



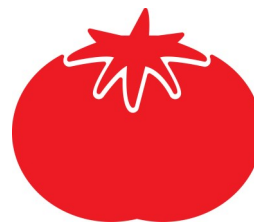
**FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY**

STEM

Science, Technology, Engineering, Math

Preschool Teaching Curriculum

Ages 2.9 to 5 years



**YMCA OF CENTRAL MASSACHUSETTS
BOROUGH'S FAMILY BRANCH**





FOR YOUTH DEVELOPMENT
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FOR SOCIAL RESPONSIBILITY

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FOR YOUTH DEVELOPMENT
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Technology, Engineering, Mathematics

Topic: Weighing seeds

Duration: 20 minutes

Learning Objectives:

To gain an understanding of a scale

To gain a further understanding of more and less, heavy and light

Activity Description:

The children will have the opportunity to use scales and learn about different weights and quantities while investigating seeds.

Materials:

Weigh Scale

Seeds

Spoons

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number sense

1. Listen to and say the names of numbers in meaningful contexts.

Technology and Engineering

24. Demonstrate and explain the safe and proper use of tools and materials.

Massachusetts Curriculum Frameworks:

PreK-PS4-1: Engage in discussion before, during and after investigations

Lesson Summary:

Give the children a weight scale that has two containers, one on each side. Let them look at it and get the scale to be evenly distributed while empty on both sides. Once the children do this give them seeds to weigh out. Ask the children what they think will happen to the scale when they put seeds in each side. Document their answers. Let the children put handfuls of seeds in both sides and see what happens. Give the children spoons to scoop some out until the scale is even. Have the children empty both sides of the scale and then give them actual number amounts of seed to put in each side. This can go on for quite some time depending on the children's interest. If you would like to expand this activity you can give the children other items to compare and contrast in the scale. For example, seeds, dry beans, tomatoes, radishes, etc.

Extensions of learning:

What's the heaviest thing you could weigh?

What is the lightest thing you could weigh?

What is the difference between heavy and light?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use visual pictures or symbols

Use special or adaptive devices to increase a child's level of communication and/or participation.



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Science

Topic: Drip, Drip, Drop

Duration: 30 minutes

Learning Objectives:

To understand the concept of growing through play

To gain a better understanding of how and why things grow

To gain an understanding that water helps plants grow

Activity Description:

The children will play a game that allows them to learn about watering plants all while having fun doing it.

Materials:

Bathing suits

Watering can

Water

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Inquiry Skills

3. Identify and use simple tools appropriately to extend observations.

Life Science

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

Massachusetts Curriculum Frameworks:

PreK-LS1-2 Recognize that all plants and animals grow and change over time.

PreK-ESS2-6 Understand the impact of weather on living things

Lesson Summary:

This is a water play activity so all children should be in their bathing suits. Have all of the children that want to play sit in a circle outside. Ask one child to be the “wacky weather”. Give this child a small watering can and have them slowly walk around the circle of children holding the watering can over their heads. As the child walks around the circle they will let little drips of water fall onto the children’s heads saying, “drip... drip...drip”. When the child dumps the water from the watering can onto a child sitting down and yells “grow”, this child will get up “GROW” like a flower or plant, and chase the “wacky weather” around the circle one time until “wacky weather” sits down in the circle. Do this, until all the children have the chance to be the “wacky weather”.

Extensions of learning:

What does a flower need to grow?

What happens if a flower gets too much water?

What happens if a flower does not get enough water?

Adaptations:

Let children that do not want to participate or get wet sit out.

Additional Resources:

“Explore Water” by Anita Yasuda

“The Water Cycle” by Science Matters

“How a Seed Grows” by Helene Jordan



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Science

Topic: The parts of a plant

Duration: Free choice activity/ Matching Game

Learning Objectives:

Children will identify the different parts of a plant and their function. Children will gain hand eye coordination.

Children will match each part of the plant to one another.

Children will sharpen their recognition skills through identification.

Activity Description:

This is a plant matching game for the children to do anytime throughout the day or during free play time.

Materials:

Two copies of a picture of a flower or plant

Label each part of the plant: flower, stem, leaves, and roots

Laminate them both

Cut one into sections like a puzzle

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals and plants.

12. Observe and describe plants, insects, and animals, as they go through predictable life cycles.

Massachusetts Curriculum Frameworks:

Pre-K-LS1-1 Compare, using descriptions and drawings, the external body parts of plants and animals and explain functions of some of the observable body parts.

Lesson Summary:

Have the children match the pictures of each part of the plant or flower while saying the names of each part: plant, flower, stem, leaves, and roots.

Adaptations:

Put numbers to match each part for the children that cannot identify the parts of the plant.



FOR YOUTH DEVELOPMENT
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Science, Engineering

Topic: Sprouting Spuds

Duration: 20 minutes per small group of 4 children

Learning Objectives:

To gain an understanding of the natural way a plant grows

To learn about how a plant roots down and grows up

Activity Description:

The children will do an experiment to see if a potato will sprout in water.

Materials:

Rooted sweet potato

Clear cup or container

Toothpicks

Drawing paper

Markers

Magnifying glass

Graph paper

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

20. Generate questions and gather information to answer their questions in various ways.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

4. Record observations and share ideas through simple forms of representation such as drawings.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

PreK-LS1-2 Explain that all plants and animals grow and change over time

Lesson Summary:

Have the children investigate a rooted sweet potato. Then talk to the children about “planting” the potato even though it is not a seed. To do this you will need a clear plastic cup or container. Place tooth picks around the middle of the potato. Place the potato vertically in the container. The tooth picks will hold the potato at the top of the cup so half of it is inside and half of it is outside of the container of water. Discuss with the children what they see and what they think is happening to the sweet potato. Give the children paper and markers and let them draw and dictate what they see. Keep this as an ongoing experiment in the classroom and document the changes on a graph.

Extensions of learning:

What do you think is happening to the sweet potato?

How do sweet potatoes grow?

What can you make with sweet potatoes?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Use thick cord taped to the floor to mark children's personal space

Use art materials that provide texture (e.g., gel paint that dries with a raised surface; tempera paint with sand added); high-contrast paper (light, dark, shiny, sparkling); bold colors that are easy to differentiate.

Provide materials with Braille and tactual symbols along with opportunities for development of tactile skills.

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child's level of communication and/or participation.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Use a variety of symbols (tactual symbols, objects symbols, picture symbols such as Mayer-Johnson pictures) around the room along with various printed materials that support children's primary languages while they are learning English (e.g., books, newspapers, magazines in the dramatic play area).

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

"Potato Joe" by Keith Baker

"Potatoes Potatoes" by Anita Lobel

"Little Sweet Potato" by AmyBeth Bloom



FOR YOUTH DEVELOPMENT
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Mathematics, Science

Topic: Seed Sorting

Duration: 20 minutes +

Learning Objectives:

To gain an understanding of the different sizes, shapes and colors of seeds.

To use mathematics skills to separate, count and compare different seeds.

Activity Description:

The children will have the opportunity to investigate and sort through seeds to get a better understanding of the different types while including mathematic and scientific learning through this activity.

Materials:

Sorting tray

At least four different types of seeds

Colored pencils

paper

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
4. Engage in play experiences that involve naming and sorting common words into various classifications using general and specific language.

Number Sense

2. Connect many kinds/quantities of concrete objects and actions to numbers.
4. Use concrete objects to solve simple addition and subtraction problems using comparative language (more than, fewer than, same number of).

Patterns & Relations

7. Explore and describe a wide variety of concrete objects by their attributes.
8. Sort, categorize, or classify objects by more than one attribute.

Massachusetts Curriculum Frameworks:

Pre-K-LS1-4: Use their five senses in their exploration and play to gather information.

Pre-K-ESS1-2: Look for and describe patterns and relationships.

MA.PK.MD.B.3: Sort categorize, and classify objects by more than one attribute

Lesson Summary:

Sit the children at a table and give the children at least four different types of seeds all mixed together. Allow the children to investigate the seed mixture. Talk about what they see. Give the children a tray sectioned into at least four areas for the children to separate and sort the different seeds. Give the children paper and colored pencils to document their findings. Let the children trace the seeds, color them, and dictate what they see. The children can count each group of seeds, they can determine, least, most, biggest smallest, lightest, darkest, etc.

Extensions of learning:

Why are some seeds big and others small?

What kinds of seeds can we eat?

Adaptations: Give children plastic tweezers, or spoons to pick up seeds if they do not want to touch the seeds.

Additional Resources:

"The Tiny Seed" by Eric Carle

"Seed to Plant" by Kristin Baird Rattini

"Seeds" by Vijaya Khisty Bodach



FOR YOUTH DEVELOPMENT
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Science

Topic: Seed Planting

Duration: 20 minutes initial planting, on going

Learning Objectives:

To gain an understanding of how to plant

To understand how a seed turns into a plant

To further understand the plant life cycle

To understand how to keep a plant alive

To gain a sense of self confidence and accomplishment through caring for a plant

Activity Description:

This activity will give the children the opportunity to plant their own plant, while experiencing what it is like to work with soil and seeds. The process will take a little bit of time, but once the children begin to see their sprouts grow from the plantings, their interest will flourish.

Materials:

Water

Soil

Pots

Spoons

Seeds

Bowls

Tablespoon

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).

2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals and plants.
12. Observe and describe plants, insects, and animals, as they go through predictable life cycles.

Massachusetts Curriculum Frameworks:

PreK-LS1-1 Compare, using descriptions and drawings, the external body parts of animals and plants and explain functions of some of the observable body parts.

PreK-LS1-2 Recognize that all plants and animals grow and change over time.

Lesson Summary:

Begin this activity by sitting four children at a table. Ask the children what they know about planting. Document their answers on a sheet of paper. Now in separate bowls, put on the table: soil, pots, water, scoops, and seeds. Give each child a pot with their name on it. Ask the children to fill their pots with soil. They can do this with their hands or a scoop. After they fill their pot ask them to make a hole in the middle of their soil with their finger. Once they do this let the children choose the seeds they would like to plant. Let the children put the seeds in the hole and cover the seeds with a little more soil. Be sure to read the directions on the seed packages to see how many seeds should be planted in one hole; this will vary depending on the types of seeds you choose. Now allow the children to scoop water onto their plant until it is moist. Use a tablespoon to scoop the water. Place the plants in a window sill to get sunlight. Make sure the children water their plants every day. Depending on the seed choices it may only take a couple of days to see sprouts. Continue to water and care for the plants up until the day it is transplanted into the ground for further growth.

Extension of learning:

What do you know about planting?

What will happen to these seeds?

What does a plant need to grow?

How do farmers grow so many plants?

What can you do with the vegetables that you grow?

Adaptations:

Give children with sensory integration gloves if they need them.

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child's level of communication and/or participation.

Additional Resources:

Books

"Eating Green" by Sonita Apte

"From Seed to Plant" by Gail Gibbons

"From Seed to Plant" by Allan Fowler

"Oh Say Can You Seed?" by Bonnie Worth



FOR YOUTH DEVELOPMENT
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Science, Technology, Engineering

Topic: Root Vegetable Viewer

Duration: Initial activity (15-20 minutes) overall production of activity (2+ weeks)

Learning Objectives:

To understand the growing process of a plant from start to finish from an “underground view”

To gain an understanding that some plant roots are edible and some are not

Activity Description:

In this lesson we will create a root vegetable garden in a clear plastic viewer for the children to see how the seeds that they plant turn into sprouts, roots and eventually an edible root vegetable for them to enjoy.

Materials:

Clear Plastic Root Viewer

18 inch rope

3 kinds of root seeds (carrots, radish, onion)

Water

Coconut husk

1 large mixing bowl

Large mixing spoon

Small spoons

Light blocker

Guidelines for Preschool Learning Experiences:

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.
4. Record observations and share ideas through simple forms of representation such as drawings.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals and plants.
12. Observe and describe plants, insects, and animals, as they go through predictable life cycles.

Massachusetts Curriculum Frameworks:

PreK-LS1-2 Recognize that all plants and animals grow and change over time.

PreK-LS1-4 Use their five senses in their exploration and play to gather information.

Pre-K LS2-2 Using Evidence from the local environment explain how familiar plants and animals meet their needs where they live.

Lesson Summary:

Start by letting the children explore the clear viewing tray. After the children have looked through this put it aside. Give the children a bowl to put the coconut coir into. Mix the coconut coir with water until it is a moist, firm (soil like) consistency. Start with a ½ cup of water and slowly add more if needed. Place that aside. Take the 18 inch rope and cut it into 3 six inch pieces. Take each piece of rope and place it against the side of the clear viewing part of the container, approximately 4 inches apart from one another so they are (vertical) straight up and down to the bottom of the root viewer. This is used as a wick to help water the plants from the bottom up. Add water to the bottom of the reservoir until it hits the ropes and the ropes begin to soak up the water. Once you have done this you can start to add the “soil” coconut coir. Add the soil mixture until it is about an inch from the top of the viewer. Now it is time to add the seeds. Be sure to place the seeds far enough apart from each other so that they can grow (approximately 2 inches apart). The seeds can be added one half inch into the soil. Cover the seeds with a little more soil and then place the viewer in the window or somewhere that light can hit the top of the root viewer. Place the light blocker in the

front of the plastic part of the viewer to help keep the light out of the root part of the viewer. Be sure to only take the light blocker off when you want to view the roots growing. Give the children the opportunity to chart, graph and draw the changes as they happen in the root viewer.

Extension of learning:

What kinds of roots can you eat?

What roots can you not eat?

Why do you think the roots need darkness?

What are some important things a plant needs to grow?

Adaptations:

Provide gloves for children with sensory integration.

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Provide opportunities for interaction with typically developing peers.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Additional Resources:

"The Mysterious Garden of Maude McMutt" by Alyssa Hendrickson-Foy

"Once There Was a Seed" by Judith Anderson and Mike Gordon

"Eating the Alphabet Fruits and Vegetables from A to Z" by Lois Ehlert



FOR YOUTH DEVELOPMENT
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Math

Topic: Plant Patch Match

Duration: 25 minutes 2 children

Learning Objectives:

To gain an understanding of different fruits and vegetables.

To strengthen color recognition through matching.

To become familiar with the names of different fruits and vegetables.

