REGION NINE HEAD START ASSOCIATION

Elevating the Head Start Community™

EARLY CHILDHOOD
STEM Institute

Early Childhood STEM Curriculum Fair Lesson Plan Book

A Celebration of *Teachers Teaching Teachers*

April 1, 2025

Las Vegas, Nevada

Presented by:

Pacific Clinics Head Start

This book is dedicated to:

Edward Condon, Executive Director

of the Region 9 Head Start Association

Table of Contents

Head Start

Early Head Start

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Glendale Ave
CLASSROOM / HB GROUP: Room 4 FD
PROJECT TITLE: Apples
TEAM MEMBERS INCLUDING PARENTS: Rima Ter-Galstanyan, Sevan Kalemkerian, and Lilian Tahamassian

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

Head Start Early Learning Outcomes Framework (ELOF): Sub-Domains
Specify age group. Check sub domains that apply

☐ **Infant/ Toddler - Cognition** ☐ Exploration and Discovery ☐ Memory ☐ Reasoning and Problem-Solving ☐ Emergent Mathematical Thinking ☐ Imitation and Symbolic Representation and Play	☑ **Preschool – Mathematics Development and Scientific Reasoning** ☑ Counting and Cardinality ☑ Operations and Algebraic Thinking ☑ Measurement ☑ Geometry and Spatial Sense ☑ Scientific Inquiry ☑ Reasoning and Problem-Solving

CONCEPT(S): (Primary ideas that are related to this lesson plan.)

-To enhance the language and literacy by learning advanced vocabulary.

-To support the math by learning how to sort, count, measure and seriate.

- Compare and contrast the size, color, and shape of various apples.

-To observe, investigate and document in their journal.

- Collect data, documents, and communicate about their favorite apple.

-To develop some knowledge about the natural world and nutritious facts of the apple.

- Engage in apple themed books and stories, enhancing vocabulary related to apples.

- Participate in discussions about apples and their life cycle (enhancing understanding of growth and nature.)

HOME SCHOOL/CONNECTION: (STEM At Home)

Children shared an apple with the label/name tag on it from home.
Children and their families engaged in conversations about apples and prepared food that had apples as part of the recipe (apple pie, apple juice, apple sauce.)
Children tasted apples in different flavors (sweet, sour, tart.)

MATERIALS:

Apples in different sizes, colors and kinds.
Books, flannel stories, measuring scales, dry erase board and marker, magnetic alphabet, chart, journal.
Vinegar, milk, baking soda and lemon for apple experiment.

PREPARATION:

Preparing the dry erase board/marker and the graph to make a chart. Preparing a long paper for sorting and seriation.

Labeling parts of the apple and the names of the apples. Providing journals.

Bring materials such as: cups, vinegar, lemon and baking soda for the science experiment.

STRATEGIES (Beginning, middle, end):

During large group and small group time we had conversations and discussions such as: what do we know about apples, what do we want to learn about apples, what is your favorite flavor. We asked many open-ended questions. Every child brought an apple from home to share with class. We learned and named different parts of the apple and the life cycle. Children explored their senses by tasting different types of apples and describing their flavors and textures. We made a chart. Children counted, sorted, measured with their apples. Moreover, they observed and documented in their journals what was inside the apple, parts of the apple, apple tree and their favorite color apple. Teachers read different apple themed books and flannel stories. Children conducted simple hands-on science experiments (jumping apple seeds, exploring the inside of an apple, and how to keep the apple fresh and avoid color change.)

OPEN-ENDED QUESTIONS

How does your apple taste?
Which taste is your favorite and why? Tell me about your apple?
What happened to the apple? Why did the color change?
Describe what do you know about apples?

ANALYSIS AND REASONING QUESTIONS

Why do you think the apple turned brown?
What do you think will happen to the apple seed? In what ways are these apples similar/different?

VOCABULARY (Advanced Language)

Core, flesh, peel, stem, tart, vinegar, sprout, blossom, orchard. Experiment, predict, observation, journaling.
Horizontal and vertical cuts. Scale, measure, seriation. Graph, chart.

CONNECTION TO REAL WORLD:

Going to the market with family to buy apples.
Making apple juice, apple pie and apple sauce with parents. Planting apple seeds to watch it grow.
Visiting the farm to see the different kinds of apples and apple trees.

REFERENCE:

Head Start Early Learning Outcomes Framework

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Lexington
CLASSROOM / HB GROUP: Room #1FD
PROJECT TITLE: Natural Dyes
TEAM MEMBERS INCLUDING PARENTS: Gilda Eliasyan, Sona Rubenian, Sylvia Alvarez-Nash

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

Head Start Early Learning Outcomes Framework (ELOF): Sub-Domains
Specify age group. Check sub domains that apply

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
The idea of Natural dyes came when children were asking if they want to paint at home too, so we decided to introduce them to Natural dyes. Natural colored dyes from foods/plants are an interesting, educational way to experiment with science of developing colors from fruits, vegetables and spices. Children will explore, identify and determine the dye naturally can get. Also, they will gain skills about the environment and understand the changes in materials and cause-effect relationships. Creating eco-friendly colorful dyes to use in science and art projects allows children to learn earth-friendly way to celebrate and appreciate nature.

HOME SCHOOL/CONNECTION: (STEM At Home)
Encourage families to participate in projects, to provide children an opportunity to explore, identify the colors that we can get. To take a nature walk around the neighborhood and encourage children to find plants and vegetables that can produce natural dyes, by giving open-ended questions, collecting information by observing and recording it in their journal.

