Building to Learn
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What is Design-Based Learning (DBL)?

- My students built solutions to design challenges to learn the required educational standards. They created solutions to design problems by building 3-D Never Before Seen models to learn educational standards.
- I began by thinking about what concepts I needed to teach. I identified a problem and stated it as a NBS Challenge. I presented this problem to my students who were given the challenge of designing a 3D NBS object to solve the problem at hand. I listed “don’t wants” and “needs” based on curriculum standards and content. This was used as my criteria for assessment. Students then attempted to solve a problem by building 3-D models using the set criteria as guidelines.
What is Design-Based Learning?

- Once models were assessed and after we discussed their designs, they were followed up by Guided Lessons. Students researched, gave oral presentations, summarized by writing, made comparisons and interpreted information and put it into graph form. Our last step was to revise models when necessary and to review the entire process. We culminated challenges by discussing what would come next as part of the story we would tell throughout this design process.

- The Doreen Nelson Method of Design-Based Learning consisted of 6 1/2 steps. First the teacher asked herself what she needed to teach. Then she identified a problem from the curriculum. It was then stated as a Never-Before-Seen Design Challenge. Criteria was then set for Assessment. Students built never-before-seen 3-D models. The teacher then followed up with guided lessons. The last step was for students to assess and revise their designs.
They acquired higher level vocabulary and were able to use what they learned through DBL Challenges and apply it to new situations. Exposing them to the vocabulary used in DBL, they acquired much of the terminology and used it regularly.

My ELL students had difficulty with the English Language. Their vocabulary was very limited making it difficult for them to communicate well. Through DBL, most acquired a higher level vocabulary and DBL terminology through the setting of criteria and after much discussion. They not only used this new acquired vocabulary to interpret their designs, but made it part of their everyday vocabulary.

DBL provided a learning setting that was comfortable for many of my students. I observed many of my timid students and those who struggled academically thrive in this learning setting.
About the Researcher

- Virginia Lopez-Pech, a Kindergarten teacher with The Baldwin Park School District in Baldwin Park California, conducted DBL in my classroom from 2006-2008. I was a very traditional teacher, but I implement Design-Based Learning regularly due to the excitement it generated from my students. From that came higher level vocabulary as students used words such as plan, create, landforms, and movement systems regularly.

- At times I experienced difficulties transitioning from conventional teaching methods due to the high noise level, the planned ambiguity of this methodology and it not being readily accepted by my administrator. Ambiguity is planned so that all answers to a design challenge are acceptable. Students must analyze a situation and solve a problem. However, when I focused on my students vocabulary, their insight into their designing and how much they enjoyed “learning” the concepts taught, I found myself applying it more often.

Reviewing the interpretation of a student's Second Skin.
Stylization

- Symbolic thinking is part of DBL. I stylized a rosary because it has special meaning to me having been passed onto me from my grandmother. I used it to present the pathways used throughout my DBL Project. Each orange bead represented guided lessons used to follow up a challenge. The smaller yellow beads represented state standards that were met through the challenge. The red rectangular shapes represented the challenge given to my students.
School Population

- Participants are Latino Kindergarten Dual Immersion students aged 5-6. They were from a low socio-economic strata. 90% were English Language Learners. Only about 20% attended preschool so for most, this was their first school experience. They had very limited oral skills in both their first language and English. Getting them to expand their vocabulary or explain things was difficult.

- Through DBL I was amazed by the speed that my students acquired vocabulary and how they were able to problem solve. They orally interpreted their solutions. They used many of the precise words that I exposed them to in their every day speech. Words such as “shelter”, “movement”, and “survival” became part of their oral vocabulary.

Critical thinkers ready to design, construct and explain.
Why 3-Dimensional?

- For my young students, listening to a lecture or watching me explain a lesson was not as effective as having them actually build something. As they built 3-D models it improved their understanding of difficult concepts, such as how a community functions.

- They built 3-D designs to better understand the concept that I was teaching. They physically held the object in their hands and assessed it to see that it met the specified criteria that I required and listed. Having the 3-D design in their hands better enabled them to describe the object orally and then summarize it in written form.

