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Investigations Curriculum:



**BALLS: PROJECTS,
INQUIRIES,
INVESTIGATIONS**

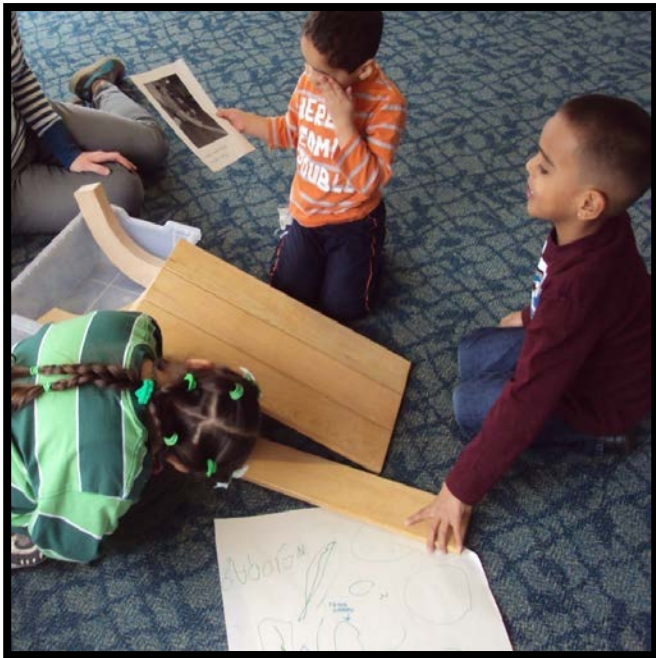
Introduction



- **Four Preschool Classrooms**
- **One Toddler Classroom**
- **Community-based**
- **Diverse population**

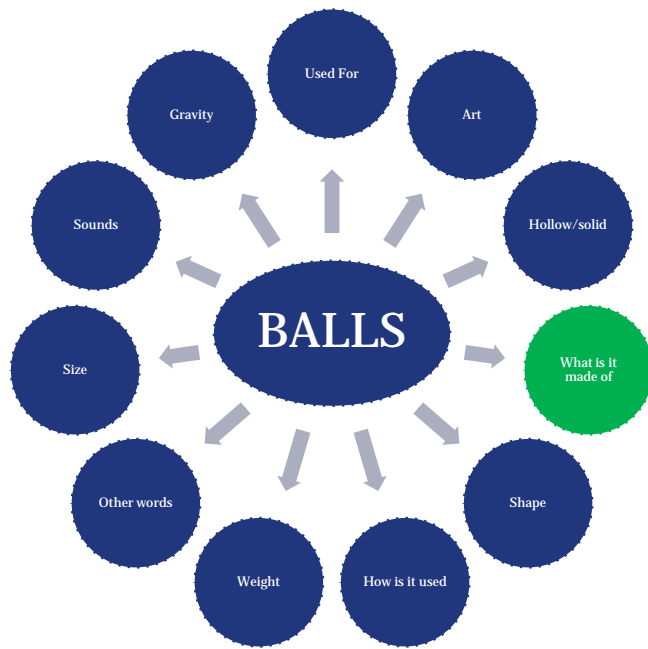
CHILD AND FAMILY DEVELOPMENT RESOURCE CENTER
EASTERN CONNECTICUT STATE UNIVERSITY
83 WINDHAM STREET
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What is the *Investigations Curriculum*?

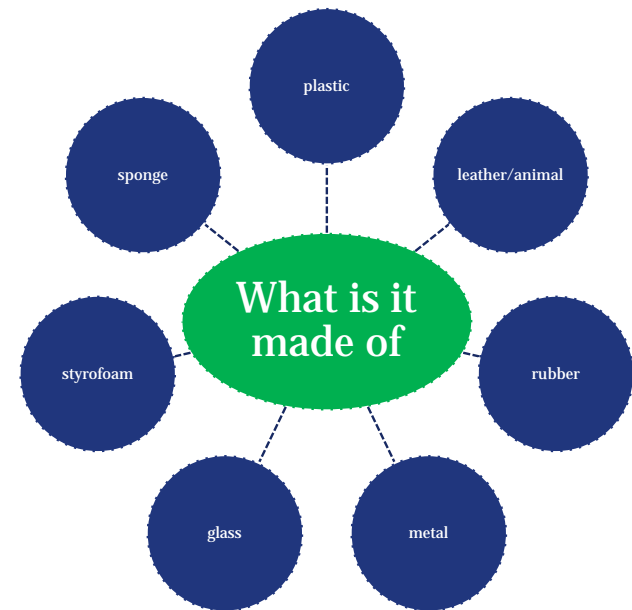


- A project-based curriculum for children aged 18 months to 5 years
- Reflects constructivist and socio-cultural theories
- Designed to meet state and national learning standards, as well as family-valued competencies.

