

Kindergarten Seminar

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Kindergarten Seminar

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Session Three Agenda

Opening Activity

Customizing Your Curriculum

Activity

Lunch

Pulling It All Together:

Long Term Investigations & Projects

Closing

[http://www.state.nj.us/education/ece/rttt/
ImplementationGuidelines1-3.pdf](http://www.state.nj.us/education/ece/rttt/ImplementationGuidelines1-3.pdf)

Before and After Activity

As you come in, post your before and after photos with documentation under the appropriate category. Include your name and school/district and answer these questions:

- What change did you make?
- What prompted you to make the change?
- How did children respond to the change?



After >

< **Before**





Keeping Motivation and Engagement Alive



- What have been the highlights?
- What have been the rough spots?
- What do we now understand?
- What do we still not understand?
- What knowledge and skills do we need to do this?

NJ KEA/NJ Kindergarten Seminar



- Know how to observe and document children's learning using an appropriate performance based assessment.
- Engage students in active learning in welcoming classroom environments featuring learning centers with open-ended materials.
- Help children meet state standards/TSG objectives for literacy, math and social emotional by customizing the curriculum to engage and motivate children.
- Integrate content areas and support 21st century skills and positive approaches to learning through long-term investigations and projects.
- Provide emotional and instructional support for all children, using TSG data to scaffold each child from one level to the next.

Changes to the Common Core



New name:

New Jersey Student Learning Standards

Math revisions:

<http://www.nj.gov/education/standards/resources/MathRec.pdf>

English Language Arts revisions:

<http://www.nj.gov/education/standards/resources/ELARec.pdf>

Note: Until the recommendations are officially adopted by the State Board of Education, the current standards will remain in place. Adoption is scheduled for May 2016. District curriculum realignment is scheduled to begin Fall 2017.

Interpreting the Standards



- The state standards still support interdisciplinary learning, actively promotes higher-order thinking, emphasizes challenging, rigorous content and suggests flexibility in how the standards can be met.
- The state standards are not a curriculum and are not meant to tell “how to teach.”
- The state standards clearly state that play can be a means to meeting the standards - specifically stating that ***“the use of play with young children is welcome as a valuable activity in its own right and as a way to help students meet the expectations of this document.”***
- There is room for children to meet the standards alone or with guidance - for kindergarten children, the standards often say “with prompting and support” or “with guidance and support.” For example: CCRA.R10 - read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

With Guidance and Support



Would you expect a baby to know how to ride a bicycle?

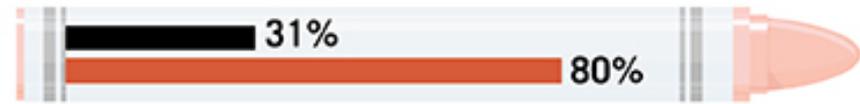
The *Kindergarten Guidelines* say that understanding child development is critical to setting developmentally appropriate expectations and helping children meet the standards with guidance and support.



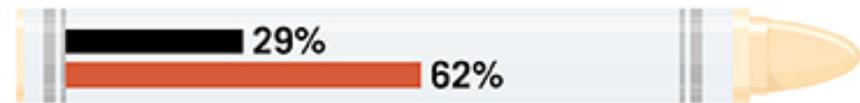
Teacher Expectations



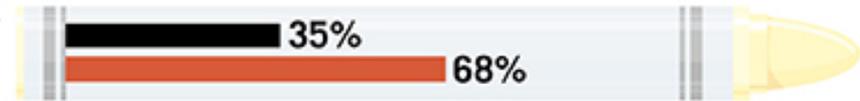
Percent of teachers who believed students should **learn to read** in kindergarten:



Percent of teachers who believed parents should make sure their children **know the alphabet** before they start kindergarten:



Percent of teachers who believed it was important for children to enter kindergarten knowing **how to use a pencil and paintbrush**:



■ 1998 ■ 2010

<http://www.edweek.org/ew/section/multimedia/kindergarten-less-play-more-academics.html?cmp=eml-enl-eu-news2>

What Emergent Reader Means



Emergent readers:

- understand print carries a message
- display directional movement: left to right, top to bottom, return sweep
- match voice to print with one-to-one matching by finger pointing
- locate some known words and unknown words
- use picture clues to help tell the story and to help decode unknown words
- recognize the difference between a letter and a word
- may invent text, using the pictures or tell the story from memory
- begin to use pattern and repetition of text to read
- use oral language/story structure to make a connection to print
- use some letter sounds (beginning/ending)
- begin to use known, high-frequency words to monitor reading

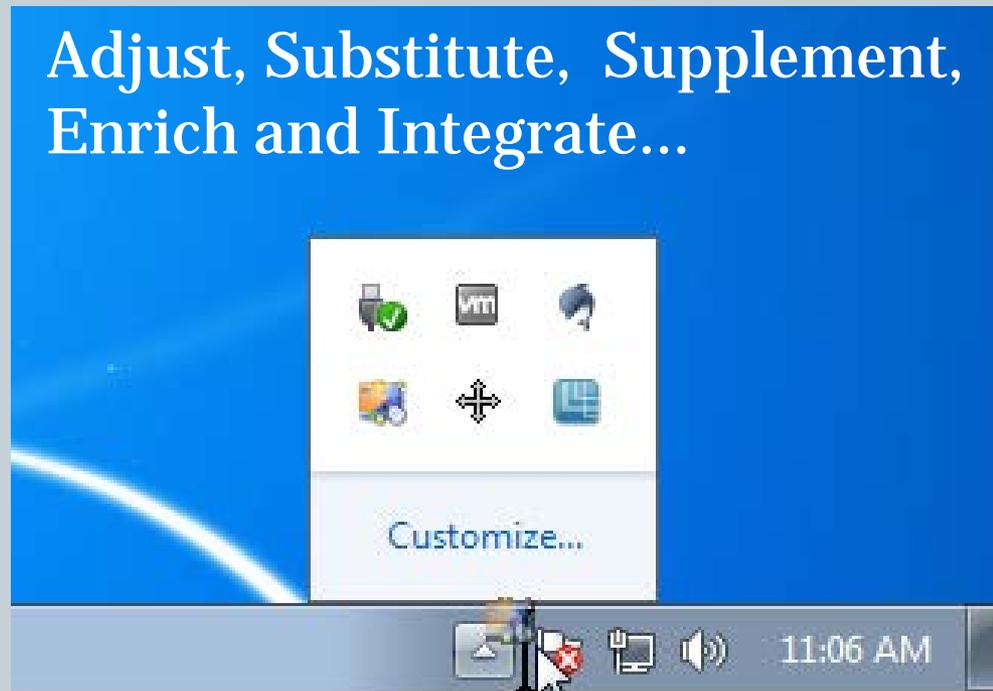
Customize Your Curricula*



“The whole world is awash in customization—until we get to the schoolhouse door. That cuts against what social scientists know about how human beings learn and improve.”

Adjust, Substitute, Supplement,
Enrich and Integrate...

~ Daniel Pink



Adjust the Pace



Allow time to explore materials, activities, and ideas more deeply.

Learning Centers are one way to achieve this goal.

Full Day Kindergarten Schedule		
8:30-8:45	15 minutes	Arrival
8:45-9:00	15 minutes	Morning Meeting
9:00-9:20	20 minutes	Shared Reading
9:20-10:20	60 minutes	Choice Time with Ongoing Investigations/Project Work
10:20-10:35	15 minutes	Cleanup and Sharing
10:35-10:50	15 minutes	Snack
10:50-11:20	30 minutes	Outdoor Recess
11:20-12:00	40 minutes	Math Explorations
12:00-12:30	30 minutes	Lunch
12:30-1:00	30 minutes	Rest and Independent Reading or Read-Aloud
1:00-1:30	30 minutes	Writing Workshop
1:30-2:10	40 minutes	Choice Time with Ongoing Investigations/Project Work
2:10-2:50	40 minutes	Specials
2:50-3:10	20 minutes	Sharing, Review, and Closing

Eliminate Busywork and Time Wasters*



...”Studies reveal ineffective uses of time in many U.S. classrooms: transitions that take too long, interruptions that are unnecessary, instructional time spent on activities that research suggests do not actually work, and so on.”

Nell Duke p.21



**What are the biggest time wasters in your day?
Turn & Talk.**

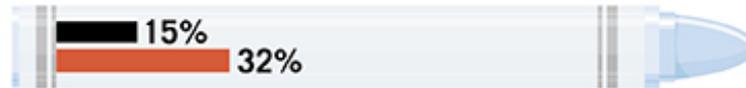
Instructional Approaches



Percent of teachers who reported that in a typical day, children spend about 1 hour or more on child-selected activities:



Percent of teachers who reported spending three hours or more of each day in teacher-directed whole-class activities:

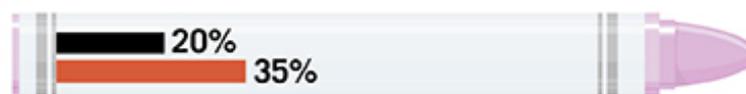


Percent of teachers who said they used a reading workbook or worksheets daily:



$$1 + 1 =$$

Percent of teachers who said they used math worksheets daily:



■ 1998 ■ 2010

Cute or Quality; Rote or Rigorous?