MATERIALS:
Different types of fabric (cotton, linen, silk).
Different types of vegetables and fruits-onion, red cabbage, beets, spinach/kale ground turmeric, blueberries. Paper towel, container, plastic tablecloth, observation chart.

PREPARATION:

Set up the table with natural and organic materials, such as pomegranate, spinach, blueberries. Introducing topic of natural dyes, let children smash/squeeze pomegranate/spinach/blueberries to explore and compare/contrast the findings.

STRATEGIES (Beginning, middle, end):

Introduce the topic of natural dyes, observe and identify each item. Challenge children by asking which fruits and vegetables can produce natural dyes with open-ended questions. Encourage children to participate in discussions about natural dyes. Give a chance to explore by smashing, squeezing pomegranate/spinach to see how they produce natural dye. Recall their ideas of the activities and encourage them to use descriptive and expressive vocabulary. Collect information by observing and recording their responses.

OPEN ENDED QUESTIONS

What do you think will happen if we squeeze pomegranates? How are they different?
What color do you think spinach will produce?
What kind of fruit/vegetable do you think can produce natural dye?

ANALYSIS AND REASONING QUESTIONS

How do you know it's a natural color? Why do you think it is important to squeeze?
How can you tell which vegetable/fruit can give stronger color?
What color will we get? Why do you think so?
What will happen if we mix the dyes? How can we find out?

VOCABULARY (Advanced Language)

Organic, dye, natural, cotton, chart, fabrics, turmeric, silk, tablecloth, ground, observe, experiment, explore, produce, squeeze, smash.

CONNECTION TO REAL WORLD:

Have natural walk around the neighborhood, looking at plants and vegetables that produce natural dyes.
Extension-Make natural Dyes for Play Dough-such as pomegranate for pink, beets for red, turmeric for yellow. Spinach for green.

REFERENCES:

The High Scope Preschool Curriculum books "Mathematics" and "Science and Technology by Ann S. Epstein, PhD
STEM Made Simple (Preschool) by Marcella Fecteau Weiner Book
'Color Dance" by Ann Jones
Book "Natural Dying with Plants"
Book "A Color of His Own" by Leo Leonie Book "All About Dye" by Todd Oldham

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PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Verdugo
CLASSROOM / HB GROUP: 1 FD
PROJECT TITLE: "Measurement"
TEAM MEMBERS INCLUDING PARENTS: Kim Zitter, Adik Melikian, Irina Kristoforov, and Meline Terteryan

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Objects have measureable properties.
Longer/shorter, taller/shorter, bigger/smaller, same/different, bigger/ smaller, heaviest/lightest.

HOME SCHOOL/CONNECTION: (STEM At Home)
Family participation in measuring their height, length of their hand, foot, shoe, and document. Take photos. Make predictions and comparisons.

MATERIALS:

Ruler, Tape Measure, Unifix Cubes, same length sticks, Butcher, 8 1/2 x 11" white papers, markers, and shoes.

PREPARATION:

Brainstorm how children can measure their body, hand, foot, shoe, and body weight. Talk about the height/length of own body parts. What can we use to measure? What are you going to do first? Second? Third? Supply papers, markers, measuring tapes, same-length sticks, Ruler, and Unifix Cubes.

STRATEGIES (Beginning, middle, end):

B: Trace an outline of each child/hand/foot/shoe on paper. Measure with Measuring Tape/ruler/cubes/sticks and encourage children to count/record their measurement on paper. Compare height/length using measurement words. Talk about their results. Review estimates of who is the tallest/shortest based on looking at the outlines and comparing them with Measuring Tape.

OPEN ENDED QUESTIONS

What kind of materials will you need to measure?
How do you know that?
How tall do you think you are?
How can you find out?
How many sticks/cubes will it take to find out the length of your hand/foot?
What are you going to do first? Second? Third?

ANALYSIS AND REASONING QUESTIONS

Why do you think that _____is shortest/tallest, heaviest/lightest?
Can you compare?
Who is tallest/shortest/middle/same/heaviest/lightest/ What tells you that?
Which shoe size is longer/shorter? How did you figure that out?

VOCABULARY (Advanced Language)

Size, Tall, Taller, Tallest, Short. Shorter, Shortest, Long. Longer, Longest, Small, Medium, Middle, Larger In-between, Length, Cardinality, Measurement, Inquiry. Observation, Investigate, Document, Compare.

CONNECTION TO REAL WORLD:

Do you have a ruler/tape measure at home?
We can measure the human body and its parts.

REFERENCES:

Measuring Size by Henry Arthur Pluckrose
Inch by Inch by Leo Lionni
If the Shoe fits by Jennifer Dusslina Balancing Act by Ellen Stoll Walsh
How Tall?: Wacky Ways to Compare Height by Mark Weakland and Igor Sinkovec
Actual Size by Steve Jenkins

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Glendale Ave.
CLASSROOM / HB GROUP: Room 3
PROJECT TITLE: Sponges
TEAM MEMBERS INCLUDING PARENTS: Lisa Johnson, Hrachuhi Davoodian, Azniv Muradyan , Hank Abbott, Anahit Hakhverdyan

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Comparing different types of sponges-Living and nonliving Changes and characteristics of sponges
Experimenting with the absorption of sponges.
Explore the differences of wet and dry sponges.
Understanding buoyancy and density.
Usage of the sponges

HOME SCHOOL/CONNECTION: (STEM At Home)
Parents used, played, and explored different types of sponges with their children. Children shared their experiences with their peers.

