has to run to it.



Scavenger Hunt

Time:

3rd or 4th quarter

Materials:

Each child's journal, pencils, one scavenger hunt form for each pair (included in following pages).

Activity:

- Divide children into pairs, making sure that each pair includes at least one reader.
- Give each pair one scavenger hunt form (next two pages) and review the directions.
- Allow children to complete scavenger hunt. Check in with each group periodically.
- Once each group has finished, come together as a group and share findings.
- Post their forms in the classroom.



Extensions: Allow each pair to try each scavenger hunt type.

Name: _____

SPRING SCAVENGER HUNT

Find a plant that smells like lemons. Write its name or draw it here:

Find a weed. Draw it here:

Find some grass. How does it smell?

Find a plant with "**RATTLESNAKE**" in its name. Write its name or draw it here:

Find the perfect spot. Where is it?

How do you feel when you are in this spot?

Name: _____

SPRING SCAVENGER HUNT

Find a plant that smells like licorice. Write its name or draw it here:

Find something that feels warm. What is it?

Find something that feels cold. What is it?

Find a plant with "**BERRY**" in its name. Write its name or draw it here:

Seasons

Time:

Once each quarter beginning in August or September.

Activity 1: Tracking Plants

Materials:

A Tree for Every Season, digital camera

- Read the book *A Tree for Every Season*
- Have a brief discussion about characteristics of each season.
- Help children choose one or two plants they would like to track throughout the seasons. (Make sure what they choose is not an annual.)
- Explain that we will take pictures of the plant(s) they choose in every season and track the changes.
- Help the children take pictures.

Extensions:

- Classroom teacher can place numerous season works on shelf.
- Allow children to create their own rendering of how the garden looks during each season.
- Read books about seasons and discuss what animals do in particular seasons.

Activity 2: Tracking Bugs

Materials:

Digital camera or journals, pencils

- Tell the children they will be bug detectives today.
- Remind them to stay on the paths of the garden and look carefully for bugs.
- When they spot a bug either take a picture of it or have the children draw it in their journals (you could also do both).
- Print pictures and label with the appropriate season. Post in classroom.
- Repeat each time the season changes. Ask students what changes they're noticing.

- Try to encourage higher-order thinking by asking: Why there are more bugs in particular seasons? What do bugs do to help the garden? What do they do that harms the garden?

Extensions:

- Teacher can put out numerous works involving insects.
- Read books about insects.
- Learn the parts of an insect.
- Create bugs using stamp pads, thumb prints and markers.

Activity 3: States of Matter

Materials:

Glass jar filled with water, permanent marker, poster board labeled with names of four seasons, markers, and thermometer.

- Have children help you fill a jar with water and mark the water level with a permanent marker.
- Place it in a spot in the garden where it will not be disturbed.
- Let the jar sit for about an hour, return and then take a temperature reading of the water and record that under the appropriate season name ("Summer," "Fall," etc.)
- Ask the children to describe to you how the water looks (liquid, is there any condensation, did the water level change?)
- Record all of their comments on the poster.
- Revisit the jar a few times that week and repeat the steps.
- Revisit the jar several times each season and record the changes.

Extensions:

- Conduct basic states of matter experiments with the children. (Classroom teacher can help volunteers with these. One quick example would be to place an ice cube in a bowl during each season and time how quickly it melts.)
- Have them paint with water colors.
- Have them paint with food-colored ice cubes.

- Blow up balloons to demonstrate gases.
- Ask children to name other solids, liquids and gases.

Measuring in the Garden

Objective:

Children will improve scientific questioning and observation skills. The activity is an introduction to measurement and recording data, as well as a long-term experiment.

Time:

Anytime after the Grace and Courtesy lesson and should be revisited at least monthly

Materials:

Nonstandard units of measurement (unifix cubes, paper clips, ruler, yard stick, etc), plant selected for the activity (one that will be available to be measured throughout the year), paper to document measurements

Vocabulary:

Scientist, hypothesis, prediction, observation, record, data, measure, grow, height, tool, words for the units of measurement, ruler, yard stick

Activity:

Day 1: Measuring Height

- Begin by discussing the job of a scientist and how the children will be scientists. Talk about how scientists get their ideas for research by asking questions. Next, scientists make an educated guess or create a hypothesis about what they think may happen. To test a hypothesis, they create an experiment, then make observations and record their findings.
- Begin a discussion with the children by asking, "What do you think will happen to the plant you selected over the next several months?" Record their predictions on the white board.
- Now show the children the nonstandard units of measurement. Allow them to select the tool they think is best for measuring the plant. This unit will be the one that is used for all measurements throughout the year. Later in the year, allow them to also use other tools -- the ruler or yardstick -- to measure the plant.
- Assist the children in the measuring process
- Demonstrate how to record the findings on the appropriate form or journal. Later in the year, allow children who are capable to record their own data.