- When revisions were necessary they easily rebuilt their models or made the necessary physical changes. Being able to manipulate their creations in this way gave them a feeling of control, They felt as if they were in charge. That can be very powerful for a young child who is often accustomed to having adults be in control.
Materials Used

- Materials used for Design Based Learning Challenges are easily attained. I used empty food boxes, bottles, paper, scissors and various other recyclable objects. My students eagerly contributed building materials which made them feel they played an even larger role in the building process. These materials were inexpensive and were easily manipulated and replaced. The use of these kinds of materials supported my guided lessons on conservation and recycling.
Never-Before-Seen (NBS)

- In the past my students usually attempted to recreate designs that already existed (already been seen). Now I required them to develop original designs using their own creativity (NBS) and to justify their creations. I didn’t want them to duplicate what already exists. They were required to follow the criteria I set for each challenge. Often they met some of the criteria and had to be reminded as they designed to include all the specified criteria. It was difficult at this age for them not to copy one another. Many of the designs created were NBS and the thinking process used was very innovative. This process was later described by my students when presenting their designs to the class.

Students were required to produce original designs and justify them. Pictured above: a NBS Creature that jumps to move and catch food.
History Wall

- Throughout our challenges a story was unfolding. Challenges followed a planned sequence which connected them to one another. Each challenge subsequently increased in complexity and built on previously accomplished challenges. The History Wall was a visual display of the sequential process used in my project. My students learned to follow the sequence of the story that was being told. I used this display to review our sequence and as a precursor to the next step in our story. It was used to teach the communication process.

- Students identified the sequence and how it connected challenges to one another. They were able to explain what was displayed on our wall and took pride in sharing that information with parents and classrooms visitors.

Students enjoyed reading the history wall to one another and talking about how their challenges were designed to function.
Criteria

Criteria for each challenge was based on grade level standards. I set the “Needs” requirements for the challenge represented in green on the right hand side. Together students generated the “Don’t Wants”. These were things they felt should not be part of their design. This involvement in creating the criteria list gave them the feeling that they had managed important decisions about the challenge. I used this criteria list as a rubric for grading.

As students spoke aloud and read and reread the criteria they built vocabulary and developed writing skills.

<table>
<thead>
<tr>
<th>DON'T WANT</th>
<th>NEED</th>
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<tbody>
<tr>
<td>People to laugh</td>
<td>Must be 3D (cannot be flat, like a picture)</td>
</tr>
<tr>
<td>To feel embarrassed</td>
<td>Hand held object (something small)</td>
</tr>
<tr>
<td>Anything scary or violent</td>
<td>Must symbolize student (how is it like you?)</td>
</tr>
<tr>
<td></td>
<td>Must not be too big (small enough to fit in backpack)</td>
</tr>
</tbody>
</table>
Pathways

- Pathways were the sequence of design activities used for the project. Pathways were based on state standards and curriculum lessons. All pathways were linked together and led to a final activity. My pathways were displayed on 10 planning boards and indicated the challenges to be met each school month for one year. They were a visual presentation of DBL. Chapters of the story that would unfold throughout out challenges.

- Pictured to the left is the legend. The boards are read across from left to right. Challenges are displayed in the red lined triangles at the top that listed challenges assigned to students. Large colored squares indicated the content area for each specific guided lesson (pink-Language Arts, green-Math, blue-Social Studies and purple-Science).

September-The legend is at the left. Triangles at the top represent the 2 challenges for the month. Guided lessons are listed below.
Pathways Continued

The yellow rectangles below the colored squares displayed state standards. Small grey dots placed below each yellow rectangle indicated the time allotted to each guided lesson. Each grey dot represented 20 minutes.

- Having this visual representation in my classroom kept up my pace so that all challenges were met within a school year. Parents saw that DBL encompassed state standards and that guided lessons were based on Kindergarten Curriculum.

- Pathways are connected and lead up to the culminating DBL Action.

Starting with the legend in the top row, all Pathway Planning Boards combined, show an academic school year of planned challenges.
Designing a Curriculum integration Chart for each challenge kept me focused on what I taught and how I was going to go about meeting the standards for that concept. It kept me on track. I found myself adding lessons as I went along that fit into the challenges.