MATERIALS:
Sponge, cellulose, nylon, foam, soap, eye dropper, clear containers, water, scale, tempera paint, squeeze, sweep, scrub,

PREPARATION:

Display little pieces of dry sponges, eye droppers and a cup of water for each child. Chart with children's name, container filled with water and different types of sponges.

STRATEGIES (Beginning, middle, end):

Introduce dry sponge, eye dropper. Explain how to use thump and grasping fingers. explore water intake in the eye dropper and on the sponge.
Make a chart of Sink or Float. Ask children Question: what happen with the sponge if we put it in the water? Provide clear containers of the water and let children investigate and experiment with the sponge by placing it in the water. Squeezing sponge in the water and in the

OPEN ENDED QUESTIONS

What will happen with sponges in the water?
What is the difference between living and nonliving sponges?
Where did the water go?
Why are bubbles coming out of the sponge when you squeeze it?
Why do wet sponges heavier than dry ones?

ANALYSIS AND REASONING QUESTIONS

Why do we use sponges?
Where did the water go?
What happened to the water?
Why did the sponge get bigger?
How did the sponge change?

VOCABULARY (Advanced Language)

Sponges, cellulose, absorb, eye dropper, expand, volume, rough, bumpy, smooth, buoyancy, weight.

CONNECTION TO REAL WORLD:

Household usage - dish, bath sponges
Painting sponges
Sofa, pillow, mattress made of sponges

REFERENCE:

Squishy Sponges by: Lunis, Natalie
The Big Squeeze by: Molly Harris Sponge
Painting by: Ann Rooney
Sponges are Skeletons by: Barbara Juster Esbensen

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CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: KidzCommunity
CLASSROOM / HB GROUP: Cirby Head Start
PROJECT TITLE: Catapult Creations
TEAM MEMBERS INCLUDING PARENTS: Madison Savage, Stefanie Valencia, Samantha Sampson, Desiree Gomez, Kat

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☐	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Primary ideas related to this lesson include: force, launching, spatial awareness, problem-solving, and reasoning. As students engage in the activity, they get to actively experience these concepts as they build the catapults, work together, and use the catapults in their play.

HOME SCHOOL/CONNECTION: (STEM At Home)
Our parent volunteers were encouraged to participate in the catapult play. A letter went home to the families, sharing the learning that has been occurring. We asked families to send in pictures if they observe this play at home.

MATERIALS:
Ramps, bean bags, wool balls, baskets, and blocks

PREPARATION:
To prepare for this activity, I gathered all my materials and tried them out to see how they would work. Based on how the items performed, I adjusted my list of materials. I gathered a list of vocabulary words beforehand to use during the activity. I looked at diagrams of catapults to make sure I knew the technical names for the parts of the catapult.

STRATEGIES (Beginning, middle, end):

Beginning: Explain to the children that a catapult is a simple machine that launches an item from one place to another. Begin the exploration inside using small ramps, blocks, and the wool balls.

Middle: Transition the project outside. Switch out the wool balls for the bean bags, pointing out to the students the use of different materials. Allow them to explore and work together while monitoring their progress.

End: Keep the activity outside and add buckets for the children to try to launch their bean bags into. Encourage the children to work together in teams with one child being the bucket holder and the other being the launcher. Once the activity has run it's course ask the children what they enjoyed most about it.

OPEN-ENDED QUESTIONS

How are you going to launch that item?
Why do you think that item went further?
How do you know that?
What if?
How do you suppose that happened?

ANALYSIS AND REASONING QUESTIONS

How high do you think your bean bag will launch?
Do you think the bean bags will be different from the balls we used inside?
How do you think you need to use the catapult to get the bean bag in the bucket?
I noticed?
How can we make it go further?

VOCABULARY (Advanced Language)

Launch, base, fulcrum, machine, force

CONNECTION TO REAL WORLD:

In this activity, children will inevitably have to work together in some way. Either through being partners as they work or through sharing the materials. This activity provides them real world practice for being a part of a team and problem-solving conflict.
Add pictures, books, and references of other catapults in the world around them.

REFERENCES:

"Big Body Play" by Frances M. Carlson
The Secret Life of Homeschoolers: Cool Catapults Activity
https://thesecretlifeofhomeschoolers.com/outdoor-stem-activity-for-kids-cool-catapults-that-m ake-learning-so-fun/

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PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: KidZCommunity
CLASSROOM / HB GROUP: Truckee Pines Head Start
PROJECT TITLE: Sink or Float?
TEAM MEMBERS INCLUDING PARENTS: Jessica Garcia, Cynthia Brenes Espinoza, Laura Calderon Herrera, Jazmin Garcia Ramirez, Andrea Plascencia

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☐	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
In this science activity students will be encouraged to predict and test whether various objects that they choose from the classroom and outside will sink or float in water. This activity sparks curiosity but also critical thinking skills, children will make predictions and observe the outcomes. There are different objectives and developmental areas with this experiment: cognitive development, language development, math skills, and fine motor.

HOME SCHOOL/CONNECTION: (STEM At Home)
Students will be able to make a home school connection by doing the sink or float activity at home with parents. It could be a great opportunity during bath time where the children can test with their parents what sinks or floats. Students can also test their hypothesis when washing dishes with parents. As teachers we can provide parents with the vocabulary and steps, we used to complete this experiment.