Webbing



General Web



Zoom Web

Initiation/Awareness

During morning group the teacher modeled how to make observations. The children were presented with the items to observe. The planning question of the day was, “What will you observe?” The children then chose what item they would observe.



Initiation/Awareness

Here Sam chose the green “squishy” ball; she placed it in the tray that said ball.



Johvany chose a toy orange he said it was round but not a ball “because it’s a orange.”



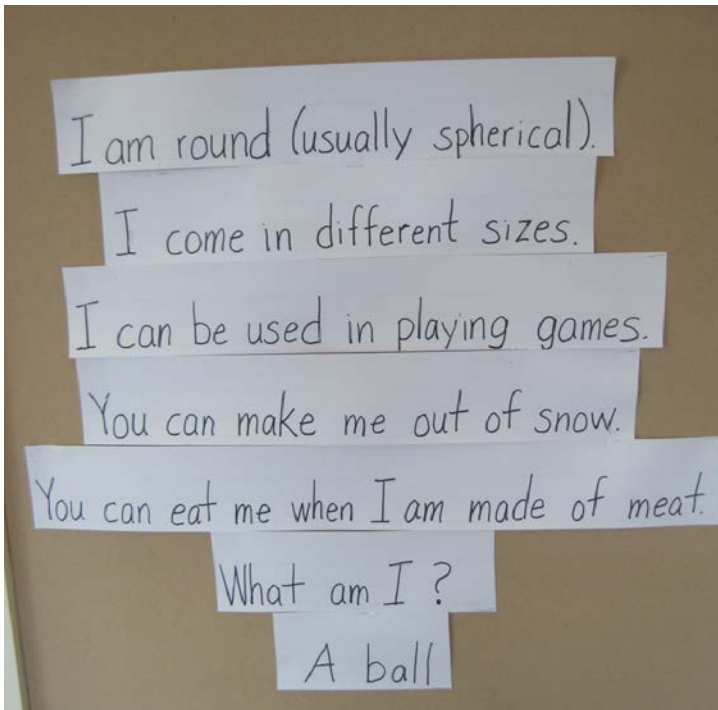
After a few days of making observations the children came up with what they know about balls. At the end of the week the children sorted the items they observed into those they thought were a ball and those that were not. They described balls as round, can bounce, and can throw just to name a few.

Initiation/Awareness



Another class began this investigation by asking, “what is a ball?”. Children said, “it was something that is round” and “something that you roll and throw.” They examined a new type of ball every morning and discussed why whether it was a ball and what they could do with it. They looked at a football, a tennis ball, a “spikey” sensory ball, and a fishing bobber. All of these objects were available at the science center for children to observe. They also looked at various pictures of balls and things that were round and children determined if they thought they were a ball or not.

Initiation/Awareness



Part of this classroom's initiation was to present a riddle to the children.

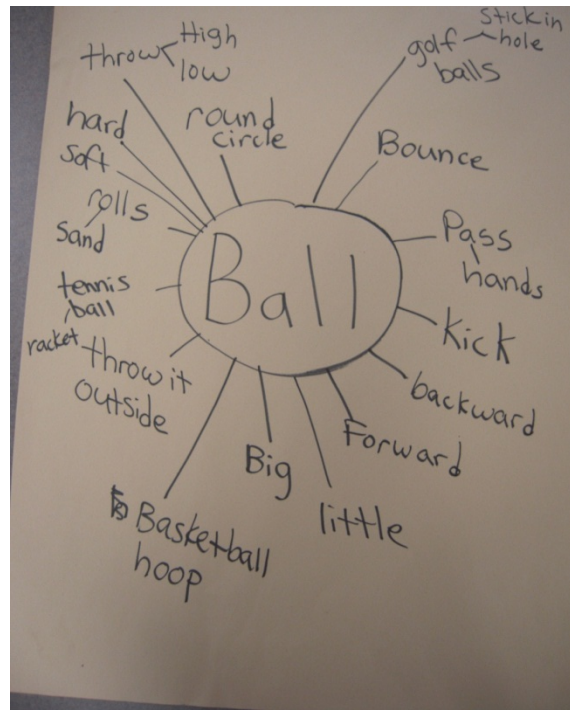
Initiation/Awareness



After reading the riddle and listening to many guesses....Dora, candy and toys...I opened up a large black bag and emptied a plethora of balls onto the rug. Needless to say the children jumped and grabbed the balls. They were so excited! It was a really fun way to get the children excited about our new investigation.



