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# Research Project for Rokenbok Educational Foundation

Brian Becker-Tirrill  
*University of San Diego*

Paul Eichen  
*University of San Diego*

Stefanie Kurtz-Harris  
*University of San Diego*

Jennifer Tracy  
*University of San Diego*

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Equipo de Ingenieros en Acción

(Team of Engineers in Action)

A Collaborative Program of

Rokenbok Educational Foundation

and

Center for Academic and Social Advancement

Brian Becker-Tirrill

Paul Eichen

Stefanie Kurtz-Harris

Jennifer Tracy

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## Needs Assessment

*Problem Statement:* Studies report a continuing decline of the nation's science and engineering workforce, and cite this decline as a serious issue facing today's educational system. Also reported is under representation of minority, low income, and female students in science, technology, engineering, and mathematics (STEM) subjects. This failure to recruit a diverse population to the study of STEM subjects threatens the continuation of an adequate pool of future scientists, mathematicians, and engineers in the United States.

*Introduction:* Today's students are tomorrow's workforce. In order for the United States to remain competitive in global marketplace we must improve the quality of STEM education in the US. President Obama has identified this as a key national priority, and in 2009 launched the "Educate to Innovate" campaign with over \$250M of public and private funding. Increasing STEM opportunities for minority Latino students is a goal of this campaign.

Research shows that academic interventions are more successful with younger students. For example, Head Start programs have demonstrated ability to help under-served preschool students prepare cognitively and socially for kindergarten, on par with the general population (US Dept of Health, 2010). For many under-served preschoolers, the basic skills learned in Head Start classrooms are the foundation for academic success in primary school and beyond. In preschool, children gain understanding of how to interact with teachers and peers, as well as basics skills; counting, letters, colors, etc. (focus group, Nov 5, 2010). Students from Latino families often arrive in preschool with comparative strengths in self-regulation and communication skills because low-income Latino youth engage in group play with other children in broadly defined family units (A. Wishard-Guerrera, interview, Oct 28, 2010).



Initial research conducted by the Center for Academic and Social Advancement (CASA) has indicated the Rokenbok construction toys with instructor scaffolding create a cognitive ecology beneficial to school aged students' acquisition of STEM learning readiness skills (Vazquez, O. et al 2010). Rokenbok has extended its range of construction toys into preschool manipulatives (ROK Blocks) that CASA researchers intuitively feel will allow the extension of this type of intervention to younger students with less adult scaffolding. A quasi-experimental study examining the viability of ROK Blocks manipulatives and curricular activities for developing affinity and capacity for STEM subjects in preschool children is indicated.

*The Target Population:* The target population is children four to five years old who are primarily Latino and bilingual (Spanish/English). The Latino population is underrepresented in science fields (TRPI, 2008, SANDAG, 2010). Latino students are the fastest growing segment of the student population in our local San Diego County community, as well as a rapidly growing segment of the national population, yet their achievement and preparation for higher education remains low as measured by literacy, grade retention, high school completion, college eligibility and completion (TRPI, 2008). The target population is well represented in California Head Start preschools, where 71.6% of students are of Latino origin and 53% speak Spanish at home (California Head Start Association, 2010). Key informants observed that these students arrive in preschool with both strengths and weakness as compared to children from middleclass backgrounds. Low-income Latino youth tend to engage in more group play with younger and older juvenile family members, and their self-regulation and group communications skills tend to be more highly developed. At the same time, their families are less likely to have sophisticated educational manipulatives, like LEGOs or Rokenbok, in the home (A. Wishard-Guerrera, interview, Oct 28, 2010). A recent study of Rokenbok toys with this target population in after



school programs indicated a missing literacy in using symbolic instructions to complete step-by-step convergent play tasks, like building a construction toy model (Vasquez, et al, 2010).

*The Target Community:* San Diego County is the fifth largest county in the USA, home to 3.2 million residents: 31% of the population is of Latino descent; 33% speak a language other than English at home; 21% of residents were born in another country (SANDAG). 12.62% of San Diego County residents are below the poverty level. (County of San Diego HHSA, 2010) With such a diverse population comes a unique opportunity to influence education for low-income and minority students.

*Early intervention with block play:* Research shows that earlier academic interventions have the greatest beneficial permanence; preschool interventions are most effective (Campbell & Ramey, 1994). There is a great deal of investment in interventions to increase enrollment and success in STEM education; however the preponderance of these interventions are for students in universities and high schools (Kuenzi, et al 2006). Literature shows that block play can have manifold beneficial impacts on preschooler's social and cognitive development (Conrad, 1995). However, there is a lack of empirical research into the optimal combination of manipulatives and activities to support academic achievement and affinity for STEM subjects. Preliminary research indicates that novel manipulatives and curriculum may have significant beneficial impacts (Vasquez, et al, 2010). Additional research of manipulative designs and curricular activities is needed.

*Why address this problem now and why in this community?* There is a strong need for increased STEM educational opportunities for minority students; according to the National Science Foundation Science & Engineering Indicators (2010), there is a significant achievement gap for low income and Hispanic populations within STEM fields. Klibanoff, et al (2006)



studied preschool math knowledge and the amount of math-talk from teachers in class observing, “marked individual differences in children’s conventional mathematical knowledge by four years of age that were associated with socioeconomic status.” However, Dearing et al (2009) found that “low income was less strongly predictive of underachievement” when children were in care settings that promoted early school readiness. As our economy increasingly relies on technology and workers with backgrounds in science and mathematics, the dearth of people of color in these fields means the cycles of poverty are likely to continue (Maple & Stage, 1991). However, “Post-secondary education in [STEM] has become crucial to accessing the more rewarding and rewarded sectors of the economy” (Crosnoe, et al 2004, p. 95 ).

*Primary Data Collection:* Focus groups and key informant interviews have brought insights into the needs and challenges of early childhood education (ECE), providing information about learning ecologies and expected developmental outcomes. Participants were asked about preschool curriculum development, math and science learning, classroom teaching materials, developmental outcomes, and manipulative materials most conducive to beneficial development.

Our seven key informants were recruited from the UCSD communications and education faculty, graduate students conducting Rokenbok research, UCSD affiliated Head Start preschools, and ECE faculty from Point Loma Nazarene University. In addition, we held a focus group of five people which included preschool teachers and administrators, a Russian Montessori preschool owner, and a researcher of low-income Latino populations and education.

Interviewees concurred that preschool learning is both cognitive and social, with a main goal being preparation for kindergarten. More importantly, during this critical time children are forming their permanent image of themselves as learners. Structured play is vital, allowing exploration of ideas and concepts without being overwhelmed (A. Wishard-Guerrera, interview,



Oct 28, 2010); teacher intervention and one-on-one interaction is also vital (A. Marcello, interview, Nov 5, 2010). Irena Isaeva a Montessori teacher and scholar, explained that there are “finite windows of opportunity” for teaching certain concepts to children (focus group, Nov 3, 2010) making early intervention so important. When asked about how preschoolers learn, teachers in our focus group immediately stated, “by manipulating things” and often returned to the importance of sensory and manipulative learning (focus group, Nov 3, 2010).

The focus group members & key informants shared their experiences working with parents to engage in learning activities with children. All agreed that parent involvement is a vital part of children’s success, although this involvement varies by family and culture.

All of the above indicates the importance of early interventions to develop affinity for STEM learning, particularly during developmentally sensitive periods when children form their images of themselves as learners. Children from low-income families are less likely to get these interventions at home because parents may be less likely to engage in one-on-one play and families are less likely to have sophisticated educational manipulative toys in the home (A. Wishard-Guerrera, interview, Oct 28, 2010). Young children learn through manipulation of objects and sensory experiences; our interviewees all agreed that block play is an important part of child development. Early intervention is critical: “the most important learning is preschool and everything afterward diminishes in importance” (K. Wilder, interview, Nov 5, 2010).

*Conclusion:* There is a critical need to rebuild student population’s affinity and skills for STEM learning nationally. Research indicates that tackling this challenge at the earliest point in academic careers may be an optimal strategy to help form students’ self image as problem-solvers, creators, and researchers. Because young children learn best through manipulative play, novel approaches to preschool manipulatives and activities are strongly indicated.



## **Program Design and Methodology**

*Literature Review:* The issues affecting student's STEM achievement are multifaceted and nuanced, although some broad conclusions can be drawn from the literature. Overall, children from low income and/or minority families are much less likely to be represented in STEM fields. According to the National Science Foundation Science & Engineering Indicators (2010), there is a significant achievement gap for low income and Latino populations within STEM fields. "Childhood poverty is associated with ... higher rates of academic failure and grade retention" (Campbell, et al 2002, p. 225 ). Klibanoff, et al (2006) observed "marked individual differences in children's conventional mathematical knowledge by four years of age that were associated with socioeconomic status." By and large, women and people of color in STEM fields are "under-represented relative to whites, especially at the PhD level" (Maple & Stage, 1991, p. 32). "Post-secondary education in business, science and technology has become crucial to accessing the more rewarding and rewarded sectors of the economy" (Crosnoe, et al 2004, p. 44).

As our economy increasingly relies on technology and workers with backgrounds in science and mathematics, the dearth of people of color in these fields means the cycles of poverty are likely to continue (Maple & Stage, 1991). In addition to the deficiencies in STEM development, a recent study by a UCSD research team identified 6 - 10 year old children from low-income and Latino backgrounds struggled to use graphical instructions. They noted, "Many of these children were not able to perceive the pieces as smaller components of a larger system with an organized step-by-step progression" (Vazquez, O. et al 2010). Without this ability to connect graphical representations to actual artifacts, children struggled to engage with the toys



and feel successful as learners. Researchers realized this was an additional area of literacy that needs to be addressed within the target community.

Beyond family financial resources, there are other barriers and opportunities that can influence early childhood affinity for STEM learning. These can include parent education and parent involvement in children's education, language spoken at home, and the culture gap between teacher and student (Lopez, et al, 2007; Lee, K. 2010; Gormley, W. 2008; Souto-Manning, M & Mitchell, C. 2010). These are important determinants, but several other factors, e.g. access to preschool education, can all play a role in influencing a child's success. Many of these factors are beyond an educator's control, but within school settings beneficial interventions can be made, thus counteracting negative determinants while building on the strengths inherent in some underserved preschool student populations. For example, some experts have noted that underserved Latino preschoolers tend to demonstrate more highly developed self-regulation skills and skills in cooperative play than their counterparts from middleclass backgrounds (Wishard-Guerrera, A. interview, Oct 26, 2010).

There is a great deal of attention and investment in educational interventions designed to increase enrollment and success in STEM education; extensive research has been conducted to discover how children best learn, what affects their learning, and how interventions can influence long-term outcomes. The preponderance of STEM interventions are designed for older students in high schools and universities (Kuenzi, et al 2006). However, research shows that academic interventions at a preschool level more likely to be successful. In a study titled, "The Earlier, the Better: Early Intervention Programs for Infants and Toddlers at Risk" (Park, B. 2008), researchers found "when interventions begin before children reach school age, and are intensive and direct, children who are at risk may demonstrate better cognitive, behavior, and socio-



emotional outcomes than those who receive intervention after preschool” (p. 3). A similar study by Campbell and Ramey (1994) shows that earlier academic interventions have the greatest beneficial permanence on students’ academic skills, and that preschool interventions are most effective. What Works Clearinghouse contributed research that found “focused early mathematical interventions help young children develop a foundation of informal mathematics knowledge, especially for children at risk for later school failure” (What Works, 2007, p. 15). Moreover, despite the barriers faced by low-income populations, Dearing et al (2009, p. 30) found that “low income was less strongly predictive of underachievement” when children were in care settings that promoted early school readiness. A study from Slaby, et al (2005) found that “preschool is essential for closing the achievement gap” (p. 1).

Head Start, a preschool program for low-income children, has demonstrated ability to help children become cognitively and socially ready for kindergarten, on par with the general population (Hindman, et al, 2009; US Dept of Health report). However, a direct link to greater participation in STEM education and professions for the Head Start population has not been directly established. For many under-served youth, the basic skills learned in Head Start preschool classrooms are the foundation for academic success in primary school and beyond. In fact, some argue that preschool education is most valuable because of the “windows of opportunity” that allow children to learn concepts much more efficiently than when learning concepts at a later age (Irena Isaeva, interview, November 3, 2010). In a longitudinal study that looked at family resources and impact on success in mathematics, researchers found that early performance was indicative of later success or failure. While the study did not look at all the factors that affect a child’s mathematics achievement, they did find that “preschool literacy and numeracy enhanced Latino students’ later mathematics achievement” (Lopez, et al, 2007).



There is no better time than preschool to engage children in pre-STEM learning in order to enhance their affinity for STEM moving forward, and thus address the shortfall of people of color entering STEM fields.

We know early intervention is important; the next question is what type of intervention? The use of “play” is the most effective way for children of this age to learn the important foundational concepts and build their identity as learners and problem solvers (Isenberg & Quisenberry, 2002; Jacoby, R, 1993; Wishard-Guerrera, A., interview, Oct 26, 2010). Play not only “facilitates individual understanding of skills, concepts and dispositions” but also allows children to demonstrate their understanding through verbal and nonverbal interactions (Isenberg & Quisenberry, 2002, p. 88). According to early children researchers children “master their experiences through continual play, which is actually the most intensive and fruitful learning of their whole life cycle” (Frank, L. 1968, p. 5). Because preschool children are of an age where they are still engaging predominately through their senses, use of sensory toys and manipulatives are their primary sources of learning; preschool children “[learn] through the discovery of materials” (Kenney, S. 2010, p. 19). There are many options for children’s manipulative play; “sensory tables” for example allow children to discover properties of water, sand, or other materials (Hunter, D. 2002). Another option for children’s sensory discovery is block play (Park, B., 2009; Pickett, L. 1998; Wellhousen, L. 2005; Pate, M. 2009; Tunks, K. 2009; Tokarz, B. 2008).

We focus primarily on block play because the literature shows it can have manifold beneficial impacts on the social and cognitive development of preschoolers. Block play introduces children to “crucial concepts needed for success in early literacy, including visual discrimination, use of abstract symbols, and oral language production” (Wellhousen, K., Giles,



R. 2005). Children are exposed to math and science concepts by experiencing block size, shape, strength, etc.; children learn language and cooperation in group block play as they express their thoughts and explore social partnerships as they create more complex constructions; children practice self regulation while working in a group and problem solving to make a creation. They refine their physical skills including fine motor skills as they push and pull pieces apart, balance a final block on top of a tower, etc. (Hirsch, E. 1996; Conrad, 1995)

Many of the benefits of block play emerge over time. A study conducted by Wolfgang, C. et al (2003) looked at the correlation between preschool play with LEGO blocks and later school achievement in mathematics. The study found that, while the results did not appear right away (5<sup>th</sup> and 7<sup>th</sup> graders did not show significant improvement in math grades), by high school the children who had played with blocks had a significantly increased likelihood of taking more math classes, more honors math classes and earning better grades in said classes. The researchers noted, “we may clearly state that there is a statistical relationship between early LEGO performance among preschoolers and achievement in [high school] mathematics.” A study looking at symbolic representation in block play found a correlation between higher levels of symbolic representation in preschool block construction and “higher reading and faster rate of growth in reading abilities” as those children entered elementary school (Hanline, et al. 2010, p. 22).

Even though these benefits are not immediately apparent, they are nonetheless vital. Stuart Brown, in his book *Play: How it Shapes the Brain, Opens the Imagination, and Invigorates the Soul* shared a story of an aeronautics lab that replaced retiring workers with top graduates from MIT. They found the graduates were successful at theoretical mathematical equations, yet they struggled to “manage practical problems requiring innovative solutions.” The



lab interviewers eventually found a correlation between staff that could problem-solve and those grew up taking things apart with their hands, and incorporated this information in future hiring criteria (Brown, S. 2009, p. 76).

While it is clear that block play can perform an integral part of ensuring young children have the foundational skills for later academic success, it is important to determine the types of block play that best facilitate this learning. There is a lack of empirical research into the optimal combination of preschool manipulatives and activities that will lead to early academic achievement and affinity for STEM subjects. Preliminary research indicates that novel combinations of manipulatives and curriculum may have significant beneficial impacts (Clements & Sarama, 2007).