Barbara Alley Capra

<http://www.teachthought.com/learning/experiential-learning-just-hands-doesnt-mean-minds/>

<http://playfullearning.net/2014/06/kill-childs-creativity/>

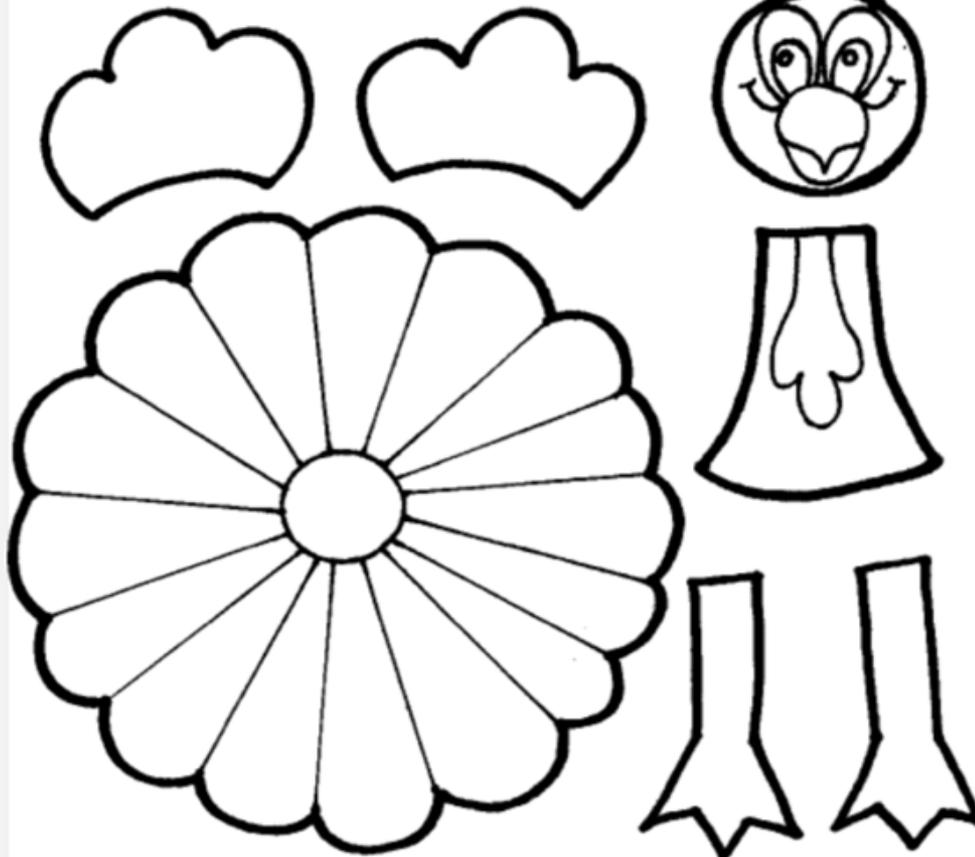
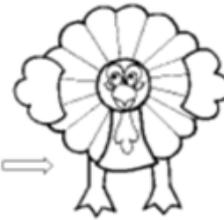
Handout: *“What Does Rigor Look Like in Kindergarten?”*



A Turkey to Color, Cut & Paste

Directions:

- 1: Color the parts of the turkey below.
2. Cut out the parts on the dark lines.
3. Glue the parts together to make a turkey! →



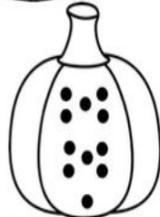
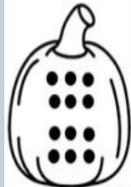


Name _____

Let's Count Pumpkin Seeds!

Directions: Count the dots on each pumpkin.

Cut and paste the number next to the correct pumpkin.



5

6

7

8

9

10

11

12







Remember...“the fact is that kids learn to make good decisions by making decisions, not by following directions.” -Alfie Kohn

"If you assign a project and get back 30 of the exact same thing, that's not a project, that's a recipe."





Cute	Quality
Rote or drill	Rigorous or deep
Solo skills	Integrated skills
Cookie cutter	Individualized
Irrelevant	Meaningful
One right answer	Open ended
Same activity every year	Intentional
Waste of time	Enriched
Teacher made	Child created
Spoon fed or lecture	Explore & discover



Basic checklist	Deep investigation
Predetermined or scripted	Child interest or need
Worksheet or checklist	Project
Man made	Nature made
Artificial	Real
Traditional	Research based/proven
Drill & Kill	Inquire & inspire
One-size-fits-all	Differentiated

Reflect



- What did this lesson teach?
- What did children learn?
- Was it truly valuable? For every child?
- What TSG objectives and state standards were met?
- What 21st century or approaches to learning skills were embedded?
- Was it worth the time?

Substitute



Teach concepts in the recommended lesson, but use different materials or instructional approaches to reach the objectives.

Skip Count by Ten
Each pile has ten candies in it. Count by tens and write the total in the box.

	<input type="text"/>

Created by: education.com Copyright © 2012 2013 by Education.com More worksheets at www.education.com/worksheets

<https://www.teachingchannel.org/videos/skip-counting-with-kindergarteners>

Common Core Standards Math.2.NBT.A.1a, Math.2.NBT.A.2,
Math.Practice.MP5

Whole Group and Small Group Instruction



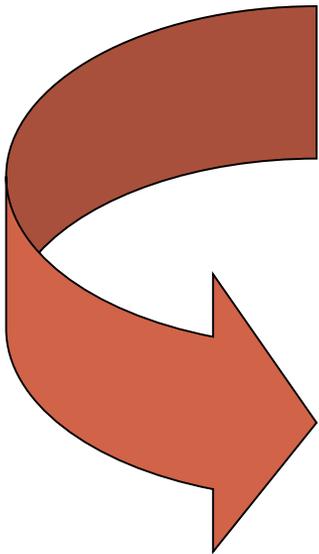
Small group instruction reinforces skills and strategies taught during whole group

Whole Group Instruction:

- Model, model, model
- Actively engage all students with varied methods of instruction
- Teach one skill or strategy at a time

Small Group Instruction:

- Model, model, model
- Focus on a specific skill or strategy
- Provide lots of opportunity to practice
- Gradually release responsibility
- Observe and confer with students



APEEC*

9. Instructional Methods (Observation)

Inadequate 1	2	Minimal 3	4	Good 5	6	Excellent 7
1.1 Whole group instruction is used all day. (O)		3.1 The teacher uses at least two different teaching methods. ^a (O)		5.1 Shared learning ^a is used at least once a day. (O)		7.1 The teacher uses at least two teaching methods within at least two subject areas. ^a (O)
		3.2 Some activities or materials are adapted ^b for individual children as needed.* (O)		5.2 Most activities or materials are adapted ^b for individual children as needed.* (O)		7.2 The teacher facilitates group discussions ^c among children. (O)
				5.3 The teacher asks children to explain their answers at least a few times a day.* (O)		

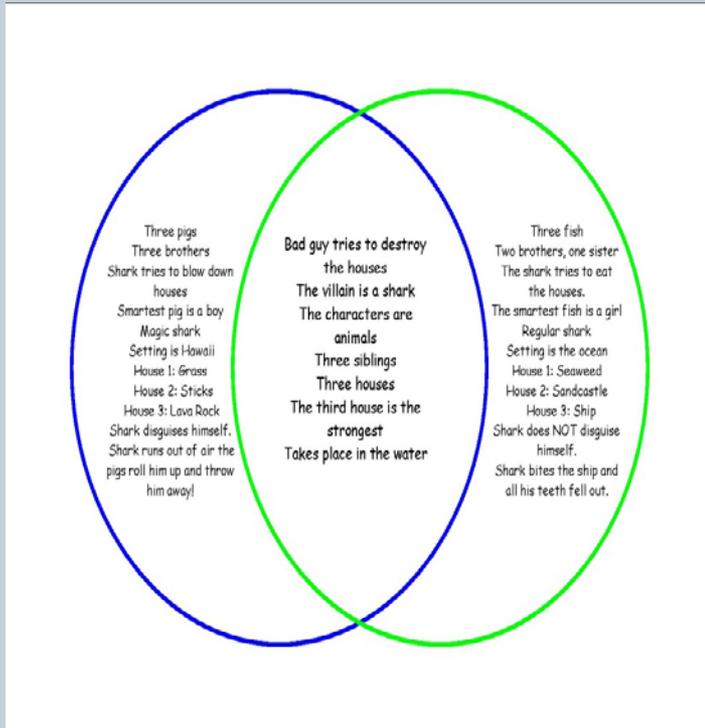
^a Teaching methods include *whole group instruction* (e.g., lecturing, giving directions, giving feedback to children during teacher-directed activities in which all children are working on the same thing, demonstrating new tasks in a large group setting), *small group instruction* (e.g., teacher-led reading groups), *one-on-one instruction* (e.g., teacher works with an individual child), *self-instruction* (e.g., children directing their own play with materials, reading alone, working on an educational computer program), *teacher facilitation* (e.g., teacher expands on child-directed activities), and *shared learning* in which children work together to complete an activity (e.g., cooperative learning, games, peer tutoring).

^b Examples of material and activity adaptations: alternate keyboards for children with physical disabilities, reading materials available for children at different reading levels, large print materials for children with visual impairments, shorter assignments for children with developmental delays, peer assistance, ability-based reading groups, materials available in children's primary language.