MATERIALS:
-Bucket
-Water
-objects including ones that float (feather, Lego, crayon, ping pong ball, pencil, plastic utensils, etc.)
-objects including ones that sink (toy cars, metal spoons, eraser, dry pasta)
-tweezers

PREPARATION:

1. Fill container with water
2. Using tweezers (fine motor) take object and place one item at a time
3. Ask the child if it floats or sinks?
4. Let children observe whether it floats or sinks
5. Ask open-ended questions and have discussions
6. Remove items from the water with tweezers

STRATEGIES (Beginning, middle, end):

-Introduce sink or float by reading a story that talks about water
-Introduce sink and float at our small group: "Do you know what the word float or sinks mean?" Teachers will explain what the word "floats" and what the word "sinks" means.
- At small group we will have different items that sink and float. "I wonder what items will sink or float? Can you predict and make a hypothesis of what will sink or float?"

OPEN-ENDED QUESTIONS

1. What do you think will happen when we put it in the water?
2. will the object sink to the bottom of the water?
3. Will the object float on the top of the water?
4. What happens if something sinks?
5. What happens if something floats?
6. What do you notice about the objects that sink?
7. What do you notice about the objects that float?

ANALYSIS AND REASONING QUESTIONS

In this activity we will have the children share their hypothesis if items sink or float. We will make a chart categorizing what sinks and what floats. One side of the chart will say "sink" and the other side will say "float". Children will also have the opportunity to have their own clipboard and go around the classroom to investigate if items sink or float. During this experiment the teachers would ask "Why do you think it sinks?" "Why do you think this floats?" "How do you know this will sink or float?

VOCABULARY (Advanced Language)

Sink
Float
Hypothesis
Prediction Drown
buoyancy

CONNECTION TO REAL WORLD:

Sink or float can be connected in the real world. We will talk about life jackets by asking the students why we use a life jacket when we go swimming. This is a great opportunity to talk about the importance of being safe when going near water.

REFERENCES:

"STEM Made Simple" 25 Activities by Preschool Teachers High Scope CLASS- Instructional Support

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: SETA
CLASSROOM / HB GROUP: Bright Beginnings and Sharon Neese
PROJECT TITLE: A Sturdy Nest... with a STEM Challenge
TEAM MEMBERS INCLUDING PARENTS: Gabriela Gomez, Baranda (EHS)

GOAL – Child Outcome(s) (Check all that apply)	**Math** ✔	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
We used photographs, props, books, and nature walks, to introduce the children to the concept of birds' nests. We provided bird-watching opportunities and discussions. We focused on how birds build their nest and the different types of nests. and their locations -while adapting to age groups. Using technology as a supporting resource, we had group activities where they explored, investigated, and documented our findings. We also brainstormed which were the best ways to build a nest that was studied. We also talked about the challenges birds might encounter while building their nests.

HOME SCHOOL/CONNECTION: (STEM At Home)
We invited families to expand the learning process at home. Families were given a letter describing our STEM activity. A series of questions were asked to help build on their child's curiosity, interest, and knowledge. Families took walks with their children to observe birds in their area and worked on a bird nest at home. Parents shared that the project helped them to make connections with what their children were learning at school. They asked, "how, where, and which materials would this bird use?"

MATERIALS:

Cotton balls, shredded paper, twigs, dry leaves, tissue box, stuffed toy (bird, chicks, and egg), books, glue, paintbrush, sand, plastic container. we also used tape, slime, yarn, miniature birds, eggs, dirt, coffee filters, tree stems, markers, paper, pine tree needles, popsicle sticks, straws.

PREPARATION:

Engaged children in observations, discussions and promoted questions and problem solving via books and nature walks. Once children were familiar with different bird nests, children brainstormed on how make their own sturdy nest.

STRATEGIES (Beginning, middle, end):

We started by pointing out birds out on nearby trees. read books about birds and took nature walks. We added loose materials to the classroom such as birds (stuffed animals, plastic, pictures, leaves, boxes, cotton balls, etc), brainstormed, and engaged in conversation about how and where birds build their nests.

OPEN-ENDED QUESTIONS

How do you think this bird built their home?
What kind of materials are used?
What happens if it rains?
What would happen if it were windy?
Which nest is bigger, stronger?
How many eggs can you add?

ANALYSIS AND REASONING QUESTIONS

Why do you think the nest fell apart?
Can the bird protect their nest from the rain?
What would the bird do if their nest breaks?
Why do you think this nest was sturdier than the other ones?

VOCABULARY (Advanced Language)

Nest, construction, sturdy, windy, rain, break down. build, hollow, pebbles, float, burrow, woven, hatch, moss, trunk.

CONNECTION TO REAL WORLD:

We compared what we observed outdoors, what the books showed, and what they observed in their neighborhoods.

REFERENCES:

EHS: "Whose Nest is Best" - A lift the flap book by Heidi E. Stemple
Preschool:
Birds Make Nests by Michael Garland
Mama built a little nest by Jennifer Ward
Have you Heard the Nesting Bird by Rita Grey
Nesting by Henry Cole

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PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Bret Harte- SETA
CLASSROOM / HB GROUP: EHS & Preschool
PROJECT TITLE: Structure of Strength
TEAM MEMBERS INCLUDING PARENTS: Samantha Xayavong & Maegan De Herrera

GOAL – Child Outcome(s) (Check all that apply)	**Math** ✔	**Science** ✔

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)

Structure of Strength was inspired by the story "The Three Little Pigs. "After reading the story to EHS and Preschool, the children discussed and explored what materials the pigs used to make a strong house to hide from the Big Bad Wolf.
During the preschool's "Building" Study, the children experimented with building houses with an assortment of materials. The challenge emerged when we began our "Recycling" Study. The children in both EHS and Preschool incorporated recycled materials, donated by the parents, to create a variety of structures. The children were interested in creating "the strongest, tallest building." The children brainstormed, planned, experimented, and tested their theories to create "The Structure of Strength".