According to early childhood development experts, “children learn best when tasks are set just beyond what they can accomplish on their own and by receiving guidance from a competent peer or adult” (Morrison, 2000, p. 3); using curriculum to train teachers and challenge young learners is likely to be very effective. Furthermore, data suggests that the most useful combination of block play and curriculum incorporates opportunities for children to “vary his or her action,” “observe the effects of their actions” and see an immediate reaction so the child can “accurately pair the two events” (DeVries, R. & Kohlber, L. 1990, p. 9). Successful curriculum integrates concepts throughout disciplines by connecting math and science concepts to other contexts (Moomaw, S. and Davis, J. 2010). Finally, successful curriculum builds upon skills that children already have, such as increased levels of self-regulation and cooperativeness in play (Wishard-Guerrera, A. interview, Oct 26, 2010). Incorporating parent involvement as much as possible also greatly increases children’s opportunities for success not only in pre-STEM subject, but also as learners in general (Slaby, et al. 2005).



Papert, et al (1991, p.2) posits a theory of constructionism, “learning as ‘building knowledge structures’ irrespective of the circumstances of the learning. . . this happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity, whether it's a sand castle ... or a theory of the universe.” According to Papert’s theory, a child’s optimum creative environment has a “low floor” and a “high ceiling.” In this context, toy manipulatives possess a low floor when they allow a child to play without needing a lot of advanced experience or knowledge. The same system of manipulatives possess a high ceiling if they can present increasing levels of challenge for children as they develop.

Initial research has indicated the Rokenbok construction toys with instructor scaffolding creates a cognitive ecology beneficial to school-aged students’ acquisition of STEM readiness skills (Vasquez, O., et al, 2010). Rokenbok has extended its range of construction toys into preschool construction manipulatives (ROK Blocks) with simple interlocking blocks, while maintaining compatibility with the rest of its system. With this single construction system, children can create constructions along a continuum from basic stacked block sculptures to complex architectural buildings and interactive mechanisms. Communication & child development experts intuitively feel that the expanded Rokenbok system may provide a more ideal cognitive ecology than other available building block and construction systems appropriate for preschool aged children. Coupled with an appropriate curriculum, these experts believe Rokenbok “is a viable instrument for helping younger underserved children to develop science related cognitive skills in preschool and at home. We also expect that the research will show that this product is a valuable educational tool for providing the readiness skills to succeed in academic work.” (Vazquez, O & Wishard-Guerrera, A., interview, Oct 26, 2010). (see Appendix A)



*Purpose of Program:* Based on our literature review findings, block play supports preschool students' development in multiple areas including numeracy skills, language literacy, social and self-regulation skills, and fine motor skills. However, a gap exists in providing advanced manipulative material designs combined with theoretically informed curricular activities to provide an optimal learning environment for preschool students. Our research indicates that such an optimal learning environment may play to the strengths in self regulation skills and cooperative play that underserved Latino populations tend to bring into the preschool classroom. The purpose of our program, therefore, will be to support the iterative development of an optimal block play/curricular activities environment for low-income Latino children in a Head Start preschool setting, which will enhance their acquisition of pre-STEM skills and affinity. We expect the study will show that an optimal block play manipulative/curricular activities environment will materially accelerate young children's skills development, and help them develop positive self-images as problem solvers and creative designers. We hypothesize that this type of skill and self image development will tend to increase affinity for STEM learning throughout the students' academic careers.

*Logic Model Matrix:* The Equipo de ingenieros en acción program (The Program) will provide teachers with curriculum for scaffolded free play with ROK Blocks in order to improve students' early academic achievement and to develop their positive self images as problem solvers and designers, leading to an affinity for STEM subjects. The complete logic model moving from intervention activities toward this goal is presented in Appendix B.

*Program Design:* The Program will have both classroom and in-home interventions. The goal of the program will be to improve early academic achievement with low-income Latino four



and five year old students in San Diego Head Start Programs. The program will be developed through collaboration between the Rokenbok Educational Foundation (REF) and CASA.

The objectives will be aimed at increasing children's social, cognitive and self-regulation development through teacher and parent-scaffolded curricular activities. The curriculum will be used in weekly 40 minute group sessions and during scaffolded free-play activities. Curriculum materials will have components that teach children to use graphical instructions.

The activities for the program will include: contracting with CASA for training, classroom implementation, and evaluation of the program; hiring a curriculum consultant; pilot testing all instructional and curriculum materials; training teachers; creating and distributing toy/curriculum sets for both the parent and teacher program components; meeting routinely with teachers, administrators and parents; and performing evaluation assessments. A summary workplan is attached as Appendix C.

## **Research Methods**

*Research and Design.* Using a quasi-experimental study design, the CASA staff will study the program's effectiveness using control and experimental groups. The experimental group will experience intervention, while both groups will have pre-and post-assessments. CASA researchers will provide detailed data analysis. The research outline is presented in Appendix D.

*Study Sites.* CASA staff will select the control and experimental groups from Head Start centers in San Diego County. Control sites will have similar ethnic and socioeconomic profiles and programmatic offerings to experimental sites. However, the experimental sites will have access to ROK Blocks and the theoretically informed curriculum.

*Participant Recruitment.* REF and CASA staff will explain the program to potential Head Start centers and sign a memorandum of agreement with willing centers. With permission from



Head Start staff, researchers will present the research project to Head Start parents. Researchers will seek the informed consent of parents/guardians for each child's participation.

*Selection of Study Participants.* CASA staff will select participants in both the control and experimental groups from the Head Start sites described in the "Participant Recruitment" section. It will include four and five-year-olds from five experimental and five control classrooms. Teachers will implement the proposed intervention approximately weekly for one year.

*Instrument Development and Pilot Testing.* CASA staff will develop pre-and post-assessments using extensive literature review research and feedback from key informant interviews and teacher surveys. Post-assessment desired outcomes will support the hypothesis that using ROK Blocks will increase children's affinity for STEM subjects and increase their self-image as learners. Teachers will be trained by CASA to conduct pre-and post-assessments.

*Staff Training.* Training will consist of two, two-hour staff orientations for Head Start teachers and administrators and REF staff, and will cover the program, target populations, pre-and post-assessments, and cultural competency. During the first session, staff will be oriented on program goals and objectives. CASA researchers will coach Head Start staff on how to effectively implement both pre-and post-assessments while limiting bias and sample contamination.

*Intervention vs. Control Protocol.* Head Start staff will administer the pre-assessments to the experimental group during the first week of the observation period. Students in the experimental group will then take the post-assessment at the end of the observation period. The control group Head Start sites will take the pre-assessment and post-assessment on the same days as the experimental group. Head Start staff members that have participated in the training will administer pre-and post-assessments to ensure all tests are administered in the same manner.



## Social Marketing Plan

### ***Equipo de ingenieros en acción; diversión que desarrolla creatividad e imaginación!***

(Team of engineers in action, fun that develops creativity and imagination!)

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*Introduction:* *Equipo de ingenieros en acción* is a play-based curriculum for developing skills and affinity for math and science in preschool Latino youth. This cutting edge program is being developed jointly by the Center for Academic and Social Advancement and the Rokenbok Educational Foundation. Initially, the program will be targeted to Head Start preschools in San Diego County; it also includes an in-home component to engage parents in construction play with their children. The program's marketing will target teachers and parents, key stakeholders who will implement the curriculum and encourage children's development of important pre-STEM (science, technology, engineering & math) skills. The key positioning will be: student accomplishment through construction play brings not only joy and pride to children and their parents, but enables children to learn vital concepts that build foundations for success in math and science (Park, et al., 2008). The goal of communications will be to gain deep commitment from teachers within Head Start, and to engender excitement and anticipation on the part of parents and their children.

*Audience Segmentation:* The three key stakeholders who need to receive our message through a program brochure and in-person meetings are: (1) Head Start Teachers, who will be implementing the classroom curricular activities and coordinating the home curriculum component; (2) Parents, who we want to engage in guided play with their children; (3) Local Head Start Administrators, who will be responsible for integrating the program in a manner that meets general Head Start program objectives. Additionally, we hope to have parents communicate excitement to their children, especially around the in-home program component.



The brochure will focus on the idea of children working with adults as a team, and promote the ability to earn toys for use at home. Emphasized is the main program goal of helping to shape the student's positive self-image as an adaptable and creative learner and enhancing children's affinity for technically oriented studies.

*Product:* *Equipo de ingenieros en acción* is specially prepared sets of Rokenbok construction toys accompanied by curricular activities that make it easier for teachers and parents to teach specific skills recommended by the California Preschool Learning Foundations (California Department of Education, 2008). Activities utilize Rokenbok's "low floor and high ceiling" (Pappert, 1991) system of learning opportunities by progressing in complexity and challenge over time, creating the opportunity for students to experience success with increasing levels of technical content. At the same time, the fundamental block manipulative in all program activities is intuitive, fun and easy to use for both children and adults. The building materials and corresponding research-based curriculum are targeted to the needs and abilities of the Latino and low-income populations. The program will utilize ROK Blocks, Rokenbok's unique new preschool manipulative with the following features and benefits: flexible building of three dimensional objects that hold together during play; lightweight and safe; easy to sanitize; gender-neutral primary colors useful for color identification; high quality, with long-term durability.

*Price:* Because the Rokenbok Educational Foundation (REF) will be supplying all of the required materials at no cost to schools, parents and students, there is no financial cost to the stakeholders. However, there are other barriers to entry that our marketing must overcome: Administrators must believe the time and effort involved in introducing new curriculum and training teachers will be offset by student accomplishment and parent involvement; teachers will need to see the value of learning formal classroom activities that may displace currently familiar



and more casual routines, and be willing to coordinate distribution of construction materials for home use. All Head Start professionals should be convinced of the value of assessing the program through student testing as well. Parents will be asked to engage their children in a manner that may move past currently held conceptions of appropriate interaction with children during playtime, and parents of larger families face the challenge of devoting special attention to one child of many. Creating parent-child activities that can engage the whole family is advised. In the classroom, children will be required to play with a new toy that may or may not be their first choice. At home, children will be asked to engage with a toy that is different from toys they usually play with, and different from the toys with which they see other children playing.

*Place:* CASA will distribute program materials to Head Start locations. Initial contact will be made with several programs via their previous affiliation with University of California San Diego as laboratory schools. Additional sites will be identified by CASA and approached with program information & marketing materials. Parents will receive the program during parent council meetings and parent nights at Head Start centers. It will be ideal for parent council members to encourage other parents to participate in the at-home portion of the program.

*Promotion:* Promotional activities will attempt to reach all segments of our audience, beginning with meetings with Head Start Administrators and teachers to initiate the process. Brochures, in English and Spanish (see Appendix E), will be distributed to familiarize teachers with the program and be passed on to parents through student take-home packages. Whenever possible, REF will ask for invitations to parent council meetings and parent/student activity meetings. The quality of the construction toys and the ability of students to earn products to use at home will be emphasized with each target segment, building excitement especially with students and parents about owning these wonderful toys.



## **Cultural Competency**

*Involvement of Target Population:* Rokenbok Toy Company has a 15 year history of developing its system of educational construction toys, and has garnered over 50 industry awards. Their experience in producing construction toys has given them deep insight into the development of educational manipulatives for children where fun and learning overlap.

The Rokenbok Educational Foundation (REF) is a charitable organization affiliated with the Rokenbok Toy Company, and staffed by volunteers. REF is dedicated to helping children develop affinity for science, technology, math, and engineering through play.. While REF staff does not have significant experience with low-income Latino children, they are excited to engage in learning more about this population and producing a program that effectively meets its needs.

With twenty years of community service, CASA is a registered 501(c)3 nonprofit that grew out of a UCSD research initiative to promote the collaboration between under-served Latino communities and the university. CASA helps low income Latino and minority children and adults foster the necessary academic, technology, life, and language skills needed to thrive in school and to be prepared for college and the work force. CASA facilitates multilingual, multicultural educational programs, and is expert in the target population's cultural realities.

Head Start is a federally funded child development program designed to promote school readiness by enhancing the social and cognitive development of low-income children. In San Diego, this population is predominantly Latino, bilingual children four to five years of age. This student population has been growing rapidly, as 71.6% of San Diego Head Start students are of Latino origin and 53% speak Spanish at home. The teachers of the Head Start classrooms are typically from the communities and populations in which they serve.



*Training and Staffing:* CASA and REF will focus on completing a program that integrates the cultural realities of low-income Latino preschoolers in-school and at-home experiences. REF staff will conduct additional field research, and work with CASA staff to receive cultural competency training to inform their work. The training will cover the perspectives of low-income and Latino families regarding education, parent/teacher interactions, cultural values, and historical experiences in education. It will also address stereotypes and cultural assumptions, ensuring staff's perspectives are well-informed and robust. There is a particular need to gain insight into how the population's culture influences play and parent engagement in the home. REF and CASA will engage members of the community in designing the curriculum, including cultural experts and colleagues who are familiar with the population and their needs. They will also engage teachers and administrators from Head Start in curriculum development to ensure that it is reflective of the best practices in working with this population.

Head Start teachers, who will be implementing the program, tend to be from the culture of the children they are teaching. They have significant insight, gained from their personal and professional experience regarding the cultural environment in which children best learn, and how parents will engage in their child's development. Their expertise can be used to influence program implementation in order to ensure its cultural appropriateness. For teachers who are not from the predominant culture of the families in Head Start, CASA will provide cultural competency training and partner them with Latino peers to support cultural awareness.

*Community Representation:* Head Start's structure includes a grantee and may also include a delegate organization to oversee operations of the Head Start schools. Each Head Start school also has a parent advisory board. The parent advisory board's primary functions include advising, providing support and consultation and reviewing new information for school



improvement. CASA and REF will first engage with the grantee and/or delegate organization regarding their proposed plan and how it fits in with the community. Then, the CASA and REF will connect with the parent advisory boards at each school for feedback on their proposed program, at least twice during the year-long program, and once during the evaluation period. When possible, CASA researchers and/or Head Start teachers will report any advancements made by children in the objectives of the program; a final report will be shared with the parents.

*Language:* Because most of the families in our target Head Start schools are Spanish-speaking, it is vital that Spanish-language access is available in various forms. CASA must design curriculum and materials in both English & Spanish; any additional promotional materials, information, or reports must be available in English and Spanish. CASA has the requisite bi-cultural/bilingual staff needed to ensure cultural and linguistic accuracy.

*Materials:* Materials will be developed to address three purposes: to educate teachers and parents about the construction toys & curricular activities; a guide for teachers conducting the intervention; and curricular activities for teachers and parents to use with students.

Printed curricular materials will be in simplified formats utilizing graphical representations. This will allow for utilization of materials with families of diverse backgrounds. While the primary language of families in Head Start are English and Spanish, materials will be appropriate for people who speak other languages, or who have limited reading skills, and will allow Rokenbok educational materials to generalize to a larger population.

*Evaluation:* We will evaluate three aspects of our program for cultural competency: REF staff will be evaluated for cultural competency post-training; promotional materials will be evaluated by members of the target population for linguistic accuracy and cultural resonance; the intervention curriculum will be reviewed by Head Start teachers from the target population.



## Evaluation

*Equipo de ingenieros en acción* is an ambitious program that intervenes to build affinity for STEM academics at the earliest possible point in children's academic careers. Careful evaluation is required both to help iterate and improve the curricular activities, and to develop the financial support to expand the program to additional Head Start classrooms. For *Equipo de ingenieros en acción*, evaluation tools that show children's improvement in learning are vital to building and strengthening the program over time.

*Evaluation design:* The *Equipo de ingenieros en acción* program is a quasi-experimental design implementing specially designed play activities in five Head Start preschool classrooms, while five additional Head Start classrooms will serve as a control population. The goal of the program is to improve children's academic achievement through theoretically informed curricular construction toy activities. By engaging with this program, Five to seven teachers in five Head Start schools will learn new ways to teach important concepts; approximately 75 children will have opportunities to develop cognitively and socially through unique block play activities.

*Measurements:* The measurement for Objective One, the development of curriculum and associated activities, will be a binder containing all developed materials, along with confirmations from each participating center that the blocks and curriculum were received. The graphical instructions and activities will be developed by child development and curriculum development experts, pilot tested with child development professionals and preschool teachers, and will align with the California Preschool Learning Foundations.

Objective Two will be measured by a multiple choice post test assessment of teachers after their introduction of the program and materials to track their understanding of the



curriculum and adoption of it in the classroom. Objectives Three will be measured by student pre and post video observation, one month long each. CASA researchers will arrange for the videotaping during free play time and will codify behavior observation for graphical instruction literacy behavior and self-regulation behavior respectively. Where possible, inter-rater evaluation will be employed. Data analysis will be performed to examine differences between pre and post-tests as well as intervention and control populations.

Objective Four and Five will be measured by teacher evaluation of student cognitive and social development according to the California Preschool Desired Results Development Profile, or DRDP assessment tool. The DRDP includes indicators that assess self-regulation, language, math, learning and six other categories (See DRDP in Appendix F).