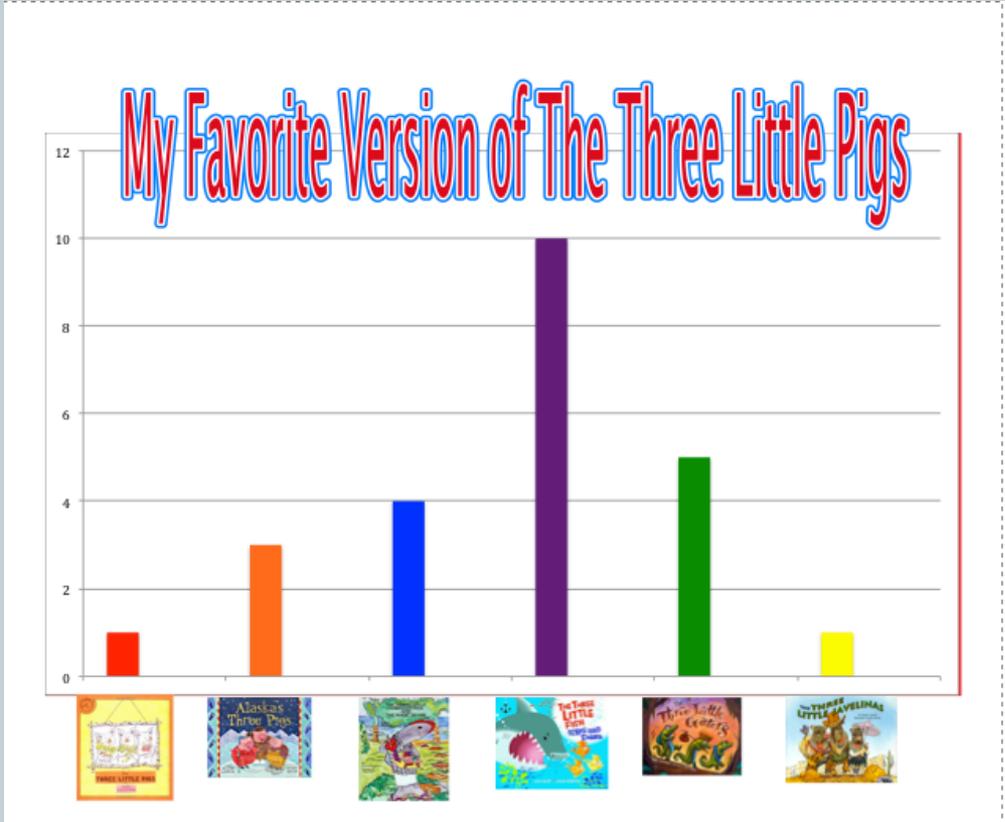
^c Group discussions go beyond the teacher asking and children answering questions. In group discussions, children present their opinions, consider different issues of a problem, talk about pros and cons, and so forth. No one person (e.g., teacher, child) is the primary source of information during group discussions. Group discussions may be among the whole class or a smaller group of children.

* *Assessment of Practices in Early Elementary Classrooms*

Replace Lackluster Activities*



CCSS: RL.K.9, SL.K.2



CCSS: K.MD.3, W.K.1,

Calendar Activities



- What are children learning during calendar activities. Is it relevant and valuable?
- Do children construct an understanding of measured time (days, months, years) this way?
- What TSG objectives and dimensions and which standards do children learn through calendar activities? (see 22b. “Measures time and money.” What activities are suggested?)

Note: Young children can talk about things that have happened or will happen, but they cannot yet understand or talk about these events in terms of units of time (days, weeks) or sequence. This child development knowledge draws into question the usefulness of calendar activities for children under age 6.

Calendar Time, Young Children, May 2008

Replace With...



- **Picture Schedules.** Children can understand sequence and what comes next. Emphasize before, after, later, earlier...
- **Classroom journals and documentation.** Such as “on Tuesday, we went to the park.”
- **Linear representations.** It is OK to count the number of days in kindergarten, but use visual notations such as post-it notes on a class chart.
- **Games.** Guess how many units of time (seconds, minutes, hours) to complete a task or until an event arrives.
- **Investigations.** Observe incubated chicken eggs and count the number of days until they hatch.

Supplement



Augment the required lesson with additional materials, activities, and role play.

<https://www.youtube.com/watch?v=yt69atPdg3I>



Use children's interests and questions to inspire lessons.



Have students capture their “I wonder” questions in their journals and use these to plan future lessons.



Add new materials



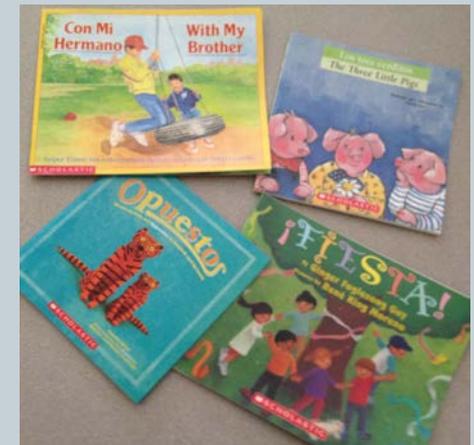
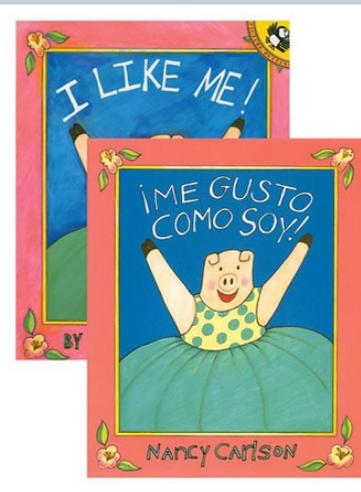
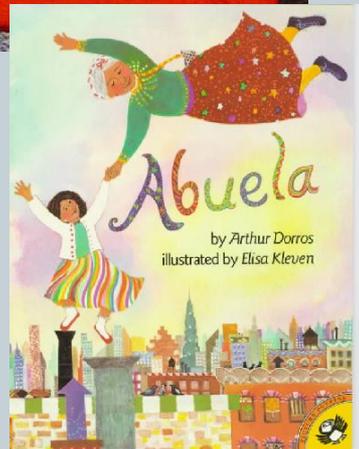
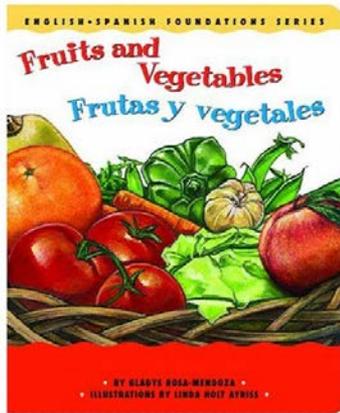
Incorporate the visual and performing arts



Bring in extra books at various reading levels and in the home languages of dual language learners



Use a leveling system to label books.



Select Texts for Read Alouds and Shared Reading



Choose books that:

- are grade level or slightly above
- reflect and values cultures
- are examples of excellent literature and informational text
- demonstrate a variety of genres
- expand background knowledge
- are large enough to be viewed by all students (big books should be used for shared reading)



<https://www.teachingchannel.org/videos/dear-reading>

Offer a broader range of learning experiences

Instead of this...

I can write my name: _____

literacy 17

I can trace and write the sentence:
I like my dog.

I can find the letter "r":

r	x	r	c	r	r
f	r	r	t	c	n

I can count and dab syllables:

 ○ ○  ○ ○

©Miss Lindsay Lee



Set up a pet shop where children can read and write about their pet, draw their pet, use their language in pretend role play.



Use technology to enhance a lesson



T.S.G Objectives:

- 8 a,b
- 9 d
- 11 a,b
- 24 and 28

Digital Microscope



The Process:

- Collect materials to investigate
- Connect digital microscope to computer or SmartBoard
- Explore



Ipad **Observational Drawings**

Process:

- Take photographs
- Use while drawing

T.S.G Objectives:

- 9 d
- 12 a,b
- 28



Google Earth

T.S.G Objectives: 29 and 32

IPad

Apps



The Weather Channel

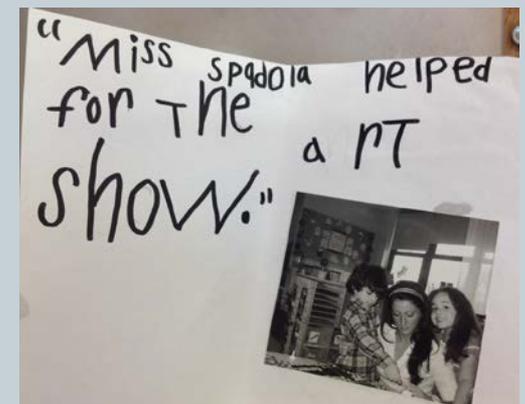
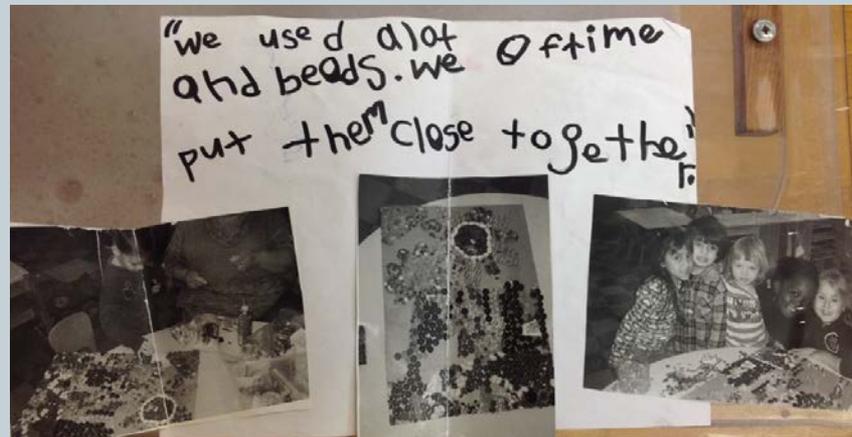
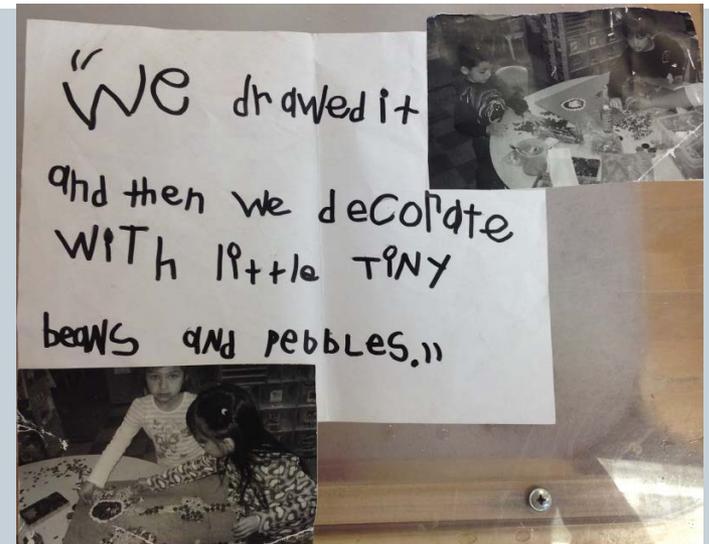
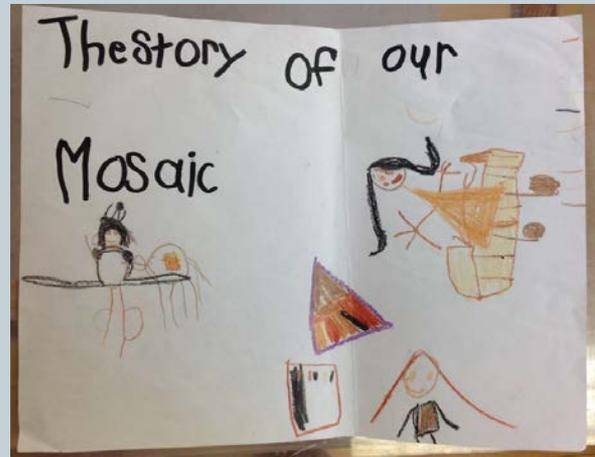
T.S.G Objectives: 27