Initiation/Awareness



The children were asked, “What is a ball?” Here is a conceptual web of their responses.

Projects



- **Bowling with Toddlers**
- **Building Ramps**
- **Making a Ball**
- **Ball Structures**
- **Ball Games**

Project: Bowling Alley

Why a bowling alley?



- From previous experience we knew that if we brought balls into the classroom a toddler's first instinct would be to throw them. We therefore decided that a safe way to introduce ball play would be through rolling.
- Toddlers love knocking things down, so we thought of knocking down pins.



Project: Bowling Alley

Initiation

- We used technology to show them a bowling video.
- We asked them questions about what they remembered from the video and made a list of what they saw. We introduced bowling related vocabulary.
- Initially, we created a dramatic play bowling alley for the children and modeled bowling, keeping score, and taking orders at the snack bar. This would lead to their own center creation later.



The teacher brought in real bowling equipment so that the children could explore using the real things.

Project: Bowling Alley Initiation



After weeks of exploring the dramatic play center, and building upon their bowling alley knowledge, the dramatic play area was transformed into a game room.

Project: Bowling Alley

Creating the child made bowling alley

After a couple of weeks of enjoying the game room, we decided to revisit a bowling alley, this time letting the children guide the creation of the dramatic play area. During morning meeting, the children were asked if they remember what we roll a bowling ball down (a lane) and discussed what is necessary for a lane. They decided that it needed to be flat and straight. They then cooperatively painted a large piece of cardboard brown in order to make a lane.

As a whole group the children were asked what types of things they would need to make a bowling alley and the teacher recorded their answers in list form. The teacher asked what type of ball they thought would work best for rolling into pins and also what they could use for pins if they didn't have any.



Project: Bowling Alley

Creating the child made bowling alley



The teacher used their list to test out their suggestions with them. For pins, the children suggested “trees” “cars” and “books,” and in testing these out, the children discovered that the tree blocks worked best as pins. They also tested out several balls and even chose the items that would be part of their snack bar menu. In addition to this, the children decided that they would need to wash their bowling balls, and chose “wipes” and a “washing machine” for doing so.

Project: Bowling Alley

In Action



The bowling alley was set up using the children's suggestions and ideas.

Project Building Ramps: *Background Knowledge*

We began this project with rolling. During shared reading we read nonfiction books that explained rolling, such as “Rolling” By, Patricia Whitehouse. After reading the book we tested all the objects in the book for ourselves.



Project Building Ramps: *Exploration*



- During choice time, children had the opportunity to build marble runs in the science center with paper towel rolls. A couple of children decided to use tape and tape together paper towel rolls to use as a marble run.
- They quickly realized that their marble would not make it through the whole marble run without holding up the tube. I introduced the word “incline” to them and explained how an incline could help them. They then decided they would use a chair to assist them



Project Building Ramps: *Exploration*



- A similar situation also happened in the block area at the same time. Two children were using large tubes and trying to use them in similar fashion but they were holding the tubes straight up and realized their balls wasn't rolling out at the end of the tube.
- Seeing the children take a vast interest in rolling and then creating ramps on their own, led to Project Building Ramps.



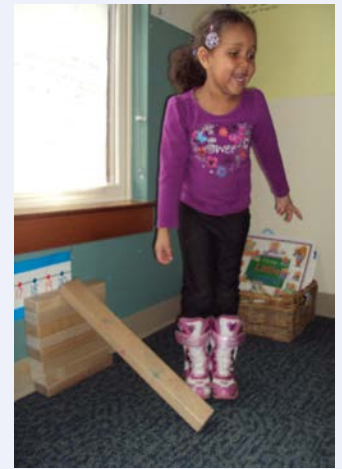
Project Building Ramps: *Blue Prints*



- In Cooperative Groups and over several days, children began their ramp projects.
- Children drew sketches of blueprints of a ramp they would like to build along with a list of materials they would need to build it.
- The groups reviewed their blueprints and gathered the materials they planned.
- They then built their ramps and chose various balls to test.