Objective Six, the opportunity for take-home activities for parents and children, will first be vetted by Head Start teachers and administrators. This objective will be measured by parent release forms distributed to authorize sending block materials home, and parent reports on at-home play. Through these forms, parents will self-report on their commitment to the at-home activities component and which activities were actually completed.

*Demographics:* After the No Child Left Behind Act was passed in 2001, California School Information Services (CSIS) took responsibility for tracking child data via a Statewide Student Identifier (SSID). The SSID tracks the student gender, age, primary language, ethnicity and legal name (CTAP website, 2008). Each school district is required to assign each child an SSID or use an existing SSID; this ensures student data is tracked even when they change schools. CSIS provides comprehensive services including staff training, software, formal processes and instructional tools (Class Descriptions, 2010). This tool was located via the California Department of Education. CSIS worked with IBM to develop the tools for tracking



this data, it has gone through pilot testing and it is considered to be reliable (EdSource, 2008).

While the validity of the data collected via the CSIS system has been critiqued due to the potential for human error this risk may be minimal for our smaller target population (Hansen, 2006). As possible under the law and Head Start center policy, CASA will confirm the demographic data collected to other sources of information within the Head Start center. The CSIS tool is considered appropriate for our target population.

*Behavior:* The Desired Results Development Profile- Preschool (DRDP-P) is a test used by schools across California to assess children's progress in six "desired results" including: personal and social competence; effectiveness as a learner; physical and motor competence; safety and health; family support for children's learning; family achievement of goals. The measurement was obtained via the California Department of Education website. There are multiple tests from the Desired Results System, each geared toward specific age groups. There are also tests specific for children with disabilities. According the executive summary of the report "*Reliability and Validity of the Desired Results Developmental Profile access (DRDP access): Results of the 2005–2006 Calibration Study*" the DRDP-P is considered reliable and valid for its intended purposes. The results of the test will be assessed to determine if significant improvement was made in the intervention group in development areas linked to block play.

*Evaluation methods:* The DRDP-P is administered by teachers and "must be completed within 60 calendar days of the child's first day of enrollment in the program. Thereafter, it must be completed at the following intervals: ... preschoolers, every six months ..." (DRDP Guide, 2008). Additionally, "Teachers are encouraged to consult and collaborate with others, including assistant teachers and family members, who have ongoing contact with the child," for their insight into the child's development (DRDPR Guide, 2008). There are resources available at the



DRDP website for teachers who need assistance in understanding how to use the DRDP-P. Once per year, each school is required to compile and tally the data to inform a Summary of Findings report, which is submitted to the California Dept. of Education and the Child Development Division (DRDP Guide, 2008).

*Database:* The information collected by teachers will be compiled first using the DRDP-P forms, and then entered into Excel. The DRDP vendor provides an excel spreadsheet for data collection. Excel is selected as it is the data collection method that was developed with and corresponds to the DRDP-P test. Teachers are already familiar with the database, thus their training needs will be minimal, if any. Teachers are responsible for the data entry and analysis, although in some schools support staff enter the data from the teacher-administered tests. Analysis is conducted once per year as the scores are compiled and the administration completes a Summary of Findings.

*Strengths & Limitations:* The Equipo de Ingenieros en Accion program's greatest strength is combining an advanced preschool manipulative block toy system with theoretically informed curricular activities to teach foundational concepts to children at an age when they are most receptive and in need of this intervention. The program takes the economic needs of the target population into account and provides opportunities for the families to obtain an educational toy that may otherwise be out of reach financially. The program targets the most rapidly growing population in our community, Latino families and children (SANDAG, 2010). It addresses the need for more people of color to develop affinities for STEM subjects. The program gives teachers tools they can use to prepare their students to meet assessment standards.

A limitation of the program is that it is focused primarily on the Latino population. This may make it difficult to expand into other populations without significant changes to the



outreach materials, and perhaps the curriculum or activities if they are too narrowly designed. Another limitation of the study is that it does not measure the long-term effectiveness and impact of the intervention. It is clear that children need to engage in STEM activities not just in preschool but throughout their education; without a longitudinal study to follow students from preschool to college it is difficult, if not impossible, to link program outcomes to students' future success in STEM fields. Also, the study only addresses a small group of students; it may be difficult to apply the findings to larger segments of the population. Lastly, the multiple ways children are engaged in play in Head Start preschools, and diverse, multi-layered teaching and learning modalities employed, mean that many confounding factors will have some effect on results.

*Future Research:* Future research is needed to address limitations in the program. For example, a longitudinal study that follows children who participate in preschool block play through primary school; a comparative study that addresses potential confounders that may affect children's STEM affinity (learning disabilities, socio-economic status, gender; cultural barriers); studies that look at the role of family involvement would also shed light on the issues effecting children's development and learning outcomes. A comparative study that tests different types of interventions during play would be useful in determining the most effective ways teachers can tap into children's intuitive desire to learn. Lastly, studies that cover a broader range of ethnicities and socio-economic classes would provide results that could be *expanded* to the larger preschool population.



<i>Equipo de ingenieros en acción:</i> 18 Month Program Budget				
Personnel Costs	FTE	Annual Salary	1/2011 - 6/2012	
<b>Rokenbok Educational Foundation Personnel</b>				
Program Manager Volunteer			in-kind	
<b>CASA</b>				
Principal Investigator	0.1	\$ 95,000.00	\$ 9,500	
Grad Student Researcher	0.2	\$ 35,000.00	\$ 7,000	
Staff Research Assistant	0.1	\$ 45,000.00	\$ 4,500	
Undergrad Research Assistants (3)	0.25	\$ 25,000.00	\$ 6,250	
Administrative Assistant	0.05	\$ 45,000.00	\$ 2,250	
Statistician	0.04	\$ 75,000.00	\$ 3,000	
Personnel Costs			\$ 32,500	
CASA Fringe Expense at 20%			\$ 6,500	
<b>TOTAL PERSONNEL COSTS</b>				\$ 39,000
<b>CASA Operating Expenses</b>				
Office Supplies			\$ 500	
Printing/Duplicating			\$ 400	
Milage			\$ 2,500	
<b>TOTAL CASA OPERATING COSTS</b>				\$ 3,400
<b>Other Expenses</b>				
<b>Rokenbok Educational Foundation Expenses</b>				
Curriculum Consultant			\$ 6,000	
ROK Blocks - Classrooms			\$ 3,000	
ROK Blocks - In-home			\$ 1,875	
Freight-in			\$ 350	
Total REF Other Expenses			\$ 11,225	
<b>Casa Expenses</b>				
Classroom Curricular Materials			\$ 800	
Class Room Storage for ROK Blocks			\$ 600	
Teacher gratuities			\$ 600	
Capital Equipment			\$ 3,000	
Total CASA Other Costs			\$ 5,000	
<b>TOTAL OTHER COSTS</b>				\$ 16,225
<b>TOTAL DIRECT EXPENSES</b>				
			\$ 58,625	
CASA Indirect Expenses @ 15%				\$ 6,600
<b>Total REF Direct Expenditures</b>				
	\$11,225			
<b>Total Grant Required by CASA</b>				
	\$54,000			
<b>TOTAL EXPENSES</b>				
				\$ 65,225



### **Budget Justification**

The Rokenbok Educational Foundation is a volunteer organization whose volunteers will help coordinate the program and assist with parent and teacher outreach. The Center for Academic and Social Advancement (CASA) will execute the program through its research and administrative staff.

### **Personnel Expenses**

- **Rokenbok Educational Foundation Personnel Expenses**
  - Program Manager Volunteer will be responsible for overall program oversight and participate in Head Start administrator, teacher, and parent outreach.
- **CASA Personnel Expenses**
  - Principal Investigator (.1 FTE): Principal Investigator will be responsible for overall coordination of curriculum development, recruitment and management of UCSD student and CASA staff researchers, Head Start site outreach and recruitment, and data collection, analysis and reporting. \$9,500
  - Graduate Student Researcher (.2 FTE): Graduate Student Researcher will be responsible for supervising the undergraduate research assistants on-site, and assist with data analysis and reporting. \$7,000
  - Staff Research Assistant (.1 FTE): Staff Research Assistant will assist with program coordination, data collection and coding. \$4,500
  - Undergraduate Research Assistants (.25 FTE): Undergraduate Research Assistant will support teacher trainings, site audio/video recordings, journal observations, periodic quality assurance tasks, and assist with data collection. \$6,250
  - Administrative Assistant (.05 FTE): Administrative Assistant will support coordination, scheduling and administration of the program, printing of promotional materials, and distribution of in-home and classroom materials. \$2,250
  - Statistician (.04 FTE): Statistician will support data analysis and reporting. \$3,000
  - Fringe Benefits (20%): Fringe benefits include the following: Social Security/FICA, Health Insurance, S/T Disability, Unemployment Insurance, Retirement Benefits and Worker's Comp. \$6,500

### **Operating Expenses**

- **CASA Operating Expenses**
  - Office Supplies: Expenses include: basic office supplies (pens, paper, journals, video tapes, etc). \$500
  - Printing/Duplicating: Expenses include: program brochures, training materials, and parental permission/survey forms. \$400
  - Mileage: Expenses include: researcher transportation costs to sites. \$2,500

### **Other Expenses**

- **Rokenbok Educational Foundation Other Expenses**
  - Curriculum Consultant: Will develop the Equipo de ingenieros en acción classroom curriculum in coordination with CASA. \$6,000
  - Classroom ROK Blocks: Will include toys required for each intervention classroom. \$3,000
  - In-home ROK Blocks: Will include toys required for parent engagement program component. \$1,875



- Freight-in: Will include freight costs to deliver construction toys to CASA. \$350
- **CASA Other Expenses**
  - Classroom Curricular Materials: Will include laminated graphical instructions for curricular activities in each intervention classroom. \$800
  - Class Room Storage: Will include sorting and storing of toys in each intervention classroom. \$600
  - Teacher Gratuities: Will include thank you gifts for teachers in intervention and control classrooms to acknowledge their help and support. \$600
  - Capital Equipment: Will include video recording equipment, lap top computer, and application software. \$3,000

**Indirect Costs**

- **CASA Indirect Costs**
  - Indirect will support general operating costs at CASA. \$6,600



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## **APPENDICES**

APPENDIX A: Literature Review Matrix

APPENDIX B: Logic Model

APPENDIX C: Workplan

APPENDIX D: Research Design Outline

APPENDIX E: Social Marketing Sample Brochure

APPENDIX F: DRDP Evaluation Instrument



APPENDIX A: Literature Review Matrix

Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
Wolfgang, C., Stannard, L., & Jones, I. (2001). Block Play Performance among Preschoolers as a Predictor of Later School Achievement in Mathematics. <i>Journal of Research in Childhood Education, 15</i> (2), 173-80. Retrieved from ERIC database.	37 Preschool four-year-olds from the preschool and tested though the longitudinal to end of high school	“Participants [preschool children age 3 and 4] were simply instructed by the teacher at the beginning of the play session, "Do the best block play that you can do today, and use as many blocks as you can!"” There was no additional guidance or intervention. The study did not say how long the intervention was conducted, although it did suggest that the block play observations by	The measures used included: Lunzer Five-Point Play Scale, McCarty Scales of Children's Abilities, The California Achievement Test, the children's mathematics grades throughout their schooling and the number of higher mathematics courses taken in high school.	The study found that math grades for children who played with blocks in preschool were not significantly impacted during testing in 3rd and 5th grades. However, “At 7th-grade, there was a significant correlation between blocks and standardized math scores, but not report card grades. At the high school level, there was a positive correlation with all high school outcome variables.” The study suggests the benefits of block play are significant, but may not appear until later in children's' academic careers.	The study was not comparative; many other factors may have influenced the children's math abilities but those were not addressed in this study; 37 students is a small number of kids and may limit generalization.	Conduct a comparative study with a larger group; apply regression models to address other factors such as socio-economic background that may influence children's success in STEM subjects. Conduct additional interventions that include more directive or teacher interventions to further capitalize on the benefits of block play.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
		researchers where only conducted during the fall of the initial year of the study.				
Slaby, R., Loucks, S., & Stelwagon, P. (2005). Why Is Preschool Essential in Closing the Achievement Gap?. Educational Leadership and Administration: Teaching and Program Development, 1747-57. Retrieved from ERIC database.	3 and 4-year-old children in poverty in Salinas City School District.	Children attended a structured preschool in eight different elementary schools. There was a clear curriculum that included a specific level of parent involvement as a requisite for participation.	California State Standardized Tests. Tests scores of the children who were enrolled in the preschool and qualified for food subsidies were compared to two groups of children all of whom did not attend preschool, some who qualified for food subsidies, and some who did not. Students	The findings showed that in 2nd grade, the children who received the intervention showed significantly higher test scores in 2nd grade (14% higher in English and language arts and 16% higher in mathematics). Scores in 3rd grade were less significant, but still improved (8% in English and language arts; 13% in Mathematics)	The study is a case study of a program. The findings were based on standardized tests, and do not take into account grades and other educational measures.	Follow the same students through high school and later educations to understand the long-term impacts of preschool education on success in higher learning.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
			test scores were evaluated in 3rd and 4th grade.			
What Works Clearinghouse, (2007). SRA Real Math Building Blocks Pre-K. What Works Clearinghouse Intervention Report. What Works Clearinghouse, Retrieved from ERIC database.	28 teachers serving 202 preschool children from low to mixed income families in New York State in Head Start and state funded preschool programs.	Building Blocks for Math curriculum intervention in 10-15 minute small-group (4-6 children) math activities weekly, and 5-15 minute whole group math activities four times a week and 5-10 minute computer activities twice a week. Related family activities were sent home weekly. The intervention lasted for 26 weeks. The	Randomized Control Trial. Early Mathematics Assessment of children at age 4. A researcher developed measure that uses two child interviews to assess young children's mathematical knowledge and skills in the areas of number, geometry, measurement, and patterning.	Children that received the intervention showed a statistically significant improvement in their Math scores compared to children who received the usual instruction. "The experimental treatment group score increased significantly more than the comparison group score; achievement gains of the experimental group approached the sought-after 2-sigma effect of individual tutoring. This study contributes to research showing that focused early mathematical interventions help young children develop a foundation of informal mathematics knowledge, especially	The study does not extend beyond the one year of preschool education. There is no research indicating the long-term impact of the curriculum on future learning of children studied.	Longitudinal study to see if children who get the curriculum intervention excel in Math subjects later in educational experience.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
		control group carried out usual activities including Montessori math activities and home grown math materials based on state standards.		for children at risk for later school failure.”		
Wolfgang, C., Stannard, L., & Jones, I. (2003). Advanced Constructional Play with LEGOs among Preschoolers as a Predictor of Later School Achievement in Mathematics. Early Child Development and Care, 173(5), 467-475. Retrieved from ERIC database.	37 children ages 3-5 of Caucasian, African American, and Asian American ethnicity. 27 students completed the 17-year longitudinal study	“This correctional study, with the use of statistical regression, attempts to establish a relationship between preschool-aged children’s levels of LEGO block play with later school achievement in mathematics at the elementary, middle and high school	5 different tests results were evaluated at different points in the children’s educational development. Lunzer Five-Point Play Scale, Mc Carty Scales of Children’s Abilities, The California Achievement Test, Mathematics grades, and	No significant improvement was noted at the third grade and fifth grade level. At seventh grade, there was no significance in grades awarded by teachers, but there was improvement on standardized tests. In High School, greater significance was noted due to increased number of mathematics courses and a increased number of honors mathematics courses taken, average mathematics grades and a combined weighted value of all mathematics	The study had a very small number of participants. There was no control group noted in the study to be used as a comparison.	While expensive, a study that follows more children and utilizes a control group would make for more substantial and could be better generalized.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
		levels of performance, while controlling for IQ and testing for the effects of gender.”	Higher Mathematic courses taken in high school.	classes taken were all significant, we may clearly state that there is a statistical relationship between early LEGO performance among preschool and achievement in mathematics, not seen during the elementary school years, but later developing at the middle school and high school level.		
U.S. Department of Health and Human Services Administration for Children and Families Office of Planning, Research and Evaluation. Head Start Impact Study Final Report. January, 2010.	Head Start students nationwide. Nationally representative and randomized sample included nearly 5000 children associated with 84 Head Start delegate agencies.	One year of Head Start Preschool. The experimental group had access to Head Start program services and the control group did not but could access other preschool options made available to parents.	Parent interviews, child assessments, Head Start and non-Head Start teacher surveys, interviews of center directors and other preschool providers, direct observation of program	Head Start did have a statistically significant impact on every measure of a child’s preschool experience when compared to the control group, especially with regard to pre-literacy development. By the end of first grade, the Head Start children still did significantly better in a vocabulary measure.	A moderate proportion of families enrolled in either group decided to move their child or left the program altogether. Areas with low-Head Start demand were not included due to a lack of qualifying children to fill	Does Head Start intervention improve parent-child relationships in ways that show sustained statistically significant improvement by the end of first grade? How does program quality vary across Head Start programs? What kinds of methods deliver the best results?