Activity Description:

The children will have the opportunity to become familiar with color recognition and fruits and vegetables while participating in a matching game

Materials:

Scissors

14+ cards cut into 2x2 inch squares

7+ pictures of fruits or vegetables in color

7+ color dots

Glue

Laminate

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group(taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Massachusetts Curriculum Frameworks:

PreK-LS3-1 Use observation to explain that young plants and animals are like but not exactly like their parents.

Pre-K-PS2-2 Look for and describe patterns and relationships

Lesson Summary:

Create a matching game using 2x2 inch squares of paper. On half of the pieces of paper choose different fruit and vegetable pictures and glue them on. On the other half of the papers make colored dots. Be sure that the color dots match the color of one of the fruits or vegetables pictured.

Example:



Red Tomato/Red Dot

Recommendation:

Laminate the pieces to this game. The pieces will last a longer period of time. Once the game is made, have two children sit across from one another at a small table. Mix the pieces around and keep them face down on the table. The first child will pick two cards. Ask the child if the item on the card matches the color card. Continue this until all the cards are matched up. The children will be able to play this on their own once they are comfortable with the concept.

Extensions of learning:

What are some other vegetables or fruits of the same color?

Where do you think this fruit or vegetable is grown?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Provide opportunities for interaction with typically developing peers.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Additional Resources:

"Growing Vegetable Soup" by Lois Ehlert

Website: Busy Beaver.com (vegetable songs about learning vegetable names)

http://www.kidsparkz.com/vegetables_matching.htm



FOR YOUTH DEVELOPMENT
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Science, Math

Topic: Now You Know, Water to Grow

Duration: 20 minutes start up, 2 weeks experiment

Learning Objectives:

To gain an understanding about why a garden needs water

To understand the difference between wet and dry

To gain an understanding about science and experimenting

Activity Description:

In this activity we will be watering three different plants with different amounts of water. We want to show the children the importance of watering plants with the right amount of water.

Materials:

3 plants in pots (grass seed)

Watering can

Water

Paper and writing utensil for dictation and documentation

Camera to take progression pictures

Massachusetts Curriculum Frameworks:

PreK-ESS2-6 Understand the impact of weather on living things.

MA.PK.CC.C.5 Use comparative language, such as more/less than, equal to, to compare and describe collections of objects.

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to the ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Shapes & Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.
2. Make predictions about changes in materials or objects based on past experience.
4. Record observations and share ideas through simple forms of representation such as drawings.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

Lesson Summary:

Have the children sit down in a circle time setting. Show them the 3 plants. The plants can just be grass seed sprouts. Talk to the children about watering plants and how each plant will be watered differently. Plant A will be watered once a week, plant B will be watered every day and plant C will be watered twice a day. Have the children give their ideas on what will happen to plant A, B and C. Put all the plants together on a window sill or somewhere that sunlight will hit them. Make sure that all three plants are in the same amount of light. Do this experiment for 2 or more weeks and document what happens throughout this time. After this experiment is over talk with the children to determine what the best amount of water for a plant is.

Extensions of learning:

Why do we need to water plants?

What happens if we water too much?

What happens if we do not water enough?

Adaptations:**Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning**

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use special or adaptive devices to increase a child's level of communication and/or participation.

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

"A Green Kid's Guide to Watering Plants" By Richard Lay



FOR YOUTH DEVELOPMENT
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Science, Engineering

Topic: Marigold Marriage

Duration: 30 minutes to plant/ongoing observations

Learning Objectives:

To gain an understanding about what organic is

To gain an understanding of what bugs are harmful and which are beneficial

To gain an understanding about which bugs are attracted to which plants

Activity Description:

In this activity the children will plant marigold flowers around the outer edge of the garden. They will learn about how to protect their plants from bugs organically.

Materials:

Marigold seeds or pre-grown Marigold plants

Small shovel (trowel)

Water

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Shapes & Spatial Sense

11. Explore and identify space, direction, movement, relative position, and size using body movement and concrete objects.

Earth and Space Sciences

5. Compare and contrast natural materials such as water, rocks, soil, and living organisms using descriptive language.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

Massachusetts Curriculum Frameworks:

PreK-LS2-3 Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs

Lesson Summary:

Bring the children outside to the garden area. Discuss with them why you are planting Marigolds around certain parts of the garden and the benefits for the garden. Talk to the children about organic and what it means? If you are using plants, separate them and space them out roughly 6-8 inches apart from one another all on the outer edge of the garden. Have the children dig down into the soil about 4 inches or so to put the plant into the ground. Have the children put the plants into the ground up to the root base and cover with the soil. Pat down gently and water them until moist. Observe the growth, the scent, the size and color of these plants as they grow. Notice if bugs come around, and if the plants inside the garden are thriving. This is one of the best ways to treat a garden for threats (bugs) organically!

Extensions of learning:

What is a Marigold?

Why do you think flowers (Marigolds) help keep some plants safe?

What is organic?

What is pesticide?

Why do we not want pesticide in our garden?

Adaptations:

Give children gloves if due to sensory integration they cannot touch the soil.

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Provide good models of communication (in any language).

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Additional Resources:

www.toadstoolponds.wordpress.com

“Marigold Brightbutton and the Rose Grow ” by [Heather Sylvawood](#) and Mary Vertulfo



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Mathematics

Topic: Discover the Lima Bean

Duration: 2 days

Learning Objectives:

To experiment with bean seeds

To observe the changes of a Lima Bean when soaked in water

To investigate the inside of a lima bean seed

To learn the parts to a bean seed

Activity Description:

The children will have the opportunity to experiment with bean seeds by soaking them over night. The seeds will expand at least double and then the children will break them open, count them and learn the parts of the seeds.

Materials:

Long tube or jar

Lima bean seeds

Water

Rulers

Magnifying glasses

Paper

Crayons

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.

3. Communicate personal experiences or interests.

Patterns & Relations

7. Explore and describe a wide variety of concrete objects by their attributes.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

11. Investigate, describe, and compare the characteristics that differentiate living from non-living things.

12. Observe and describe plants, insects, and animals as they go through predictable life cycles.

Massachusetts Curriculum Frameworks:

Pre-K-PS1-3: Differentiate between the properties of an object and those of the materials which it is made

Pre-K-PS1-4: Recognize through investigation the physical objects and materials can change under different circumstances.

Pre-K-LS1-1: Compare, using descriptions and drawings, the external body parts of animals and plants and explain functions of some of the observable body parts.

Lesson Summary:

Begin this experiment by giving the children a magnifying glass to investigate the lima bean seeds. Let the children count the beans, measure them in the tube and draw and document what they see. Ask the children what they think is going to happen to the seeds, when they are put in water over night and document the children's answers. After the children are done looking at the seeds start adding the water to the tube of lima bean seeds. Once the lima beans are submerged in water let them sit overnight. The next day let the children measure the beans. Compare the measurements and talk about what happened with the lima bean seeds. The seeds should expand and double in size. Remove the seeds from the water and investigate them. What happened to the skin? Did the seed stay hard? Once the children are done investigating the whole seed, let them break some of the seeds open. Now look at the inside of the seed. Talk to the children about the different parts of the seed, Hilum, Seed Coat, Embryo, Cotyledons. This will introduce some new vocabulary for the children. Let them draw these parts of the seed and try to identify them. When this experiment is done leave the seeds out for the children to further investigate on their own.

Extensions of learning:

How big do you think the lima bean will grow?

What does the lima bean smell like?

What does the lima bean feel like?

Adaptations:**Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning**

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

Website: Sciencebuddies.org

<http://www.teachpreschool.org/2011/09/planting-and-growing-beans-in-our-preschool-window/>



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Mathematics

Topic: Let Us Learn About Lettuce

Duration: 20 minutes in small groups

Learning Objectives:

To learn that there are different kinds of lettuce and edible greens

To gain an understanding of the nutritional value in lettuce

Activity Description:

The children will have the opportunity to examine and experience different kinds of green leafy vegetables through touch, taste, smell and sight.

Materials:

Plates

Bowls

Forks

Different types of greens, romaine, iceberg, kale, arugula, spinach, Boston lettuce, red and green leaf lettuce, dandelion leaves, escarole

*Ranch dressing (optional)

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
5. Listen to and use formal and informal language.

Composition

6. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

20. Generate questions and gather information to answer their questions in various ways.

Number Sense

2. Connect many kinds/quantities of concrete objects and actions to numbers.

Data Collection and Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Massachusetts Curriculum Frameworks:

PreK-LS1-1 Compare, using descriptions and drawings, the external body parts of animals and plants and explain functions of some of the observable body parts.

PreK-LS1-4 Use their five senses in their exploration and play to gather information.

Lesson Summary:

Have a small group of children wash their hands and sit at the table. Put different types of lettuce and greens in bowls on the table in front of them. Some examples are: romaine, iceberg, escarole, kale, Boston lettuce, dandelion leaves, red and green leaf, arugula etc. Give each child a fork and let them put a piece of lettuce from each bowl on their plate. Ask the children to smell the lettuce, look at the difference in color and have them taste each one. On a graphing paper document which lettuce the children liked best. Give the children more with a little bit of ranch dressing and let them have it as part of their snack.

Extensions of learning:

What are some differences between the lettuces?

What do they smell like?

What can we use lettuce for?

Which animals do you think like lettuce?

What do the lettuces taste like?

Which do you like best?

Which do you like least?

Adaptations:

Be aware of allergies in the room. Be sure not to give any child anything they may have an allergy to.

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Provide opportunities for interaction with typically developing peers.

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Additional Resources:

"Cool Leaf Lettuce" by Katherine Hengel

"Lettuce Grows on the Ground" by Marc Schoh



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering, Mathematics

Topic: Transplanting our plants

Duration: 30 minutes (ongoing through summer)

Learning Objectives:

To gain an understanding about plants and how to keep them growing and healthy

To understand the elements outdoors are different than indoors

To gain an understanding about how to care for plants in an outdoor setting

Activity Description:

The children will have the opportunity to take the plants that they have started from seeds in the classroom and plant them outside in the ground.

Materials:

Trowels

Water

Plants

Garden area or raised bed gardening area

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

20. Generate questions and gather information to answer their questions in various ways.

Number sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

4. Record observations and share ideas through simple forms of representation such as drawings.

Massachusetts Curriculum Frameworks:

Pre-K-ESS2-1 Raise questions and engage in discussions about how different types of local environments provides homes for different kinds of living things.

Pre-K-ESS2-4 Use simple instruments to collect and record data on elements of daily weather, including sun, clouds, wind, snow, rain, and higher or lower temperatures.

Pre-K-ESS2-5 Describe how local weather changes from day to day and over the seasons and recognize patterns in those changes.

Pre-K-ESS2-6 Understand the impact of weather on living things.

MA.PK.CC.C.5 Use comparative language, such as more/less than, equal to, to compare and describe collections of objects.

MA.G.A.1 Identify relative positions of objects in space, and use appropriate language

MA.SL.PK.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

MA.SL.PK.6 Speak audibly and express thoughts, feelings and ideas.

Lesson Summary:

Now that you have plants that have grown from seeds, it is time to transplant them into an outdoor environment. This should happen once the plants have sprouted and are growing too large to be in the pot indoors. Every child that planted should bring their pots outside with an educator. Talk to the children about what a garden is. Ask questions such as; have you ever planted a garden at home? What do you think people plant in gardens? Document the children's answers. Have the children bring their plant to the gardening area that has been prepared for them. This may be a raised bed or a garden directly in the ground. Give the children a trowel and have them dig a hole deep enough to cover the roots of their plant. After they do this help them wiggle their plant out of the pot it is in. The children will then place their plant, root side in the ground and cover the roots completely with soil. Make sure the stem, leaves and buds or flowers are exposed. Have the children water their plants until it is moist. After all of the plants have been planted have the children draw pictures and dictate what they think their garden is going to look like when it is in full bloom. Talk to the children about how to continue to care for their plants. Explain to the children the different

weather elements and outdoor elements that may impair the growth of the plants.

Extensions of learning:

Have you ever planted a garden at home?

What would you like to plant?

What do you think you need to have a healthy garden?

Adaptations:

Offer children with sensory integration gloves if they need them.

Additional Resources:

"My Unconventional Tips for Transplanting Success in The Garden" by D.L. Simpson

"The Seed Starter Handbook" Nancy Bubel



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering, Mathematics

Topic: It's The Same, It's Different

Duration: 30 minutes, small group

Learning Objectives:

To gain an understanding that there can be varieties of the same fruits and vegetables

To become familiar with the different varieties of vegetation

To learn through compare and contrast

Activity Description:

The children will have the opportunity to compare and contrast many different varieties of tomatoes. The children will taste, them, smell, them see them, touch them and draw them.

Materials:

Assortment of tomatoes (squash, oranges, peppers or potatoes)

Heirloom tomatoes

Beefsteak tomatoes

Vine ripe tomatoes

Sunburst tomatoes

Cherry tomatoes

Grape tomatoes

Paper and crayons

Paper plates

Plastic knife

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).

2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.

3. Communicate personal experiences or interests.

4. Engage in play experiences that involve naming and sorting common words into various classifications using general and specific language.

Composition

16. Use their own words or illustration to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

20. Generate questions and gather information to answer their questions in various ways.

Shapes & Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

4. Record observations and share ideas through simple forms of representation such as drawings.

The Physical Sciences

18. Manipulate a wide variety of familiar and unfamiliar objects to observe, describe, and compare their properties using appropriate language.

Massachusetts Curriculum Frameworks:

PreK-PS1-3 Differentiate between properties of an object and those of the materials it is made

PreK-LS1-1 Compare, using descriptions and drawings, the external body parts of animals and plants and explain functions of some of the observable parts

PreK-LS1-4 Use their five senses in their exploration and play to gather information

Lesson Summary:

Have a small group of children sit at a table. Show the children a tomato. As the children tell you what it is put it on the table and allow them to look at it, smell it, touch it, etc. Now take out another kind of tomato, such as heirloom or sunburst (yellow). Ask the children to point out some differences and similarities. Let the children draw what they see. Have a discussion with the children about cross breeding and how one food, such as the tomato can have many different varieties. After this activity, wash the tomatoes, cut them into small pieces with a knife, put them on a paper plate and let the children try them. You can further this activity with the orange family, the pepper family, the squash family and the potato family.

Extensions of Learning:

What can you do with a tomato?