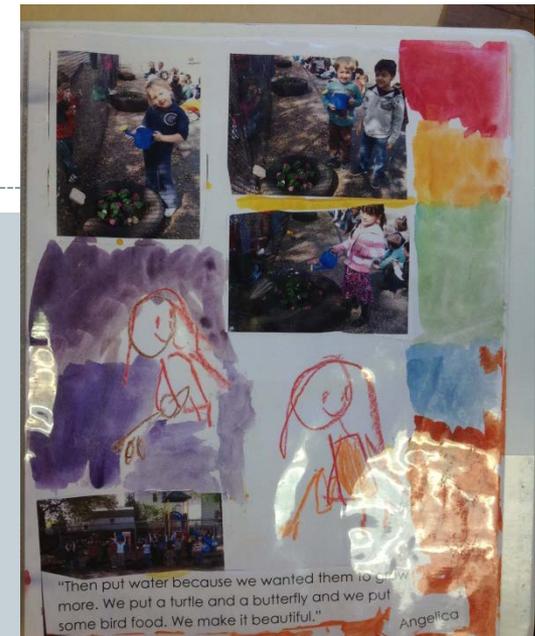
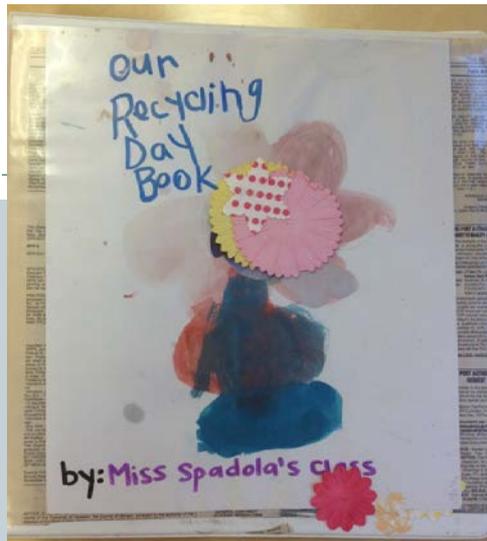
Digital Cameras

Documenting Projects

The Process:

- Take photographs
- Upload to computer
- Select photos and print
- Create book





Microsoft Word

The Process:

- Take photographs
- Upload to computer
- Select and print
- Collect student dictations
- Type in Microsoft Word
- Print and Create Book

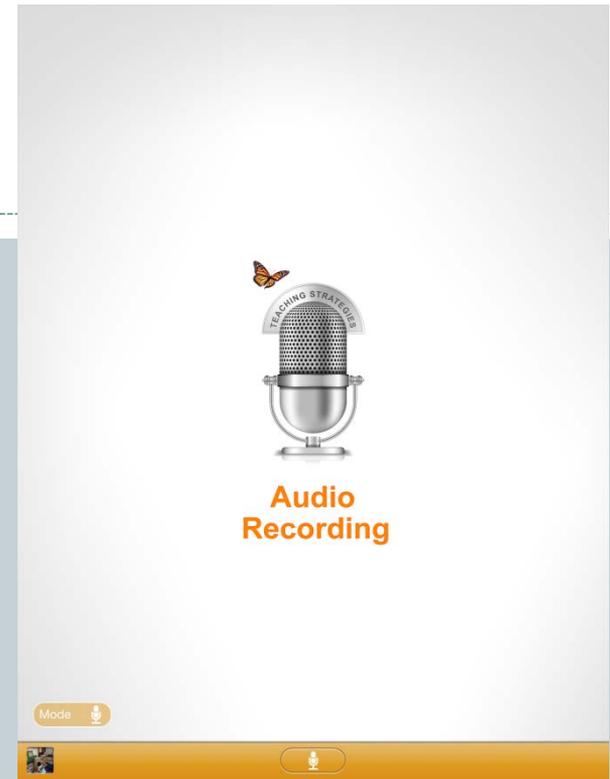
T.S.G. Objectives:

- 11 a,b,c,d,e
- 16 a
- 17 b
- 21 b
- 24 and 28

Using Audio in Teaching Strategies

The Process:

- Children created additional verses to song Aiken Drum
- Teacher helped children write verses
- Children use audio record tool on Teaching Strategies Gold App to record themselves
- Children illustrated their verses



T.S.G. Objectives:

- 2 a
- 9 a,b



Enrich



“Instead of trying to get children to buckle down, why not focus on getting them to take pleasure in meaningful, productive activity, like making things, working with others, exploring ideas, and solving problems?”

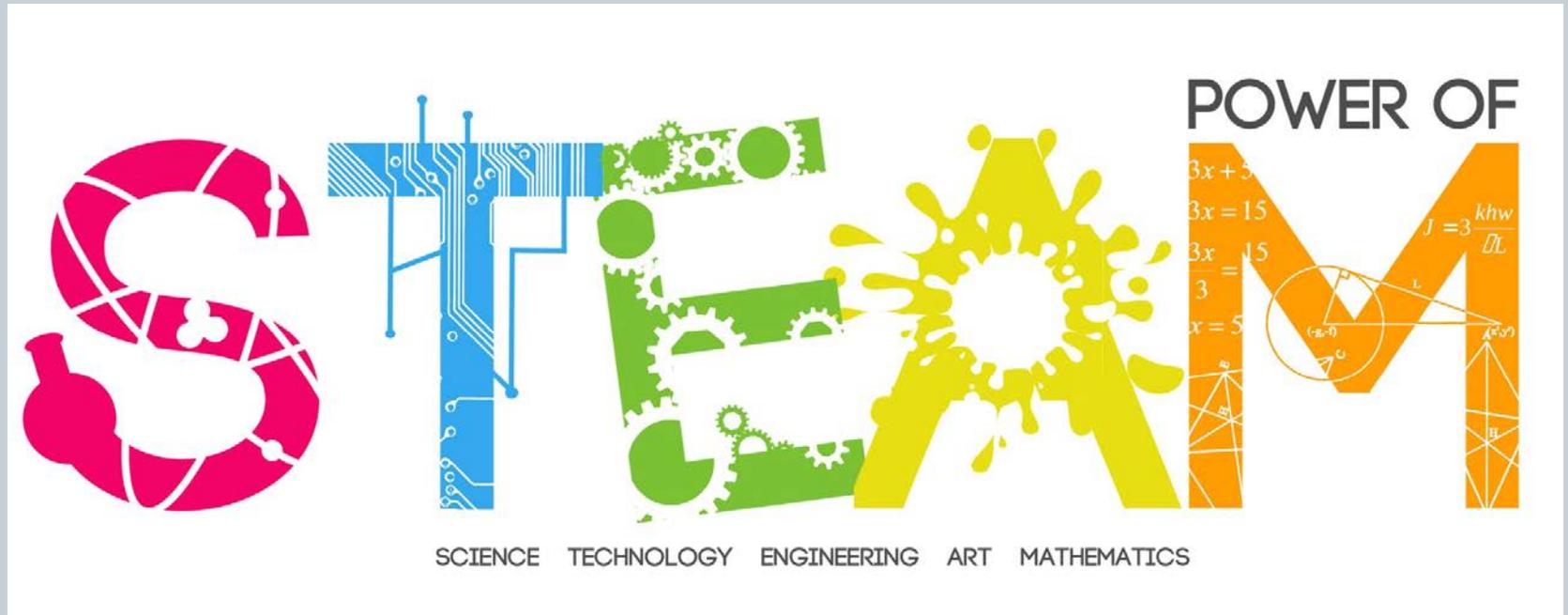
~ Susan Engel

Offer Challenging Activities



<https://www.teachingchannel.org/videos/addition-math-lesson-ousd>

Add depth, complexity, and opportunities for creative thinking and expression to lessons.



<https://www.youtube.com/watch?v=DjpWQkmopgY&index=8&list=PLvzOwE5lWqhQ6oGndUhK5wV5MjT5htJ>

<http://www.nextgenscience.org/implementation>

<http://www.nsta.org/> and <http://www.nctm.org/> and <http://www.arteducators.org/>

Give children opportunities to experiment, to problem-solve and theorize, and take risks.



Krista's Story: The children in my kindergarten classroom like to take off with their own ideas in the block center. It is so interesting to watch and listen as they come up with building plans, build their structures, and then change their ideas numerous times. Having time built into the schedule for children to explore their ideas with blocks increases their confidence in their building abilities.