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
			quality, and teacher assessment of child progress		the control group.	
Lee, K. (2010). Do early academic and behavior problems predict long-term effects among Head Start children?. Children and Youth Services Review, vol. 32, 1690-1703. Retrieved from ScienceDirect.	Low-income Head Start participants from 1988 to 1994 who were followed longitudinally by the National Longitudinal Survey of Youth.	Head Start preschool. Correlation between kindergarten outcomes for Head Start children and later grades (10-12 years old) outcomes for the same children.	National Longitudinal Survey of Youth (NLSY) administered by the Bureau of Labor Statistics, U.S. Department of Labor. Analysis of a sample of 603 children from the NLSY who participated in Head Start from 1988 to 1994. Developmental outcomes for reading, math (Peabody Individual Achievement	“Regression analyses indicate that short-term achievement and behavioral outcomes at ages 5-6 are significantly associated with long-term outcomes at ages 11-12.” Maternal education level and parental involvement were established as significant contributing factors in educational success short-term and long term.	No experimenter randomization in this study construct based on existing longitudinal data. No inclusion of non-Head Start children for longitudinal comparison. The study shows that early educational gains are carried into later years but does not establish Head Start as the definitive cause for such gains. NLSY relies heavily on parent self-	Comparisons should be made between Head Start programs that include significant parent education and involvement components and those that include less. Development of a comprehensive parent curriculum for Head Start. Study of other familial and community impacts on success in Head Start and longitudinal impacts.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
			Tests), and problem behavior (Behavioral Problem Index) are included.		report.	
Hindman, A., Skibbe, L., Miller, A., Zimmerman, M. (2009). Ecological contexts and early learning: Contributions of child, family, and classroom factors during Head Start, to literacy and mathematics growth through first grade	1,968 Low-income Head Start participants in 40 Head Start programs during 1997	One year of Head Start preschool before entering kindergarten.	Family and Child Experiences Survey (FACES) n=945 conducted in 1997. "FACES 1997 data were gathered via a combination of parent, teacher and Head Start center administrator reports, classroom observations, and direct child assessments." The measure	While low-income Head Start children entered preschool about 1 standard deviation below the national average scores for literacy and mathematics, they caught up to the national average by the end of first grade. While demographic factors were statistically correlated to early educational measures, particular family and classroom factors measured were not statistically significant in their baseline scores or development over time.	The quality of kindergarten and first grade classrooms was not evaluated. Unmeasured factors may be important for academic growth in early grades. The longitudinal design supports correlation of performance over time but no causality.	Construct a study that examines the role of particular classroom, teaching curriculum or tools, or family involvement with regard to the child learning outcomes.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
			was given in the fall and spring of the Head Start year and again to the same population at the end of kindergarten and 1st grade.			
Kuenzi, J. J., Matthews, C.M., Mangan, B.F., Science, Technology, engineering, and mathematics (STEM) education issues and legislative options (2006). Washington DC: Congressional Research Service, Library of Congress	General student population of the United States.	A synopsis of the USA's comparative student and instructor achievement internationally, and legislative efforts to create beneficial interventions both with students and teachers.	TIMSS Scores by Grade and Country/Jurisdiction, 2003; PISA Math and Science Scores, 2003; Percentage of Middle and High School Teachers Lacking a Major or Minor in Subject Taught, 1999-2000; Degrees Conferred by Degree-Granting	Relative to younger student populations, findings indicate the following needs: improving elementary and secondary preparation in math and science, recruiting new elementary and secondary math and science teachers, retooling current math and science teachers.	This was a global synopsis of information and research summary that cogently describes the crisis in STEM Education. It did not explore the relative efficacy of specific academic interventions, nor did it focus on preschool education.	The recommendations are to improve federal STEM policy concerning every aspect of the educational pipeline.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
			Institutions by Academic Level and Field of Study, 2002-2003; Field of First University Degree, by Selected Region and Country, 2002			
Vasquez, O., Dzurova, I., Graves, S., (2010). Building Minds: Identifying the building blocks of imaginative play. Center for Academic and Social Advancement	Predominantly Spanish-English bilingual children from low-income families of Mexican origin, ages 5-13 in Solana Beach, CA	Children were given Rokenbok construction toys to play with in 45 minute sessions over the course of 16 weeks. The time period was broken up into a phase in which children were allowed to play with the toys with minimal adult intervention	Data collected over the course of three academic quarters. Data was collected through research team discussion before and after each play session and documented through field notes, video and audio	Preliminary findings were identified teaching the children to utilize problem solving abilities, the affects of gender dynamics on play with construction toys, scientific and cognitive skill that are promoted by Rokenbok toys, development of attention and visual thinking, scientific imagination, scientific imagination, and dialogic collaboration among children engaged with the toys.	The study was a pilot study to examine the cognitive, social, and academic benefits of playtime with Rokenbok construction toys. It was isolated to one classroom and two sets of 6 students in two different age groups. It was not done with a	“Longitudinal study that examines the long-range effects of construction-based toys on the pursuit of science related areas of study of low-income minority learners.” “A study that develops, implements, and assesses a new school curriculum using Rokenbok toys to promote



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
		and a phase in which the adult directed the children's attention to the graphic instructions and the long term goals of building a construction project.	recordings		control group.	the development of cognitive skills and scientific concepts among under-represented minority learners." "A 3-way comparison study on the affordances of the younger version of the Rokenbok toy to enhance the social, cognitive and academic readiness of for pre-schoolers attending the Head Start Program and two control sites." "A follow up study on the development of scientific skills among girls using Rokenbok toys."
Souto-Manning, M., & Mitchell, C. (2010).	The Role of Action Research in	Early Childhood Education	"(a) collecting data anecdotally	interpretations."		Three types of qualitative data



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
	Fostering Culturally-Responsive Practices in a Preschool Classroom.	Journal, 37(4), 269-277. doi:10.1007/s10643-009-0345-9. Preschool children of diverse backgrounds; preschool teacher from culturally dominant background In preschool classroom, the teacher practiced and explored ways to implement culturally-relevant teaching. The teachers employed a “responsive teaching cycle” that included:	and systematically through journaling, (b) interpreting these anecdotal notes narratively, and (c) making instructional decisions based on observations and			were collected and analyzed in this study.
Hanline, M., Milton, S., &	Preschool children with	“Children participated in	(1) Data collected four	“No predictive relationship between	(1) Small number of	“Longitudinal research to



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
Phelps, P. (2010). The Relationship between Preschool Block Play and Reading and Maths Abilities in Early Elementary School: A Longitudinal Study of Children with and without Disabilities. Early Child Development and Care, 180(8), 1005-1017. Retrieved from ERIC database.	and without disabilities.	block play once a week for 90 minutes in a consistent play group of 10 children (no more than 2 children with disabilities per group) and the same adult. During the first 10 minutes, the teacher conducted an introduction. The teacher either (1) chose a block shape, discussed its geometric properties, showed pictures of constructions that used the shape and assisted the children to locate that shape	times each year, by research assistants in early childhood education or special education. The children built block constructions independently without interactions initiated by the adult. When the children indicated they were done, the constructions were photographed for data analysis (2) parents were contacted after	representational level of block constructions and maths abilities was found.” “children who had higher levels of representation in their block constructions had higher reading abilities and a faster rate of growth in reading abilities in the early elementary years. This predictive relationship held true for children with and without disabilities.”  The study indicated that these findings are in line with another leading study that found block play to increase skills in maths later in middle school and high school but not in elementary school.	children included in the study (2) all children attended the same preschool makes generalization of results difficult. (3) the type of disability was not controlled for analysis (3) analysis established a statistical relationship between block play and academic abilities, not a causal relationship.	establish causal relationships between early play experiences and later learning and to compare the efficacy of play-based approaches to other methods.”



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
		<p>throughout the classroom; (2) read a book about construction; (3) led gross motor activities centered around the plywood markers. “After the lesson, the adults asked the children to build whatever they liked with whichever of the blocks in the fully stocked room they liked. Once the constructions were complete, they were invited to ask other children to join their play and find props to</p>	<p>participants transitioned into elementary school. Consenting parents gave permission to assess children individually in June or July. (3) Complexity of constructions was scored according to a 19-point block construction scale. “The coding scale shows a developmental progression of children’s use of blocks from non-construction to linear</p>			



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
		support symbolic play. The children were allowed to access the “block centre” during other times each day.	constructions to bidimensional constructions to tridimensional constructions to a representation al play with blocks.” (4) Two tests of academic skill were also utilized. (a) test of early mathematics ability, (b) Test of Early Reading Ability			
Park, B. (2008). The Earlier, the Better: Early Intervention Programs for Infants and Toddlers at Risk. Dimensions of Early Childhood, 36(1), 3-7.	Infants and toddlers in poverty	(1) intensive and direct interventions that begin before school age. (2) Programs that enroll children during infancy and provide	This article was an overview of the types of programs that make the biggest impact. It did not describe the	“Successful early intervention programs: - Begin as early as infancy or at least preschool - Provide full-day, year round child care and regular frequent home visits - Train staff who	This study does not specifically identify how the different programs were evaluated and m measured. It is logically sound, but lacks the specifics about	



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
Retrieved from ERIC database.		education for their families. (3) Programs that are intensive and multi-generational that include participation of parents that are longer than one year. (4) Intensive full-day programs.	measurement tool used in each of the studies.	directly interact with children so that they can plan and implement developmentally appropriate educational practices as well as provide a physically and emotionally secure environment. - Consider meaningful family involvement to be as important as educating and supporting the parents and siblings”	what the exact impact is – <i>how</i> successful are the interventions?	
Samuelsson, I., & Carlsson, M. (2008). The Playing Learning Child: Towards a Pedagogy of Early Childhood. <i>Scandinavian Journal of Educational Research</i> , 52(6), 623-641. Retrieved from ERIC database.	Preschool age children	The article is identified as being purely theoretical to “scrutinise the background and character of early years education in terms of play and learning, to elaborate the findings of several years of research about children’s	There is no measurement tool used in this study, as it is a theoretical article.	The teacher “constructs the environment and what kind of experiences are provided are decisive for children’s learning and opportunities to make sense of the world around them. The curriculum must be internalized and lived by the teacher. This means that s/he must see the possibilities everywhere in the child’s environment (Doverborg	The study is theoretical. It does not utilize any type of intervention to prove the theory.	Create a study that tests these ideas. Compare learning of children who are taught with different strategies, including different types of intervention during play to understand the impacts of different interventions.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
		learnig in preschool related to the curriculum of early years education and to propose a sustainable pedagogy for the future which does not separate play from learning, but draws upon the similarities in character.”		& Pramling Samuelsson, 1999; Pramling Samuelsson & Asplund Carlsson, 2003). The teacher must also contribute to a challenging and rich environment (Siraj-Blatchford, 1999). This includes using their own knowledge to create situations, tasks, play milieus etc. (Doverborg & Pramling, 1995)” Teachers can direct children’s awareness toward the learning objects, related to values and norms, skills and capabilities and to understanding different aspects of the surrounding world. The teacher’s role is equally important for learning and play.		
Gallenstein, N. (2005). Engaging Young Children in Science and Mathematics.	Children ages 3-8	This article was a summary of various techniques teachers should	There is no measurement tool for this study as it summarizes	Highlights different ways children learn about mathematics and science, including: physically doing math	The article was an effective summarization of some key studies about	This article suggests a multi-faceted approach to teaching mathematics and



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
<i>Journal of Elementary Science Education</i> , 17(2), 27-41. Retrieved from ERIC database.		utilize to engage young children in science and mathematics.	other studies.	with manipulatives, doing mental math by thinking in terms of memories, using number symbols with meanings; involving both content and process skill; engaging children as problem-solvers, so they can think critically, ask questions, maintain curiosity, open-mindedness, and a positive approach to failure; utilize hands-on/minds-on science teaching methods; engaging children in science as part of their daily lives; incorporating ongoing assessment and feedback; setting tasks just beyond what they can accomplish on their own and receiving guidance from a competent adult or peer; incorporating group learning where kids can brainstorm and	how children learn. It did not include any types of intervention, or testing of the theories. It is assumed that the theories were tested in the articles it was summarizing.	science. It is not something that could have a specific test or study to prove, as there are far too many factors being suggested. It can, however, be inferred that if each of the theories is tested to increase academic learning, then combined by a good teacher, they would have an overall positive effect on children's learning.



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
				synthesize knowledge; utilizing play where children can explore materials and discover science and math concepts through play.		
Moomaw, S., & Davis, J. (2010). STEM Comes to Preschool. <i>Young Children</i> , 65(5), 12-14,. Retrieved from ERIC database.	Preschool-aged children	This article demonstrates how “STEM subjects can be combined into an integrated curriculum for early childhood classrooms.”	There is no control group in this study. It is a theoretical study that posits ways to incorporate STEM subjects in preschool classrooms.	Highlights three specific lesson plans that increase STEM learning in urban preschools. The three interventions focus on “pattern”, “pendulum” and “incline” as ways to incorporate STEM ion preschools.	The article is very short, and outlines ways to incorporate STEM subjects in curriculum, but it does not actually test the learning that came from the activities. There is nothing showing that the kids have a better understanding of STEM subjects because of the activities they completed.	Incorporate some of these activities into a research study that compares learning in the classrooms with the intervention to a control group.
Wellhousen, K., & Giles, R. (2005). Building Literacy Opportunities into	Preschool-aged children	“In this article, the author presents the block center, a	This article is a theoretical study about how the	“the authors state that through their block play, children are introduced to crucial concepts	This is a theoretical study. It would be more useful	Develop a experimental research study that compares



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
Children's Block Play: What Every Teacher Should Know. <i>Childhood Education</i> , 82(2), 74. Retrieved from ERIC database.		popular mainstay among learning centers, which is typically associated with learning basic mathematical skills and concepts.”	block-learning center in preschool classrooms is effective for teaching math and science to children. It does not have any evaluative measurement tools, as it does not involve any actual study subjects.	needed for success in early <i>literacy</i> , including visual discrimination, use of abstract symbols, and oral language production.”	to the reader if there were an actual experimental group studied in conjunction with crafting this theory.	children who have access to the block play learning centers to children who do not have access to the learning centers.
Pickett, L. (1998). Literacy Learning during Block Play. <i>Journal of Research in Childhood Education</i> , 12(2), 225-30. Retrieved from ERIC database.	Students in one first grade classroom	Exposed children to an enriched block play area for three weeks.		Results showed that the students increased the number of literacy behaviors after having been exposed to the enriched block-play area for three weeks.	The study only involved one classroom. There was no control group in this study. It was a very short study period, it is unclear what the increased literacy is in relation to. There may have been confounders to	



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
					the study. i.e. beginning of school year where children are exposed to more than one new stimuli.	
Campbell, F., Ramey, C., Pungello, E., Sparling, J., & Miller-Johnson, S. (2002). Early Childhood Education: Young Adult Outcomes From the Abecedarian Project. <i>Applied Developmental Science</i> , 6(1), 42-57. Retrieved from Academic Search Premier database.	High risk infants enrolled in the Abecedarian Project	Multiple interventions including all day preschool, including systemized curriculum	Wechsler Intelligence Scale for Children—Revised; Woodcock-Johnson Psycho-educational Battery, Part 2, Tests of Academic Achievement; School records, including contents of Special Services Hies, were abstracted using the School Archival	“Preschool treatment was associated with educationally meaningful effect sizes on reading and math skills that persisted into adulthood. School-age treatment served to maintain preschool benefits for reading, but by itself, the effects were generally weaker than those of the preschool program. Statistically significant differences in the attainment of full economic independence were not found at this stage, but would not be expected among young adults still attending school. The incidence of self-reported violence	Difficult to account for potential confounders such as poverty or other interventions; the majority of children were African-American, which makes it difficult to generalize findings.	Conduct study that covers a broader range of ethnicities