The chart displays the following: The Powerful Idea was the concept being taught presented in purple. Yellow boxes represented State Standards being met through the challenge. The red triangle shape represented the challenge. Orange Boxes were the guided lessons that are taught after the challenge has been designed. Guided lessons were paced over several weeks on my 10 Planning Boards.
Our Story Began

- Most students attended school for the first time and needed to get to know one another, so they used objects to introduce themselves.
- If we were to live together, we needed to better understand each other. Students selected an object that symbolized a part of who they are to better understand each other.
- After studying Life Science, students learned what is needed for survival, they designed a NBS Creature.
- The creature needed a place to protect itself, so they created a NBS Shelter.
- The creature needed a place to put its shelter, so they examined landforms and mapped out the land. They decided where everyone's shelters would be placed and how land would be distributed.
- Shelters were placed together to form a community, a common place to settle where everyone's cooperation is needed to help it succeed.
- As the community grew it became a NBS City designed by students.
- As the population grew, a trade system was needed. Students designed a NBS Trade System to help access necessities.
- City dwellers needed a way to get around to other places and transfer necessities. A NBS Movement System was created.
- The last chapter in our story was a NBS Homage to Honor Personal Accomplishments.
To get to know one another I had students select an object to symbolize who they were.

They brought in an object from home that they felt resembled them somehow.

I found that when students use a 3-D object to represent themselves in order to learn symbolism, then they will recognize that relationships between two different elements form not only physical traits but also their symbolic meaning.

Jesse comparing himself to a walkie talkie because of his talkative nature.
The criteria used is shown on the right.

Students learned to give an oral summary telling how their object was similar to them. They were able to write two sentences about their Introduction Object using descriptive words and NBS terms reviewed previously and learned pre-reading skills.

Other guided lessons taught were the following: classifying objects by attribute, identifying objects that do not belong to a particular group and comparing the weight of objects used in the challenge.

<table>
<thead>
<tr>
<th>DON'T WANT</th>
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<tbody>
<tr>
<td>People to laugh</td>
<td>Must be 3D (cannot be flat, like a picture)</td>
</tr>
<tr>
<td>To feel embarrassed</td>
<td>Hand held object (something small)</td>
</tr>
<tr>
<td>Anything scary or violent</td>
<td>Must resemble student (what does it do that is like you?)</td>
</tr>
<tr>
<td></td>
<td>Must not be too big (small enough to fit in backpack)</td>
</tr>
</tbody>
</table>
Attending school for the first time can be intimidating for some children, especially those who are very timid. Gilberto, a very nervous child, was new to the city of Baldwin Park. He and his family didn’t know any of their neighbors and were new to our school. He cried the first few days of school as his parent dropped him off. He was upset easily if he couldn’t see me out on the playground. He only spoke when I asked him questions from a close distance and his responses were always in a whisper. As part of this challenge, a guided lesson followed which asked students to sort their NBS introduction objects. Being early in the year and not quite understanding what sorting meant, my students weren’t sure what to do. I explained and gave them examples several times but they were at a loss. I concluded I would have to repeat this lesson as a whole group activity with much direction. As I asked students where each object should be grouped I looked around at blank faces. Gilberto, however, pointed to where he believed the object should go. He pointed several times classifying objects correctly. Other students who took note of the process Gilberto had used followed suit. As a result I told him I was proud of him for being capable of doing so and shared that with the class. Gilberto developed strong math skills and favored the guided math lessons that accompanied many of the DBL challenges. Sorting, comparing and contrasting, basic math standards for Kindergarten students, were difficult to teach this early in the school year. Introducing this challenge to my students taught them to use it as a reference and made these basic Kindergarten concepts more easily understood when I taught them later in the year.
- If they were to live together, as friends and participants in a class environment, they needed to better understand each other. Students selected an object that was similar to them in some way and shared both how it functions and how the physical characteristics were similar to their characteristics.

- When students designed a new covering for their body they learned to appreciate differences and then were able to better relate to others.

- Cassandra, one of my students drew a long stemmed rose on the paper for her second skin. She struggled academically and had very low self esteem. She performed much below the rest of her classmates who were aware of this.

Daisy interpreting her Second Skin, a wrist watch because of her love of math and numbers.
Second Skin Continued

- When she explained having chosen a rose she said the rose was like her because it was very long and beautiful and grows like her. I felt that was an insightful thought for a child that struggled to learn the most basic concepts. I spoke to her after her presentation and told her that I was very proud of her analogy. I noticed a sense of confidence in Cassandra from that day on. She showed much more growth and finished the school year performing at grade level. When the challenge was completed, all students remembered each others’ second skin for the rest of the school year. They often referred to their friends as the object they had selected.