HOME SCHOOL/CONNECTION: (STEM At Home)

The classroom teachers provided a "Letter to Parents," introducing the topic of recycling, along with a list of acceptable recycled materials. Throughout the project, a cart was positioned outside of the classroom for parents to view and add materials as they dropped off and picked up their children. Parents noticed their children's interest in "building," and asked how they could incorporate and extend their child's learning at home. Parents began their own recycled structures at home.

MATERIALS:

Recycled materials such as boxes, bottle caps, egg cartons, tin cans, and shredded paper. Masking Tape, Glue, Craft Materials, standard/nonstandard measuring tools

PREPARATION:

First, both classrooms read "The Three Little Pigs." The children discussed what materials the pigs used to make the strongest house. Then, we gathered recycled materials and created a chart to predict which materials would be the strongest. After reading several books about building, the children then brainstormed what they could make using the recycled materials. The children agreed to use the materials to make the strongest, tallest structure

STRATEGIES (Beginning, middle, end):

The children choose which materials they wanted to start off with. Next, we tested out a combination of recycled materials, with many trials and errors. The children concluded, the cardboard boxes made the strongest structure.

OPEN-ENDED QUESTIONS

EHS: What can we use to build with? Will it be strong enough to hold it? How many toys can it hold?

Preschool: I wonder what we could collect? What could we design or build?

ANALYSIS AND REASONING QUESTIONS

What can we add to make the structure stronger? What will happen if we put____on top?
How can we get the toy to stay at the top?
Why was the structure able to hold _____and not _____?
How can we make it stronger/taller/more stable? What do you think will happen if we stack these on top? How can we connect these? How can we fix this? How is this structure different than that one?

VOCABULARY (Advanced Language)

Big, sturdy, structure, construct, base, heavy, small, measure,
Sturdy, stabilizing, taller, higher, support, collapse, construct, design, foundation

CONNECTION TO REAL WORLD:

Preschool children went for a walk around the neighborhood surrounding our school. Children discussed the different buildings, and what a building consisted of. Once back at school, children created individual drawings of their perceptions of buildings. Children used their drawings to then create structures out of recycled materials.

REFERENCES:

The Three Little Pigs by Clare Lloyd
When I Build With Blocks by Niki Alling
Not a Box by Antoinette Portis
Don't Lose it- Reuse it! By Nancy Noel Williams
Jack The Builder by Stuart J Murphy

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Preschool Home Base, center base - SETA
CLASSROOM / HB GROUP: Home base and EHS class
PROJECT TITLE: Sounds of music
TEAM MEMBERS INCLUDING PARENTS: Eileana Martinez, Doris Bernard, Miss Lynch

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

Head Start Early Learning Outcomes Framework (ELOF): Sub-Domains
Specify age group. Check subdomains that apply

☐ **Infant/ Toddler - Cognition** ☑ Exploration and Discovery ☐ Memory ☐ Reasoning and Problem-Solving ☐ Emergent Mathematical Thinking ☑ Imitation and Symbolic Representation and Play	☐ **Preschool – Mathematics Development and Scientific Reasoning** ☐ Counting and Cardinality ☐ Operations and Algebraic Thinking ☑ Measurement ☐ Geometry and Spatial Sense ☑ Scientific Inquiry ☑ Reasoning and Problem-Solving

CONCEPT(S): (Primary ideas that are related to this lesson plan.)

The primary idea about exploring sounds and creating musical instruments with recycled materials for preschool children and toddlers include sound and vibration, recycling and substitutability, creativity, problem-solving, engineering and design, cause and effect, mathematics, measurement, collaboration, and communication.

HOME SCHOOL/CONNECTION: (STEM At Home)

This activity connects home and school by encouraging children to use every day recycled materials they have at home to explore and create music. It fosters creativity and learning in both environments, allowing children to see how the concepts of science, technology, engineering, and math (STEM) are present in their daily lives. By using familiar materials, children can make personal connections to the learning experience, bridging the gap between home and school while developing important skills in problem-solving.

MATERIALS:

Recycled materials like cans, plastic, balloons, paper, rubber bands, cardboard boxes, paper plates, decorative materials, rice, beans, and rocks.

PREPARATION:

We prepared for the activity by having children collect materials from home to build their own musical instruments. They also drew a design of what they envisioned their instrument would look like and explored different sounds found around the house to inspire their creations.

STRATEGIES (Beginning, middle, end):

We began the activity by exploring different sounds around the house. We listened to music and discussed various musical instruments and the types of sounds they produce. Then, we experimented with how different materials make different sounds based on their size and texture. Using sticks, we struck various objects and discussed how vibrations create sound when something hits.

OPEN ENDED QUESTIONS

Can you find a way to make the sound louder or softer?
What can we do if our instrument doesn't make the sound we want?
What other materials can we use to change the sound?
What kind of music do you think you can make with your instrument?

ANALYSIS AND REASONING QUESTIONS

If your instrument isn't making the sound you want, what could you do to fix it?
Why do you think the sound changes when you use different materials like plastic, metal, or paper?