How do you think they make so many different kinds of tomatoes?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use special or adaptive devices to increase a child's level of communication and/or participation.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

All About Tomatoes by Clive Blazey



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Technology, Engineering

Topic: Tip Toe through our Garden

Duration: 1 hour (2 days to dry)

Learning Objectives:

To gain an understanding of how to walk through the garden

To gain an understanding of how to be respectful of the garden and its space

To gain a sense of responsibility for their hard work in the garden

Activity Description:

The children will make a stepping stone to place in the garden for people to walk through without harming the plants.

Materials:

Flat rocks

Table cloth/tarp

Acrylic paints

Paint brushes

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Technology & Engineering

23. Explore and describe a wide variety of natural and man-made materials through sensory experiences.

History and Social Science

4. Engage in activities that build understanding of words for location and direction.

Visual Arts

18. Explore a variety of age-appropriate materials and media to create two and three-dimensional artwork.

Massachusetts Curriculum Frameworks:

PreK-ESS3-2 Observe and discuss the impact of people's activities on the local environment

Lesson Summary:

Bring in a bunch of flat rocks to the classroom (enough for each child to have one). You can try to find these outside or you can purchase them from a home improvement store. Let the children choose the one they want to decorate. Give the children acrylic paints. Be sure to have a table cloth or tarp to cover the space they will be working on. Give the children the freedom to decorate this stepping stone how they wish. After the children are done place the stepping stones in a safe area to dry. Once they are dry take the children to the garden area with their stepping stones and create a path through the garden. Let the children take pictures of this and walk along their path. Let the children invite others to join them through their garden walk; this will give them a sense of pride.

Extensions of learning:

Why are we making stepping stones?

Where would you put stepping stones at your own house?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Use thick cord taped to the floor to mark children's personal space

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child's level of communication and/or participation.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Additional Resources:

“Stepping Stones” By: Donna Schulze



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math, Engineering

Topic: Flower Power Play Dough

Duration: 30 minutes to make/48 hours to dry out

Learning Objectives:

To explore flowers in imaginative ways

To explore flowers through our five senses

Activity Description:

The children will make flower play dough and will have the opportunity to make a keepsake with the dough to take home.

Materials:

3 cups flower petals

½ cup flour

1 tablespoon salt

3 tablespoons water

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Inquiry Skills

2. Make predictions about changes in materials or objects based on past experience.

History and Social Science

3. Identify and describe cause and effect as they relate to personal experiences and age-appropriate stories.

Physical Development

8. Strengthen hand grasp and flexibility

9. Use thumb/forefinger in pincer grasp.

Visual Arts

18. Explore a variety of age-appropriate materials and media to create two and three-dimensional artwork.

23. Experiment with the use of texture in artwork.

24. Use basic shapes and forms of different sizes to create artwork.

26. Create artwork from memory or imagination.

Massachusetts Curriculum Frameworks:

PreK-PS1-1 Raise questions and investigate the differences between solids and liquids and develop awareness that a liquid can become a solid and vice-versa

PreK-PS1-2 Investigate the natural and human-made objects, describe, compare, sort, and classify objects based on observable physical characteristics, uses and whether something is manufactured or occurs in nature

PreK-PS1-3 Differentiate between the properties of an object and those of the material of which it is made

PreK-PS1-4 Recognize through investigation that physical objects can change under different circumstances

PreK-PS2-2 Through experience, develop awareness of factors that influence whether things stand or fall

PreK-LS1-4 Use their five senses in their exploration and play to gather information

MA.PK.MD.B.3 Sort, categorize, and classify objects by more than one attribute. (PreK-PS1-2)

MA.SL.PK.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (PreK-ESS2-1 and PreK-PS1-1)

Lesson Summary:

Take the children out to the garden to pick flowers from the garden or use a wilted bouquet. Bring the children and the flowers inside to the table. Have the children assist you with plastic knives or their fingers and chop the flowers up very fine. You should yield 3 cups of chopped up flowers. Set them aside. Mix together ½ cup flour, 1 tablespoon salt and 3 tablespoons water in a bowl. It will feel a little dry, but do not add more water. Once this is mixed add in the chopped flower petals and knead the dough until it is mixed thoroughly. Wrap the dough in plastic and refrigerate for 20 minutes. Take it out of the refrigerator and give a divided portion to each individual child. You can double or triple the batch of dough to ensure each child gets enough dough. They can form a keepsake or a sculpture with the dough or just use it as play dough. If the children make something they want to keep, set their item aside with their name on it and let it harden for 48 hours before they take it home

Extensions of learning:

How does the dough feel?

How does the dough smell?

What else can we put in play dough?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Use thick cord taped to the floor to mark children's personal space

Use art materials that provide texture (e.g., gel paint that dries with a raised surface; tempera paint with sand added); high- contrast paper (light, dark, shiny, sparkling); bold colors that are easy to differentiate.

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

www.mysmallpotatoes.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math, Technology, Engineering

Topic: Sunflower Surprise

Duration: Ongoing from late May/early June

Learning Objectives:

To gain an understanding that flowers and plants can be many different shapes and sizes

To gain a sense of nature and being involved with it

To become familiar with estimation

To gain an understanding that some flowers can be consumed

To begin to understand the concept of shadows

Activity Description:

The children will have the opportunity to learn about and grow sunflowers in their garden.

Materials:

Sunflower seeds

Place outdoors big enough to make a large circle with sunflowers

Water

Organic soil/compost

Coconut coir

Sluggo (snail bait)

Shovels

Netting

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).

2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.

3. Communicate personal experiences or interests.

Reading & Literature

6. Listen to a wide variety of age appropriate literature read aloud

Composition

20. Generate questions and gather information to answer their questions in various ways.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Shapes and Spatial Sense

11. Explore and identify space, direction, movement, relative position, and size using body movement and concrete objects.

12. Listen to and use comparative words to describe the relationships of objects to one another.

Measurement

13. Use estimation in meaningful ways and follow up by verifying the accuracy of estimations.

Massachusetts Curriculum Frameworks:

PreK-PS4-2 Connect daily experience and investigations to demonstrate the relationships between the size and shape of shadows, the objects creating the shadows, and the light source

PreK-ESS1-2 Observe and use evidence to describe that the sun is in different places in the sky during the day

PreK-LS3-1 Use observations to explain that young plants and animals are like but not exactly like their parents

PreK-LS1-2 Recognize that all plants and animals grow and change over time

Lesson Summary:

Read books and talk to the children about sunflowers. Explain the size of them and what their uses are. Design with the children a “sunflower circle”. Draw this out as a blue print for the children and yourself to use as guide. Take the children outside and show them the space they will be planting in. The amount of space you need in the garden depends on the size of the sunflowers that you want to grow. Sunflowers need full sun at least 6-8 hours per day. It is best that you sow the sunflowers directly into the ground and not in a pot. To sow seeds, water your soil, and press seeds 1 inch deep in clumps of 5-6 seeds about 6-8 inches apart. Put the snail bait (sluggo) in a circle around the clumps and cover loosely with netting to protect emerging seedlings from birds or other predators. If the soil is kept moist, seedlings will appear within 5-10 days. When the plants grow to 3 inches, thin them to the most vigorous 3 or 4. When they are a foot tall, thin them to 2, and when they reach 2 feet high, select the best, most vigorous candidate. The reason for this gradual thinning method is to ensure that you are left with at least one good seedling in the event that predators damage any of the others. It is critical to thin back to the best single seedling if you are going for giant sunflowers. Leaving even several seedlings growing too close together will keep you from growing a large sunflower in your garden. Once the sunflowers are in bloom you can add many other activities, such as seed estimation, making bird feeders with the seeds, shadow puppets with the sunflower plants, you can even make a “fairy garden get-a-way” in between the sunflowers depending on the size. Have fun with this!

Extensions of learning:

What are sunflowers?

How big do sunflowers get?

What are sunflowers good for?

What can you do with sunflowers?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Use special or adaptive devices to increase a child’s level of communication and/or participation.

Offer children gloves to wear while digging in the soil to plant the plants

Additional Resources:

Sunflower Lifecycle (Scholastic publication)

www.kidsgrowingstrong.com

www.reneesgarden.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math, Engineering

Topic: Flower Power Potpourri

Duration: 3 hours

Learning Objectives:

To gain an understanding of how to preserve flowers

To learn how to recycle and reuse flowers in fun, useful ways

Activity Description:

The children will have the opportunity to learn about scents, flower preservation and using flowers in many different ways, while making their own potpourri.

Materials:

Flowers

Sheet pan

Parchment paper

Scissors

Essential oils such as lavender

Spray bottle

Citrus fruits (optional) such as lemons, oranges or grapefruit

Fresh herbs (optional) such as rosemary, lavender or thyme

Whole spices (optional) such as cinnamon sticks, cloves or all spice

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number Sense

1. Listen to and say the names of numbers in meaningful contexts.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.
2. Make predictions about changes in materials or objects based on past experience.

Visual Arts

21. Explore how color can convey mood and emotion.

Massachusetts Curriculum Frameworks:

PreK-PS1-2 Investigate the natural and human-made natural and human-made objects, describe, sort, compare and classify objects based on observable physical characteristics, uses, and whether something is manufactured or occurs in nature

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

MA.PK.MD.B.3 Sort, categorize, and classify objects by more than one attribute.
(PreK-PS1-2)

Lesson Summary:

Bring the children outside to pick flowers that are beginning to wilt. Bring the children and the flowers back into the classroom and gather and sort your flowers to use for making the potpourri. You can also go to your local florist and ask them for any flower scraps they may be throwing away. Any kind of flower will work, especially ones that already have strong scents, such as roses. Flowers with small, individual petals work great, or whole heads can be used too. Preheat your oven to 200°F. Cover a sheet tray with parchment paper. Have the children cut or pick the flowers from the stems right below the heads and place them on the tray, or remove individual petals and place them in a single layer on the parchment paper. To add scent to your potpourri, cut and add thin slices of citrus fruits such as oranges, lemons or grapefruit; or tuck in springs of rosemary, lavender, or thyme to the mixture. You can also add whole spices, such as cinnamon sticks, cloves, or allspice. Add 10 to 15 drops of your favorite essential oil, such as lavender, to one tablespoon of water in a small spray bottle, and spray it on the potpourri ingredients. Then put the potpourri into your oven. Dry in the oven for at least two hours, or until the flowers are brittle, but not burnt. When the potpourri is ready, remove from oven and give another spray of essential oil. Once it is room temperature, gently mix the potpourri and place it in a bowl or small satchel. To refresh the scent, just spray with the oil mixture.

Extensions of learning:

What can you do with flowers that are not fresh anymore?

What is potpourri?

What are some things you can use in potpourri?

Adaptations:

*Be sure that you are aware of any allergies the children may have, and try to refrain from that kind of flower or essential oil.

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use art materials that provide texture

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology

Topic: Why We Love Our Garden (classroom book)

Duration: 20 minutes per child

Learning Objectives:

To reflect on the gardening experience thus far

To feel accomplished in being a part of a long term project

To gain an understanding of what the parts of a book are

Activity Description:

The children will have the opportunity to show their understanding and care for the garden by making a page to a classroom book about the garden they are caring for.

Materials:

Paper

Colored pencils

Glue

Pictures of the garden from a camera

Book binder of your choice

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

Massachusetts Curriculum Frameworks:

PreK-LS1-2 Recognize that all plants and animals grow and change over time

PreK-LS2-3 Give examples from the local environment oh how animals and plants are dependent on one another to meet their basic needs

PreK-LS3-2 Use observations to recognize differences and similarities among themselves and friends

Lesson Summary:

Give the children paper and colored pencils. Ask them to write their name and draw a picture of the garden that they have been working on outside. Have on the table glue sticks and real pictures of the garden and let them glue one to their picture. Ask them to dictate why they love the garden or why the garden is so important to them. After each child has done a picture put them together as a book. Read it to the children during a circle time and put it on the book shelf for them to look at independently or share with their families.

Extensions of learning:

What is an author?

What is an illustrator?

What have we planted in the garden?

Why did we plant this garden and start a greenhouse?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use special or adaptive devices to increase a child's level of communication and/or participation.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology

Topic: Garden Favorites

Duration: 30 minutes (10 minutes first part/20 minutes second part)

Learning Objectives:

To gain an understanding of what is in a garden

To understand what taste buds are

To gain an understanding of what others like and dislike

To learn to share information about themselves with others

Activity Description:

The children will have the opportunity to be a part of making a classroom book to share with others. They will also be responsible for picture taking and using their own words to describe how they feel.

Materials:

Garden

Camera

Pictures developed or printed from camera

Paper

Glue

Writing utensils

Book binder/pipe cleaners or a book ring

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
5. Listen to and use formal and informal language.

Reading & Literature

10. Engage actively in read-aloud activities by asking questions, offering ideas, predicting or retelling important parts of a story or informational book.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

Shapes & Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

4. Record observations and share ideas through simple forms of representation such as drawings

Visual Arts

18. Explore a variety of age-appropriate materials and media to create two and three-dimensional artwork.

19. Observe the safe and appropriate use and care of art materials.

27. Choose artwork for display in the classroom, school or community or for a personal book, class book or portfolio, and explain why they chose it.

Massachusetts Curriculum Frameworks:

PreK-LS3-2 Use observation to recognize differences and similarities among themselves and their friends.

Lesson Summary:

Take only 2 or 3 children to the garden at one time. Have the children look around the garden to familiarize themselves with what is in there. Then one at a time let the children take a camera and go to their favorite item in the garden. Then have the children take a photo or two of their favorite fruit or veggie in the garden. If their favorite is not in the garden have the child draw it once inside. After all the children have and a chance to take a picture print the pictures out. Be sure to write down each child's choice so that they receive the correct pictures when they are printed. Once each child has their pictures give them a piece of paper and have them glue their pictures to the paper. Then ask them to tell you why they love that item and dictate this on to the paper. When everyone is finished put the papers together into a book so that the children can look back and share with their parents and peers.

Extensions of learning:

What veggie/fruit is your favorite?

What can you cook with this?

How does it grow?

Adaptations:**Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning**

Be sure children identify themselves before speaking

Use thick cord taped to the floor to mark children's personal space

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child's level of communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Additional Resources:

The Vegetables We Eat By Gail Gibbons



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering

Topic: Gardening Station

Duration: (Set up approximately 1 hour) From spring ongoing through summer

Learning Objectives:

To gain a sense of control and responsibility while gardening on their own

To gain an understanding of gardening through exploration and experimentation

Activity Description:

This activity will be an individualized gardening station in the outdoor play area of the center. The children will have the opportunity to garden and create with the tools for gardening and their imagination and curiosity.