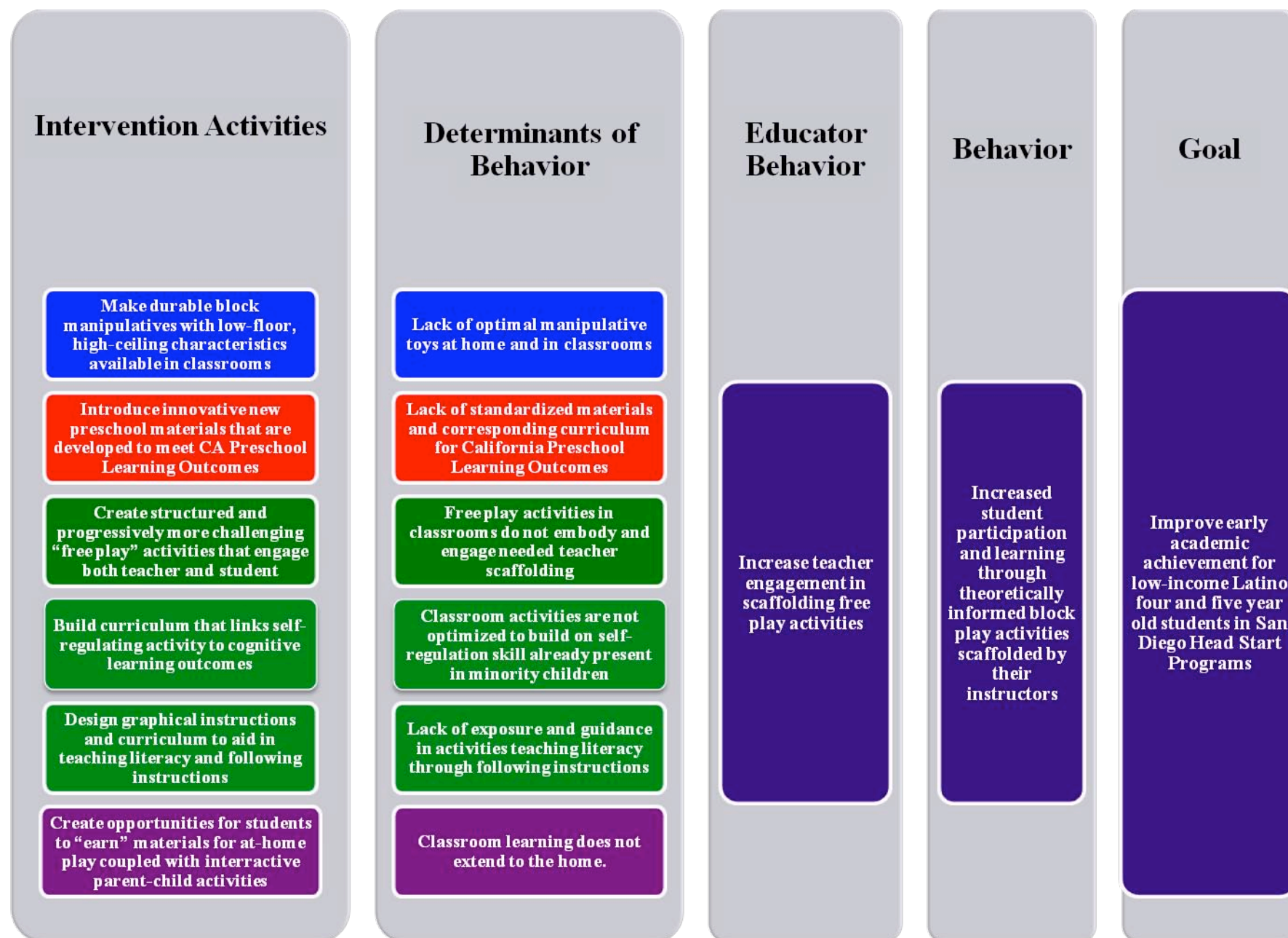
Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
			Records System	and lawbreaking was not significantly reduced, although trends in the data favored the treated group. The reported incidence of marijuana use was significantly less among treated individuals.”		
Dearing, E., McCartney, K., & Taylor, B. (2009). Does Higher Quality Early Child Care Promote Low-Income Children’s Math and Reading Achievement in Middle Childhood?. Child Development, 80(5), 1329-1349. doi:10.1111/j.1467-8624.2009.01336.x	Low-income infants age 6 months to 54 months	High quality (above average) child care facilities	Woodcock-Johnson test	Low income was less strongly predictive of underachievement for children who had been in higher quality care than for those who had not. Consistent with a cognitive advantage hypothesis, higher quality care appeared to promote achievement indirectly via early school readiness skills. Family characteristics associated with selection into child care also appeared to promote the achievement of low-income children, but the moderating effect of higher quality	Because the study was not randomized there may be some bias in the results: parents picked the childcare settings for their children, and there appears to be a link to children who have higher school readiness and those who have parents who pick better schools	Conduct similar study with more frequent assessments in order to better capture the variability of childcare experiences



Study Reviewed	Target Pop.	Intervention Used	Measurements Used	Findings	Limitations	Recommendations
				care per se remained evident when controlling for selection using covariates and propensity scores.		



## APPENDIX B: Logic Model





# APPENDIX C: Workplan

**Program Goal:** Improve early academic achievement with low-income Latino four and five year old students in San Diego Head Start Programs.

	Objectives:	Implementation Activities:	Timeline:	Person Responsible:	Process & Outcome Measures
1	By June 15, 2011 Rokenbok Foundation will develop <i>Equipo de ingenieros en acción</i> , a year-long preschool curriculum of structured and progressively more challenging “free play” advanced block play (ROK Blocks) activities that engage both teacher and student, link self-regulating activity to cognitive learning outcomes, include graphical instructions to aid in teaching literacy and following instructions, and include an at-home parent participation curriculum component.	<ul style="list-style-type: none"> <li>• Hire curriculum experts as consultants to develop age- and culturally-appropriate activities.</li> <li>• Use California Preschool Learning Foundations to inform activities and curriculum with regard to STEM and preschool social/cognitive development.</li> <li>• Translate all curricula into Spanish and maintain in both Spanish and English.</li> <li>• Test activities within a pilot environment.</li> <li>• Design graphical instructions for teachers, children, and parents.</li> <li>• Test graphical instructions and curriculum in a pilot environment.</li> <li>• Use teacher feedback to ensure curriculum addresses their needs and concerns, and is culturally competent.</li> <li>• Develop at-home education curriculum &amp; forms.</li> <li>• Prepare physical curriculum packages.</li> <li>• Deliver curriculum and toys to 5 intervention Head Start classrooms.</li> </ul>	<p>Feb 2011 to June 2011 (4 months)</p> <p>Pilot test late April 2011</p> <p>Final preparation of curriculum by June 1, 2011</p>	<p>Rokenbok Education Foundation (REF) Chair to contract with CASA and curriculum developer;</p> <p>Curriculum expert to develop activities.</p> <p>CASA ED to work with Ed Chicano Federation of San Diego to establish pilot Head Start</p>	<p>Process: research-based activities will be developed and tested; curriculum &amp; graphic instructions will be developed, designed and prepared.</p> <p>Outcome: none.</p> <p>Evaluation: Curriculum developed and produced.</p>



	Objectives:	Implementation Activities:	Timeline:	Person Responsible:	Process & Outcome Measures
				<p>site(s).</p> <p>REF to deliver all required toy manipulatives to CASA; CASA to produce, test, finalize and deliver all classroom and in-home curricular material packages.</p>	
2	<p>By August 15, 2011, 5 preschool teachers in identified Head Start centers will increase their knowledge to 80% mastery of the <i>Equipo de ingenieros</i> curriculum implementation in the classroom, as measured by multiple choice test administered by CASA</p>	<ul style="list-style-type: none"> <li>• Recruit 5 intervention and 5 control Head Start classrooms.</li> <li>• Prepare and sign memoranda of agreement with center administrations as required.</li> <li>• Prepare training plans and instruct teacher trainers.</li> <li>• Organize teacher training meeting schedule, dates, times, locations and invite teachers from intervention centers.</li> <li>• Conduct teacher training sessions.</li> <li>• Administer post-test questionnaire.</li> </ul>	<p>July 2011 to August 15, 2011 hold training meetings</p> <p>By August 15, 2011 conduct post-test</p>	<p>CASA staff to conduct training seminars</p> <p>CASA researchers to design, conduct, and</p>	<p>Process: none.</p> <p>Outcome: All trained Head Start teacher staff will demonstrate mastery of key concepts and instructional practice guidelines.</p>



	Objectives:	Implementation Activities:	Timeline:	Person Responsible:	Process & Outcome Measures
	staff.	<ul style="list-style-type: none"> <li>Perform data analysis of questionnaire.</li> </ul>	knowledge assessment and data analysis.	score post test knowledge assessment interview.	Evaluation: Standardized teacher post-test knowledge assessment multiple choice test developed and conducted by CASA staff.
3	By May 15, 2012, 75 students in 5 Head Start classrooms will increase from baseline their ability to follow graphical instructions, as measured by CASA researchers' video observation behavior journaling of pre/post test sessions.	<ul style="list-style-type: none"> <li>Implement <i>Equipo de ingenieros</i> curriculum intervention activities 40 minutes per week and make ROK Block toys available during free-play learning station time.</li> <li>Conduct one month of pre-test video observation and analysis with graphical instruction literacy behavior coding and inter-rater reliability.</li> <li>Make monthly site visits for curriculum and instruction quality control.</li> <li>Conduct one month of post-test video observation and analysis with graphical instruction literacy behavior coding and inter-rater reliability.</li> </ul>	<p>By September 15, 2011 begin intervention school year, pre-test video observation.</p> <p>August 2011 to May 2012 intervention curriculum implementation , monthly site visit to each classroom.</p>	<p>CASA research staff to conduct pre/post test video observation and analysis.</p> <p>Head Start teachers to implement <i>Equipo de ingenieros</i> curriculum.</p> <p>CASA staff to</p>	<p>Process: none.</p> <p>Outcome: At least half of 75 children in 5 Head Start classrooms will demonstrate the ability to follow graphical instructions.</p> <p>Evaluation: pre/post test of students' ability to independently follow graphical instructions by video observation journaling of target behaviors with inter-</p>



	Objectives:	Implementation Activities:	Timeline:	Person Responsible:	Process & Outcome Measures
			By May 2012 post-test video observation and perform data analysis.	make monthly site visits for curriculum and instruction quality control.	rater reliability in observation and analysis.
4	By May 15, 2012, 75 students in 5 Head Start classrooms will increase from baseline in social and cognitive development, as measured by Head Start teachers using the California preschool DRDP assessment.	<ul style="list-style-type: none"> <li>• Conduct DRDP assessment pre-test in 5 intervention classrooms and 5 control classrooms.</li> <li>• Implement <i>Equipo de ingenieros</i> curriculum intervention activities 40 minutes per week and make ROK Blocks available during free-play learning station time.</li> <li>• Make monthly site visits for curriculum and instruction quality control.</li> <li>• Conduct DRDP assessment post-test in 5 intervention classrooms and 5 classrooms.</li> <li>• Perform data analysis and comparison of intervention and control groups.</li> </ul>	<p>By September 15, 2010 conduct DRDP assessment pre-test</p> <p>August 2011 to May 2012 intervention curriculum implementation , monthly site visit to each classroom.</p> <p>By May 15, 2012 conduct DRDP</p>	<p>Head Start teachers to conduct DRDP assessment pre/post intervention.</p> <p>Head Start teachers to implement curriculum.</p> <p>CASA staff to make monthly site visits for curriculum and</p>	<p>Process: none.</p> <p>Outcome: On average, 75 experimental group children will demonstrate greater cognitive and social development than 75 control group students.</p> <p>Evaluation: Teachers will pre/post test children using the evaluation measure California Preschool Desired Results Development Profile (DRDP) assessment of</p>



	Objectives:	Implementation Activities:	Timeline:	Person Responsible:	Process & Outcome Measures
			assessment post-test and perform data analysis.	instruction quality control.	social and cognitive preschool outcomes. For this objective all but section 1.9 to 1.11 (Self-regulation ability) will be assessed. 5 assessment results categories are: not yet at first level, exploring, developing, building, and integrating. Results will be codified and analyzed.
5	By May 15, 2012, 75 students in 5 Head Start classrooms will increase from baseline self-regulation behavior development, as measured by Head Start teachers using Section 1.9 to 1.11 of the California preschool DRDP assessment.	<ul style="list-style-type: none"> <li>• Conduct DRDP assessment pre-test in 5 intervention classrooms and 5 control classrooms.</li> <li>• Implement <i>Equipo de ingenieros</i> curriculum intervention activities 40 minutes per week and make ROK Blocks available during free-play learning station time.</li> <li>• Make monthly site visits for curriculum and instruction quality control.</li> <li>• Conduct DRDP assessment post-test in 5 intervention centers and 5 control centers.</li> <li>• Perform data analysis and comparison of intervention and control groups.</li> </ul>	<p>By September 15, 2010 conduct DRDP assessment pre-test</p> <p>August 2011 to May 2012 intervention curriculum</p>	<p>Head Start teachers to conduct DRDP assessment pre/post intervention.</p> <p>Head Start teachers to</p>	<p>Process: none.</p> <p>Outcome: On average, 75 experimental group children will demonstrate greater self-regulation behavior development than 75 control group students.</p>



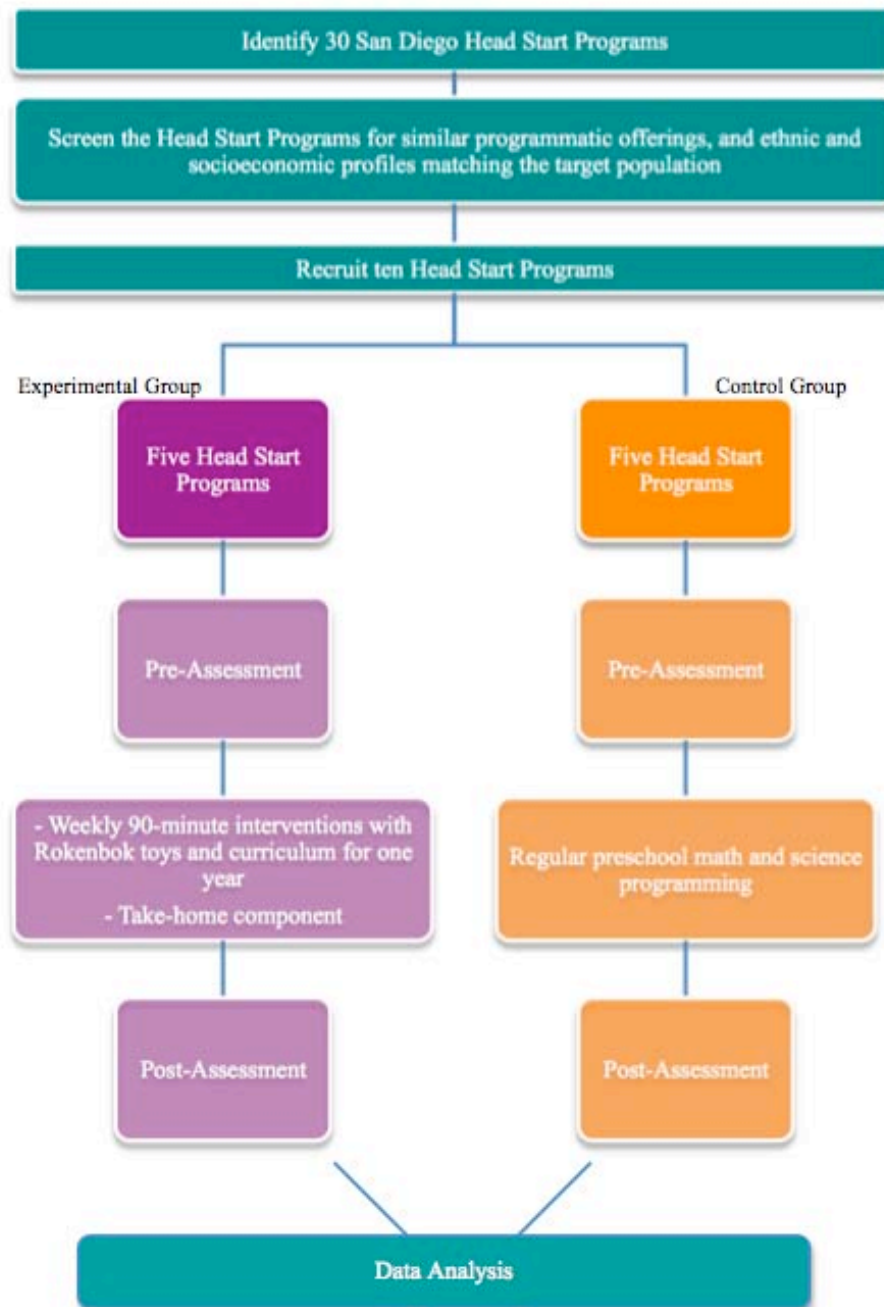
	Objectives:	Implementation Activities:	Timeline:	Person Responsible:	Process & Outcome Measures
			<p>implementation , monthly site visit to each classroom.</p> <p>By May 15, 2012 conduct DRDP assessment post-test and perform data analysis and comparison of intervention and control groups.</p>	<p>implement curriculum.</p> <p>CASA staff to make monthly site visits for curriculum and instruction quality control.</p>	<p>Evaluation: Teachers will pre/post test children using the evaluation measure California Preschool Desired Results Development Profile (DRDP) (Section 1.9 to 1.11 on Self Regulation) assessment of social and cognitive preschool outcomes. Results will be codified and analyzed.</p>
6	<p>By May 15, 2012, 25 parents of students in the intervention classrooms will engage in increased from baseline collaborative block play at home with their child, as measured by parent self-report on take-home</p>	<ul style="list-style-type: none"> <li>• Provide free ROK Block play sets to children in 5 Head Start intervention classrooms.</li> <li>• Send ROK Blocks, at-home curriculum and at-home construction plan/questionnaire form home with children who meet basic block play criteria during intervention activities and free play.</li> <li>• Receive completed forms.</li> <li>• Perform data analysis.</li> </ul>	<p>By December 1, 2011 send toys, curriculum, and form home with children.</p>	<p>CASA staff to provide ROK Blocks, curriculum, and form.</p> <p>Head Start</p>	<p>Process: none.</p> <p>Outcome: Parents will increase their collaborative play behavior with their</p>



	Objectives:	Implementation Activities:	Timeline:	Person Responsible:	Process & Outcome Measures
	construction plan/questionnaire.		By May 15, 2012 receive forms back from students documenting at-home block play with parents.	teachers to send materials home and receive completed forms.	children.  Evaluation: CASA research staff will compile and analyze parents' self-report of at-home block play behavior with children.