VOCABULARY (Advanced Language)

Vibration, rhythm, sound, loud, high pitch, low pitch, soft, acoustic, echo.

CONNECTION TO REAL WORLD:

This activity promotes the integration of STEM in an engaging and hands-on way, giving young children a foundational understanding of scientific principles, creativity and problem- solving skills.

REFERENCES:

Google: images of musical instruments

YouTube videos to listen to musical instruments

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Peoria
CLASSROOM / HB GROUP: Room 4
PROJECT TITLE: Engineering Exploration with blocks
TEAM MEMBERS INCLUDING PARENTS: Viviana Banuelos, Jessica Lepe-Rodriguez

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Concepts: engineering(building), number sense, one-to-one correspondence, fine motor skills, spatial reasoning, experiments with support and weight. Children will explore different building materials such as foam noodles, straws, pipe cleaners, and colanders. Children will count materials that are used to build their structure. They will solve problems by using different materials to build a stable structure. They will analyze which materials fit together to build.

HOME SCHOOL/CONNECTION: (STEM At Home)
Find items at home that you can build with i.e. stacking pots. Using a colander and different items around the house to try to stick through the holes of the colander. Provide parents with Learning Games 53 Build Together.

MATERIALS:
foam noodles, wooden pegs, straws, pipe cleaners, colander, shaving cream

PREPARATION:
First, children will be given items to practice stacking. For example, buttons, beads, wooden pegs on a pipe cleaner that will be standing on the playdough. Children will then be introduced to a colander, string, straws, pipe cleaners and will use problem solving to analyze which materials they can use to build their structure.

STRATEGIES (Beginning, middle, end):
Day One (Stacking)-using a pipe cleaner standing on playdough and using buttons, beads, wooden pegs to stack through the pipe cleaner. Count how many beads/buttons/wooden pegs they were able to stack. Day Two (Building)-Use shaving cream and foam noodles to create towers/buildings. Have children use spatula to spread shaving cream on foam noodles in order to stick the foam noodles together. Day Three (Building with different materials.) Introduce colander, string, straws, pipe cleaners for them to solve problems and create. Day four (Create) - Children will use the different materials that were provided in order to create something. Day five- Using the light table to build with the different materials and seeing what the children created in a different way (diff. colors)

OPEN ENDED QUESTIONS
What are you building? Tell me about your creation? How did you make that? What else can you add to make it taller/bigger? What do you think will happen if we add more buttons, wooden pegs, and/or large beads? What color are the buttons and/or beads? How many beads/wooden pegs/buttons did you use to create your structure? Can you tell me what you used to build your structure?

ANALYSIS AND REASONING QUESTIONS
Tell me about your creation? How can we make your structure/tower bigger? What do you think will happen if we add this wooden peg on top? What should we use to make the bottom of your building/tower/creation?

VOCABULARY (Advanced Language)
Colander, Pull, Pipe Cleaner, Twist Holes, Straight, Swirl

CONNECTION TO REAL WORLD:
This will help children with problem-solving and working with each other. It will also help improve their fine motor skills and hand-eye coordination which will help them write, color, tie their shoes etc. Children will learn how to arrange different things together. They will learn how pipe cleaners work and learn colors and numbers.

REFERENCES:
Baby STEM: Infants & Toddlers, Two's & Three's by The Discovery Source

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Peoria
CLASSROOM / HB GROUP: Room 1
PROJECT TITLE: Pendulum Wonders: Exploring Energy and Motion
TEAM MEMBERS INCLUDING PARENTS: Annie Wang, Kristy Baoping Zhuang, Yolanda Rubio

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Science: Motion, energy, and gravity
Math: Differential equations, patterns and sequences, color mixing
Learning concepts: Visual tracking, cause and effect, sensory exploration, motor skills

HOME SCHOOL/CONNECTION: (STEM At Home)
Parents can create pendulum inspired environment by swinging toys or fabric strips that promote sensory engagement.
Teachers can build the same activities by classroom props to encourage visual and motor skills development

MATERIALS:
Paint, colors chalk, glue, salt, cord, small plastic bottle, various toys, or balls, glue gun, wood pieces, or paper towel rolls.

PREPARATION:
Put together the pendulums, one with a ball/apple to observe the movements, then another pendulum to observe the patterns.

STRATEGIES (Beginning, middle, end):
Beginning: Talk about patterns swinging "back and forth" using a toy ball or a doll
Middle: Show a ball/apple swinging pendulum inside the classroom
End: Show paint and salt in a bottle pendulum outside to observe the patterns

OPEN ENDED QUESTIONS
What else swings like this?
Where do you think the energy goes when it stops swinging?
Why does it stop?
What do you see?
How can this be used in a toy/clock?

ANALYSIS AND REASONING QUESTIONS
What happens if we swing it slowly?
What if we add something heavy on the bottom? What happens if we push it harder?
How is it moving?

VOCABULARY (Advanced Language)
Back and forth, slow, fast, tall, short, swing, move, high, low, stop, pull, up, down, left, right, side to side, round and round, circle

CONNECTION TO REAL WORLD:
clocks and time keeping, bridges and structural engineering swing sets, swinging chair ride

REFERENCES:
Teaching STEMS in the Early Years by Sally Moomaw, EdD

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Susan Mandel Ph.D.
CLASSROOM / HB GROUP: Room 1 & 2
PROJECT TITLE: Recycle and Reuse
TEAM MEMBERS INCLUDING PARENTS: Rita Karami, Roza Navasardyan, and Jennifer Hidalgo-Cruz.