Materials:

Stones, rocks or a small see through fence

Soil

Planting pots

Trowels

Small shovels

Gardening gloves

Watering can

Water

Seeds

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.

3. Communicate personal experiences or interests.

Inquiry Skills

2. Make predictions about changes in materials or objects based on past experience.

Earth and Space Sciences

5. Compare and contrast natural materials such as water, rocks, soil, and living organisms using descriptive language

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

11. Investigate, describe, and compare the characteristics that differentiate living from non-living things.

12. Observe and describe plants, insects, and animals as they go through predictable life cycles.

Living things and their Environment

16. Observe and describe seasonal changes in plants, animals and their personal lives.

17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.

Massachusetts Curriculum Frameworks:

PeK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

PreK-LS1-2 Recognize that all plants and animals grow and change over time

PreK-LS2-2 Using evidence from the local environment explain how familiar plants and animals meet their needs where they live

Lesson Summary:

In the play ground area make a small sectioned off area in the corner or next to the garden for the children to have as an individual gardening center. Surround the area with bricks or stones, or even a small see through fence. The amount of space you want to use for this can vary on your preference; it does not have to be big. Put soil all around, buckets, pots, trowels, small shovels, plants, containers of seed, watering cans filled with water, gardening gloves etc. The children will have the opportunity to go into their gardening center and experiment with planting during outdoor activities and

play. Leave this area open and in use throughout the spring and summer season and see what comes of it! Limit the amount of children that can go in there at once, 1-2. Let the children explore and have fun! Remember it is a learning experience.

Extensions of learning:

What do you want in the planting station?

What happened to the plants?

What did you learn from planting?

Adaptations:

This is an optional activity, not every child is going to want to participate.

Additional Resources:

Fine Gardening Magazine

www.organicgardening.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Mathematics

Topic: Hey Hey, What's it weigh?

Duration: 10 minutes

Learning Objectives:

To gain an understanding of scales and measures

To become familiar with key words, heavy, light, more, less

To learn that vegetables weigh different weights even if it is the same vegetable

Activity Description:

The children will have the opportunity to harvest vegetables from the garden. They will also estimate and investigate weights of familiar and unfamiliar vegetables.

Materials:

Paper

Crayons

Vegetables from the garden

Scale

Balance scale

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Reading & Literature

6. Listen to a wide variety of age appropriate literature read aloud.

Measurement

13. Use estimation in meaningful ways and follow up by verifying the accuracy of estimations.

14. Use nonstandard units to measure length, weight, and amount of content in familiar objects.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

Lesson Summary:

Bring the children out to the garden and pick some vegetables. Bring the vegetables in to the classroom and introduce a scale to the children. Talk to the children about a scale and what it does. Give the children a piece of paper that has been folded in half. On one half of the paper let the children draw the vegetable that they are going to weigh and let them estimate what they think the weight will be. After they have done this let them weigh their vegetable. Assist them in reading the scale if they need help. Let the children compare weights of different vegetables on a balance scale. Have the children write the actual weight of the vegetable on their paper.

Extensions of learning:

What do you think the heaviest vegetable is?

What do you think the lightest vegetable is?

What is a scale?

What is a balance scale?

Why do we weigh things?

Adaptations:

Give the children gloves to handle the vegetables if they have sensory integration.

Additional Resources:

"How to Grow a Giant Vegetable" by Bernard Lavery

"Vegetables and Fun" by Megs Var

"The Vegetables We Eat" by Gail Gibbons



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math

Topic: I Can Eat a Rainbow

Duration: 20 minutes in small groups

Learning Objectives:

To gain an understanding of the many colors of fruits and vegetables

To learn color recognition

To make connections of color in different elements and aspects of life

Activity Description:

The children will explore color and rainbows, when they make a rainbow collage out of pictures of the fruits and vegetables that they eat.

Materials:

Scissors

Paper

Markers

Magazines with food pictures

Glue

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Patterns & Relations

7. Explore and describe a wide variety of concrete objects by their attributes.
8. Sort, categorize, or classify objects by more than one attribute.

9. Recognize, describe, reproduce, extend, create, and compare repeating patterns of concrete materials.

Earth and Space Sciences

8. Explore sunlight and shadows and describe the effects of the sun or sunlight.

Massachusetts Curriculum Frameworks:

PreK-ESS2-6 Understand the impact of weather on living things

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

Lesson Summary:

Have a small group of four children sit at a table. Have the table prepared with scissors, paper of all colors, glue, markers and magazines for the children to look through. Talk to the children about all the different types of vegetation there is and have the children think about the colors. Have the children dictate to you the colors that are in a rainbow. Now give the children the opportunity to look through magazines or make their own fruits and vegetables with paper to create an "I can eat a rainbow" picture. They can glue their items on to a large piece of construction paper. Offer them books to look through if they need help finding these items.

Extensions of learning:

What are the colors in a rainbow?

What makes a rainbow?

Name some fruits and vegetables that are the same colors?

What's your favorite color?

What fruit or vegetable is the same color?

Is that your favorite fruit or vegetable?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

"I Can Eat a Rainbow" by Annabel Karmel



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering

Topic: Imagine that Pumpkin Patch

Duration: 30 minutes

Learning Objectives:

To gain an understanding about pumpkins and their differences

To learn about the different things pumpkins can be used for

To gain an understanding about how pumpkins grow

Activity Description:

The children will roll, examine and compare pumpkins through a fun, hands on painting and learning experience.

Materials:

Pumpkins of different shapes and sizes

Orange paint

Green paint

Long roll of paper

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Reading & Literature

6. Listen to a wide variety of age appropriate literature read aloud
15. Listen to, recognize, and use a broad vocabulary of sensory words.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest

Shapes & Spatial Sense

10. Investigate and identify materials of various shapes, using appropriate language.

11. Explore and identify space, direction, movement, relative position, and size using body movement and concrete objects.

12. Listen to and use comparative words to describe the relationships of objects to one another.

Visual Arts

18. Explore a variety of age-appropriate materials and media to create two and three-dimensional artwork.

Massachusetts Curriculum Frameworks:

PreK-LS1-2 Recognize that all plants and animals can change over time

PreK-PS2-1 Using evidence, discuss ideas about what is making something move the way it does and how some movements can be controlled.

Lesson Summary:

Roll out a long sheet of paper on the floor or place a line of papers connecting to make a long sheet of paper. Set on one end of the paper a few different sizes and shapes of pumpkins. Have a plate of orange and a plate of green paints. Two at a time let the children pick from the pumpkins and dip them in the paint. See what the children do next without giving instructions. Some children may stamp with them; some may roll them down the length of the paper. Have fun with this!

Extensions of learning:

What do you know about pumpkins?

What makes pumpkins different from one another?

What can you do with pumpkins?

How do pumpkins grow?

Adaptations:**Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning**

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Give children gloves or a paintbrush if they do not want to touch the paint

Additional Resources:

"Seed, Sprout, Pumpkin, Pie" by Jill Esbaum

"Big Pumpkin" by Erica Silverman

"From Seed to Pumpkin" by Wendy Pfeffer



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: It's good for you too!!

Duration: 20 minute large group

Learning Objectives:

To gain an understanding about the health benefits of fruits and vegetables

To demonstrate recognition of fruits and vegetables

Activity Description:

This activity will touch upon fruits and vegetables and what they are good for. The children will experience through a hand on activity the benefits of healthy eating.

Materials:

Fruits and vegetables such as, onion, tomatoes, garlic, carrots, etc

Small boxes (tissue box) One for each vegetable you will talk about

Items to represent the health benefits of each fruit and vegetable that you choose

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
4. Engage in play experiences that involve naming and sorting common words into various classifications using general and specific language.

Reading & Literature

15. Listen to, recognize, and use a broad vocabulary of sensory words.

Patterns & Relations

7. Explore and describe a wide variety of concrete objects by their attributes.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Massachusetts Curriculum Frameworks:

PreK-LS2-3 Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs

Lesson Summary:

Sit all the children down in a circle time setting. Have with you a tomato, onion, carrot, broccoli, etc. With each item have a small tissue box with items in it that represent what the vegetable or fruit is good for.

Example: Tomato: eyes, skin, heart. Have in the small box a pair of glasses, a picture of a heart or a cut out heart, and a picture of a person's skin. Let the children take turns pulling from the boxes and telling the class what they discover. You can do this with any fruit or vegetable as long as you research what it is good for.

After the activity is over you can cut up the fruits and vegetables for the children to eat for a snack or a tasting.

Extensions of learning:

What vegetables do you see?

Why do you think they are good for you?

What does the word healthy mean?

What is a vitamin? Mineral?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use visual pictures or symbols to illustrate the words to songs.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Additional Resources:

www.fruithymes.com

www.fruitsandveggiesmorematters.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering

Topic: Frosty Frozen

Duration: 20-30 minutes (late fall *first frost)

Learning Objectives:

To gain an understanding about frost

To further understand weather and the affects it has on vegetation

Activity Description:

The children will have the opportunity to investigate frost bitten vegetation. They will examine the difference between healthy and frost bitten plants.

Materials:

Magnifying glasses

Paper and writing utensils

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.
4. Record observations and share ideas through simple forms of representation such as drawings.

Earth and Space Sciences

7. Identify the characteristics of local weather based on first-hand observations.

Living Things & Their Environment

16. Observe and describe seasonal changes in plants, animals and their personal lives.

Massachusetts Curriculum Frameworks:

PreK-PS1-1 Raise questions and investigate the difference between liquids and solids and develop awareness that a liquid can become a solid and vice versa.

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

PreK-ESS2-5 Describe how local weather changes from day to day and over the seasons and recognize patterns in those changes

PreK-ESS2-6 Understand the impact of weather on living things

MA.SL.PK.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (PreK-ESS2-1and PreK-PS1-1)

Lesson Summary:

After the first frost take the children outside and investigate. Bring out magnifying glasses so the children can look closely at leaves of plants and the vegetation. Have the children describe what has happened and why. Make a discussion board and let the children dictate their findings. Let them draw the difference between healthy vegetation and frost bit vegetation. Let the children feel the leaves. Bring in a couple of leaves and see what happens as the frost melts off of the leaves.

Extensions of learning:

What effects does weather have on plants?

What do you see that has changed in our garden?

Adaptations:**Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning**

Make sure children identify themselves before speaking

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child's level of communication and/or participation.

Additional Resources:

www.farmersalmanac.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math

Topic: Like it, Love it, Try it again...

Duration: 20 minutes

Learning Objectives:

To gain an understanding of vegetables and our taste buds.

To be introduced to new vegetables and new experiences with vegetables.

To gain an understanding of how to harvest things they have grown themselves.

To broaden their self-help skills such as, cutting and food preparation.

Activity description:

We will be having a taste test in this activity. The children will have the opportunity to help cut and prepare vegetables for a taste test.

Materials:

Bowl

Plastic knives

Paper plates

Water (for washing)

Napkins

Assortment of vegetables: (tomatoes, cucumbers, peppers, scallion, radish, squash, beans, etc.)

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Reading and Literature

13. Relate themes and information in books to personal experiences.

Number sense

1. Listen to and say the names of numbers in meaningful contexts.

Patterns and Relations:

8. Sort, categorize, or classify objects by more than one attribute.

Shapes and Spatial Sense:

12. Listen to and use comparative words to describe the relationships of objects to one another.

Massachusetts Curriculum Frameworks:

PreK-ESS3-1 Engage in discussion and raise questions using examples about local resources humans use to meet their needs.

MA.SL.PK.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

MA.SL.PK.6 Speak audibly and express thoughts, feelings, and ideas.

PreK-PS1-3 Differentiate between the properties of an object and those of materials of which it is made

PreK-LS1-2 Recognize that all plants and animals grow and change over time

PreK-LS1-4 Use their five senses in their exploration and play to gather information

PreK-LS3-2 Use observation to recognize differences and similarities among themselves and others

Lesson Summary:

Take a walk out to the garden with four children at a time and observe all of the different kinds of vegetables. Look to see which vegetables are ripe and ready to be picked. Let the children pick any vegetables that they see that are ripe and ready for picking. Have the children place the vegetables in a bowl for easy carrying. Take the children and the bowl of vegetables back into the classroom. Have the children sit at the table and allow the children to look at the vegetables and observe the similarities

and differences. Have the children wash their hands. After the children's hands are clean let the children wash the vegetables. Give each child a plate and a plastic knife. Also give each child a vegetable or a piece of a vegetable to cut up into bite sized pieces. This is a good opportunity for the children to count the pieces they have cut. There should be one piece of each vegetable for each child. Once all of the vegetables are cut up give the children a piece of each vegetable to try. As each child tastes these vegetables use documentation and pictures to determine if the children like it, love it, or need to try it again someday. Make a classroom graph that says: like it, love it and try it again at the top with each child's name on the left side. On the bottom of the paper have the name of each vegetable the children tasted. If the child loved it use a smile face :). If the child liked it use a face with a straight line smile :/. If the child didn't like it and needs to try it again someday use a frown :(.

This is an easy way for the children to read the graph, as well as the parents or teachers.

Extensions of learning:

What do you think the vegetable will taste like?

Do you like the vegetable?

What is harvesting?

What kind of vegetables do you like?

Adaptations:

Give some assistance to the children that are nervous about using a knife by themselves.

Give the children that really do not want to try the vegetables something to dip them in.

You can also take all the left over vegetables and mix them together into a summer salad and let the children enjoy a healthy snack after the taste test.

Additional Resources:

"Stone Soup" by Ann McGovern

"The Vegetables We Eat" by Gail Gibbons

<http://www.parentmap.com/article/5-best-vegetables-to-grow-with-kids.com>



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Engineering, Mathematics

Topic: Veggie Measures

Duration: 30 minutes

Learning Objectives:

To gain an understanding that not all vegetables are the same

To understand that vegetation grows at different rates.

To gain an understanding of the different elements and the effect it has on vegetation

To gain familiarity with reading measurements

Activity Description:

The children will have the opportunity to measure vegetables from the garden and discover the differences of those vegetables. They will use different means of measurement.