Extensions:

- Teacher may place a measuring work on the math shelf for measuring and comparing height of other students
- Teacher can record each child's hypothesis and have the child draw a picture.

Measuring Temperature

Materials:

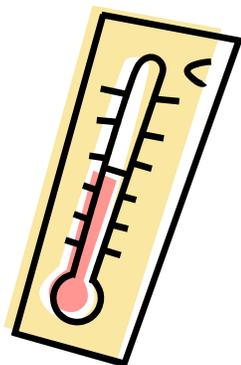
Two outdoor thermometers, paper to document measurement

Vocabulary:

Temperature, measure, thermometer, tool, shadow, shade, words used to describe temperature, mercury

Activity:

- Review the job of a scientist (from “Measuring in the Garden”).



- Show the children the thermometer and begin a discussion about this tool.
- Review observation and recording data.
- Place one thermometer in a sunny location and place the other in the shade.
- Let the children discuss what they think will happen to the thermometers.
- Take each group over to either thermometer and demonstrate how to read the thermometer and record the findings. Later in the year, allow the children that are capable to record their data.

Extensions:

- A thermometer may be placed in the classroom where the children can use it.
- Allow children to record the classroom temperature on their weather calendars.
- Watch video clip called “Cool in the Shade” at <http://www.pbs.org/teachers/connect/resources/6948/preview/>
- Watch video for experiment idea: http://pbskids.org/video/?pid=e5jH_fsR96Rifs51mrJho_zdeRjRHK1Z&category=Sid%20the%20Science%20Kid

Parts of a Plant

Objective:

Children will recognize and name of the parts of the plant.

Time:

After Grace and Courtesy lesson; Day 1 can be given in conjunction with weeding lesson.

Materials:

Plants that have the parts visible, weeds

Vocabulary:

Plant, flower, stem, leaf, roots, water, nutrients, light

Activity:

Day 1:

- Take children on a walk around the garden and show them examples of plant parts.
- Read *Peter Rabbit* and discuss the foods in the story. Ask the children to discuss and name the part of the plant the food represents.
- These next activities should be done in the spring when things are ready to harvest.

Day 2:

- Choose one or two of the parts that are present in the garden and ready for sampling.
- Read *Leaves We Eat*, *Roots We Eat*, *Stems We Eat* or *Flowers We Eat*
- Have the children search for parts we eat in the garden. Allow them to draw a picture and label.
- Demonstrate appropriate way to harvest the edible part of the plant. Allow children to taste.

Extensions:

- Have children explore the garden and take pictures of the parts of plants. These can be printed and used as a sorting work for the science shelf.
- Create pressings of different plants and label their parts.
- Teacher can give the Parts of a Plant lesson and place on the science shelf.

- Plant versus animal sorting
- Teacher can give the Life Cycle of a Plant lesson and place on the science shelf.
- Plant a seed in a glass jar, allow children to care for it and observe its growth and parts
- Teacher can add the Parts of a Plant We Eat work to the science shelf.
- Listen to song at <http://www.watchknowlearn.org/Video.aspx?VideoID=23078>
- Watch video at <http://www.watchknowlearn.org/Video.aspx?VideoID=4768>
- Watch read-along of *The Tale of Peter Rabbit* at <http://www.watchknowlearn.org/Video.aspx?VideoID=4590&CategoryID=6209>

What Is Soil?

Objective:

Children will improve observation skills and conversations in scientific reasoning

Time:

After Grace and Courtesy lesson

Materials:

Spades, solid-colored paper

Vocabulary:

Dirt, rock, sand, fertile, moist, dry, words for any organic material found in the soil

Activity:

Day 1: Soil

- Begin by having the children discuss that they think soil is made of and how they think it is formed.
- While out on the playground or in the garden, have the students collect samples of soil. They can also bring in samples from home.
- In small groups, have the children place their sample on the tray.
- Allow the children to explore the samples and discuss what they see, feel, and smell.
- Engage in a discussion with the children about the components of soil that would allow a plant to grow or a worm to live in it.