During our transportation unit this year, the children eagerly contributed to our discussions about world travel. Many of them have done some traveling, even at their young age, since they have family living in other countries. We talked a lot about heritage and culture and then discussed buildings and landmarks. The children loved building famous buildings and bridges. They used books and photos to help guide their buildings.



The block center helps me teach science concepts such as balance as well as math concepts such as measurement and geometry. I am fortunate that my blocks have their own space in my classroom, so I have started letting students work on a structure for more than one day so they can really complete it how they want. I also let them keep it built for a day or two. They give other students “tours” of their buildings and explain different parts. This is great for their listening and speaking skills. The rest of the class loves to ask questions. I also posted the photos I took of the students on the wall in the block center as a discussion piece once the structure was taken apart.





For the hundredth day of school, the boys counted out one hundred blocks to see what they could build with them. They built a train station that is pictured from the front and from the interior. They said, *“We made a train station. The high-speed train just came by to pick up the people. They are going to California. That place is the bathroom. We couldn’t think of anyplace else to be the bathroom.”*



Anushka and Jezhaly identified their structure in this photo as a building from New York City with a road around it. Both girls are generally very quiet and shy, but I was able to observe them communicating very well as they built this structure. The use of blocks gave them a great opportunity for teamwork and communication.





During our “Around the World” unit, we discussed the different cultures of the children in our classroom as well as important buildings and landmarks. This connected to literature as well as math (geometry).



Karolyn and Remy have built the White House complete with a fountain in front.



Most of the time I hear my students speaking English, but when I listen to them in the block center, I notice that some students switch back and forth between English and their home language depending on their partner.



“We made a trampoline (indoors). There was a fire on the top. There are some people outside looking at it. It is closed.”



Given our proximity to New York City, our children have had many firsthand experiences with bridges and buildings. Plutarco and Kingston are building a bridge. It took them many tries to figure out a way to balance their structure. I was able to watch them build and have their bridge fall. Then they discussed how they would get it to stand up, figuring out a way to make it more stable. The boys worked as a team to figure out a plan, learning persistence while also meeting specific standards. In the end, they built a bridge for cars and one for people. They even used the blue foam blocks to show that there was water under the bridge.

Design open-ended activities that allow children to investigate and practice through the arts.



Thinking With A Line
by Cathy Weisman Topal

Materials needed:

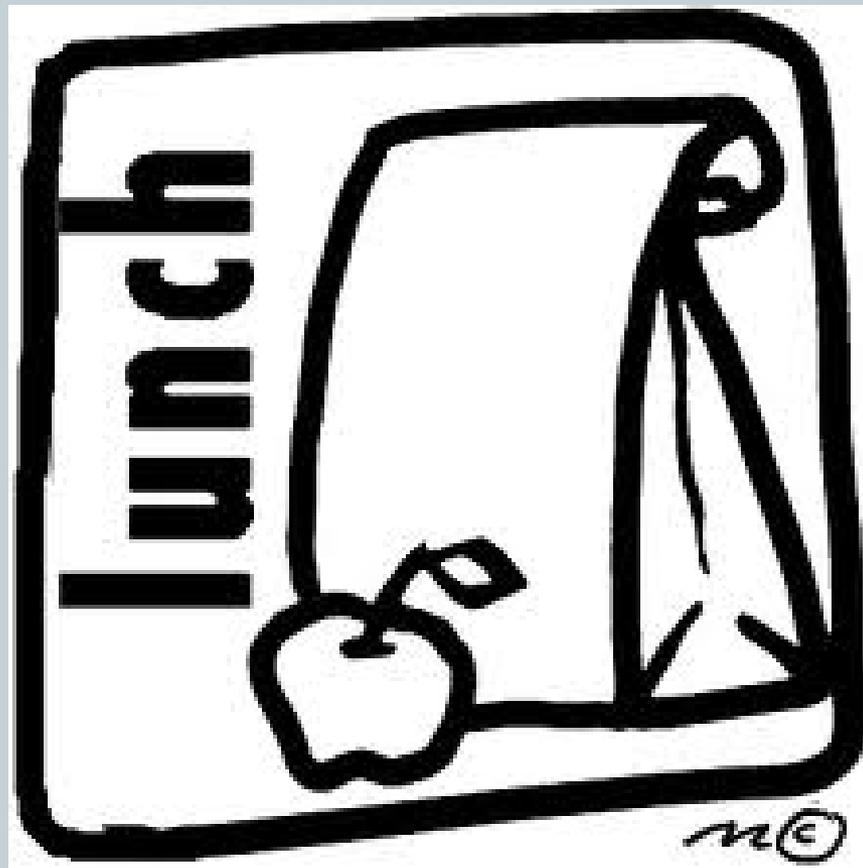
- Paper plates
- Paint brush
- Tempera paint (use just one color to start - spread thinly on paper plate)
- Newsprint or 8" x 11" copy paper
- Cardboard cut into 3" x 2 ½" rectangles
- Paper plate
- Newspaper
- Wet paper towels

Experiment with making lines, shapes, letters, patterns, designs and buildings.

Can you make a clear, clean print? How much ink is too much? Too little? How hard do you need to press?

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Integrate



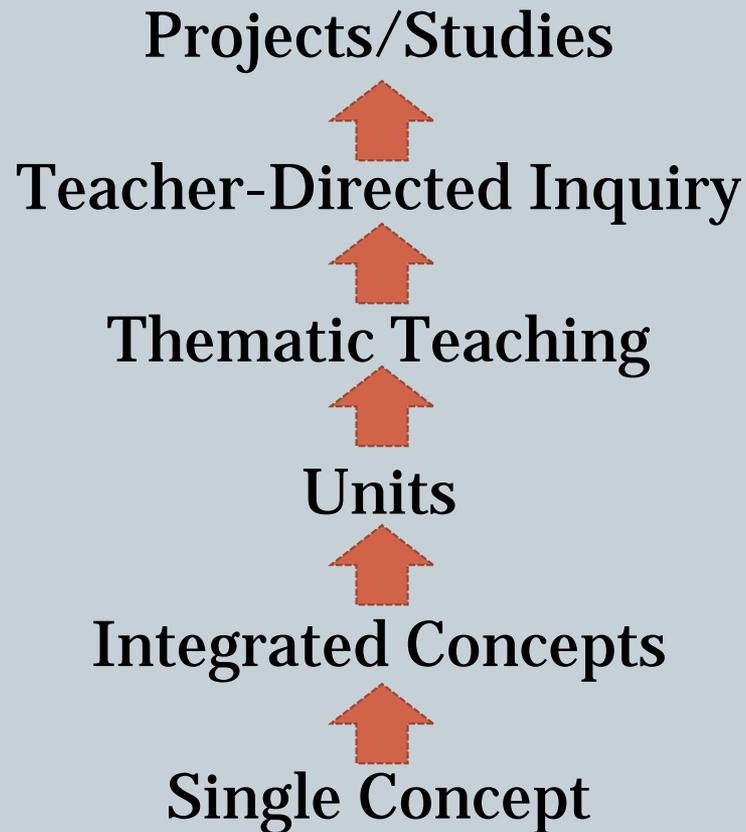
“You can force a child to stay in his or her seat, fill out a worksheet, or practice division. But you can’t force a person to think carefully, enjoy books, digest complex information, or develop a taste for learning. To make that happen, you have to help the child find pleasure in learning—to see school as a source of joy...Joy should not be trained out of children or left for after-school programs. The more difficult a child’s life circumstances, the more important it is for that child to find joy in his or her classroom.”

~ Susan Engel

Projects are one of the best ways to integrate as many standards as possible and to get children motivated and engaged in learning.

Degree of Active Engagement

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Why Do Long Term Projects?

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- Project-based learning is well-suited to addressing the CCSS for ELA and Literacy in social studies, science and other subjects typically neglected.
- The skills used in project-based learning incorporate many “21st Century Skills.”
- In project-based learning, students apply their knowledge and skills for specific purposes beyond rote learning.
- Project-based learning is more engaging than many traditional kinds of instruction.

Nell Duke, 2014

Finding Time for Project Work

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Full Day Kindergarten Schedule - Kindergarten Guidelines		
8:30-8:45	15 minutes	Arrival
8:45-9:00	15 minutes	Morning Meeting
9:00-9:20	20 minutes	Shared Reading
9:20-10:20	60 minutes	Choice Time with Ongoing Investigations/Project Work and Guided Reading
10:20-10:35	15 minutes	Cleanup and Sharing
10:35-10:50	15 minutes	Snack
10:50-11:20	30 minutes	Outdoor Recess
11:20-12:00	40 minutes	Math Explorations (but also embedded in projects)
12:00-12:30	30 minutes	Lunch
12:30-1:00	30 minutes	Rest and Independent Reading or Read-Aloud
1:00-1:30	30 minutes	Writing Workshop
1:30-2:10	40 minutes	Choice Time with Ongoing Investigations/Project Work (could focus on science or social studies topics)
2:10-2:50	40 minutes	Specials
2:50-3:10	20 minutes	Sharing, Review, and Closing



Turn & Talk:

Using the “Choosing a Topic” handout as a guideline, do you think penguins would be an appropriate topic for a long-term study? Why or why not?



Choosing a Topic



- Does the study consider the development of the whole child and the integration of multiple subject areas, or is it focused only on literacy or mathematics?
- Is the study skills-driven and dependent on workbooks, or does it allow for children's own ideas and questions?
- Is the study outside the children's direct experience? If so, they will have to rely on the teacher for most of the questions, ideas, information, thinking, and planning.
- Are the expectations for children realistic and attainable, or could the children more easily and efficiently acquire the knowledge and skills later on?
- Does the broad topic in the study take into consideration your community and the cultural backgrounds of the children in your classroom?
- Does the unit of study allow sufficient time for deeper learning?