Materials:

Vegetables that are the same but of different sizes (ex. Zucchini cucumbers Peppers, green beans, etc)

Ruler

Tape measure

Paper

Coloring utensils

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Number Sense

1. Listen to and say the names of numbers in meaningful contexts.
2. Connect many kinds/quantities of concrete objects and actions to numbers.
4. Use concrete objects to solve simple addition and subtraction problems using comparative language (more than, fewer than, same number of).

Patterns and Relations

7. Explore and describe a wide variety of concrete objects by their attributes.

Shapes and Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Data Collection and Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

3. Identify and use simple tools appropriately to extend observations.
4. Record observations and share ideas through simple forms of representation such as drawings.

Technology and Engineering

24. Demonstrate and explain the safe and proper use of tools and materials.

Massachusetts Curriculum Frameworks:

PreK-LS3-1 Use observation to explain that young plants and animals are like but not exactly like their parents

PreK-LS1-2 Recognize that all plants and animals change over time

Lesson Summary:

Put vegetables on the table that are the same, but different sizes. Give the children different measuring tools (ruler, measuring tape) and have them measure the vegetables. Document the children's findings. Let the children measure the length and width or circumference. Give the children coloring utensils and a piece of paper and let them draw the different sizes of the vegetables.

Extensions of learning:

Why are some vegetables bigger, but they are the same vegetable?

How big do you think it would grow if we never picked it?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Use thick cord taped to the floor to mark children's personal space

Use special or adaptive devices to increase a child's level of communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: Veggie Share

Duration: Overnight with family

Learning Objectives:

To gain an understanding of what it feels like to share

To share a school experience at home with family

To demonstrate confidence and self esteem while introducing something to their family

To demonstrate responsibility in returning the findings of the experience to the class

To feel a sense of ownership and accomplishment through sharing the products of the garden with others

Activity Description:

This is an activity for the children to do at home. The children will share something from the garden with their family and come to school with some information on the experience to share with the classroom.

Materials:

A bag

A vegetable from the garden

Directions sheet for parents

Paper for the children to record data on

Writing utensil

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.

3. Communicate personal experiences or interests.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Physical Development

13. Discuss nutritious meals and snacks and the difference between junk food and healthy food.

Massachusetts Curriculum Frameworks:

PreK-LS3-2 Use observation to recognize differences and similarities among themselves and their friends

PreK-LS1-4 Use their five senses in their exploration and play to gather information

Lesson Summary:

Take the children out to the garden and let them choose a vegetable. Have each child bring their vegetable in and sit in a circle time. Record what each child chose. Explain to the children that they are going to have a big responsibility with this project. Let the children know that they are to take the vegetable home, sit down with their families and do a taste test sharing. Give each child a bag with directions for the adult in the home to follow and a piece of paper that says, "What did you find?" Also have in the bag a writing utensil for them to use at home. Let them put their vegetable in the bag as well. Tell the children that they will be responsible for sharing with the class, how their family members liked the vegetable.

The next day when the children sit down for circle time, allow them to take turns sharing with the class how their taste test at home went. Record this information and post it for the children and families to see.

Questions to ask:

What did you do to the vegetable before you ate it?

Who liked it?

Who didn't like it?

If you could choose a different vegetable to try next time what would it be?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Use thick cord taped to the floor to mark children's personal space if needed in a circle setting.

Provide good models of communication (in any language).

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math, Technology, Engineering

Topic: We See Weeds

Duration: 30 minutes

Learning Objectives:

To gain an understanding about the difference between a plant and a weed

To gain a hands on experience in the garden

To gain a feeling of responsibility and ownership while participating in the weeding process

Activity Description:

The children will have the opportunity to learn about weeds and what is harmful to a garden by weeding the garden with the assistance of a knowledgeable educator.

Materials:

Gloves

Camera

Small rakes

A bucket

A compost pile

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Patterns & Relations

8. Sort, categorize, or classify objects by more than one attribute.

Shapes & Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Technology & Engineering

24. Demonstrate and explain the safe and proper use of tools and materials.

Physical Development

8. Strengthen hand grasp and flexibility

Massachusetts Curriculum Frameworks:

PreK-PS4-1 Engage in discussion/argument during and after investigations

PreK-ESS2-1 Observe and ask questions about observable phenomena

MA.SL.PK.3 Ask and answer questions in order to get information, or clarify something that is not understood

MA.SL.PK.6 Speak audibly and express thoughts, feelings and ideas

Lesson Summary:

Take a small group of children to the garden. Take pictures of the garden before weeding. Have the children put on gloves and help with the weeding of the designated area in garden. Offer the children small rakes to help pull out the weeds. Make sure to tell the children if they are unsure if a something is a weed or a plant they should ask. Have a bucket available for the children to put the weeds in. Take pictures while the children are weeding and also once the weeding is done. You can print the pictures and make a flip book or a progression poster for the children to look at and see what all their hard work did for the garden. This will also show a progression of before, during and after for the children to see their hard work. After the weeding experience is done take the bucket of weeds to the composter or a compost pile. The weeds can go into the compost.

Extensions of learning:

What is a weed?

How do you think weeds grow?

Why do you think we need to weed a garden?

Adaptations:**Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning.**

Use special or adaptive devices to increase a child's level of communication and/or participation.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Use a variety of symbols (tactual symbols, objects symbols)

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Additional Resources:

"In My Garden" by Helen and Kelly Oechsli



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Engineering

Topic: Greenhouse to go

Duration: 10 minutes to make 10 minutes to prepare and 1+ week to grow

Learning Objectives:

To gain an understanding about how a greenhouse works

To learn about caring for growing living things

To begin to understand the care that goes into a greenhouse

Activity Description:

The children will have the opportunity to make their own small greenhouse with recycled bottles. This will give them an up close view of how the greenhouse works in a larger scale.

Materials:

2 liter bottle (one for each child)

Soil

Water

Deli container

Seeds

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Inquiry Skills

2. Make predictions about changes in materials or objects based on past experience.
3. Identify and use simple tools appropriately to extend observations.

Life Sciences

12. Observe and describe plants, insects, and animals as they go through predictable life cycles.

Living Things & Their Environment

17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.

Massachusetts Curriculum Frameworks:

PreK-LS1-2 Recognize that plants and animals grow and change over time

PreK-LS2-2 Using evidence from the local environment explain how familiar plants and animals meet their needs where they live

Lesson Summary:

Have a 2 liter bottle cut in half and a deli container for each child. Cut the 2 liter bottle in half with a pair of sharp scissors before giving it to the children. Have the children take the top of the bottle, flip it upside down and put it inside the bottom of the 2 liter bottle. Keep the cap loosely on the neck of the bottle. Let the children put soil in the bottle and let them choose a type of seed. Have the children make a small hole with their finger in the soil and then drop the seed in the hole. Cover the seed with a little more soil. The children can put enough water on top of the soil to make the soil moist. After the soil is moist have the children put the deli container on top of the bottle as a cover. Be sure to poke a few holes in the bottom of the deli container for ventilation. You should see the seed begin to grow within a week or so.

Extensions of learning:

How is this like a greenhouse?

What is a propagator?

When is it good to use a greenhouse?

Adaptations:

Give the children with sensory integration gloves or a small shovel to handle the soil.

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

www.flickr.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Engineering

Topic: Exploring the Greenhouse

Duration: 30 minutes to 1 hour

Learning Objectives:

To familiarize one's self with a greenhouse

To gain an understanding for measurements

To introduce the study of architecture

Activity Description:

The children will have the opportunity to explore, measure and familiarize themselves with the greenhouse.

Materials:

Pictures from camera

Paper

Coloring utensils

Tape measures

Yard sticks

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
5. Listen to and use formal and informal language.

Measurement

14. Use nonstandard units to measure length, weight, and amount of content in familiar objects.

Visual Arts

26. Create artwork from memory or imagination.

Massachusetts Curriculum Frameworks:

PreK-PS2-2 Through experience, develop awareness of factors that influence whether things stand or fall

PreK-PS1-2 Investigate natural and human-made objects to describe, compare, sort, and classify objects based on observable physical characteristics, uses and whether something is manufactured or occurs in nature

MA.PK.MD.A.2 Compare the attributes of length and weight for two objects, including longer/shorter, same length; heavier/lighter, same weight; holds more/less, holds the same amount

Lesson Summary:

Give the children opportunities to watch the greenhouse being built. Let them take pictures and ask questions. Write down their questions and come back to them when the greenhouse is finished being built and they can explore it. Once the building process is finished, take small groups of children to the greenhouse. Let the children walk around it, inside it, measure it etc. Talk about the questions they asked and see if they are able to answer them through investigation. Let the children sit around the greenhouse and “blueprint” or draw it.

Extensions of learning:

What is a greenhouse?

What should we put in our greenhouse?

How is a greenhouse helpful to the environment?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child’s level of communication and/or participation.

Additional Resources:

www.gardenguides.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering

Topic: Greenhouse Effects

Duration: 15 minutes (small group)

Learning Objectives:

To gain an understanding about how the air in the greenhouse works

To gain an understanding about how a thermometer works

Activity Description:

The children will experiment with thermometers to further understand how a greenhouse works.

Materials:

2 small thermometers

Paper

Pen or pencil

1 jar or other clear container

1 clock or watch

Access to a sunny area to perform the experiment, inside or outside

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

Number Sense

1. Listen to and say the names of numbers in meaningful contexts.
2. Connect many kinds/quantities of concrete objects and actions to numbers.

Shapes & Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Measurement

13. Use estimation in meaningful ways and follow up by verifying the accuracy of estimations.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

2. Make predictions about changes in materials or objects based on past experience.
4. Record observations and share ideas through simple forms of representation such as drawings.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

PreK-ESS2-6 Understand the impact of weather on living things

Lesson Summary:

Have the children place both thermometers in direct sunlight. Wait about three minutes before reading the thermometers to give them time to adjust to the temperature. Have the children read the number on each thermometer and write it down or dictate it to you. Create two columns, one for thermometer A and one for B. After three minutes ask the children to read both thermometers and record the temperatures again. Now, turn the jar upside down and place it over one of the thermometers so the jar is completely covering it. Once every minute for 10 minutes record the readings of both thermometers without touching them. After the 10 minutes look at the temperature changes with the children. How did the temperature inside the jar change

compared to the other one? The air over the exposed thermometer is constantly changing, constantly mixing with cooler air. While inside the jar the air is trapped and can't circulate, it simply gets warmer and warmer as the sunlight heats it up. This is similar to the way a greenhouse works, where solar energy (light) comes in and becomes thermal energy (heat) that can't escape back out through the glass house.

Extensions of learning:

Why do you think the air is hotter inside if the jar?

How does this happen inside of the greenhouse?

How does the warmer air help the plants grow?

Additional Resources:

www.123greenhousegardening.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Mathematics, Engineering

Topic: Greenhouse Go!

Duration: 30-60 minutes group of 4-5 children

Learning Objectives:

To gain an understanding of a greenhouse and what a greenhouse does

To become familiar with gardening and the benefits gardening offers

To explore the concept of a greenhouse through imagination and play

Materials:

Blocks

Toy people

Toy animals

Paper

Crayons

Camera

***(Other items the children may want to add)**

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
4. Engage in play experiences that involve naming and sorting common words into various classifications using general and specific language.

Reading & Literature

- 6. Listen to a wide variety of age appropriate literature read aloud.
- 13. Relate themes and information in books to personal experiences.

Composition

- 16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

Number Sense

- 4. Use concrete objects to solve simple addition and subtraction problems using comparative language (more than, fewer than, same number of).

Patterns & Relations

- 7. Explore and describe a wide variety of concrete objects by their attributes.
- 8. Sort, categorize, or classify objects by more than one attribute.

Physical Development

- 5. Use both sides of the body to strengthen bilateral coordination.
- 7. Build upper body strength and stability to gain controlled movement of shoulders.

Massachusetts Curriculum Frameworks:

PreK-ESS3-1 Engage in discussion and raise questions using examples about local resources humans use to meet their needs.

PreK-PS2-2 Through experience, develop awareness of factors that influence whether things stand or fall.

MA.SL.PK.3 Ask and answer questions in order to seek help, get information or clarify something that is not understood.

MA.SL.PK.6 Speak audibly and express thoughts, feelings, and ideas.

Lesson Summary:

Give the children free reign in block area to build and create their own greenhouse. Allow the children to use paper, crayons, and cameras for picture taking. Let the children bring in items from other areas of the classroom if they feel it will enhance their greenhouse. Document and record the children's conversations and thought processes throughout the building process. The children's imaginations will soar!

You can post pictures of greenhouses in the area for the children to look at while they build their own.

Extensions of learning:

What is a greenhouse?

What kind of plants should we keep in the greenhouse?

Adaptations:

If the children are unsure show them books about green house. Let them get comfortable with the idea before having them build.

Additional Resources:

"How to build your own greenhouse" by Roger Marshall

"The reason for seasons" by Gail Gibbons

WWW.Climatekids.nasa.gov/greenhouseeffects

WWW.epa.gov/climatechange/kids



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Mathematics

Topic: Rain Saver

Duration: 30 minutes (once the rain barrel contains water)

Learning Objectives:

To gain an understanding of water conservation

To gain an understanding of how to care for a garden and use nature's resources

To gain confidence in their abilities to care for a garden

Activity Description:

The children will have the opportunity to explore a rain barrel and utilize the water it catches from the rain to water the garden.

Materials:

Watering cans

Rain barrel

Stick

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Measurement

14. Use nonstandard units to measure length, weight, and amount of content in familiar objects.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals and plants.

Massachusetts Curriculum Frameworks:

PreK-ESS2-3 Explore and describe different places water is found in the local environment

PreK-ESS2-6 Understand the impact of water on living things

Lesson Summary:

In small groups of 4-5 children take a walk outside into the green house area. Introduce a rain barrel to the children. Show them what it is and let them investigate it. Give each child a watering can and let them open the spigot and fill their watering can with rain water. You can let the children dip a stick into their water to measure (unconventionally) how much water they put in their watering can. Once all the children have water in their cans take a walk to the garden or into the green house and let them water the plants and flowers. ****Remember to do this activity after it rains to ensure water in the barrel****

Extensions of learning:

Why is a rain barrel a good tool to have for your garden?

What else can you do with the water from the rain barrel?

Why is it important to conserve (save) water?