# APPENDIX D: Research Design Outline





## APPENDIX E: Social Marketing Sample Brochure

### Front of Tri-fold Brochure



**Rokenbok Educational Foundation**

The Rokenbok Educational Foundation is dedicated to helping children develop affinity for science, technology, math, and engineering through play.

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**Fundación Educativa Rokenbok**

La Fundación Educativa Rokenbok está dedicada a estimular a los niños a desarrollar afinidad por la ciencia, tecnología, matemáticas e ingeniería como resultado del juego.



**Rokenbok Educational Foundation**

215 S. Hwy. 101, Suite 101  
Solana Beach, CA 92075

Phone: 858.259.4433 ex234  
paule@rokenbok.com



***Equipo de ingenieros en acción***

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*Diversión que desarrolla creatividad e imaginación!*




***Team of engineers in action***

---

*Play that develops creativity and imagination!*

### Rear of Tri-fold Brochure

***Equipo de ingenieros en acción***




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**Cada niño un ingeniero, un doctor, o un director!**

Los niños entre los cinco y ocho años desarrollan su capacidad de aprender y hacer. Algunas ocasiones jugando con juguetes creativos ayudan a tener grandes ideas con sus habilidades.

**El juguete adecuado y un poco de ayuda de los padres y maestros.** Esto es lo que hace un grupo de ingenieros en acción! Entrenamiento y aprendizaje son la combinación perfecta para el desarrollo de futuros talentos.

**Cada niño puede ganar su propio Rokenbok juguetes para hacer en casa.** Con permiso y supervisión, tu hijo puede ganar su propio kit de ROK Blocks para usar en casa. Deben completar sus actividades escolares, y después llevar a su equipo de ingenieros en la construcción en casa. Con la ayuda de los Padres, es más divertido y complementario.

***Team of engineers in action***

---

**Every child can be an engineer, a doctor, or a manager!**

Children decide at a very young age, between five and eight-years-old, what they are capable of learning and doing. Sometimes, playing with challenging toys can help them have big ideas about their abilities.

**The right toy and a little bit of help from teachers and parents....** That's what *Team of engineers in action* is all about. Fun and easy building combined with challenging activities that need just a little bit of help from the adults in each student's life.

**Each child can earn their own Rokenbok building toys to take home.** With parental permission, your child can earn his or her own set of ROK blocks to use at home. They must complete a few activities in school, and then bring in their completed Team of engineers at-home construction plan. With the help of parents, it's so much fun and great for kids too!



## APPENDIX F: DRDP Evaluation Instrument



**Desired Results Developmental Profile—Revised (DRDP-R)**

Information Page

Preschool Instrument  
(Age 3 to Kindergarten)

**Date of assessment** (mm/dd/yyyy) \_\_\_\_\_

**Child Information**

1. Child's name \_\_\_\_\_
2. Child's classroom \_\_\_\_\_
3. Birth date (mm/dd/yyyy) \_\_\_\_\_
4. Initial date of enrollment (mm/dd/yyyy) \_\_\_\_\_
5. Does this child have an Individualized Education Program (IEP) or an Individualized Family Service Plan (IFSP)?  
☐ Yes    ☐ No    ☐ Don't know

Accommodations/modifications?

- ☐ Yes (describe) \_\_\_\_\_
- ☐ No
- ☐ Don't know

**Observer Information**

6. Agency/Site name \_\_\_\_\_
7. Your name \_\_\_\_\_
8. Title \_\_\_\_\_
9. Did another adult assist you with evaluating this child?  
☐ Yes (role/relation) \_\_\_\_\_  
☐ No

**For the following questions, check all that apply:**

- |  | English                  | Spanish                  | Other (specify) |
|--|--------------------------|--------------------------|-----------------|
| 10. Child's home language(s)   | <input type="checkbox"/> | <input type="checkbox"/> | _____           |
| 11. What language(s) do you speak with this child?   | <input type="checkbox"/> | <input type="checkbox"/> | _____           |
| 12. If you do not speak the child's home language, did anyone assist you who does speak it?<br><input type="checkbox"/> Yes (role/relation) _____<br><input type="checkbox"/> No |                          |                          |                 |

**Additional Comments:**

**Instructions:** Complete an information page for each child. Then make two copies. Use one for the initial assessment and one for the second assessment. Enter the date of the assessment on each page.



**Desired Results Developmental Profile—Revised (DRDP-R)**  
**Instruction Page — Preschool Instrument (Age 3 to Kindergarten)**

**DRDP-R Instructions for Observers**

Use this observational rating tool with preschool children from 3 years of age up to entry into Kindergarten.

- You should be the teacher or staff member who most frequently interacts with the child.
- Complete the Information Page before you begin your observations.
- Use daily summaries, anecdotal records, notes from your recent observations, and samples of work to help you complete the DRDP-R.
- Complete within 60 calendar days of enrollment and every six months thereafter.
- Complete for every child that attends the program at least 10 hours or more each week.

**Completing the Information Page**

**Child Information**

1. Write the child's first and last name.
2. Write the name of the child's classroom.
3. Write the child's birth date as mm/dd/yyyy (use this date format throughout).
4. Write the date that the child was first enrolled in the program. If there are multiple dates, write the earliest one.
5. If the child has an Individualized Education Program (IEP) or Individualized Family Service Plan (IFSP), mark the type of plan provided. Mark "Don't know" if the child's status is still being assessed or if you cannot answer this question.

If the child has an IEP or IFSP, identify whether accommodation/modifications have been made. Mark "Don't know" if you do not know.

**Observer Information**

6. Write the full name of your agency.
7. Write your full name.
8. Write your job title (e.g., associate teacher, lead teacher, or master teacher).
9. If you received help in completing this DRDP-R from another staff member, family member, or other adult that interacts with the child, check "Yes" and indicate the relation of that adult to the child.
10. Specify what languages are regularly spoken at this child's home.
11. Specify what languages you use when speaking with this child.
12. If relevant, provide the name of the person who speaks this child's home language and who assisted you in communicating with this child.



## Desired Results Developmental Profile—Revised (DRDP-R) Instruction Page — Preschool Instrument (Age 3 to Kindergarten)

### Completing the DRDP-R Instrument Pages

1. For each of the 39 measures, fill in or check the bubble that corresponds to the **highest developmental level** the child has mastered. Consider the information from the descriptors and examples to determine the child's mastery level.
  - The **descriptors** define the behaviors expected for each level.
  - The **examples** provide a sample of possible behaviors you might observe for each level.
  - A level is **MASTERED** if the child typically demonstrates the behaviors in that level's descriptor. Behaviors are considered typical if the child demonstrates them:
    - easily and confidently
    - consistently over time
    - in different settings

**Note:** A child may occasionally behave at a higher or lower level, but mainly demonstrates behaviors representative of one level.

  - If a child has not mastered the first developmental level on a measure, mark the 'Not yet at first level' bubble below the first descriptor.
2. You may use the space at the bottom of the page to write your evidence for the rating you gave and provide references to other documentation.
  - Write about what you observed the child doing that demonstrated mastery at the level you marked.
  - Include any references to your notes and records for this child; notes made by others, such as parents or other caregivers; the child's portfolio; or another developmental assessment.
3. If the child is emerging to the next level, please indicate this by marking the bubble provided at step #3 at the lower right of the page. Use the bottom section of the page to document any evidence of emerging behaviors.
  - A child may be **EMERGING** to the next level by showing behaviors from the next developmental level, but that are not yet typical or consistent.

**Note:** If the child is rated at the highest developmental level, you cannot rate the child as emerging to the next level
4. In the rare circumstances that you find yourself unable to rate a measure, use the bottom section of the page to describe in detail why you were not able to rate the measure.



**Desired Results Developmental Profile—REVISED (DRDP-R)**  
**Table of Contents — Preschool Instrument (Age 3 to Kindergarten)**

Measures are numbered consecutively, with one full page provided for each measure. Measure numbers appear at the bottom left corner of each page in place of a page number. The Measure title and Indicator abbreviation also appear at the bottom of each page.

<b>Desired Result</b>	<b>Indicator</b>	<b>Measure</b>
<b>1 Children are Personally and Socially Competent</b>	<b>Self Concept (SELF)</b>	1 Identity of self
		2 Recognition of own skills and accomplishments
	<b>Social Interpersonal Skills (SOC)</b>	3 Expressions of empathy
		4 Building cooperative relationships with adults
		5 Developing friendships
		6 Building cooperative play with other children
		7 Conflict Negotiation
		8 Awareness of diversity in self and others
	<b>Self Regulation (REG)</b>	9 Impulse control
		10 Taking turns
		11 Shared use of space and materials
	<b>Language (LANG)</b>	12 Comprehends meaning
		13 Follows increasingly complex instructions
		14 Expresses self through language
		15 Uses language in conversation
<b>2 Children are Effective Learners</b>	<b>Learning (LRN)</b>	16 Curiosity and initiative
		17 Engagement and persistence



**Desired Results Developmental Profile—REVISED (DRDP-R)**  
**Table of Contents – Preschool Instrument (Age 3 to Kindergarten)**

<b>Desired Result</b>	<b>Indicator</b>	<b>Measure</b>
<b>2 Children are Effective Learners</b> <i>(continued)</i>	<b>Cognitive Competence (COG)</b>	18 Memory and knowledge
		19 Cause and Effect
		20 Engages in problem solving
		21 Socio-dramatic play
	<b>Math (MATH)</b>	22 Number sense: understands quantity and counting
		23 Number sense: math operations
		24 Shapes
		25 Time
		26 Classification
		27 Measurement
		28 Patterning
	<b>Literacy (LIT)</b>	29 Interest in literacy
		30 Letter and word knowledge
		31 Emerging writing
		32 Concepts of print
		33 Phonological awareness
<b>3 Children Show Physical and Motor Competence</b>	<b>Motor Skills (MOT)</b>	34 Gross motor movement
		35 Fine motor skills
		36 Balance
<b>4 Children are Safe and Healthy</b>	<b>Safety and Health (SH)</b>	37 Personal care routines
		38 Personal safety
		39 Understanding healthy lifestyle



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** SELF — Preschoolers show **self-awareness** and a positive **self-concept**

**Preschool**

## ► **Measure 1: Identity of self**

**Definition:** Child shows increasing awareness of own physical characteristics, preferences, and experiences as separate from those of others

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Shows recognition of self as individual, recognizing own name and names of familiar people</b>	<b>Describes self or others in terms of basic physical characteristics</b>	<b>Describes self and others in terms of preferences</b>	<b>Accurately compares self to others</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Communicates own name to someone else, <i>"I am Margo."</i></li><li>► Gestures with excitement when own name is used in gesture song.</li><li>► Points to peer and communicates his name, <i>"That is Jackie."</i></li><li>► Refers to adult by name or special gesture.</li><li>► Refers to things as <i>"mine"</i> or <i>"Daddy's."</i></li></ul>	<ul style="list-style-type: none"><li>► <i>"My hair is red!"</i></li><li>► <i>"I'm big!"</i></li><li>► Says, <i>"I am four,"</i> or shows four fingers to indicate age.</li><li>► <i>"Tami has long hair."</i></li></ul>	<ul style="list-style-type: none"><li>► <i>"I like red hair."</i></li><li>► <i>"David likes crackers."</i></li><li>► <i>"I like to jump rope."</i></li><li>► <i>"I like the play dough. It is nice and warm."</i></li></ul>	<ul style="list-style-type: none"><li>► <i>"My hair is red, but she has brown hair."</i></li><li>► <i>"I like to eat peanut butter. My mommy likes cheese."</i></li><li>► Noticing a friend's shoes, says, <i>"We both have sandals on today!"</i></li><li>► <i>"My daddy took us to the beach. I got in the water, but my sister didn't."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** SELF — Preschoolers show **self-awareness** and a positive **self-concept**

**Preschool**

## ► **Measure 2: Recognition of own skills and accomplishments**

**Definition:** Child evaluates and takes pleasure in own ability to perform skillfully

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Shows interest and/or pleasure when someone reacts to something he or she has done	Characterizes self positively in terms of specific activity that he or she is doing or has just finished	Characterizes positively own skills involved in doing a task	Characterizes self positively in terms of generalized ability or skills
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► When an adult tells the child she completed a really tall block tower, the child smiles with joy.</li><li>► Joins the adult in clapping with pleasure after completing a challenging task.</li><li>► When an adult comments about the child's work on a puzzle, child smiles and continues to work.</li></ul>	<ul style="list-style-type: none"><li>► <i>"I'm making a really big tower."</i></li><li>► <i>"Look what I made!"</i></li><li>► <i>"I cleaned up with the sponge!"</i></li><li>► Says, <i>"We DID it!"</i> after finishing a puzzle with a friend.</li><li>► Points or gestures with delight at a completed class mural.</li></ul>	<ul style="list-style-type: none"><li>► <i>"I can kick the ball hard."</i></li><li>► After helping with cleaning, says, <i>"We are good helpers."</i></li><li>► Shows another child some ways he knows to make a block tower more stable.</li><li>► After doing a puzzle with other children, says, <i>"First we look for the corner pieces—that's how we do it!"</i></li><li>► Shows or describes efforts at writing a letter or own name.</li></ul>	<ul style="list-style-type: none"><li>► Demonstrates to another child how to kick a soccer ball.</li><li>► <i>"I am really good at building things."</i></li><li>► <i>"I can help other kids on the computer."</i></li><li>► <i>"I am good at drawing."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** SOC — Preschoolers demonstrate effective social and interpersonal skills

**Preschool**

## ► **Measure 3: Expressions of empathy**

**Definition:** Child shows awareness of other's feelings and responds to expressions of feelings in ways that are increasingly appropriate to the other person's needs

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Shows awareness when others are unhappy or upset	Offers simple assistance when he or she thinks it is needed—even if not really needed	Accurately labels own and others' feelings	Uses words or actions to demonstrate concern for what others are feeling
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Watches to see if an adult will come to help a child who is upset.</li><li>► Moves next to or away from a child who is showing distress.</li><li>► Stops own play and looks at the child who is crying.</li></ul>	<ul style="list-style-type: none"><li>► Pats or hugs a child who is upset.</li><li>► Points out a child who needs assistance to an adult.</li><li>► Offers own special toy or comfort object to a child who is showing distress.</li></ul>	<ul style="list-style-type: none"><li>► Draws picture representing child who is upset and makes a sad face herself.</li><li>► <i>"Maria is smiling—she is happy today."</i></li><li>► Points out a picture in a book of someone who looks mad.</li><li>► <i>"Fabio is scared of thunder."</i></li></ul>	<ul style="list-style-type: none"><li>► Asks child, <i>"Why are you crying?"</i> When told he misses his mommy, says, <i>"Don't worry, your mommy will come back soon."</i></li><li>► Puts arm around a child who is standing alone and says, <i>"I'll be your friend. Want to play with me?"</i></li><li>► Goes to a child whose tower fell down and says, <i>"I'll help you build it again."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** SOC – Preschoolers demonstrate effective social and interpersonal skills

**Preschool**

## ► **Measure 4: Building cooperative relationships with adults**

**Definition:** Child interacts with adult in ways that become increasingly cooperative, including sharing, joint planning, and problem solving