- Guided Lessons used to follow up this challenge were the following: Summarize by writing 2 sentences about your Body Object, identify and describe orally objects used in your challenge in complete sentences, compare the weight and size of objects used in this challenge.

<table>
<thead>
<tr>
<th>DON’T WANT</th>
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<tbody>
<tr>
<td>People to laugh</td>
<td>Must be 3D (cannot be flat, like a picture)</td>
</tr>
<tr>
<td>To feel embarrassed</td>
<td>Must represent you</td>
</tr>
<tr>
<td>Floor Crawling</td>
<td>Hand held object (something small)</td>
</tr>
<tr>
<td>Throwing supplies around</td>
<td>Must have front &amp; back</td>
</tr>
<tr>
<td></td>
<td>Must cover your whole body</td>
</tr>
<tr>
<td></td>
<td>Large enough to see</td>
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NBS Creature

- After studying human life and what was needed for survival, students designed a NBS Creature.
- When students design a NBS Creature in order to learn what constitutes a living thing, they are then able to compare the necessary components of their creature to what humans need for survival.
- Trying to get my Kindergarten students to design a NBS Creature that didn't resemble a human form was not easy for them. After several attempts and much review of the criteria, some were able to come up with some very innovative designs.
NBS Creature Continued

- Joseph, an English speaking student in my Spanish Dual Immersion Class, had great difficulty understanding and speaking Spanish. He often felt frustrated and lost. This caused him to get into trouble. When I asked for volunteers to share the NBS Creatures they designed, Joseph raised his hand wildly. He wanted to interpret his creature for his classmates. He summarized his creature in Spanish, in the best way he could and with help. He had designed one shovel like arm on one side. He explained that was how his creature found food and protected itself. This challenge not only taught Joseph what a creature is and does, it moved him to share his thinking orally with his classmates. As the year continued, many students shared information about what the basic needs of living things are.

Joseph justifying the design of his NBS Creature.
Follow up guided lessons were to name, identify and sort NBS creatures by similarities (family), students collected information, sorted creatures, and interpreted the information into graph form, wrote complete sentences describing their creatures, and identified and described objects used in their design in complete sentences.

<table>
<thead>
<tr>
<th>DON'T WANT</th>
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<tbody>
<tr>
<td>Creature to look like a person that already exists</td>
<td>Must be NBS</td>
</tr>
<tr>
<td>Creature to look like a animal that already exists</td>
<td>Must be 3D-not flat</td>
</tr>
<tr>
<td>Creature to be mean</td>
<td>A way to move/get around</td>
</tr>
<tr>
<td>Creature to hurt others</td>
<td>A way to grasp things-use tools, get food</td>
</tr>
<tr>
<td></td>
<td>A way to defend itself (keep safe</td>
</tr>
</tbody>
</table>
NBS Shelter

- They designed NBS Shelters for their environment to recognize that all creatures need a form of protection.
- When students built a NBS Shelter to learn to identify the necessary components that all livings things need to protect themselves then they concluded that resources and space are limited and must be shared. Students learn the importance of conservation and attempt to find solutions.
- They learned that shelters not only protect against other creatures but also against the elements of nature. Having to share building materials and being asked not to be wasteful when designing, they grew to know that resources are limited and must be shared and conserved if we are to continue to survive in an environment that has limited resources.

<table>
<thead>
<tr>
<th>DON'T WANT</th>
<th>NEED</th>
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</thead>
<tbody>
<tr>
<td>Not too small, their creature should fit in it.</td>
<td>Must be 3D</td>
</tr>
<tr>
<td>Not to look like a house</td>
<td>Must have a way to enter and exit</td>
</tr>
<tr>
<td>Not to be just a box</td>
<td>Must have some form of ventilation</td>
</tr>
<tr>
<td></td>
<td>Must stand up on its own</td>
</tr>
<tr>
<td></td>
<td>Must protect creature from others (keep it safe) and elements (cold)</td>
</tr>
<tr>
<td></td>
<td>Must explain how it functions</td>
</tr>
</tbody>
</table>
Leslie, a very shy child, worked alongside her partner on the design for a shelter they were building. She rarely spoke, but as she built, she explained to her classmate why she was cutting her ice cream box in a particular manner. She later assisted her partner in interpreting their design for the class using DBL terms. She became more verbal through their continued presentations and at times led their explanations. Presenting and justifying their designs regularly, students learned to become more comfortable presenting and developed confidence.