How to Plan a Project



1. Project Launch establishes the purpose of and audience for the project.
2. Reading and Research mainly involves building necessary background knowledge and gathering information for the project.
3. Writing and Research primarily focuses on drafting the product of the project and conducting additional research as needed.
4. Revision and Editing involves making improvements to the product.
5. Presentation and Celebration involves reaching the intended audience with the product and celebrating that accomplishment.

~Nell Duke, 2014

Project Example

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A Study of Bones

Yvonne Kogan

Eton School

Background Information

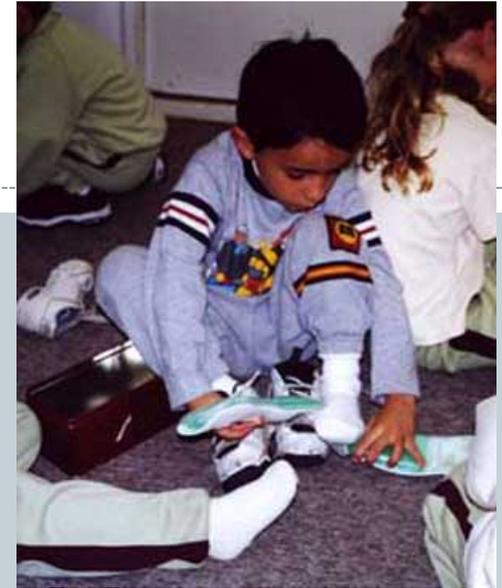
Eton School is a bilingual (Spanish-English) school. The school's population mainly consists of children who do not speak English at home. In the Early Childhood Department that serves children ages 2 to 6, children are instructed only in English. This example indicates that project work can be done with young children who are learning in a full immersion program in a second language.

Note: This project has been formatted using Nell Duke's framework for planning projects.

Preliminary Planning

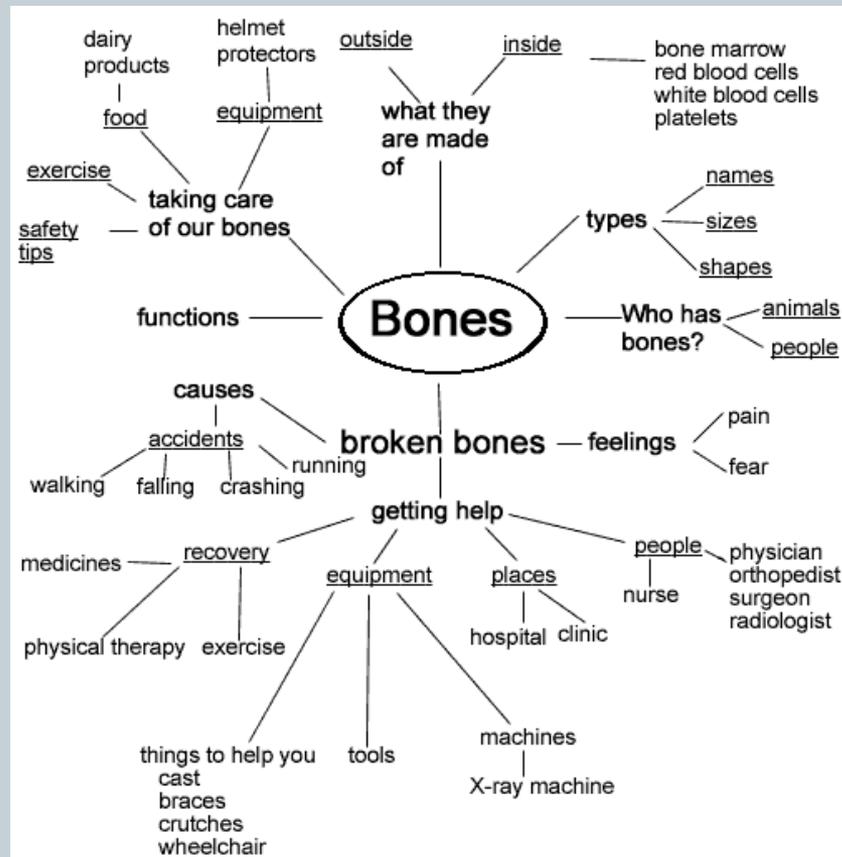
During September, the kindergarten children had been studying the human body. The children started telling personal stories about their experiences with doctors and getting hurt, and they expressed a special interest in accidents and broken bones.

The teacher brought in several X-rays, a pair of crutches, and some items such as knee braces and air casts that the children could use for role-playing activities. She wanted to see if the children's interest in this topic was intense enough to start an in-depth study. She explored whether she could invite an expert and whether it would be possible to visit an X-ray room at a clinic or a hospital. Everything fell into place, and the teacher decided to take on this topic to pursue a project.



Phase 1 – Project Launch

The teacher and principal discussed the interests of the children and the conversations held by the children during role-play, which the teacher had recorded as she walked around the classroom with a notepad. Together they made a web to visualize the possibilities for developing the topic and for presenting the project to an audience.

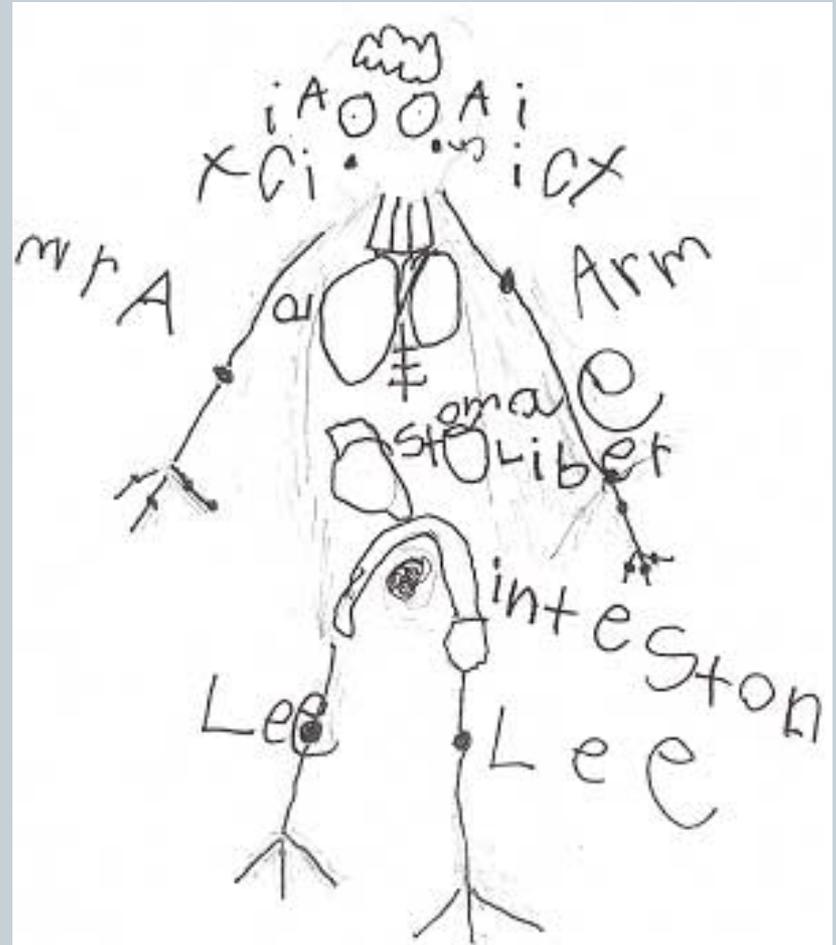


Children started telling personal stories about their family members or friends breaking a bone. Teli, one of the girls in the class, told a story about breaking her collarbone when she fell from a cart at the supermarket.



Phase 2 – Reading and Research

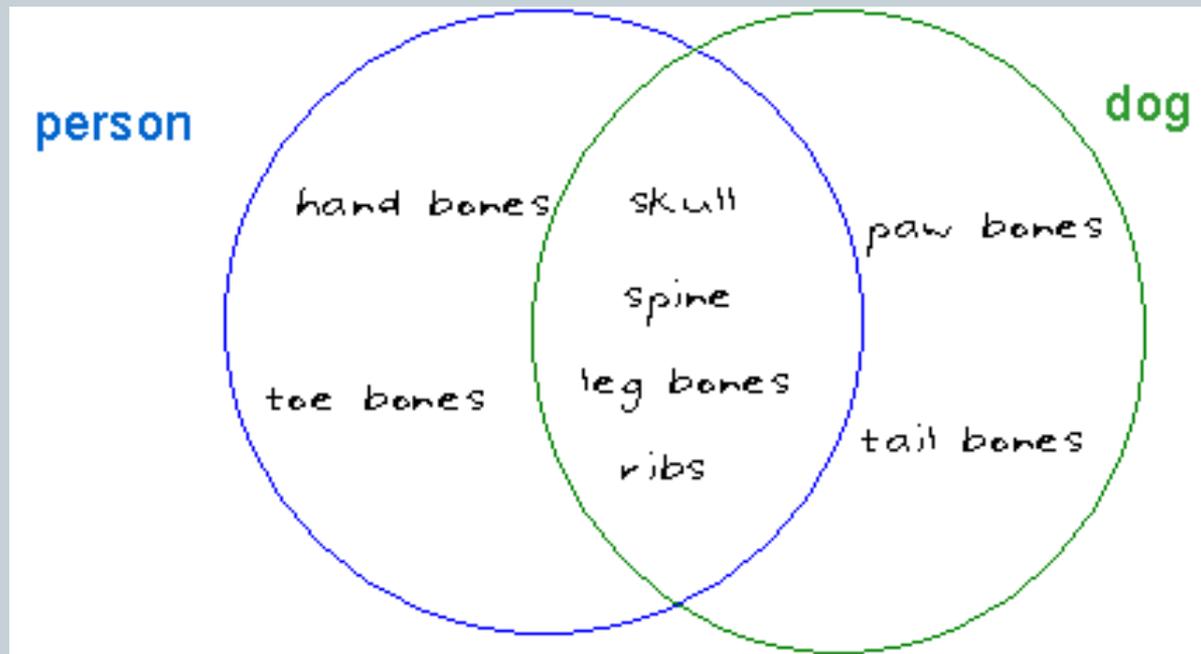
The children made memory drawings of their bones and then shared their drawings during a class meeting.