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Seeks interaction with familiar adult for company, help, or comfort</b></p> <div> Not yet at first level</div>	<p><b>Attempts to establish a relationship with an adult by cooperating and interacting</b></p>	<p><b>Seeks to share experience or get information from adults</b></p>	<p><b>Works cooperatively with an adult to plan and organize activities and to solve problems</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"><li>► Says to an adult, <i>"I need help."</i></li><li>► Repeats an action that a familiar adult found funny at an earlier time.</li><li>► Asks the adult sitting next to her to tie her shoes.</li><li>► Asks the adult to get something he or she cannot reach.</li></ul>	<ul style="list-style-type: none"><li>► Says to an adult, <i>"I cleaned up the blocks like you asked."</i></li><li>► Seeks out a familiar adult to play a game with him.</li><li>► Asks an adult to help with something she may be able to do by herself.</li><li>► Often works and plays on own, but spends some time every day checking in with or cuddling with familiar adult.</li></ul>	<ul style="list-style-type: none"><li>► Says to an adult, <i>"Guess what I saw yesterday?"</i></li><li>► Goes to an adult with a question that she cannot answer independently.</li><li>► Asks an adult why other child is not going outside.</li><li>► Talks to an adult about things that interest him or her.</li></ul>	<ul style="list-style-type: none"><li>► Says to an adult, <i>"I can help you set the table for snack."</i></li><li>► Cooperates with an adult to find a way to bring water to the sandbox.</li><li>► Interacts with an adult to solve a problem he's having with a puzzle.</li><li>► Plans an art activity with an adult.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** SOC – Preschoolers demonstrate effective social and interpersonal skills

**Preschool**

## ► **Measure 5: Developing friendships**

**Definition:** Child forms increasingly closer relationships with specific peers, sharing experiences and activities

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Interacts with another child side-by-side as they play with similar materials</b>	<b>Names another child as a friend or seeks out a particular child with whom to play</b>	<b>Engages in social games and pretend play with a particular child</b>	<b>Prefers to play with a particular child who also expresses preference for him or her</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Plays with blocks next to Jose, who is also playing with the blocks.</li><li>► Hands another child a toy that he or she is looking for.</li><li>► Hands a bucket to a child sitting next to him or her in the sandbox.</li></ul>	<ul style="list-style-type: none"><li>► Says, <i>"Jose is my friend."</i></li><li>► Stands next to the same child for group walks.</li><li>► Frequently chooses to sit with a particular child at lunch.</li></ul>	<ul style="list-style-type: none"><li>► Builds pretend city with Jose using blocks.</li><li>► Spends free playtime with particular child or children, pretending to be members of a family.</li><li>► <i>"I like baking with Donna."</i></li></ul>	<ul style="list-style-type: none"><li>► Asks Jose, <i>"Do you want to play with blocks or puppets?"</i> and plays the activity Jose chooses.</li><li>► Has at least one close friend, with whom he or she shares a variety of games and activities.</li><li>► <i>"Emma and I like to play together."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** SOC – Preschoolers demonstrate effective social and interpersonal skills

**Preschool**

## ► **Measure 6: Building cooperative play with other children**

**Definition:** Child interacts with other children through play that becomes increasingly cooperative and oriented towards a shared purpose

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Interacts with other children side-by-side as they play with similar materials</b>	<b>Engages with another child or children in play involving a common idea or purpose</b>	<b>Shows preference for particular playmates, but plays cooperatively with a variety of children</b>	<b>Leads or participates in planning cooperative play with other children</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Plays blocks side-by-side with other children.</li><li>► Hands another child a toy that he or she is looking for.</li><li>► Hands a bucket to a child sitting next to him or her in the sandbox.</li></ul>	<ul style="list-style-type: none"><li>► Plays with blocks with another child.</li><li>► Plays in sand to build a castle with several other children.</li><li>► Joins another child to help look for a lost toy.</li></ul>	<ul style="list-style-type: none"><li>► Plays in blocks area with whomever happens to be there, then moves on to play with particular playmates on the climbing structure.</li><li>► Gets along easily with various playmates in different parts of the room or playground.</li><li>► Participates in short pretend play with several peers, but mostly interacts with one of them.</li></ul>	<ul style="list-style-type: none"><li>► Successfully organizes playmates to build a city out of blocks.</li><li>► Participates in pretend play with peers, following the agreed-upon roles.</li><li>► Successfully helps to negotiate where and how a small group of children can play.</li><li>► <i>"We can make one big spaceship with the LEGOS. Want to try?"</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



► **Measure 7: Conflict negotiation**

**Definition:** Child learns how to understand the needs of other children and to negotiate constructively within the constraints of social rules and values

**1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p>Asserts self using facial expression, words, or actions in conflict situations, but needs an adult to suggest resolutions</p> <div>  Not yet at first level                 </div>	<p>Starts to use appropriate words and actions to express own desires and, when needed, seeks adult help to resolve a conflict</p>	<p>Expresses own needs and desires about a conflict and suggests simple solutions based mainly on own needs</p>	<p>Considers the needs or interests of another child when there is a conflict and accepts or suggests some mutually acceptable solutions</p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Expresses that she wants another child's trike and needs adult redirection so she does not try to take it.</li> <li>► When another child tries to take a toy, pulls the toy back or protests, needing an adult to suggest a solution.</li> <li>► Needs adult to offer a way to join in other children's play without disturbing their game.</li> </ul>	<ul style="list-style-type: none"> <li>► Seeks out adult and indicates that another child won't give her a turn on the trike.</li> <li>► Says or indicates to another child, "You are on my rug."</li> <li>► When she wants to play with trucks and all the trucks are being played with, goes to an adult and indicates that she needs a truck.</li> </ul>	<ul style="list-style-type: none"> <li>► "I need a turn on the trike. Let me use it."</li> <li>► "I want to play on the computer. When will it be my turn?"</li> <li>► When he wants to play a game for four children and all the spots are taken, signals or asks another child if he can take his place.</li> </ul>	<ul style="list-style-type: none"> <li>► "OK. I can use the trike for five minutes, then you can use it for five minutes."</li> <li>► Brings an egg timer over to a group waiting for turns on the computer.</li> <li>► When children are crowding and pushing at the water table, the teacher says, "What's happening here?" Someone says, "It's too crowded." Child says, "Okay, I will leave" and leaves.</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** SOC – Preschoolers demonstrate effective social and interpersonal skills

**Preschool**

## ► **Measure 8: Awareness of diversity in self and others**

**Definition:** Child acknowledges and responds to similarities and differences between self and others and learns to appreciate the value of each person in a community

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Shows awareness of physical differences in others</b>  <div> Not yet at first level</div>	<b>Identifies physical differences and similarities between self and others</b>	<b>Expresses awareness of differences and similarities between self and others, such as language, culture, or special needs</b>	<b>Demonstrates an understanding of inclusion or fairness through actions or words</b>
<b>Examples</b> <ul style="list-style-type: none"><li>► Shows interest by touching the hair of a child whose hair color or texture is different from his or her own.</li><li>► Shows curiosity about a new child whose physical features are different from his or her own.</li><li>► Shows interest when another child speaks another language.</li></ul>	<ul style="list-style-type: none"><li>► <i>"I have a long ponytail, and she has a short one."</i></li><li>► <i>"Sonya and I both have brown eyes."</i></li><li>► <i>"I'm a girl, and Tony's a boy."</i></li><li>► <i>"You are big, and I am little."</i></li></ul>	<ul style="list-style-type: none"><li>► <i>"Juana speaks Spanish. I speak English."</i></li><li>► Tries to imitate sounds of language unfamiliar to him or her.</li><li>► Shows interest in another child's food or eating habits that are different from his or her own.</li><li>► <i>"Why can't Johnny eat peanut butter?"</i></li></ul>	<ul style="list-style-type: none"><li>► Uses gestures and actions, such as pointing or waving, to include children who speak another language in a play activity.</li><li>► Gets out a puzzle that has large knobs on it for a younger child or child with a special need.</li><li>► Moves toys out of the way to make a clear path for a child in a wheelchair.</li><li>► Explains what a teacher said to a child who did not understand.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**








- ▽ **Desired Result 1:** Children are personally and socially competent
- ▽ **Indicator:** REG – Preschoolers demonstrate effective **self-regulation** in their behavior

## ► Measure 9: Impulse control

**Definition:** Child develops strategies for regulating responses in increasingly socially appropriate ways

### 1. Mark the highest developmental level the child has mastered.

Exploring 	Developing 	Building 	Integrating 
<p>Accepts active adult guidance and support to stop self from acting impulsively on desires or needs</p> <div>  Not yet at first level         </div>	<p>Sometimes follows simple social rules and routines to refrain from acting impulsively but often needs adult guidance and support</p>	<p>Tries to refrain from acting impulsively by using simple strategies such as distracting self, verbal reminders to self, or asking for adult help</p>	<p>Consistently uses a variety of socially acceptable strategies to stop self from acting impulsively</p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► When adult says she has to wait to use the easel, may show frustration but accepts an alternative activity.</li> <li>► When it is time to move from one activity to another, often needs direct adult guidance to do so.</li> <li>► Needs adult to offer a way to join in other children's play without disturbing their game.</li> </ul>	<ul style="list-style-type: none"> <li>► Goes to the lunch table when adult says it's lunchtime, but needs to be reminded to wait for the food to be passed to him.</li> <li>► Waits impatiently for toy, but does not grab it from other child.</li> <li>► When adult says he or she cannot go outside to play now, child becomes upset but does not cry or act out.</li> </ul>	<ul style="list-style-type: none"> <li>► Goes to adult for help when feeling frustrated about a child who will not give up the computer.</li> <li>► When another child has the toy she wants, offers a different toy in exchange, or says, "OK, I will wait until you are done."</li> <li>► Asks an adult to read a book, then looks at the book while waiting for adult to come.</li> </ul>	<ul style="list-style-type: none"> <li>► When unable to use the computer, finds another activity of interest until computer is available.</li> <li>► When other children want to play with a set of markers she wants, offers a strategy such as, "Hey guys, we can each use one of the markers. I choose this one."</li> <li>► "I told Aurelio he can use the scooter in five minutes!"</li> <li>► When the playhouse is full, says to an adult, "Can you call me when I can play in the playhouse?" then goes to the water table.</li> </ul>

2. Record evidence for this rating here. (Use back for more space.)

3. Mark here if child is emerging to the next level. 

4. If you are unable to rate this measure, explain why.







- ▽ **Desired Result 1:** Children are personally and socially competent
- ▽ **Indicator:** REG – Preschoolers demonstrate effective **self-regulation** in their behavior

## ► Measure 10: Taking turns

**Definition:** Child develops increased understanding of taking turns and begins to propose strategies for taking turns

### 1. Mark the highest developmental level the child has mastered.

Exploring 	Developing 	Building 	Integrating 
Needs adult prompting or support to wait for turn	Uses adult-structured turn-taking procedures, including rules and cues	Demonstrates knowledge of turn-taking rules and procedures and abides by them most of the time	Routinely proposes turn-taking as a solution to conflicts over materials and equipment
<div>  Not yet at first level         </div>			
<b>Examples</b> <ul style="list-style-type: none"> <li>► When all the easels are being used, follows an adult's request to work at the art table until an easel is available.</li> <li>► Goes with several other children to wash his hands and waits his turn when asked to by an adult.</li> <li>► When another child tries to take a toy, he pulls the toy back or protests, needing an adult to suggest a solution.</li> </ul>	<ul style="list-style-type: none"> <li>► Accepts that her turn on the easel is over when she finishes one picture.</li> <li>► Takes ticket or puts name card in a pouch or on a list.</li> <li>► Accepts a timer or hourglass to determine start and end of a turn.</li> </ul>	<ul style="list-style-type: none"> <li>► "We each get a turn to paint."</li> <li>► Accepts the rule when another child says, "The rule is each kid gets five minutes."</li> <li>► "No cutting in line."</li> </ul>	<ul style="list-style-type: none"> <li>► "He paints first, then me, then you."</li> <li>► When several children want to play with the basketball, says, "Let's take turns."</li> <li>► Reminds other child to take a ticket and wait for his turn on the trike.</li> <li>► "Justin can wash his hands first."</li> </ul>

2. Record evidence for this rating here. (Use back for more space.)

3. Mark here if child is emerging to the next level. 

4. If you are unable to rate this measure, explain why.



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** REG – Preschoolers demonstrate effective **self-regulation** in their behavior

**Preschool**

## ► **Measure 11: Shared use of space and materials**

**Definition:** Child develops the ability to share with others and initiates sharing of space and objects

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Tries to keep control over space and materials he or she is using</b></p> <div> Not yet at first level</div>	<p><b>Maintains control of materials or space that he or she cares about, but allows others to use the rest</b></p>	<p><b>With adult prompting, shares with another child material or space he or she is using or wants to use</b></p>	<p><b>Without adult prompting, invites others to share materials or space he or she is using</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"><li>► Keeps all the crayons near her even if only using one or two colors.</li><li>► Keeps the favorite cookie cutter to use with the play dough, even if he is not using it at the time.</li><li>► When playing at the sand table, tries to keep all the cups.</li><li>► Thinks the red cape is his and gets upset when he sees somebody else wearing it.</li></ul>	<ul style="list-style-type: none"><li>► Lets another child use some crayons, but moves the colors he wants close by.</li><li>► Lets another child take a book from a pile next to her, but holds onto a few that she particularly likes.</li><li>► Has a conflict with another child over dolls in the house area, but complies when an adult asks that each of them pick <u>one</u> doll to play with.</li></ul>	<ul style="list-style-type: none"><li>► Hands a triangle to another child when asked to do so by the teacher.</li><li>► When asked to move so another child can have room, does so.</li><li>► When adult asks who will share the play dough, offers to share.</li><li>► Shares the bike when a teacher tells him that another child is waiting for a turn on the bike.</li></ul>	<ul style="list-style-type: none"><li>► While coloring with crayons, offers a crayon to another child.</li><li>► Asks another child to look at pictures in a book with him.</li><li>► When another child comes to the dramatic play area, asks, “<i>Do you want to be the mommy?</i>” or says, “<i>You can sit here.</i>”</li><li>► Splits his play dough into three even parts to share with others.</li><li>► Invites another child to play with the dinosaurs, acting out what the dinosaurs are doing.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** LANG – Preschoolers show growing abilities in communication and language

Preschool

## ► **Measure 12: Comprehends meaning**

**Definition:** Child receives, understands, and responds to oral language that uses increasingly complex words, phrases, and ideas

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Understands the meaning of simple words, phrases, stories, and songs</b></p> <div> Not yet at first level</div>	<p><b>Understands more complex words and phrases* in conversations, stories, and learning activities</b> *Includes words that tell location, color, body parts, noun and adjective combinations, and basic grammatical units</p>	<p><b>Understands language that refers to imaginary, past, or future events</b></p>	<p><b>Understands language that describes how and why things happen</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"><li>► Asks simple questions or makes simple comments after hearing a story.</li><li>► Produces words and phrases that are part of familiar stories and songs.</li><li>► Responds to simple questions or requests by an adult that are about objects, people, and actions in the immediate environment. For example:<ul style="list-style-type: none"><li>► “Nap time! Could you pass out the blankets, please?”</li><li>► “Do you have a dog?”</li><li>► “What is that?”</li><li>► “Where is Chuy?”</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Responds appropriately to statements, questions, or requests that include more complex words and phrases, such as:<ul style="list-style-type: none"><li>► “Please go and sit <u>next to</u> Juana.”</li><li>► “Please get a <u>blue</u> car.”</li><li>► “Raise your <u>arms up</u> high.”</li><li>► “Where are the <u>big paint</u> brushes?”</li></ul></li><li>► Responds appropriately to adult statements that include basic grammatical units, such as, <b>plurals</b>, <b>pronouns</b>, <b>contractions</b> (he’d; we’ll), <b>possessives</b> (Helen’s), <b>past and future verb tense</b> (moved; will move).</li></ul>	<ul style="list-style-type: none"><li>► During a classroom activity about what grown-ups do, communicates ideas about what he or she might want to do as an adult, such as driving, working, etc.</li><li>► When an adult is reading “The Very Hungry Caterpillar” and asks what might happen next in the story, says, “<i>The caterpillar will eat more.</i>”</li><li>► Understands that a field trip planned for next week is going to happen in the future.</li><li>► Responds to requests to describe events that happened in the recent past, such as, “Tell Mary about the trip we had to the zoo last week.”</li></ul>	<ul style="list-style-type: none"><li>► Responds to open-ended questions requiring elaboration or explanation, such as:<ul style="list-style-type: none"><li>► “Why did Tiny Tim get sick?”</li><li>► “Do you think it was OK for Goldilocks to go in the three bears’ house like that? Why?”</li><li>► “How do plants grow out of seeds?”</li><li>► “How do firefighters help people when there is a fire?”</li><li>► “What would happen if...?”</li></ul></li><li>► Follows and participates in discussions about situations she never experienced directly, such as how caterpillars become butterflies.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** LANG – Preschoolers show growing abilities in communication and language