Additional Resources:

"Dad What Are You Building Now: Rain Barrel Edition" by Tom Carsley

"Build an Extreme Green Rain Barrel" by Phillip Rastocny



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: Bees Bees Bees

Duration: 30 minutes

Learning Objectives:

To begin to understand the role bees and other insects have with pollination and germination

To gain a respect for bees and other insects which are beneficial to the gardening process

Activity Description:

The children will have the opportunity to observe and record data about bees and other insects in their garden. Their recordings will be a part of a classroom book.

Materials:

Binoculars

Crayons

Paper

Outdoor flower garden area

Camera

Book fasteners

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
5. Listen to and use formal and informal language.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

20. Generate questions and gather information to answer their questions in various ways.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances.

Prek-LS1-4 Use their five senses in their exploration and play to gather information

PreK-LS2-3 Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs

MA/PK.MD.B.3 Sort, categorize and classify objects by more than one attribute

Lesson Summary:

Bring the children outside to the flower garden area. Let them sit on the edge of the garden. Give them paper and crayons. Ask the children to observe the garden for a while. After a while ask the children about what they see, hear, smell, etc. Talk to the children about the insects (bees). Let the children take pictures of the insects that they see. Have the children draw what they see the bees doing in the garden. After the children do this, dictate what they say onto their papers. After the children are done with their papers be sure to put their names on them. Make a flip through book for the class to share with one another and put the book on the book shelf.

Extensions of learning:

What do bees do for the garden?

Why do bees live in hives?

How many different bees can you name?

Adaptations:

Some children may be afraid once they know they are looking at bees and other bugs. Let them sit a little further away so that they feel secure and still participate in the activity.

Additional Resources:

"What if There Were No Bees?" By Suzanne Slade

"What do You Know Book About Bees" by Carol Miller

"The Beautiful Bee Book" by Sue Unstead



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: Insect Exploration

Duration: 15 minutes

Learning Objectives:

To gain an understanding about what insects we have in and around our garden.

To gain an understanding about insects that are beneficial and harmful to our plants.

Activity Description:

The children will have the opportunity to do some investigating with this activity. Explore the world around them and identify the insects that they see by taking pictures and making graphs to further their knowledge about insects.

Materials:

Magnifying glasses

Camera

Books about insects

The worm guide book

Chart paper to hang up pictures for helpful and harmful bugs.

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Reading & Literature

6. Listen to a wide variety of age appropriate literature read aloud.
13. Relate themes and information in books to personal experiences.

Patterns & Relations

7. Explore and describe a wide variety of concrete objects by their attributes.
8. Sort, categorize, or classify objects by more than one attribute.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.
4. Record observations and share ideas through simple forms of representation such as drawings.

Massachusetts Curriculum Frameworks:

PreK-LS1-4: Use their five senses in their exploration and play to gather information.

PreK-PS1-4: Recognize through investigation that physical objects and materials can change under different circumstances.

Lesson Summary:

Take the children in small groups (4) outdoors around the garden. Give them magnifying glasses so that they can get a close look at the insects they find. Let them study the insects and photograph them if it is possible. Bring the children inside and print out the pictures. Have the children find the insects in the guide book or other insect books. When the insect is found in a book read to the children if it is harmful or helpful to the garden. Make a chart with the children so they can concretely see with the pictures which bugs are good and which are not. If you would like to further elaborate on this activity you could go on to figure out how to treat for certain bugs or pests organically with the children.

Extensions of learning:

What kind of insects do you think we will see near the garden?

Why are some insects good for our garden?

What should we do to keep our garden safe from harmful insects?

Adaptations:

Allow the children that are fearful to look at other children's bugs instead of finding their own. Give the children containers if they are afraid to hold the bugs in their hands.

Also the children may want to continue this activity for a few days once they begin to understand and grasp the concept.

Additional Resources:

"The Grouchy Ladybug" by Eric Carle

The 360° Worm Factory Guide Book

"Jack's Garden" by Henry Cole



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math

Topic: Morph Magic

Duration: 7+ days

Learning Objectives:

To learn about metamorphosis of a caterpillar to a butterfly

To observe and collect data about the process of metamorphosis

To experience the majesty of such a natural phenomenon

Activity Description:

With this activity we will care for and watch caterpillars live, transform into chrysalis and then to butterfly. The children will have the opportunity to document and experience the entire transformation from beginning to end.

Materials:

Butterfly garden (Insect lore) (amazon.com)

Butterfly Larvae (mail in order)

**Comes with food

Branch from a tree outside

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to the ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
5. Listen to and use formal and informal language.

Reading and literature

12. Listen to, recite, sing, and dramatize a variety of age-appropriate literature.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Number sense

1. Listen to and say the names of numbers in meaningful contexts.
4. Use concrete objects to solve simple addition and subtraction problems using comparative language (more than, fewer than, same number of).

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.
2. Make predictions about changes in materials or objects based on past experience.
4. Record observations and share ideas through simple forms of representation such as drawings.

Life Science

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.
12. Observe and describe plants, insects, and animals as they go through predictable life cycles.

Living Things and Their Environment

17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.

Massachusetts Curriculum Frameworks:

PreK-LS1-2 Recognize that all plants and animals grow and change over time.

PreK-LS3-2 Use observation to recognize differences and similarities among themselves and their friends

Lesson Summary:

It is important that you have a butterfly habitat prepared and ready before you order caterpillars. You can order the butterfly habitat on www.amazon.com (Recommended: Insect Lore). This also comes with a voucher to get the caterpillars. Order the caterpillars. Once the caterpillars come you have to watch them. When they begin to migrate towards the top of the container they arrived in, put them in the butterfly habitat,

container and all. Stick the top of the container to the top of the butterfly habitat with the wire provided. The wire will stick through the mesh. You will see them looking for a place to transform. Be sure to put a branch in the habitat for the caterpillars to find a place that's comfortable. You will see them attach and form a "J" with their body. It doesn't take long once this happens. The caterpillars typically stay in chrysalis for 7-10 days. Give the children paper and a writing utensil and have them tally the amount of days before the transformation. Once the chrysalis begins to hatch be sure to put the food (sugar water soaked cotton and watermelon) on the bottom of the habitat for the butterflies to eat. You can keep the butterflies for a few days to watch them thrive before letting them go into the wild.

Extensions of Learning:

What do you know about caterpillars?

What do you know about butterflies?

How many different butterflies are there?

Where do butterflies live?

What do butterflies eat?

What is metamorphosis?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Provide materials with Braille and tactual symbols along with opportunities for development of tactile skills.

Provide opportunities for interaction with typically developing peers.

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

www.amazon.com

www.insectlore.com

www.naturegift.com

Books

"Caterpillars and Butterflies" by Stephanie Turnbull

"From Caterpillar to Butterfly" by Deborah Heiligman



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: Letting Go (releasing the butterflies)

Duration: 25 minutes

Learning Objectives:

To gain a respect for living things

To understand the life cycle of a butterfly

To gain an understanding of living things in their own habitat

Activity Description:

The children will experience the life cycle and natural habitat of the butterfly while letting them go free into nature.

Materials:

Paper

Colored pencils

Camera

Butterflies

Butterfly habitat

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Shapes & Spatial Sense

10. Investigate and identify materials of various shapes, using appropriate language.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

2. Make predictions about changes in materials or objects based on past experience.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

12. Observe and describe plants, insects, and animals as they go through predictable life cycles.

Living Things & Their Environment

17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.

Massachusetts Curriculum Frameworks:

PreK-LS1-1 Compare, using descriptions and drawings, the external body parts of animals and plants and explain the functions of some observable body parts

PreK-LS1-2 Recognize that all plants and animals grow and change over time

PreK-LS2-1 Use evidence from plants and animals to define several characteristics of living things that distinguish them from non living things

PreK-LS2-2 Using evidence from the local environment explain how familiar plants and animals meet their needs where they live

PreK-LS2-3 Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs

Lesson Summary:

First take the butterfly habitat and gently place it in the middle of the table. Give the children colored pencils and let them draw one or more of the butterflies they see. Ask the children to point out the different body parts of the insect.

After each child has had the opportunity to do this, have the children line up to go outside. Bring the children on a nature walk and discover the best place to let the butterflies go free. Remind the children that the butterflies like certain plants. If you get painted ladies as recommended these butterflies prefer thistle, milk weed, aster, daisies and black eyed Susan, which are all common weeds or flowers. Once a good area has been discovered have the children sit in a circle around the butterfly habitat. Unzip the top and watch as these amazing creatures fly to find a new home! Take pictures for the children to look back at later.

Extensions of learning:

Where do you think the butterflies will go?

What kind of flowers do the butterflies like?

How do you feel watching the butterflies fly away to a new home?

Adaptations:

Allow the children that are frightened of bugs to sit on the outside of the circle and watch from a distance

Additional Resources:

"From Caterpillar to Butterfly" by Deborah Heiligman

"Where Butterflies Grow" by Joanne Ryder

"My Oh My a Butterfly" by Tish Rabe



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering, Math

Topic: Check, Care, Compost!

Duration: 30 minutes weekly, ongoing composting project

Learning Objectives:

To gain an understanding that you have to keep up and to continue to care for a compost pile

To gain an understanding of persistence and the concept of how the compost changes

Activity Description:

The children will have the opportunity to check on the compost pile, add to it and continue to tend to it as it continues to make healthy soil for the gardens and greenhouse.

Materials:

A container vented

Scraps from lunches for the week

Compost pile or barrel

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.
4. Record observations and share ideas through simple forms of representation such as drawings.

Massachusetts Curriculum Frameworks:

PreK-ESS2-2 Observe and classify non-living materials, natural and human made, in their local environment

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

MA.G.A.1 Identify relative positions of objects in space, and use appropriate language (e.g., beside, inside, next to, close to, above, below, apart). (PreK-ESS2-4)

MA.PK.MD.B.3 Sort, categorize, and classify objects by more than one attribute. (Pre-ESS2-2)

MA.SL.PK.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.(PreK-ESS2-1and PreK-ESS3-1)

Lesson Summary:

This activity is intended for the children to do after they have begun the composting pile initially. The children should continue to save scraps of food and paper. Once weekly, a group will take a walk with an educator and the bucket of scraps. Each child can dump some of the scraps into the compost pile and take turns spinning it. This will ensure that the children will see the changes that are taking place to the matter inside of the composter. Continue doing this throughout the year. Have the children in each group document or dictate their findings. Make a time line with the children to see how long it takes to get organic soil from the compost.

Extensions of learning:

What is happening to the compost?

Do you see any changes?

What does it look like? Smell Like?

How long do you think it is going to take to get soil?

Adaptations:

Children that are uncomfortable touching the matter put into the composter may watch, or let that child take pictures.

Additional Resources:

"Composting" by Robin Koontz

"Kids Can Compost" by Wen-Chia Tsai Parker

"Garbage Helps Our Garden Grow" by Linda Glaser



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: Worm Excursion

Duration: 20 + minutes

Learning Objectives:

To gain an understanding about how worms move

To gain an understanding of how worms help irrigate soil for plant growth

Activity Description:

The children will examine and observe the nature of the worm. The children will also be a part of a guessing graph to determine the worm's actions during the activity.

Materials:

Worms

A tray

Black paper

White paper

Magnifying glass

Coloring utensils

Paper for drawing

A "guessing graph"

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Inquiry Skills

2. Make predictions about changes in materials or objects based on past experience.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

11. Investigate, describe, and compare the characteristics that differentiate living from non-living things.

12. Observe and describe plants, insects, and animals as they go through predictable life cycles.

13. Observe and describe ways in which many plants and animals closely resemble their parents in observed appearance.

Living Things & Their Environment

17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.

Technology & Engineering

26. Observe and describe ways that animals, birds, and insects use various parts of their bodies to accomplish certain tasks and compare them to ways people would accomplish a similar task.

Visual Arts

26. Create artwork from memory or imagination.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

PreK-LS2-3 Give examples from the local environment of how animals and plants are dependent on one another

Lesson Summary:

Give the children a tray and then give them some worms. You can do this with the red wigglers used for the worm factory or you can easily find worms outdoors. Let the children watch the worms move. Have the children look at the worms through a

magnifying glass to see the worm's body up close. Let the children draw the worm, and dictate any questions they have. Give the children a white piece of paper and a black piece of paper. Have the children put the worms in between the light and dark paper and watch what the worms do. Before the worms move ask the children what they think the worms will do and graph their answers on a "guessing graph". The worms will migrate towards the dark paper.

Extensions of learning:

What are the parts of the worm's body?

Why does the worm prefer dark?

Why does how the worm moves effect plant growing?

Adaptations:

***Do not make children touch the worms. Offer the children gloves or plastic tweezers if needed.**

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Use thick cord taped to the floor to mark children's personal space

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child's level of communication and/or participation.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Additional Resources:

www.yourgardeningfriend.com

"Wonderful Worms" by Linda Glaser

"Garden Wigglers" by Rick Peterson



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: Worms Make Soil (Worm Factory)

Duration: 30 minutes to start/on-going composting project

Learning Objectives:

To gain an understanding about worms and composting

To gain a hands on experience with worm compost

To understand why compost from worms is good for the garden

Activity Description:

The children will have the opportunity to start and continue a vermiculture project in the classroom.

Materials:

Worm Factory 360°

Red worms

Newspaper

Water

Coconut husk

Table scraps of fruits and veggies

(*It is important not to put citrus or meat into the worm factory 360°. These foods are not good for the worms. It is also important to read the pamphlet that comes with the worm factory. This explains the ratios of browns (paper and leaves) to greens (fruits and vegetables***)**

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).

2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
5. Listen to and use formal and informal language.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances.

PreK-ESS3-2 Observe and discuss the impact of people's activities on the local environment

Lesson Summary:

To start the worm Factory set the collector base on the floor. To that add the worm ladder. This helps the worms that fall out of the tray back in. Now add a stacking tray and then the lid. To prepare the "bedding" for the worms place half of the coir brick in a bowl and pour one cup of water over it until it breaks apart. Crumble this up be sure it is moist and NOT wet. Mix together the coir mixture, half of the pumice, half of the shredded paper and 1 tablespoon of minerals and two cupful's of garden soil and mix it together. Place one or two dry sheets of newspaper to the bottom of the first tray of the worm factory. Add the bedding mixture over the dry newspaper and add 2-3 cups of food to ONE corner of the tray. Add the "red wigglers" worms on top of the bedding, include the soil that comes with the worms. Now take 5-10 full sheets of news paper

and fold them so that they fit into the tray. Moisten the sheets of paper until it is damp not dripping and place it on top of the habitat as a cover. Now place the lid on the worm factory. Be sure to let the worms settle for 2-3 days before you check them. You should see after the 3 days that the worms are moving around and in the corner where the food is. Once you see the worms are active you can begin to add more food. Within 4-6 weeks the feeding tray should be full of food. Once the feeding tray is full one inch from the top of the tray it is time to add the next tray.