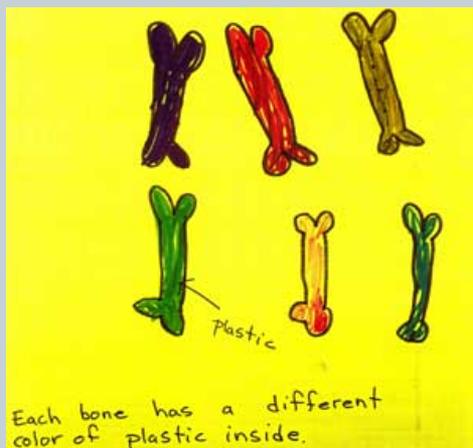
The children started asking questions about bones, and the teacher wrote them down and displayed them on a poster board in the classroom.

- How many bones do we have?
- What is inside our bones?
- How does the doctor know when a bone is broken?
- Are people's bones the same as dogs' bones?
- What does an X-ray machine look like?
- How does an X-ray machine work?
- How does a cast get hard?
- What happens when a cast gets wet?
- How can a person take a cast off?
- What kind of shoes do you wear when you are wearing a cast on your foot?
- How can we take care of our bones?

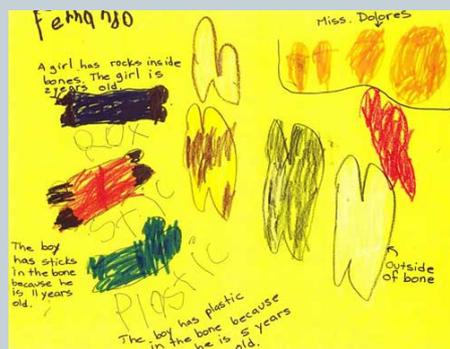
A girl brought an X-ray of her dog, and we compared it to an X-ray of human bones. We made a Venn diagram to record the data.



The principal brought in some chicken bones, and the children looked at them using a magnifying glass. Next, they shared their predictions of what they thought was inside bones, and they drew and labeled drawings of bones.



Some children predicted that "Each bone has a different color of plastic inside."

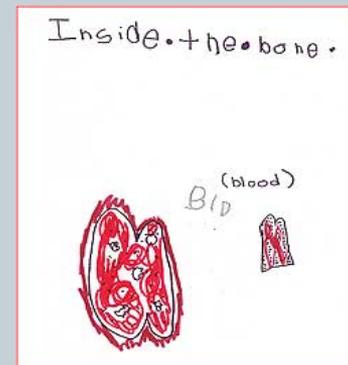


"A girl has rocks inside her bones because she is 2 years old. The boy has plastic inside his bones because he is 5 years old. The boy has sticks inside his bones because he is 11 years old."

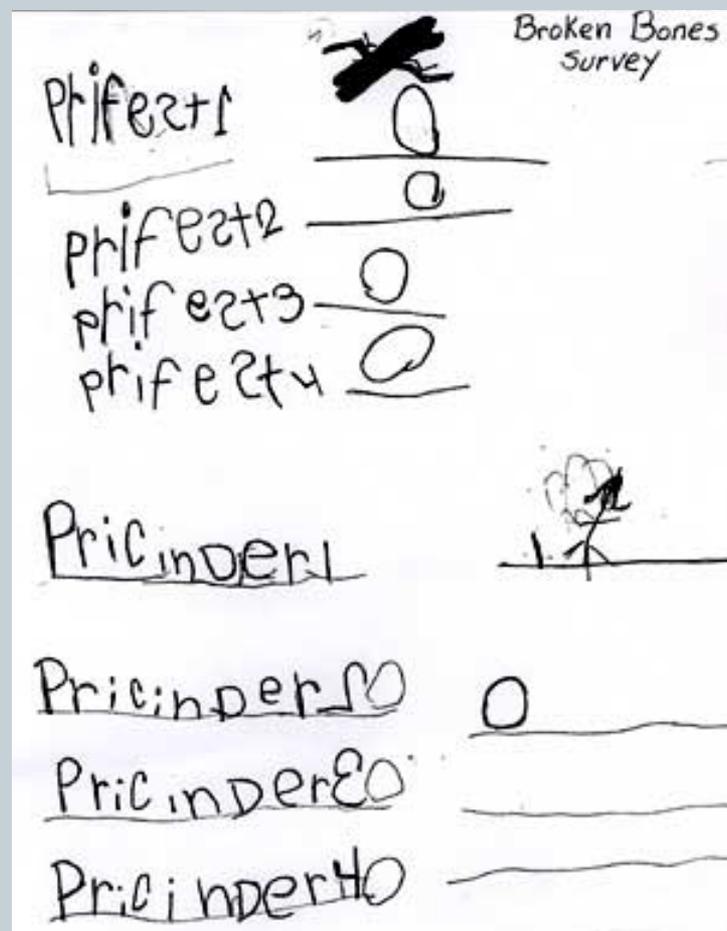
After a couple of days, we broke open the chicken bones and put them under a magnifying lens. The children carefully examined them and made an observational drawing. Later on, they compared their predictions to what they saw. They enjoyed this activity immensely, and when they shared their findings during group time, all the children laughed at their predictions.



A child looked at the inside of chicken bones through a magnifying lens.



One group of children was interested in finding out how many children at school had broken bones at that moment. They designed a form to conduct a survey, and they surveyed all the classrooms. They found out that one child had a broken arm.



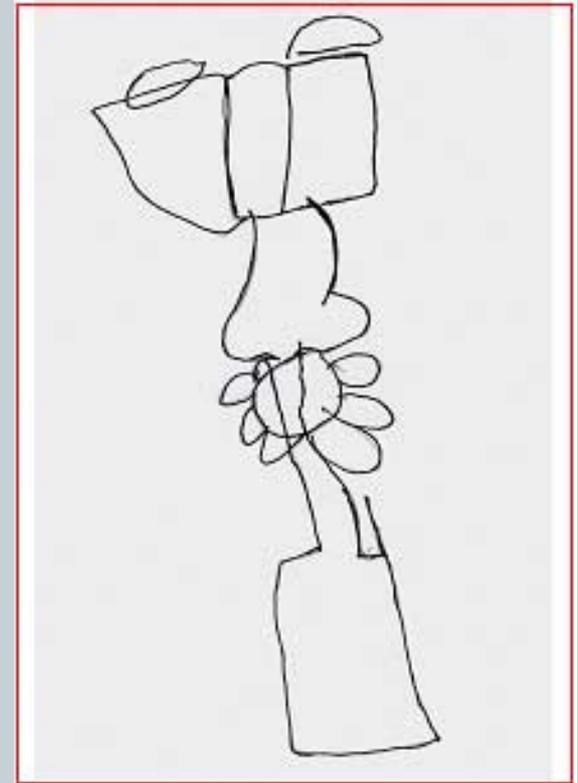
Trip to Clinic

When we arrived at the clinic, Teli's grandfather, a doctor who works there, was waiting for us in the parking lot. He first took us to visit the lab. There, children were able to look at blood samples through a microscope. Children recalled that bone marrow is inside their bones. The teacher commented that blood cells are produced inside our bones.

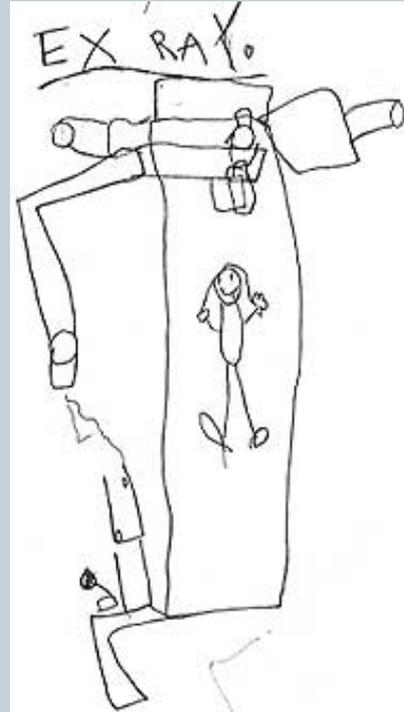


Phase 3 – Writing (and Drawing) and Research

Some children made observational drawings of the microscope and what they saw.



Next, we went to see the X-ray machine. The doctor demonstrated how the machine worked and how he took X-rays.



After the visit, the children retold the story of their field experience. They recalled what they saw and compared their narration of the trip to the predictions made before the trip. They concluded that they did see sick people, doctors, nurses, and the X-ray machine, but they did not see doctors' offices or tools.



After retelling the story, children worked on journal entries that expressed what had interested them most during the visit.

The following day, as we held our morning meeting, we realized that we had a lot to do. Children and teachers suggested work that needed to be done. We formed several groups, and the children selected what they wished to work on.

- ***Writing a Thank-you Letter to Teli's Grandfather*** (the doctor who took care of us at the clinic). A group of children talked about the visit and what they wanted to write about.
- ***Becoming Bone Experts***. Some children were interested in finding out names of bones and their location in our body. They worked in pairs and labeled a diagram of the skeleton by looking for information in books. Each of the children learned some names and shared his or her knowledge with the rest of the class at the end of the day when each group reported what the group had worked on during the session.