Classroom Extension:

- Soil samples may be placed on the science shelf along with a microscope or magnifying glass. Children may draw and label what they see.
- View “Dirt Detectives” video at <http://www.pbs.org/teachers/connect/resources/6948/preview/>
- Soil composition and plant growth experiment from Ustars curriculum.

Day 2: Worms

- Review some components of soil and what helps it support the life of some plants and bugs.

- Explore the garden to find areas where bugs live. Locate an area with worms. If worms cannot be found, then take a few from the worm bin.
- Allow children to respectfully explore the worms and locate the parts of the worms, as you discuss the parts and their function.

Classroom Extensions:

- Visit website <http://urbanext.illinois.edu/worms/anatomy/index.html>
- Watch “I Dig This Town” video clip:
<http://www.pbs.org/teachers/connect/resources/6948/preview/>
- Teacher may place three-part cards and/or labeling parts of a worm on the science shelf

Cardinal Directions in the Garden

Objective:

Children will understand the purpose and use of a compass to identify the four cardinal directions.

Time:

First nine weeks after Grace and Courtesy lesson

Materials:

Several compasses, directional name cards

Vocabulary:

Compass, tool, north, south, east, west, right, left, behind, in front of



Activity:

- Allow children to explore the garden while holding and observing the compass.
- Once the children are gathered, discuss what they observed.
- Next discuss the use of a compass. Identify its parts.
- While demonstrating, have the children face the north and adjust their compass so that the needle is in line with the top of the compass. Identify the direction you all are facing as “North” and place the north label on the north wall.
- Have the children turn around to face the opposite direction and discuss the change in the compass. Allow the students to adjust the compass so that the needle is in line with the top of the compass. Now ask the children to read their compass and tell you what direction they are facing.
- Next have the children turn back north and adjust their compass. While standing in front of the children and holding the compass in your left hand, raise your right hand and ask them to do the same. Turn to the right and allow them to adjust their compass. Now ask them the name of the direction they are facing. Label the fence with East. Repeat this step for West using the left hand.

Classroom Extension:

- After giving the lesson, teacher may place the work on the geography shelf.
- While facing north, children can label a puzzle map with directional cards.

Mapping the Garden

Objective:

Children will create a map while having conversations using directional terms.

Time:

After Cardinal Direction lesson and classroom teacher has presented Flat Map lesson.

Vocabulary:

Cardinal direction names, beds, beside, behind, next to, in front of, names of major garden components



Materials:

Colored pencils, markers, large map outline of the garden, small control map outline

Day 1:

- Explore the garden and encourage conversations about where certain things are located.
- Have children complete the “Garden Memories” form.