Adaptations:

Have spoons and gloves for the children to scoop the worms and food if they are afraid to touch it.

Additional Resources:

The Worm Factory 360° pamphlet



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Engineering, Math

Topic: Let's Use It! (finished compost)

Duration: 30 minutes (Large group)

Learning Objectives:

To gain an understanding of the use of compost

To experience the work and patience it takes to make compost

Activity Description:

The children will have the opportunity to use their compost that they have been working so hard to make. Depending on the time of year and where you are in your greenhouse project they will use the compost according, whether in the greenhouse plants, the garden, or just starting out planting seeds.

Materials:

Small shovels

A bucket

A composter with compost ready to use

A place to use the compost, garden, greenhouse, planting seeds

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Massachusetts Curriculum Frameworks:

PreK-ESS2-2 Observe and classify non-living materials, natural and human made, in their local environment

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

MA.G.A.1 Identify relative positions of objects in space, and use appropriate language (e.g., beside, inside, next to, close to, above, below, apart). (PreK-ESS2-4)

MA.PK.MD.B.3 Sort, categorize, and classify objects by more than one attribute. (PreK-ESS2-2)

Lesson Summary:

Take the children outside to the composter. Have them stand around it in a circle. Dump the contents of the composter into a bucket and let the children look at it and investigate it. Bring the matter with the children to the garden, the greenhouse or inside depending on where you are using it. If you are starting planting at this time, put it in your soil with the seeds you choose and see how the plants grow. You can add compost to some plants and not to the others and do experiments. You can sprinkle it around your garden or in the plants you have growing in the green house. Now that you have compost ready, use it and see what happens! Remember to keep the compost pile going throughout the year, so as you use it, be sure you are continuing the compost project and making more!

Extensions of learning:

What does the soil feel like?

What does the soil look like?

How did our trash and table scraps turn into soil?

Adaptations:

Children with sensory integration can use a shovel or wear gloves to touch the finished organic compost matter.



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science/Engineering/Mathematics

Topic: Care to Compost

Duration: Ongoing project to make compost

Learning Objectives:

To gain an understanding of compost, why we compost, and the benefits of composting

To gain an understanding of recycling and caring for our earth and ourselves

Activity Description:

In this activity the children will begin to compost and learn the importance of composting. The children will save food scraps and learn the importance of the carbon and nitrogen ratio for composting.

Materials:

2 containers

Compost tumbler

Leaves

Paper

Scraps from children's lunches

Coconut coir

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

4. Record observations and share ideas through simple forms of representation such as drawings.

Massachusetts Curriculum Frameworks:

PreK-ESS2-2 Observe and classify non-living materials, natural and human made, in their local environment

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

MA.G.A.1 Identify relative positions of objects in space, and use appropriate language (e.g., beside, inside, next to, close to, above, below, apart). (PreK-ESS2-4)

MA.PK.MD.B.3 Sort, categorize, and classify objects by more than one attribute. (PreK-ESS2-2)

MA.SL.PK.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.(PreK-ESS2-1and PreK-ESS3-1)

Lesson Summary:

This is the day that the children will begin to explore composting, what it is and what it means. During lunch set up two containers on a side table, one saying “trash” and one saying “to compost”. As the children start to clean up their lunch have them separate their trash from the recyclable, compostable items (Nitrogen-greens). After this is done, sit down with the children and talk about the items and what it is. Introduce them to a compost barrel or tumbler and start a compost pile to be an ongoing project for the classroom. You will also need to add to the compost tumbler, paper, leaves and coconut coir (Carbon-browns). This project could add to making new class jobs for someone to collect items and put them in the compost barrel daily/weekly. As time goes on the children will see the trash change and turn into compost which is great for the garden.

Extensions of learning:

What is compost?

What is biodegradable?

Why do you think we should compost?

How does composting help the earth?

Adaptations:

For children that have sensory integration offer them gloves to sort through their own lunch scraps

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Make sure children identify themselves before speaking

Provide opportunities for interaction with typically developing peers.

Use a variety of symbols (tactual symbols, objects symbols, picture symbols such as Mayer-Johnson pictures) around the room along with various printed materials that support children's primary languages while they are learning English (e.g., books, newspapers, magazines in the dramatic play area).

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Additional Resources:

"Composting" by Robin Koontz

"Kids Can Compost" by Wen-Chia Tsai Parker

"Garbage Helps Our Garden Grow" by Linda Glaser



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science

Topic: Apple Twist (fieldtrip)

Duration: 3 hours

Learning Objectives:

To gain an understanding about how to care for fruit trees

To gain an understanding of when to harvest apples

To further understand how apples grow

Activity Description:

The children will have the opportunity to experience an apple orchard and what it entails through a guided and open experience at a local apple farm.

Materials:

Local apple orchard (scheduled appointment with guide)

Bus or transportation

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Number Sense

5. Observe and manipulate concrete examples of whole and half.

Patterns & Relations

7. Explore and describe a wide variety of concrete objects by their attributes.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

11. Investigate, describe, and compare the characteristics that differentiate living from non-living things.

Massachusetts Curriculum Frameworks:

PreK-LS1-2 Recognize that all plants and animals grow and change over time

PreK-LS1-4 Use their five senses in their exploration and play to gather information

PreK-LS2-3 Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs

Lesson Summary:

Bring the children to a local apple orchard and let them experience what it is like to have the opportunity to harvest apples. Show them the trees and their environment. Let them examine the insects flying around and decide if they are helpful or hurtful to the trees. Show the children how to take apples off of the tree so it does not damage the tree. Let the children try apples from different trees to see that not all apples taste the same.

Extensions of learning:

What can we do with apples?

Why are bees important in the apple orchard?

How many different kinds of apples do you think there are?

When do we harvest apples?

Adaptations:

For children that have sensory integration offer them gloves to sort through their own lunch scraps

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Make sure children identify themselves before speaking

Provide opportunities for interaction with typically developing peers.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

20. Generate questions and gather information to answer their questions in various ways.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances.

Prek-LS1-4 Use their five senses in their exploration and play to gather information

PreK-LS2-3 Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs

MA/PK.MD.B.3 Sort, categorize and classify objects by more than one attribute

Lesson Summary:

Bring the children outside to the flower garden area. Let them sit on the edge of the garden. Give them paper and crayons. Ask the children to observe the garden for a while. After a while ask the children about what they see, hear, smell, etc. Talk to the children about the insects (bees). Let the children take pictures of the insects that they see. Have the children draw what they see the bees doing in the garden. After the children do this, dictate what they say onto their papers. After the children are done with their papers be sure to put their names on them. Make a flip through book for the class to share with one another and put the book on the book shelf.

Extensions of learning:

What do bees do for the garden?

Why do bees live in hives?

How many different bees can you name?

Adaptations:

Some children may be afraid once they know they are looking at bees and other bugs. Let them sit a little further away so that they feel secure and still participate in the activity.

Additional Resources:

"What if There Were No Bees?" By Suzanne Slade

"What do You Know Book About Bees" by Carol Miller

"The Beautiful Bee Book" by Sue Unstead



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering

Topic: Investigating our Community (fieldtrip to the Community Harvest Project or a local farm near you)

Duration: 2 hours

Activity Description:

Fieldtrip to a local farm or Community Harvest project will give the children some insight on the importance of a farm and also the importance of the knowledge for them to grow and harvest themselves.

Materials:

A bus for transportation (unless walking distance)

Chaperones

Anything provided from the farm

Learning Objectives:

To gain an understanding of what others are doing in the community with gardening

To begin to realize diversity of plant life in your community

To learn the proper maintenance of a garden

To gain an understanding of the special awareness and relationships of different plants

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group(taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

4. Engage in play experiences that involve naming and sorting common words into various classifications using general and specific language.

5. Listen to and use formal and informal language.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

2. Make predictions about changes in materials or objects based on past experience.

Living Things & Their Environment

16. Observe and describe seasonal changes in plants, animals and their personal lives.

Massachusetts Curriculum Frameworks:

Pre-K-LS1-2 Recognize that all plants and animals change over time.

Pre-K-LS2-2 Using evidence from the local environment, explain how familiar plants and animals meet their needs where they live.

Pre-K-ESS3-1 Engage in discussion and raise questions using examples about local resources; (including soil and water) humans use to meet their needs

Pre-K-ESS3-2 Observe and discuss the impact of people’s activities on the local environment.

MA.SL.PK.6 Speak audibly and express thoughts, feelings, and ideas. (PreK-ESS2-1, PreK-ESS3-1, and PreK-ESS3-2)

Lesson Summary:

The children will take a fieldtrip to a local farm that your organization or educational facility has chosen to partner up with. While on this trip the children will have the opportunity to plant, pick, and investigate all aspects of the farm safely. Allow the children to ask questions and see for themselves what grows in their own environment.

Extensions of learning:

What do you think we are going to learn about on the field trip?

What do you think the people that are working there will be doing?

What did you learn from the Community Harvest Project?

How do you think we can help?

Additional Resources:

Pamphlets about the farm; from the farm

"In the Garden" by Elizabeth Spurr

"From Seed to Plant" by Gail Gibbons



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Mathematics

Topic: Wacky Weather

Duration: On-going graph (at least 1 week, can last the whole year)

Learning Objectives:

To gain an understanding of the affects weather has on plants and flowers

To begin to understand the use of a graph

To make connections about weather and plant care

Activity Description:

This activity will allow the children to observe weather experiences. They will have to watch the weather daily and record their findings.

Materials:

Graph

Container outside to catch rain

Thermometer outdoors

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

4. Record observations and share ideas through simple forms of representation such as drawings.

Earth and Space Sciences

7. Identify the characteristics of local weather based on first-hand observations.

Massachusetts Curriculum Frameworks:

PreK-ESS2-4 Use simple instruments to collect and record data on elements of daily weather

PreK-ESS2-5 Describe how local weather changes from day today and over the seasons and recognize patterns in those changes

PreK-ESS2-6 Understand the impact of weather on living things

MA.PK.CC.C.5 Use comparative language, such as more/less than, equal to, to compare and describe collections of objects

MA.G.A.1 Identify relative positions of objects in space, and use appropriate language

Lesson Summary:

Set up a graph that can run weekly or longer (your preference). Be sure to have all of the days of the week and all of the weather possibilities on the graph. Also put a container or measuring cup outside to catch rainfall. Put a thermometer to measure temperature as well. You can add weather graphing into circle time or you can do it in the morning and the afternoon to see the difference daily as well as weekly. Give the children “jobs” referring to the weather graphing. Job list includes:

Marking the graph

Checking the weather

Checking the rain catcher

Marking the rain catcher graph

Reading the thermometer

Marking the thermometer graph

Checking the garden

Alternate the jobs so that all the children get a turn. At the end of the week you can tally results and continue this from week to week or stop after a week depending on the interest of the children.

Extensions of learning:

What do you call the study of weather?

Why is it important to study weather patterns?

What do you think will happen if it does not rain for a week?

What do you think will happen if it rains too much?

Adaptations:**Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning**

Provide materials with Braille and tactual symbols along with opportunities for development of tactile skills.

Use visual pictures or symbols to illustrate the words to songs.

Additional Resources:

"Oh Say Can You Say What's The Weather Today?" by Tish Rabe

"Weather" by Seymour Simon



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math, Engineering

Topic: Fairy Garden

Duration: 1 hour

Learning Objectives:

To gain an understanding of the outside world around them through imagination and exploration

To gain a sense of confidence and ownership through a self made 3-D creation

Activity Description:

The children will have the opportunity to collect and gather things from nature to create their own nature's masterpiece.

Materials:

Container to collect items on nature walk

Items from nature (rocks, moss, grass, twigs, leaves, etc.)

Glue

Styrofoam, wood or cardboard

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Reading & Literature

12. Listen to, recite, sing, and dramatize a variety of age-appropriate literature.
13. Relate themes and information in books to personal experiences.

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

Living Things & Their Environment

17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.

Visual Arts

18. Explore a variety of age-appropriate materials and media to create two and three-dimensional artwork.

23. Experiment with the use of texture in artwork.

26. Create artwork from memory or imagination.

Massachusetts Curriculum Frameworks:

PreK-ESS2-2 Observe and classify non-living materials, natural and human-made, in their local environment

MA.PK.MD.B.3 Sort, categorize, and classify objects by more than one attribute (PreK-ESS2-2)

Lesson Summary:

Take the children on a nature walk. Give each child a cup or a container to put some of their findings in. As you walk with the children let them look, listen and feel the environment around them. Have the children collect small rocks, twigs, grass, moss, etc., to make a fairy garden nature-scape of their own. Bring all of the children and their items in and let them scatter around the room to sort. Give each child a piece of cardboard, wood, or Styrofoam and glue and let them create their own nature's masterpiece.

Extensions of learning:

What is nature?

What is living and nonliving?

What do you hear outside?

What do you see outside?

How do you feel when you are outside?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Use thick cord taped to the floor to mark children's personal space

Use art materials that provide texture (e.g., gel paint that dries with a raised surface; tempera paint with sand added); high- contrast paper (light, dark, shiny, sparkling); bold colors that are easy to differentiate.

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

"Fairy Houses" by Barry Kane

"Gardening in Miniature" by Janit Calvo

"Fairy Gardens" by Betty Earl



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Engineering

Topic: Watering Cans

Duration: 20 minutes

Learning Objectives:

To gain an understanding that recycled objects can be used for other purposes

To feel a sense of responsibility while caring for living things (plants)

Materials:

Clean Milk jug

Permanent markers

Screwdriver or sharp scissors

Activity Description:

The children will have the opportunity to make their own watering cans and feel a sense of ownership for their gardening experience.

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.

Technology & Engineering

23. Explore and describe a wide variety of natural and man-made materials through sensory experiences.
24. Demonstrate and explain the safe and proper use of tools and materials.

Massachusetts Curriculum Frameworks:

PreK-ESS3-2 Observe and discuss the impact of people’s activities on the local environment.