- ***Building Bones.*** One group of children first drew a big plan of what they wanted to do, which showed the outside and the inside of the bone. They labeled the different parts of a bone and included words such as bone marrow and red blood cells.
- ***Building an X-Ray Machine.*** Some children looked at the pictures of the X-ray machine taken during the field visit. They discussed them and made a list of things they needed in order to build the machine. Then they proceeded to number the pictures so that they could each be in charge of building a specific part. Next, they drew an enlarged floor plan of how the machine should look.



BOCCE
PLASTIC
METAL
BOTONZ
LAPZ
MAGIS

One child thought about the length of the machine and represented it with Unifix cubes. "I want the machine to be 48 Unifix cubes long." The teacher used a meter stick to measure the cubes that were lined up on the floor in order to model for the child how things can be measured in different ways. The child helped her, and the teacher said, "48 Unifix cubes is the same as 1.9 meters."

The teacher used a meter stick to measure the Unifix cubes a child used to represent the length of the machine.

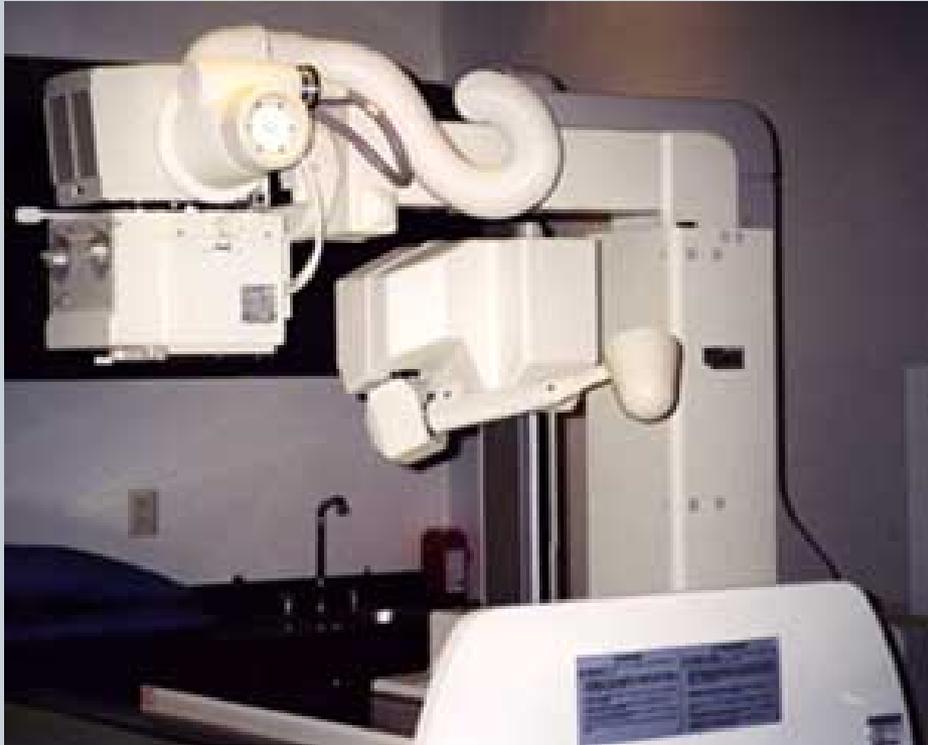


The children selected recyclable materials and started to work on their machine. They observed the pictures closely because they wanted it to resemble the "real thing" as closely as possible. They labeled the parts of the machine and wrote down each part's purpose. The children completed this piece of work after six sessions.

The children looked for boxes that matched the parts of the machine that they intended to build.



Dan used a hammer to add on a piece of wood in order for the machine's table to be the length that he had decided on.



^ The photograph of the x-ray machine
The final product. >



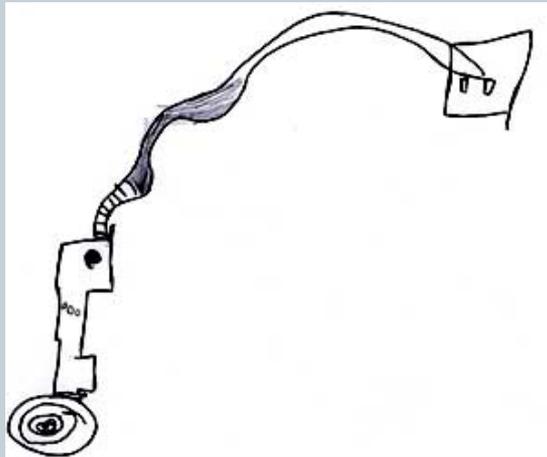
New Questions Arise

Several children were still insisting on finding answers to some of their previous questions that were unanswered so we decided it was time to ask an expert to come to our classroom. The teacher talked to an orthopedist and asked him to focus on answering the child's questions that she posed to him prior to his visit.

- What is a cast made of?
- What happens if a cast gets wet?
- How do you get a cast off?
- How long does it take for a cast to get hard?
- How are bones held together?
- How can we take care of our bones?
- Why do we have bones?



The orthopedist placed a cast on a child's arm. The children looked at a clock to find out how much time it took for the cast to get hard. The orthopedist also explained how we can take care of our bones. He answered their questions, and they also got a chance to look at his tools.



A New Area of Interest: Taking Care of Our Bones

The day after the physician's visit, a child brought a helmet from home. He explained that he used it when he rode his bike and that it helped him take care of his skull. During the next few days, several children brought in diverse gear that protected their bones against injuries. They tried on the gear and used the equipment for role-play.

Because the children's interest focused on how to take care of their bones, the teacher brought in several food items that contain calcium. They cooked macaroni and cheese and tasted different dairy products.

A group of children decided to become calcium detectives, and they looked for the word calcium on labels and boxes of food products to determine whether they were good for their bones. The calcium detectives thought that it would be a good idea to tell their classmates about products they could eat to make their bones strong. They designed "Strong Bone Menus," which they shared with their peers. The menus were later displayed in the classroom for everyone to see.



Phase 4 – Revision and Editing

The whole class contributed to writing an original poem about bones, which all of the children learned.



I Have Bones

There are bones in my arm.
There are bones in my hands.

There are bones in my leg
and hips too.

I have a skull in my head.

I have ribs in my chest.

When I go to sleep my bones grow.

Originally, the last line of the poem read "When I go to sleep my bones rest," but one of the children argued that while we sleep our bones grow.

Phase 5: Presentation and Celebration

The Bone Museum

After six weeks of intense and productive work, our children's parents came to school to share with their children all that the children had learned about bones and to see their work.

The children sang a song and performed a dance about bones. Next, the teacher shared pictures and samples of work through a PowerPoint presentation, which she had used to document the project since its beginning.

After the PowerPoint presentation, the Bone Experts shared their knowledge with their parents by answering the parents' questions. They were also able to ask the audience questions, and they had a lot of fun when their moms and dads did not know the answers. Parents were then invited to visit the Bone Museum with their children.



Conclusion

- Throughout the Bone Project, the kindergarten children were able to apply basic skills to solve real-life problems. They not only touched upon the requirements for their age and grade level, they surpassed our expectations of the knowledge they gained and the skills they acquired.
- This project made a difference at our school because the children's self-motivation, excitement, interest, willingness to work hard, and their display of creativity and problem-solving abilities amazed other teachers who were reluctant to try project work.
- Parents responded enthusiastically and were fully involved.

Essential Elements of Project Based Learning



- Focus on significant content
- Develop 21st Century skills
- Engage students in in-depth inquiry
- Organize tasks around a driving question
- Establish a need to know (Why is it important to know this?
Can I apply new skills to real problems?)
- Encourage voice and choice
- Incorporate revision and reflection
- Include a public audience

Handout: *PBL Essential Elements Checklist*, Buck Institute for Education, 2011.

Start Small

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“We are all learning new possibilities. These new possibilities are presenting us each with some challenges. These challenges are resulting in growth.” - Veteran Teacher

- Customizing your curriculum or incorporating project-based learning into your classroom will initially be challenging and will take some preparation and patience on your part.
- Start small...begin with one project and see how it goes.
- Remember that “disequilibrium” or the discomfort with trying something new, moves us to higher levels of professional development and deeper levels of understanding.

Reflection and Review



- In your journal, reflect on the day. Jot down one time waster you have the ability to eliminate. Where could you find extra time in your day for long term projects and investigations?
- Complete your evaluation for Session Three.

<http://bie.org/resources>
<http://www.edutopia.org/>
<http://www.naeyc.org/>

Assignment for Session Four

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- Using your TSG Class Profile, select one group of children you would like to move from one level to the next in literacy or math.
- Bring the Class Profile to Session Four and come prepared to share how you adapted your math or language curriculum to scaffold that group of children from one level to the next.

Note: In Session Four, you will sign up for one of four groups. In Session Five, you will have the opportunity to share what you have implemented in your classroom with other participants who will be able to ask questions and offer comments.

Assignment for Session Five

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1. Choose a worksheet or cut-and-paste activity you typically use and replace it with an alternate hands-on activity with open-ended materials that teaches the same TS GOLD math objective.
2. As children are working, collect evidence for the TS Gold math objective that evaluates the level of children's engagement and understanding of concepts in the lesson.
3. Bring examples of the worksheet, cut-and-paste activity and the alternate activity and evidence to share with the group at session five.

Bring to Session Five



Mounted on chart paper, poster board or trifold:

- Before and After Photos (assignment from Session Two)
- Best examples of documentation: one for math, one for ELA and one for SE (name TSG objective for each)
- Example of alternate hands-on activity with open-ended materials to replace a worksheet or cut-and-paste activity (assignment from Session Three)
- One important takeaway from this seminar
- One goal you have for 2016-17

At end of day, completed evaluations will be collected and certificates will be distributed. We will close with a final whole group activity.

Questions?

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