Through guided lessons students described the function of the design of their shelter, distinguished and differentiated the characteristics of their shelter, stated and identified geometric shapes used in their design, illustrated and explained orally what they built and summarized by writing about their design.

Leslie explaining how the transparent tape she placed on openings of her shelter filter natural light and help keep it warm.
Mapping Challenge

- The creature needed a place to put its shelter, so they examined landforms and mapped out the land.
- When students analyzed their immediate surroundings to learn to distinguish features of their physical and social environment they then recognized and distinguished landmarks and land forms in their own community.
- Following this challenge it was decided where their creatures shelters would be placed.

Having observed community landmarks, Santa Fe Dam was selected as the site to place their shelters for its water resource.
Mapping Challenge Continued

- Sebastian, one of my brightest students, took our mapping challenge a step further. He and his mother took a car tour and located many of the streets in the immediate area of our school. With much excitement, he reported their findings to me the following day. He had also drawn a personal map of their home. Maps became a common theme in his illustrations following this challenge. He developed an interest in knowing where things were located in his community and enjoyed sharing that information with his classmates and me. This challenge taught Sebastian to recognize important landmarks in his immediate surroundings but also to distinguish features of the physical and social environments around him. His classmates described places in the community by describing their proximity to landmarks or other points of reference we had used. They would say “over by the purple building” when telling me about a place that was close to our local adult school that is painted purple.

- Guided Lessons that followed this challenge were to identify and describe map use orally in complete sentences, design a map for a NBS Community, describe and identify school layout and school workers, identify and estimate locations of landmarks found at school using near/far, left/right, behind/in front of, summarizing the challenge by writing two complete sentences.
Shelters were placed together to form a community, a common place to settle. When students built a NBS Community to learn about how all parts depend on one another to make the system work they then conclude how cooperation and good civic behavior lead to successful interaction.

Students were placed into one of four groups to build their communities. One group had difficulty getting along. The argued over who would use what materials and the placements of structures. As they bickered and fought over materials, one student bumped the community they were designing and their community fell apart.

Students learned the hard way what happens when not everyone cooperates in a community.
There wasn’t enough time to go back and rebuild, so they were unable to complete their challenge. I used what happened to this group to discuss and summarize why interaction and cooperation are necessary from community citizens in order to make the system work. What happened to this group was caused by a lack of cooperation.

Through guided lessons students identified and described jobs and community workers in their NBS Community, constructed and demonstrated maps of their designed community, described the functions of the design and placement of their NBS community and summarized by writing complete sentences.

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<th>DON’T WANT</th>
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<tbody>
<tr>
<td>Not larger than the space given</td>
<td>Must have Places to live</td>
</tr>
<tr>
<td>No bad people</td>
<td>Must have a place to learn</td>
</tr>
<tr>
<td>Anything scary or violent</td>
<td>Must have a place to play</td>
</tr>
<tr>
<td></td>
<td>Must have places to trade necessities</td>
</tr>
</tbody>
</table>
NBS City

- As the community grew it became a NBS City designed by students. I identified what comprised a city and developed the criteria in the chart shown on the right.
- When students built a NBS City to learn about all the parts of a city they were able to then justify how all the parts depend on one another through jobs that are performed.
- Students built a miniature city out of recyclable materials in cooperative groups. They designed a 3D physical model of a city with all the elements of a city represented.

<table>
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<tbody>
<tr>
<td>Not larger than the space given</td>
<td>Must have Places to live</td>
</tr>
<tr>
<td>No bad people</td>
<td>Must have a place to learn</td>
</tr>
<tr>
<td>No alcohol</td>
<td>Must have a place to play</td>
</tr>
<tr>
<td>No guns</td>
<td>Must have a place to buy/trade things</td>
</tr>
<tr>
<td>No knives</td>
<td>Must have places to go if sick/to heal</td>
</tr>
<tr>
<td>No soda</td>
<td>Must have some kind of recycling system</td>
</tr>
<tr>
<td>No fighting</td>
<td>Must explain how it all works</td>
</tr>
<tr>
<td>No killing</td>
<td></td>
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</tbody>
</table>
This challenge taught my students to see the city as a whole and more specifically learn about the role people play in contributing to their city through the jobs they maintain as members of that city.