Project Building Ramps: *Inquiry*



One group, attempted to build a ramp in the middle of the carpet but had trouble keeping it up without it collapsing, they then decided to move their ramp against the wall for support.

Project Building Ramps: *Inquiry*



Another group found another way to support their ramp, they piled blocks under the incline to hold it up.



Project Building Ramps: *Inquiry*



The last group added a part to their ramp that no one else had, they wanted a “stopper” at the end of the ramp so their ball would stop.



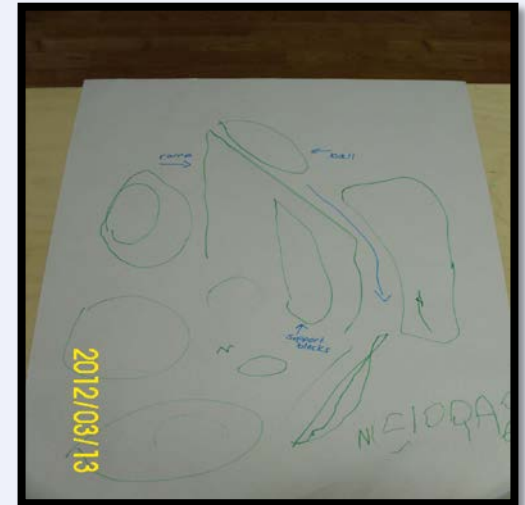
Project Building Ramps: *Revisit*



One group decided they would still like to have a “stopper” at the end of their ramp, but this time they wanted to make their ramp higher.



Another group decided to make their ramp higher, longer and have 2 sides where the ball could roll.



The third group decided they were going to use more blocks this time, and make it higher.

Project Building Ramps: *Revisit*



During the revisit, the ramps get more elaborate and children begin to take more risks with their structures: creating them purposefully to do different things.

Project Building Ramps: *Revisit*



Children had the opportunity to show their class pictures of their ramps and talk about them and answer questions about them.

Project: Make a Ball

Brainstorming and Sketching



Dennis, Akin, Dimitri, and Sam work to create their sketches.



Keriana, Fernando, Johvany, and Christall sketch their ideas of what their ball should look like.



Sophia and Gianni sketch their balls and create a list of what they want their ball to be able to do.

On the first day of our cooperative group key experience the children worked in small groups to sketch what they wanted their ball to look like. They, also, brainstormed characteristics that they wanted their ball to have such as round, hollow, solid, the ability to bounce, or roll.

Project: Make a Ball

Making List and Gathering Materials



- On Day 2 of this project, the children created lists in their groups of the materials they needed to create their balls. They had to consider the characteristics they had listed the previous day and what materials would help them achieve those qualities. For example, if they wanted their ball to be round, what could they use to make the ball round?
- On Day 3, the groups gathered the materials they had listed the previous day. The materials were all provided on a table and they took turns choosing what they needed.

Project: Make a Ball

Creating the Balls



Gianno, Sophia, and Alexis used tape on the outside of their balls.



Alexis adds more tape to the ball to make it round.



Fernando adds tape to the ball to make it roll as Keriana holds it for him.



Sam, Dimitri, and Akin wrapped string around the ball of stuffing.

The children came up with a plan of which materials they would use first. The groups used the sketches and brainstorming to help guide their decision-making process about how to use the materials if they wanted a round ball, a bouncy ball, etc.

Project: Make a Ball

Modify and Test the Ball

On the final day of the key experience, the children tested the ball to see if it matched what they had sketched and decided they wanted their ball to be able to do. If the ball needed some changes made to it, they made these changes and then, retested the ball. Afterwards, the groups presented their balls to the whole class.



Sam shows her group's ball of stuffing, yarn, and rubber bands. "It isn't round," she says, "Maybe we can add tape."

Project: Ball Structure

Day 1: What is a structure?



A sample of a house structure created during our Homes Investigation.

This project began by revisiting children's prior knowledge of structures they had created during our Homes Investigation. Then, children expanded their background knowledge of structures by examining various photos of structures. Lastly, children used familiar materials to build structures.



A sample of a house structure created during our Homes Investigation.