Day 2

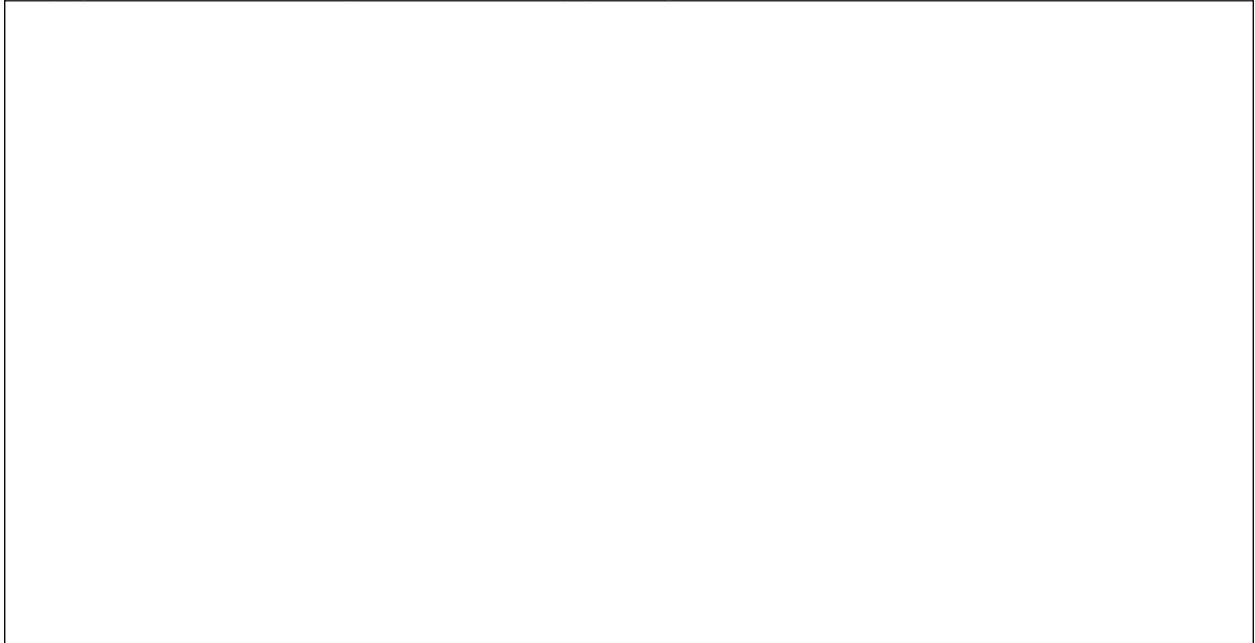
- Once all children are seated on the line or in the garden, lay out a large map of the garden facing north and label the four directions. Discuss the location of the different areas of the garden. Cut the map into sections.
- Out in the garden with small groups and a section of the map, take the children to that section. Discuss the location of the section based on the directional terms. Let the children draw and label what is growing in the beds located in that section. If needed, other children can be completing a Garden Memories form while they are waiting.
- Once all the pieces are complete, reassemble the map on the ground with the whole class. Use small control to check placement of pieces. Tape map together and hang.

Extensions:

- Map can be updated depending on the planting season.
- Explore the garden and chart what is growing. Children can draw new items in their journal. Small groups can create a chart of what is planted or growing during a certain week on the computer with adult assistance.
- Children can take photos of what is growing and place photos on a calendar.

Name: _____

My garden memory from the upper garden



My garden memory from Urban Street garden



Name: _____

My garden memory from the lower garden



My garden memory from today



Parts of a Tree

Objective:

Children will recognize and name the parts of a tree.

Time:

After Grace and Courtesy lesson

Materials:

Trees that have the parts visible. Larger trees on the playground may be used.

Vocabulary:

Tree, trunk, branch, leaf, roots, water, nutrients, light, types of trees in the garden and playground

Activity

- Take children on a walk around the garden and show them the different trees planted in the garden. Point out the different parts of the tree. Demonstrate how to examine the tree parts and allow the children time to explore the parts.
- Take children on a walk around the playground and show the different trees on the playground. Let the children explore the parts.

Extensions:

- Have children explore the garden and take pictures of the parts of trees. These can be printed and used as a sorting work for the classroom science shelf.
- Create pressings of different leaves and label with the tree name.
- Create parts of the tree art piece. Materials needed: yarn, soil, green, brown (yellow and orange optional) paint, glue and markers. Tree art can be created to reflect the current season.

Classroom extensions:

- Teacher can give the Parts of a Tree lesson and place on the science shelf.
- Teacher can give the Life Cycle of a Tree lesson and place on the science shelf.
- Watch, sing and create movements to “The Green Grass Grew All Around.”



Insects in the Garden

Objective:

Children will be able to identify other living organisms in the garden.

Time:

Anytime after the Grace and Courtesy lesson

Vocabulary:

Insect, names of insects, legs, thorax, head, abdomen, antennae, crawl, fly, slither

Optional Materials:

Spade, magnifying glass, tray

Activity:

- Discuss what makes a bug an insect. Discuss its body parts. Discuss the areas of the garden that may have insects. Take a walk around the garden and search for insects.
- Look at insects using the magnifying glass and discuss how it moves.
- Have children draw an insect in their journal and label how it moves.

Classroom Extensions:

- Teacher can give the Parts of an Insect work (butterfly/caterpillar) and place it on the science shelf.
- Watch videos at <http://www.watchknowlearn.org/Video.aspx?VideoID=26943&CategoryID=7550> and <http://www.watchknowlearn.org/Video.aspx?VideoID=17880&CategoryID=7550>
- Create Venn diagram for insects/non insects or insect/bugs.
- Create Frayer model for insects.
- Create insect sorting work based on locomotion.
- Add insects to spindle box and use insects as counters with numerals.
- Ustars insect experiment.