California Standards based guided lessons that resulted from this challenge included summarizing by writing 2 sentences in journals, differentiating and discriminating similarities of geometric shapes found in the design of their NBS City, orally interpreting the placement of structures in their city and designing a map of their NBS City.

NBS Cities included recreational areas and travel routes for movement.
As students studied city life and the careers that are available within their city, students tried to relate what types of jobs their parents had although most didn’t know. Some knew what companies their parents worked for but were unable to explain what it was their parents did there. Ahilud, a very outspoken child, tried to explain, but couldn’t describe what his father did for a living. Through this challenge, he and many students took an interest in finding out. Many returned with information about what their parents did at work. Ahilud, whose father was a custodian for Shakey’s Pizza, even brought in coupons for all his classmates and shared orally exactly what his dad’s job responsibilities were. His mother shared with me that he and the family had a long discussion over dinner about his father’s occupation the previous night. Four other students explained their parents job responsibilities and shared that information as well. One even brought in samples of the chocolates her mom made at work in a neighboring candy factory. Through this challenge I was able to go beyond what I had originally planned. My students researched their parents jobs and summarized the information in written form. They shared their findings with the class. Not only did my students learn about people and their professions within their city, they learned important aspects of their own parents professions and the types of jobs that are available to them in their own city.
As the population grew, a trade system was needed. Creatures needed an object to use to barter for necessary objects for their survival and for recreation.

When students created a form of trade to learn that objects can be designated to have a common value, then they compare earlier times to today.

Students designed a 3-D NBS trade system to be used within their city. They selected objects that could be found in nature in the terrain their city was built on. Objects that all creatures would value and be willing to trade with.

Students designed NBS animal like creatures that could be found in the water source in the environment to be used for trade. They could be used as a source of food also.
The concept of money or trade is a difficult one for Kindergarten students to understand. Through this challenge my students learned the principles of an economy. They learned the value of goods and services.

Through guided lessons students orally described how their trade system functioned, sorted and classified objects used as forms of trade, orally summarize the value of having a trade system, and summarized by writing complete sentences.

<table>
<thead>
<tr>
<th>DON’T WANT</th>
<th>NEED</th>
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<tbody>
<tr>
<td>Can not be any current form of trade, cannot be bills or coins</td>
<td>Should fit in the palm of you hand</td>
</tr>
<tr>
<td>Shouldn’t be too easily attainable (too easy to make or find)</td>
<td>Need to explain why it would be considered of value to others</td>
</tr>
<tr>
<td>It shouldn’t be unattractive (ugly)</td>
<td>Must be NBS</td>
</tr>
<tr>
<td></td>
<td>Must be 3D</td>
</tr>
</tbody>
</table>
NBS Trade System Cont.

- It is difficult for kindergarten students to understand the mechanics or appreciate the value of a trade system. They believe that when parents run out of money, they can run to a bank to get more. One student in particular, Louie, often remarked that his mom was mean because she didn’t buy him all the toys he wanted. After this challenge, however, he and his classmates often remarked that their parents couldn’t always buy them the toys they wanted because they needed to spend their money on necessary items like food and clothing. This challenge also taught them that all people must value the same items in order for them to be worth something and be used for trade. They learned the history of money and what many countries used for trade many years ago, such as shells once traded in Africa. This challenge taught them what trade is and to appreciate the value of money and the difference between wants and needs.
City dwellers needed a way to get around to other places. A NBS Movement System was created for their city so people could physically move or move objects.

When students built a NBS Movement System to learn that movement systems connect individuals to communities in order to gain resources then they interpreted how the movement of people and natural resources are important to their survival.

Louie and Kathleen demonstrate how their NBS Movement System, a box with two twigs attached underneath transports.
The challenge concluded with guided lessons in which students named and distinguished traffic symbols used along with their NBS Movement System, they illustrated and explained orally how their system worked, students described the functions of their movement system, identified and sorted geometric shapes used in their design and summarized by writing 2 complete sentences.