Project: Ball Structure

Day 2: Brainstorm/Sketch



Children brainstormed ideas, using materials in the classroom room, to create their own ball structures. Then children drew a blue print of their structure.



Making blue prints of structures they would like to create in cooperative groups

Project: Ball Structure

Day 3: Prepare to Create Structures



Making a list of materials



Gathering materials.

Each cooperative group got ready to create structures over the course of days to come.

Project: Ball Structure

Day 4: Building ball structures



Working together to make structures from blue prints..

Project: Ball Structure

Day 5: Sketching their ball structures



Revisiting structures through sketches.

Project: Ball Structure

Day 5: Sketching their ball structures



Sketch: Pre and post structure.

After sketching their ball structures children compared them to their original blue prints.

Project: Ball Structure

Sharing structures



Children explain The Cave.

Project: Making Ball Games

Purpose of the experience

We have been gathering information on ball games that are familiar to the children. We are also fostering connections to schools in other countries and learning about games there. We built upon prior knowledge to create our own games.

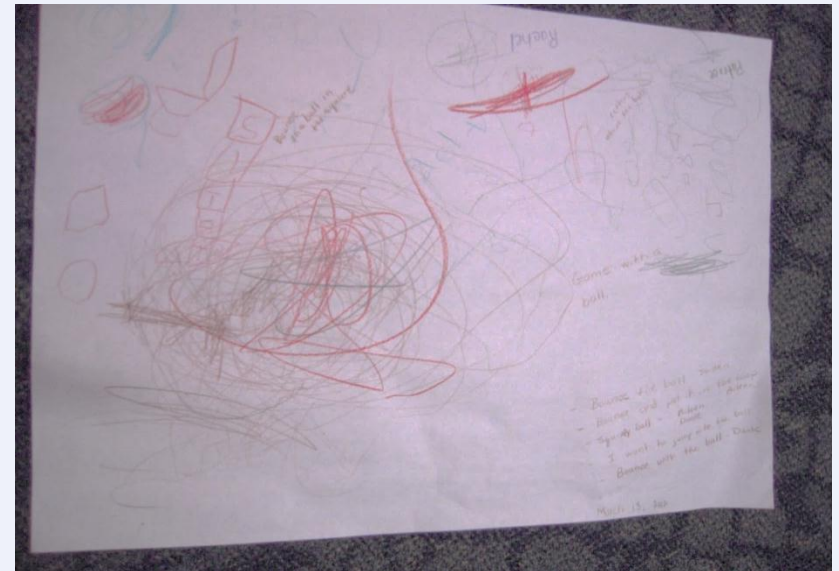


Using resources: Skype-ing with Jamaica and a lacrosse player to learn about ball games. ECSU basketball team and student volleyball player visit.

Friends in Jamaica playing toss and catch with a basketball
Friends in Jamaica playing toss and catch with a basketball
Friends in Jamaica playing toss and catch with a basketball

Project: Making Ball Games Initiation

In whole group, we used pictures to revisit the games we have learned about so far in our investigation. We then separated into cooperative groups to come up with a blueprint of what kind of game we would like to create.



Example of a sketch for a game

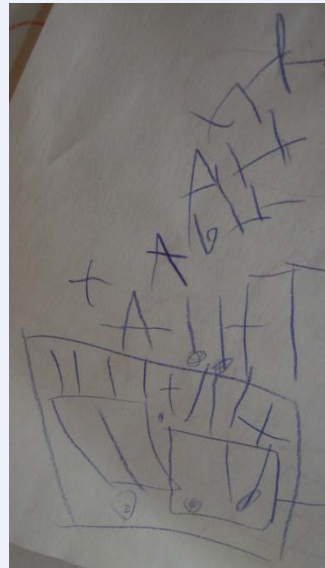
Friends in Jamaica playing toss and catch with a basketball
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Project: Making Ball Games

A Game



Some children continued to work in groups while some switched groups, and a few worked independently.



Here is Abby's sketch and game.

Friends in Jamaica playing toss and catch with a basketball
Friends in Jamaica playing toss and catch with a basketball
Friends in Jamaica playing toss and catch with a basketball

Project: Making Ball Games Initiation



Jaiden and Pablo worked together to create a game.

Games with Balls



- Josue creating a ball game with magnetic balls.
- He said the object was to move one ball around. If another ball stuck to it, then that made a team.



Games with Balls



Aileen and Yaviah created a ball game block area. They later demonstrated how the ball would move through the course