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

Head Start Early Learning Outcomes Framework (ELOF): Sub-Domains
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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Based on children's interests the idea of recycling and reusing came about. A child at our site would stomp on paper cups after drinking water. The teacher noticed it was something he did every day. She mentioned this to the child's mother who then shared that they crush cans at home to recycle the child had recently been helping the family with that.

HOME SCHOOL/CONNECTION: (STEM At Home)
Families will be asked to donate clean reusable items from home and encouraged to reuse materials themselves to build something with their child and bring it to School to show to class. Children built a house with their child at home made of recycled materials. Another family used paper towel rolls and ribbon to make a lacing activity at home. Another family made a guitar with toilet paper rolls and rubber bands.

MATERIALS:
Fabric, bubble wrap, paper towel tubes, plastic containers, cardboard boxes, ribbon.

PREPARATION:

Explain to children that some recyclable items are donated and collected at our school. These items are meant to help our environment. Ask children what they can build with these items. We will guide them on this activity based on their interests and document the activity so children can revisit the importance of recycling materials.

STRATEGIES (Beginning, middle, end):

Beginning: Materials will be introduced to children, sorted, and counted.
Middle: Children will use the different items to build and discover how they can recycle and reuse the items based on their interests.
End: Ask open-ended questions, to find out the learning outcomes.

OPEN-ENDED QUESTIONS

What might we build with these items?
What other materials do we need to build that?
What does that look like?

ANALYSIS AND REASONING QUESTIONS

Why do we have to recycle?
How can we reuse these recycled materials?
How does recycling help our environment?

VOCABULARY (Advanced Language)

Donate, build, engineer, construct, position, change, rotate, felt, fabric, environment, recycle.

CONNECTION TO REAL WORLD:

Children will gain knowledge of building and reusing recycled materials to create something else. They will begin to learn about ways to recycle materials.

REFERENCES:

The Discovery Source, Baby STEM Infants & Toddlers, Two's & Three's

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Pacific Clinics Early Head Start - Home Base
CLASSROOM / HB GROUP: HB-1, HB-2, HB-3, HB-4
PROJECT TITLE: Balls
TEAM MEMBERS INCLUDING PARENTS: Monica Sandoval, Lissette Ayerdis Hernandez, Maro Mirzakhanyan and Janeta Amirkhanian

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)

Infants and toddlers are very curious about the surroundings around them especially the things that are moving and rolling. Toddlers love to play with balls, to throw, to kick and run after it. Playing with balls significantly contributes to a child's development by enhancing their gross motor skills like throwing, catching, and kicking, improving hand-eye coordination, spatial awareness, balance, and even cognitive abilities through problem-solving and strategic thinking involved in ball play; essentially providing a fun way to develop various physical and cognitive skills across different developmental stages.

HOME SCHOOL/CONNECTION: (STEM At Home)

Parents are going to continue implementing learning games and different activities with the children related to the project. Parents will provide different colored and size balls and will take the children outside or to the park and play with them by encouraging them to kick, bounce, roll, throw and to catch the ball.

MATERIALS:

Using age-appropriate materials, different colors and sizes of balls, baskets and boxes.

PREPARATION:

Parents will provide some recyclable materials such as cardboard boxes, and laundry baskets, and will assist children to throw the balls in it. Parents will take the children to the park or outdoors to play with the balls.

STRATEGIES (Beginning, middle, end):

Parents will introduce the different kinds and colors of balls. The parents will demonstrate how balls move, roll, or bounce, by using clear simple language describing their actions. Parents will be given an opportunity to explore the balls on various surfaces to bounce, push, to roll.

OPEN ENDED QUESTIONS

How far can you kick?
How does the ball feel when you hold it?
What do you think would happen if we rolled the ball down this ramp?
What shape is the ball?

ANALYSIS AND REASONING QUESTIONS

How can you make the ball go faster or slower?
What happens if you roll the ball up hill?
What does happen when you throw the ball on different surfaces?
What sound does the ball make when you bounce it?

VOCABULARY (Advanced Language)

Balls, big, large, small, round, circular, light, heavy, bounce, roll, catch, high, low

CONNECTION TO REAL WORLD:

Children will learn to kick, to throw, to balance, to spin, to push. They will also learn to take turns, share and play together, passing the ball back and forth. The children will learn about different types of sport that use a ball.

REFERENCES:

Learning games
Baby STEM

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Sahakyants Family Childcare and Hummingbird Childcare
CLASSROOM / HB GROUP: Pacific Clinics Family Child Care
PROJECT TITLE: Family Math Games
TEAM MEMBERS INCLUDING PARENTS: Teacher Lusine and teacher Tamar including all parents.

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☑	**Science** ☐

Head Start Early Learning Outcomes Framework (ELOF): Sub-Domains
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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Enhance children's mathematical skills through family engagement process.

HOME SCHOOL/CONNECTION: (STEM At Home)
Parents created and implemented age-appropriate, hands-on, and interactive games with their children to support their children to develop and improve their mathematical skills.

MATERIALS:
Recycle materials-egg cartoons, sticks, magazines, plastic cups, straw, plastic bags, paper towel rolls, geometrical shapes. Measuring tools: Standard and non-standard units. Measuring tapes. block units, dice, pom-poms, bells.