<table>
<thead>
<tr>
<th>DON'T WANT</th>
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<tbody>
<tr>
<td>Must not look like a car, truck, train, plane etc.</td>
<td>Must be 3D</td>
</tr>
<tr>
<td>Must not work magically</td>
<td>Must actually move (on land, air or water)</td>
</tr>
<tr>
<td></td>
<td>Must move goods, people or services</td>
</tr>
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<td></td>
<td>Must demonstrate how it transports</td>
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During our movement challenge most of my students related movement to getting from one point to another. It was difficult for them to understand even after giving them several examples, that objects need to be moved also. Laisha built a movement system out of a water bottle and used two rounded strips of play dough to get it to roll. As she presented her design to her classmates, she told them that it could be used for the blankets her mom brings from Mexico to sell. She said that with this system her mother could transport many and earn lots of money. She explained that her mother usually drives her car and doesn't have enough room for the large boxes she brings back.

Through her design, Laisha was able to visualize the merchandise her mother sells being transported through her movement system and shared it with the class. Another student then said that perhaps his design could carry his grandmother to his home for a visit from Mexico. Several students contributed stories about things or people that could be transported through their movement system.

Physically creating a NBS Movement System taught my students about movement through the use of their five senses. They were able to visualize and physically feel and move their systems helping them understand the concept.
NBS Visual Homage to Personal Accomplishment

- The last pathway paid homage to each student’s personal accomplishments.
- When students built a NBS Visual Homage to Personal Accomplishment to honor personal achievements to learn to recognize the rewards of commitment and hard work then they recognize people who have contributed, through their achievements and dedication to the history of this country.
- Students were asked to think about what they had learned that school year. They designed a monument to honor their accomplishments.

Vanessa attached popsicle sticks with patterns on them depicting her mastering of math patterning. Luis attached a flower with his face on it depicting his new knowledge of plants.
NBS Visual Homage to Personal Accomplishment cont.

- For many it was learning to read and write for the first time. For others, it was learning a physical activity. All students had at least one personal achievement they felt pleased about.
- California Standards based guided lessons that resulted from this challenge included summarizing by writing sentences, differentiating and discriminating similarities of geometric shapes found in the design of their Visual Homage, Orally explaining what their personal triumphs had been, and designing a map of where in their NBS City their Visual Homage should be placed.

<table>
<thead>
<tr>
<th>DON’T WANT</th>
<th>NEED</th>
</tr>
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<tbody>
<tr>
<td>Must not be bigger than your hand</td>
<td>Must be 3D</td>
</tr>
<tr>
<td>Should not look like a statue</td>
<td>Must be erect and stand on its own</td>
</tr>
<tr>
<td>Should not look like a trophy</td>
<td>Must symbolize your accomplishment (what you have done well)</td>
</tr>
<tr>
<td>Must explain your design</td>
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</tbody>
</table>
Students were asked to discuss an important accomplishment they had mastered that school year. Students noted achievements in many different areas. Many discussed learning to read, write, ride a bike, learning to listen well, learning to jump rope and building things. Students all responded differently. What was wonderful was that all, even those who struggled the most academically, had something they were proud to have achieved that year. Building a NBS Visual Homage to Personal Accomplishment honored them for their hard work and accomplishments. It also helped them understand why we as Americans pay homage to so many important people in our history. We celebrate their contributions through holidays and monuments that are erected to commemorate them. They learned why we hold them in such high regard. It also honored them as kindergarten students and as individuals for their own personal accomplishments.

After this challenge, many students pointed out monuments or statues they ran across in books in the classroom or newspapers brought from home. They discussed why presidents faces were put on money and why we have certain days off to celebrate their birthdays.
Results/Conclusion

- My students were Dual Language Kindergarteners, most were English Language Learners. They came from varied backgrounds and had different learning styles. For most, this was their first school experience. This methodology benefited even my students who often struggle to learn very basic concepts.
- DBL created an environment where my students developed problem solving and critical thinking skills. They learned from their own creativity.
- They used what they learned through these challenges and applied it to new situations.
- They acquired higher level vocabulary through building and orally sharing about their designs. They continued to use it as part of their everyday vocabulary.
- My project helped me reach the varied learning styles of my students in a setting that they were comfortable with.