Lesson Summary:

Give each child a clean recycled milk jug. Give the children permanent markers to decorate this jug. Take the cap and poke 3-6 holes in it with a screw driver or a sharp pair of scissors. This step should be done by the teacher for the safety of the children. The amount of holes depends on how big and how much water you want to come out. Let the children go to the sink and fill the jug with water (as much as they can carry). Give the children the cap and let them screw it back onto the milk jug. Bring them outside to the garden and let them water the plants.

Extensions of learning:

Why do we recycle?

What else can we recycle?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Make sure children identify themselves before speaking

Use thick cord taped to the floor to mark children’s personal space

Use special or adaptive devices to increase a child’s level of communication and/or participation.

Additional Resources:

www.lifetricks.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Engineering

Topic: Dirt Tunnels

Duration: One day on going in texture table

Learning Objectives:

To gain an understanding of how worms work through soil

To gain an understanding of how water moves through the ground to feed the plants

Activity Description:

The children will have the opportunity to experiment with tunnels and water ways. They will make their own rivers and watch the way water flows and forms the earth around it.

Materials:

Texture table

Dirt

Pebbles and small rocks

Water

Water droppers

Pictures

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Shapes & Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

2. Make predictions about changes in materials or objects based on past experience.

Earth and Space Sciences

5. Compare and contrast natural materials such as water, rocks, soil, and living organisms using descriptive language

7. Identify the characteristics of local weather based on first-hand observations.

Living Things & Their Environment

17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.

The Physical Sciences

19. Explore, describe, and compare the properties of liquids and solids found in children's daily environment.

Physical Development

9. Use thumb/forefinger in pincer grasp.

12. Use eye-hand coordination, visual perception and tracking, and visual motor skills in play activities.

Massachusetts Curriculum Frameworks:

PreK-PS2-1 Using evidence, discuss ideas about what is making something move the way it does and how some movements can be controlled

PreK-PS2-2 Through experience, develop awareness of factors that influence whether things stand or fall

PreK-ESS2-3 Explore and describe different places water is found in the local environment

PreK-ESS2-6 Understand the impact of weather on living things

Lesson Summary:

In the texture table put dirt, soil, small rocks, etc. (anything you may find in the ground outside.) Give the children small water droppers and containers of water. Let the children drop water into the dirt matter until they start to see tunnels and pathways. Then let the children make rock walls, hills and dams to see how they can alter the waters pathways. Have images, worm pathways and tunnels on the wall for the children to investigate while they experiment with their own tunnels.

Extensions of learning:

What do you think will happen as the water is dropped on the dirt?

What is erosion?

What are some places that water does this to the land?

Adaptations:

Give the children gloves if they are not comfortable touching dirt.

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

Images from:

www.superstock.com

www.flickr.com



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Math

Topic: Faking It (flower project)

Duration: 20 minutes outdoors, 20 minutes indoors

Learning Objectives:

To gain an understanding of imagery

To learn about different types of flowers and how to differentiate between them

Activity Description:

The children will go on a nature walk, take pictures and pick flowers. Through this experience they will make a 3-D creation representing the flowers that they observe.

Materials:

Cameras

Paper

Coloring utensils

Printed pictures

Pompoms

Pipe cleaners

Paint

Glue

Tissue paper

Books about flowers

Any free art material the children can use

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).

2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.
4. Engage in play experiences that involve naming and sorting common words into various classifications using general and specific language.
5. Listen to and use formal and informal language.

Inquiry Skills

4. Record observations and share ideas through simple forms of representation such as drawings.

Life Sciences

10. Observe and identify the characteristics and needs of living things: humans, animals, and plants.
11. Investigate, describe, and compare the characteristics that differentiate living from non-living things.
12. Observe and describe plants, insects, and animals as they go through predictable life cycles.

Visual Arts

18. Explore a variety of age-appropriate materials and media to create two and three-dimensional artwork.
19. Observe the safe and appropriate use and care of art materials.

Massachusetts Curriculum Frameworks:

PreK-PS1-2 Investigate the natural and human-made objects. Describe, compare, sort and classify objects based on observable physical characteristics, uses and whether something is manufactured or occurs in nature

MA.PK.MD.B.3 Sort, categorize, and classify objects by more than one attribute. (PreK-PS1-2)

Lesson Summary:

Take a nature walk outside. Bring cameras, paper and coloring utensils. Let the children explore and discover different flowers around them. Let them take pictures with the cameras or let them draw what they see. Let the children pick some of the flowers. Go back inside, print the pictures off of the camera and give them to the

The children. Put the flowers in a container of water for the children to look at. Give the children many different free art materials such as, glue, paint, pipe cleaners, cotton balls, pompoms, tissue paper, even books to find the names of the flowers. Let them create a 3-D flower creation from the pictures that they took or drew outside. Then they can display their work around the room when it is dry.

Extensions of learning:

What kinds of flowers do you see around us?

What are flowers used for?

What is your favorite kind of flower?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Use art materials that provide texture (e.g., gel paint that dries with a raised surface; tempera paint with sand added); high-contrast paper (light, dark, shiny, sparkling); bold colors that are easy to differentiate.

Use special or adaptive devices to increase a child's level of communication and/or participation.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Math

Topic: Pickling pickles

Duration: 1-4 days

Learning Objectives:

To gain an understanding about how different things can be made from one item

To learn about pickling and why it is done

Activity Description:

The children will have the opportunity to make pickles and then taste them when they are ready.

Materials:

Pickling cucumbers

1 head of garlic minced

A bunch of dill

2 tsp. salt

2 cups water

2.5 cups white vinegar

Mason jar

Refrigerator

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Number Sense

3. Use positional language and ordinal numbers (first, second, third) in everyday activities.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

Technology and Engineering

24. Demonstrate and explain the safe and proper use of tools and materials.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that the physical objects and materials can change under different circumstances

Lesson Summary:

In a sauce pan bring the water and vinegar to a boil. This should be done cautiously and preferable away from the children. Add in the salt. Have the children cut up cucumbers while the water is boiling. They can cut the cucumbers in to slices or spears, or even chunks. Put the cucumbers in the mason jars tightly. Add minced garlic and dill leaves, use your discretion, for taste. Pour the hot liquid mixture into the jar until it is ½ inch from the top of the jar. The educator should handle the hot liquid. Put the cover on the jar tightly and place in the refrigerator for at least 24 hours. Best results if the pickles sit for a few days. This recipe may make more than one jar, depending on the size of the jars you have.

Extensions of learning:

What are pickles made of?

What are some other kinds of pickles?

What else can you pickle?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities

Additional Resources:

“Canning Pickles Step by Step” by Mary Beth Stenson



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology, Engineering

Topic: Shake It Up

Duration: 30 minutes

Learning Objectives:

To gain an understanding of the different sounds around them and how they are created

To gain an understanding that simple things can form sound and waves

Activity Description:

The children will have the opportunity to make a rain stick and discover different sound waves by shaking them and turning them in different directions.

Materials:

Bowls

Spoons

Paper towel rolls

Sticky paper

Seeds

Rice

Dry beans

Corn seeds

Markers

Glue

Glitter

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Composition

20. Generate questions and gather information to answer their questions in various ways.

Shapes and Spatial Sense

12. Listen to and use comparative words to describe the relationships of objects to one another.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Physical Development

6. Alternate the left and right sides of the body and cross the midline of the body.

Movement and Dance

2. Respond to a variety of musical rhythms through body movement.

Music

13. Listen to, imitate, and improvise sounds, patterns, or songs.

Visual Arts

18. Explore a variety of age-appropriate materials and media to create two and three-dimensional artwork.

Massachusetts Curriculum Frameworks:

PreK-PS2-1 Using evidence, discuss ideas about what is making something move the way it does and how some movements can be controlled

PreK-PS4-1 Investigate sounds made by different objects and materials and discuss explanations about what is causing the sounds. Through play and investigations, identify ways to manipulate different objects and materials that make sound to change volume and pitch

Lesson Summary:

Set up a table with four bowls. Put dry rice in one, dry beans in one, seeds in one and corn seeds in another. Put a spoon in each bowl. Have four children at a time sit at the table. Give each child a paper towel roll and have them decorate it with markers. Give each child a square of sticky paper large enough to cover the bottom hole of the paper towel roll. Have the children peel it and stick it to the hole. You can check to make sure it is fully covered so nothing will fall out of the roll. Have the children put scoops of their choice into their paper towel roll. It can be as little as one scoop and as many as six scoops. They can mix the items or choose just one. After they have done this give them another square of sticky paper. Have them peel and stick it to the open end of the roll. Double check to make sure there are no holes or open spaces for the seeds or rice to fall out. If the children would like to glue glitter on their roll let them do so. Be sure to write all of the children's names on their rolls and allow for the glue to dry. Once all the children have done this activity come together as a class and begin to shake them, let the items inside the roll slide, and listen to all of the different sounds that each roll makes. Let the children experiment and have fun with these.

Extensions of learning:

What else makes sounds?

How can you make sounds using only your body?

What is a sound you like the most?

Where do you hear loud sounds?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child's level of communication and/or participation.

Use a favorite toy, activity, technology, or person to encourage communication and/or participation.

Provide opportunities for interaction with typically developing peers.

Arrange the room to encourage language conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers

Ensure the classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently

Additional Resources:

"The Science of Sound" by Steve Parker

"Sounds All Around" by Wendy Pfeffer

"What are Sound Waves?" by Robin Johnson



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Technology

Topic: Souper Soup!!

Duration: 30 minute preparation/4 hours slow cook

Learning Objectives:

To learn that there are many things you can do with the things you grow in a garden

To gain an understanding for the process of cooking and to further children's independence with guidance

Activity Description:

The children will have the opportunity to participate in making and eating a harvested soup from their garden.

Materials:

Harvested vegetables from the garden

Plastic knives

Paper plates

Crock pot

Veggie stock (tomato juice or water)

Bowls

Spoons

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Reading and Literature

13. Relate themes and information in books to personal experiences.

Measurement

13. Use estimation in meaningful ways and follow up by verifying the accuracy of estimations.

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that physical objects and materials can change under different circumstances

Lesson Summary:

Towards the end of the harvesting season take the children to the garden and pick all the remaining vegetables that are ready to be picked. Bring them in and have the children wash them. Give each child a plastic knife and a paper plate and let them cut the vegetables into pieces. Discuss with the children what you can do with all of these vegetables. Introduce them to a crock pot. Have the children give guesstimates of how long they think the soup will take to cook. Put all of the vegetables in the crock pot. Add vegetable stock, tomato juice or water, and set the crock pot to high and put it in a safe place away from the children. Let the soup cook for approximately four hours on high. Turn off the pot and let cool. Give the children the soup for snack.

Extensions of learning:

What can we do with all of these vegetables?

What does it mean to harvest?

Adaptations:

Adaptations for children with Disabilities- taken from Appendix A in Massachusetts Guidelines for Preschool learning

Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.

Create “story boxes” for familiar stories. For example, place props for the story The Three Little Pigs in a box. When the story is read aloud, the props offer both tactual cues for the words being read, and the opportunity to act out story components. In this way concepts that might be available only by seeing or hearing will be made more meaningful while also allowing children more direct involvement with the story. These strategies enhance the activity for all children, not just those with a disability.

Provide good models of communication (in any language).

Use special or adaptive devices to increase a child’s level of communication and/or participation.

Additional Resources:

"Growing Vegetable Soup" by Lois Ehlert

"The Vegetables we Eat" by Gail Gibbons



FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Science, Mathematics, Technology, Engineering

Topic: Sun, Shade, Shadows

Duration: 10 minutes in the morning and 10 minutes in the afternoon.

Learning Objectives:

To gain an understanding of how the sun moves and from different directions this can affect the plants in the garden.

To understand when to water and care for our plants when the sun is out

Activity Description:

In this activity the children will have the opportunity to further investigate shadows and the sun and the effects the two have on the growth and conditions of the plants they have in their garden.

Materials:

Rulers

Measuring tape

Paper

Crayons

Guidelines for Preschool Learning Experiences:

Language

1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways).
2. Participate actively in discussions, listen to ideas of others, and ask and answer relevant questions.
3. Communicate personal experiences or interests.

Reading & Literature

6. Listen to a wide variety of age appropriate literature read aloud

Composition

16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest.

20. Generate questions and gather information to answer their questions in various ways.

Shapes and Spatial Sense

11. Explore and identify space, direction, movement, relative position, and size using body movement and concrete objects.

12. Listen to and use comparative words to describe the relationships of objects to one another.

Data Collection & Analysis

15. Organize and draw conclusions from facts they have collected.

Inquiry Skills

1. Ask and seek out answers to questions about objects and events with the assistance of interested adults.

2. Make predictions about changes in materials or objects based on past experience.

3. Identify and use simple tools appropriately to extend observations.

4. Record observations and share ideas through simple forms of representation such as drawings.

Earth and Space Sciences

8. Explore sunlight and shadows and describe the effects of the sun or sunlight.

9. Observe and describe or represent scientific phenomena meaningful to children's lives that have a repeating pattern (e.g., day and night).

Massachusetts Curriculum Frameworks:

PreK-PS1-4 Recognize through investigation that the physical objects and materials can change under different circumstances

Pre-K-PS4-2 Connect daily experience and investigations to demonstrate the relationships between the size and shape of shadows, the objects creating the shadows, and the light source.

Pre-K-ESS1-2 Observe the use of evidence to describe that the sun is in different places in the sky during the day.

Lesson Summary:

Take the children outside to the garden area in the morning. Let them bring out measuring tapes and rulers. When you get outside let them look around the area and talk about where the sun is. Give the children paper and crayons to document their findings. Make sure the paper is folded in half so they can draw on one side in the morning and the other side in the evening. This will help them see the difference of the sun's location. After they do this let them investigate the plants they have been growing by measuring them with rulers. Depending on the location of the sun they will discover shadows. Let them measure the shadows of the plants. Talk to the children about shadows and the location of the sun. Do this same activity in the afternoon/evening so that the children can compare the sun's location and shadowing of the plants.

Adaptations:

Have visors or sunglasses for the children with severe eye sensitivity. Give a blanket or towel for any child that cannot sit in grass or on the ground to draw their findings.

Additional Resources:

"One Light, One Sun" by: Raffi

"What is My Shadow Made Of?" By Neil Morris

"Shadow Chaser" By Elly MacKay



**YMCA OF CENTRAL MASSACHUSETTS
BOROUGH'S FAMILY BRANCH**