PREPARATION:
1. Pacific Clinics Head Start - EHS agency created the "Build a Game" project for family engagement. Families would create a game at home and play with their children. Parents gathered the necessary materials and by using their own imagination, they create games.
2. Parents implemented their own created games at home and then shared them with their FCCP peers and teachers.
3. The teachers implemented these games in their lesson plans and daily routines.

STRATEGIES (Beginning, middle, end):

*Pacific Clinics Head Start shared with families a flyer with guidance about the "Build a Game" family Engagement to create a game by using own imagination and implement at home and aiming at a variety of developmental, educational, and social objectives.
*Parents were encouraged creativity and innovation by transforming household items into game materials and played with family members. Through playing games children were using their problem-solving, logical-thinking and reasoning skills, also, learning and enhancing academic math concepts such as numbers, shapes, measurement, classification, pattern, number operation etc.

OPEN ENDED QUESTIONS

How did you decide how many pom-poms to count? What do you notice about the numbers when we roll the dice? Can you think of another way to count these objects? How many spaces do you need to move to reach the end? What happens if we add one more? What if we take one away? Can you explain how did you got your answer? How do you know which object is longer/ shorter, bigger/smaller, more/ less?

ANALYSIS AND REASONING QUESTIONS

What strategy are you using to win this game? What would happen if we changed the rules a little? Can you think of a new game we could create with dice?
What was the hardest part of this game? How did you figure it out?

VOCABULARY (Advanced Language)

Predict, Pattern, sequence, equation, measurement, addition/ subtraction, volume, equal. Two-D & 3-D shapes: Prism, cylinder, cone, sphere, pyramid, hexagon, rhombus, huge, enormous, humongous, giant, tall, short, minuscule, light, heavy, overweight, attributes, position, direction, advancement, increasing/ decreasing, sides, angles, cortex.

CONNECTION TO REAL WORLD:

Children show understanding that math is everywhere: by making math visible in their surroundings, children realize that math is not just numbers on a page-it is a tool that helps us understand and navigate the world around us.

REFERENCES:

Math Books:
"1,2,3 A Child's First Counting Book" by Alison Jay
"Look and Learn Count!" by Scholastic
"Bear in a Square" by Stella Blackstone
"Mouse Shapes" by Ellen Stoll Wash
"Roll Over" a counting song by Merle Peek
"Ten, Nine, Eight" countdown book by Molly Bang
"Anno's Counting Book"
"Ten Flashing Fireflies" by Philemon Sturges
"The Right Numbers of Elephants" by Jeff Sheppard
"City by Number" by Stephan T. Johnson

Pacific Clinics Head Start

PACIFIC CLINICS HEAD START

CURRICULUM FAIR ACTIVITY LESSON PLAN

SITE: Pacific Clinics Family Child Care
CLASSROOM / HB GROUP: Sahinyan and Baghumyan FCCP
PROJECT TITLE: Absorption
TEAM MEMBERS INCLUDING PARENTS: Nona Sahinyan & Aida Baghumyan

GOAL – Child Outcome(s) (Check all that apply)	**Math** ☐	**Science** ☑

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CONCEPT(S): (Primary ideas that are related to this lesson plan.)
Absorption is a process by which a material takes in or soaks up in liquid, gas, or energy. For example, sponges absorb water, and plants absorb sunlight for photosynthesis. This phenomenon is essential for daily life; from cleaning, and spills with paper towels the same way our skin absorbs lotions.

HOME SCHOOL/CONNECTION: (STEM At Home)
A newsletter was sent to the families explaining the benefits of learning about absorption and encouraging them to practice at home. In addition, a simple activity sheet with instructions for exploring absorption at home allowed children to take home the books to read. Parents shared pictures and videos with us experimenting with the absorption process of different materials with their children in their home environment.

MATERIALS:
Sponges, paper towels, droppers, cups, plants, seeds, water can, scale, standard and non- standard measuring tools, and different types of materials: water repel ant or water absorption.

PREPARATION:

A newsletter was sent to the families about the project. Gathered all the materials and displayed the books in all areas. Hands-on, age-appropriate activities and experiments.
Read-aloud the books during this project.

STRATEGIES (Beginning, middle, end):

-Introduce the concept and the topic of absorption through a fun simple explanation.
-Through many age-appropriate hands-on activities, children will experiment and observe the process of absorption through different materials.
-Through investigation and inquiry, they will learn about the absorption process in daily life and nature.

OPEN-ENDED QUESTIONS

Can you describe what happened? Can you think of a new way to do it? Can you help me think through this? Do you have any other ideas about this process? How are they alike, and different? How could we make it work? How could we work together to solve this? How did that happen? How did you feel when you finished it? How did you get that to work? How did you know that? How did you work it out? How do you explain it? How might you do it differently?

ANALYSIS AND REASONING QUESTIONS

"What happens when your shirt gets wet?
"How much water can your sponge soak up?
"What happens when you squeeze the sponge?

VOCABULARY (Advanced Language)

Children will learn new vocabulary related to this project: Absorption, soaking, wet, dry, squeeze, liquid, materials, full/ empty, float, sink, soft/hard, change, drip, saturation, comparison, prediction, and exploration.

CONNECTION TO REAL WORLD:

Through simple experiments, children will learn and explore the idea of absorption: spills in their childcare environment, sponge painting, water transfer, plant absorption, and changing diapers.

REFERENCES:

Books:
"From Seed to Plant" "What is a Scientist?" "Plant the Tiny Seed" "Hello Rain"

With Contribution from the Following Head Start Agencies:

Pacific Clinics® Head Start

KidZCommunity® Empowering Families®

SETA