**Preschool**

## ► **Measure 13: Follows increasingly complex instructions**

**Definition:** Child understands and responds to increasingly complex directions and requests

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Understands one- and two-step instructions and requests about familiar routines</b>	<b>Understands one- and two-step instructions and requests about unfamiliar routines or unrelated events</b>	<b>Understands three-step instructions and requests that are part of a familiar routine</b>	<b>Understands three-step instructions and requests that are about a new or unfamiliar situation</b>
<div> Not yet at first level</div>			
<b>Examples</b>			
<ul style="list-style-type: none"><li>► Understands when an adult says:<ul style="list-style-type: none"><li>► “Let’s put the paints away. It’s clean-up time.”</li><li>► “Please give Juan the crayon.”</li><li>► “Please take off your jacket and put it in your cubby.”</li><li>► “Let’s try it! Clap your hands and stomp your feet.”</li><li>► “Please clean up the block area and sit on the rug.”</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Understands when an adult says:<ul style="list-style-type: none"><li>► “Put the cards away and then bring me your leaf picture, please.”</li><li>► “Please give the truck to Eli and then go get a book with dogs in it.”</li></ul></li><li>► Follows simple instructions when learning a new game, such as:<ul style="list-style-type: none"><li>► “In this game, you tag one of the children in the circle and then run around the circle.”</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Understands when an adult says:<ul style="list-style-type: none"><li>► “Please go ahead and finish your painting, then wash your brush and hang up your picture.”</li><li>► “Push your chair in and put away your book, and then please go wash your hands.”</li><li>► “If you want to play trains with Celia, go get a train and ask her if you can put it on the track with hers.”</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Understands when an adult says:<ul style="list-style-type: none"><li>► “Fold your paper like this, open it up, and paint just in the middle part.”</li><li>► “Please put some more chairs on the rug and make a chair circle, then put your book on one of the chairs.”</li><li>► “You may go outside to play, but please find Jess first and give him this box.”</li></ul></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** LANG – Preschoolers show growing abilities in communication and language

**Preschool**

## ► **Measure 14: Expresses self through language**

**Definition:** Child uses language to communicate with increasingly complex words and sentences

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Produces phrases and simple sentences that communicate basic ideas and needs</b></p> <div> Not yet at first level</div>	<p><b>Uses three- to five-word sentences that contain nouns, verbs, and recently learned vocabulary</b></p>	<p><b>Uses words that are relatively precise and makes longer sentences by connecting shorter sentences</b></p>	<p><b>Uses more complex language or vocabulary to describe events that are imaginary, to explain, or to predict</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"><li>► Produces simple, understandable phrases and sentences, such as:<ul style="list-style-type: none"><li>► "I want mommy."</li><li>► "For you."</li><li>► "More crayons."</li><li>► "I like dogs."</li><li>► "Lila is sick."</li><li>► "Climb over."</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Sentences at this level include ones that use:<ul style="list-style-type: none"><li>► Negative forms—"She won't go," or "This isn't a butterfly."</li><li>► Linked nouns and adjectives—"I see a brown ball," or "This is my green hat."</li><li>► Past tense (walked, went) and future tense (will walk) verbs.</li><li>► Possessive pronouns (your, his) and articles (a, an, the).</li></ul></li><li>► Uses newly learned vocabulary in sentences and phrases—"That's an <u>engine</u>," or "He's <u>important</u>."</li></ul>	<ul style="list-style-type: none"><li>► Produces longer, more complex sentences, such as:<ul style="list-style-type: none"><li>► "I went outside with Bobby, but he left."</li><li>► "Are those Lu's crayons, or can I use them?"</li><li>► "I brush my teeth every day, in the morning and before I go to bed."</li></ul></li><li>► Uses new vocabulary words and asks what words mean.</li><li>► Uses words for categories to name groups of objects, such as desserts, vegetables, or clothes.</li></ul>	<ul style="list-style-type: none"><li>► Uses more complex language that may include:<ul style="list-style-type: none"><li>► Describing imaginary things—"Dragons don't need bikes because they can fly. If a dragon wants to ride a bike, it needs a really big bike!"</li><li>► Reasoning about events—"Maybe he was angry."</li><li>► Problem solving—"You can use this dark green marker or ask Sally if you can borrow the olive green one."</li><li>► Predicting—"If we finish early then we will have more time to play outside."</li></ul></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 1:** Children are personally and socially competent






▽ **Indicator:** LANG – Preschoolers show growing abilities in communication and language

**Preschool**

## ► **Measure 15: Uses language in conversation**

**Definition:** Child engages in increasingly extended conversations following the appropriate social use of language

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Communicates with others, using language for basic purposes, such as requesting, refusing, describing, and answering questions</b>  <div> Not yet at first level</div>	<b>Has short conversations</b>	<b>Has extended conversations about real or imaginary experiences</b>	<b>Has extended conversations that build on emotions, ideas, and information shared with the other person</b>
<b>Examples</b>  ► Uses language to: <ul style="list-style-type: none"><li>► Make simple requests—<i>"I want more juice."</i></li><li>► Refuse—<i>"I don't want that."</i></li><li>► Describe things—<i>"It has a long tail," or "That is funny."</i></li><li>► Ask simple questions—<i>"Can I have a ball?"</i></li><li>► Answer simple questions—<i>"It's in the box."</i></li></ul>	► Engages in short conversations such as: <ul style="list-style-type: none"><li>► Andre: <i>"That's my ball."</i> Jordan: <i>"I want that one."</i> Andre: <i>"The blue one is mine."</i> Jordan: <i>"Well, I'll play with this green one."</i></li><li>► Child: <i>"I made a picture."</i> Adult: <i>"I like it."</i> Child: <i>"That's my mom and that's my sister."</i></li><li>► Adult: <i>"What did you do over the weekend?"</i> Child: <i>"I went to Susie's house."</i> Adult: <i>"What did you do there?"</i> Child: <i>"We played in the sprinkler."</i></li></ul>	► Engages in longer conversations, sharing experiences, such as: <ul style="list-style-type: none"><li>► Child: <i>"I am getting a pretend vacuum cleaner."</i> Adult: <i>"From your dad?"</i> Child: <i>"No, I am going with my aunt Joyce."</i> Adult: <i>"Is she visiting you?"</i> Child: <i>"She's staying until my birthday."</i></li><li>► Jose: <i>"I am making cake."</i> Karl: <i>"Is it chocolate?"</i> Jose: <i>"Yes, and marshmallow."</i> Karl: <i>"Can I taste it?"</i> Jose: <i>"No, it's not ready."</i></li><li>► Child: <i>"I'm a bunny!"</i> Adult: <i>"Why are you a bunny?"</i> Child: <i>"Because I have long ears and a fluffy tail."</i> Adult: <i>"Oh yes, I see."</i> Child: <i>"... and I'm eating a carrot."</i></li></ul>	► Engages in extended conversations, clearly sharing own thoughts, such as: <ul style="list-style-type: none"><li>► Child: <i>"I want to make a picture for my grandmother."</i> Adult: <i>"Is it her birthday?"</i> Child: <i>"No, she is just coming tomorrow, and I want to make a surprise."</i> Adult: <i>"What do you want to draw?"</i> Child: <i>"I want to draw me and my dog. His name is Chocolate, because he's all brown."</i></li><li>► Picks up on a topic or information introduced by the other. For example:<ul style="list-style-type: none"><li>► Fernanda: <i>"Yesterday I got my brother's bike, because he is too big for it."</i> Lucy: <i>"My sister is too big for her bike too."</i> Conversation continues.</li></ul></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



## ► **Measure 16: Curiosity and initiative**

**Definition:** Child pursues knowledge or understanding of new materials or activities

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Shows interest in new materials or activities by intently watching others and/or handling the materials	Actively engages with new materials or activities by asking questions and performing simple investigations	Uses a variety of strategies to learn more about objects or activities of interest	Puts materials or objects together in new and inventive ways to learn what will result or to create something
<div>  Not yet at first level         </div>			
<b>Examples</b> <ul style="list-style-type: none"> <li>► Watches adult pick up paper clips with the magnetic wand.</li> <li>► Looks at or picks up new materials in the science or art area.</li> <li>► Watches an adult and peers building a road in the wet sand.</li> <li>► Plays with paint using hands and brushes.</li> </ul>	<ul style="list-style-type: none"> <li>► Asks how to use the magnetic wand—<i>“What do you do with that?”</i></li> <li>► Squeezes glue bottle and watches glue come out.</li> <li>► Pours water into sand and watches how much water a hole will hold.</li> <li>► Pours water from a pitcher while putting her hand over spout.</li> </ul>	<ul style="list-style-type: none"> <li>► Uses magnetic wand to pick up different objects around the room.</li> <li>► Looks at child building something, then tries to build the same.</li> <li>► Asks questions about how to play a simple new board game and tries to play.</li> <li>► Goes to a science table and examines a prism to figure out how it makes the light change.</li> <li>► Uses a magnifying glass to look at a caterpillar.</li> </ul>	<ul style="list-style-type: none"> <li>► Combines bristle blocks with LEGOS to make a structure.</li> <li>► After watching other children make a road in the sand with the shovels, tries to make a road using his hands or blocks.</li> <li>► Mixes different color combinations, like blue and yellow or red and blue.</li> <li>► On own initiative, gathers materials and makes a duck puppet using yellow paper, scissors, wooden sticks, and glue. Says, <i>“See teacher Maria, I made my puppet.”</i></li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



## ► **Measure 17: Engagement and persistence**

**Definition:** Child persists in understanding and mastering a self-selected activity, even if challenging or difficult

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Continues self-selected activities on own for a while, but needs help and reminders to keep doing activities requested by another person</b></p> <div>  Not yet at first level         </div>	<p><b>Continues self-selected activities on own even in a distracting environment</b></p>	<p><b>Usually works through difficulties encountered in activities</b></p>	<p><b>Returns to challenging or multi-step activities</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Strings large beads, removes them from the string, and then strings them again.</li> <li>► Builds a structure from blocks by himself.</li> <li>► Needs adult encouragement to finish putting paints away.</li> <li>► Joins others making paper fans. When he has difficulty folding paper he stops and says, <i>"I can't do it. I'm tired."</i> With teacher's prompting, continues, and is able to make a fan.</li> </ul>	<ul style="list-style-type: none"> <li>► Completes a puzzle even though another child has started to play with a noisy toy nearby.</li> <li>► Continues to look intently at a bug, even though other children are riding trikes around him or her.</li> <li>► Looks at a book or listens to a story on headphones from beginning to end.</li> </ul>	<ul style="list-style-type: none"> <li>► Works at completing a challenging puzzle, even if having trouble finding the right pieces.</li> <li>► Rebuilds house made out of sticks when it tumbles.</li> <li>► Persists at trying to trace her hand, even though it is hard to keep her fingers still.</li> </ul>	<ul style="list-style-type: none"> <li>► Works over a number of days on adding to a structure he is building in the block area.</li> <li>► For several days, attempts to pour water into a bottle at the water table until he or she is successful.</li> <li>► Tries each day to climb higher on the climbing structure until he or she can climb to the top.</li> <li>► Cuts out hearts to glue to a card, redoing it until he is satisfied with the result.</li> <li>► Folds her paper, staples it, uses tape, and writes on the folded part. Asks adult how to write "Happy Birthday" and copies it.</li> </ul>

### **2. Record evidence for this rating here.** (Use back for more space.)

### **3. Mark here if child is emerging to the next level.**






### **4. If you are unable to rate this measure, explain why.**



► **Measure 18: Memory and knowledge**

**Definition:** Child stores, retrieves, and uses information about familiar and unfamiliar events, past experiences, people, and things

**1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Remembers a few key features of familiar objects and routines	Communicates memories about an unfamiliar event that happened earlier that day	Communicates memories about an unfamiliar event that happened on a previous day	Communicates memories about a sequence of related events that happened in the past
<div>  Not yet at first level         </div>			
<b>Examples</b> <ul style="list-style-type: none"> <li>► Without being told:               <ul style="list-style-type: none"> <li>► Sits down for afternoon snack after free play time.</li> <li>► Removes the cap from a marker and places it on the back of the marker.</li> <li>► Opens a milk carton and inserts a straw.</li> <li>► Puts on a paint smock before starting to paint.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>► Describes a funny thing his dog did in the morning.</li> <li>► Describes a special snack the class prepared that day to his or her parent.</li> <li>► Comments about a detail in a book he points to—<i>"That's the one with the dog."</i></li> <li>► Tells about a fire truck he or she saw on the way to school.</li> </ul>	<ul style="list-style-type: none"> <li>► Describes or draws a picture of a family celebration that happened the day before.</li> <li>► Describes a trip to the zoo.</li> <li>► Remembers that a firefighter came and talked to the class.</li> <li>► Answers a question such as, "What did we do yesterday that was different?"</li> </ul>	<ul style="list-style-type: none"> <li>► Tells his friend how he planted beans that just sprouted, <i>"We put the beans in some water, and the next morning we put them in this cup of dirt. I watered them every day, and took the cup outside in the sun so the plants could grow."</i></li> <li>► Retells a story by relating the main events in sequence, <i>"When Jack sold the cow and then planted the beans, the beans grew right up into the sky."</i></li> <li>► Acts out a scenario of "The Three Bears" in the dramatic play area.</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



## ► **Measure 19: Cause and effect**

**Definition:** Child shows increasing understanding of cause and effect relations

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Tries out actions to see what will happen</b></p> <div>  Not yet at first level         </div>	<p><b>Anticipates that a routine action will have a specific result</b></p>	<p><b>Shows understanding of familiar cause and effect through language or action</b></p>	<p><b>Explains or predicts the result of a familiar action—will not always be accurate, but will be reasonable</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Mixes different primary colors together to see what happens.</li> <li>► Blows into a straw to make bubbles in water.</li> <li>► Pours water on a waterwheel at the water table.</li> <li>► Lifts tube to make a ball roll out of the end.</li> <li>► Puts objects in water to see what sinks or floats.</li> </ul>	<ul style="list-style-type: none"> <li>► Knows to turn the handle on the water fountain to get a drink.</li> <li>► Flips the light switch on when an adult says the room seems dark.</li> <li>► Walks slowly to the sandbox with cup of water to avoid spilling.</li> </ul>	<ul style="list-style-type: none"> <li>► <i>"I figured out how to get pink—we mix red and white."</i></li> <li>► After mixing paints and getting different colors, mixes differently colored play dough to get the same effect.</li> <li>► Sees a balloon getting blown up and covers his ears in anticipation of a pop.</li> <li>► <i>"When I spin around fast, I get dizzy."</i></li> </ul>	<ul style="list-style-type: none"> <li>► Sees a dark cloud in a picture book and comments that it will rain.</li> <li>► <i>"If we put the ice cube in the sun, it will melt and make water because the sun is hot."</i></li> <li>► Says that her tower fell over <i>"because it was too high."</i></li> <li>► <i>"If you have your shoe laces untied, you will trip."</i></li> <li>► Says, <i>"If I let go of my paper outside, it will fly away because it is windy."</i></li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



► **Measure 20: Engages in problem solving**

**Definition:** Child shows increasing ability to reason logically or use strategies to solve challenging problems

**1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p>Tries to solve simple problems, including using trial and error</p> <div>  Not yet at first level         </div>	<p>Tries a strategy he or she saw someone else use to help solve a problem</p>	<p>Uses familiar objects or actions in a deliberate way to solve problems</p>	<p>Tries out a set of actions to develop a strategy for solving problems</p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Tries different ways to get a ball that has rolled under the sofa.</li> <li>► Tries a square and a rectangle before finding the triangle to fit in a shape sorter.</li> <li>► Turns a puzzle piece to get it to fit in a wooden puzzle.</li> <li>► Tries to put on his or her coat by laying the coat down first then putting one hand in a sleeve.</li> </ul>	<ul style="list-style-type: none"> <li>► Imitates another child building a bridge with long blocks.</li> <li>► Watches another child dig out a toy in the sandbox using a stick, instead of a shovel, and then tries that on his own.</li> <li>► After watching an adult, uses a block to retrieve a wedged toy.</li> <li>► After watching another child, pushes a wagon that is too difficult to pull.</li> <li>► During mealtime, tries to open the milk container by pushing the way teachers do.</li> </ul>	<ul style="list-style-type: none"> <li>► When building a bridge, first takes one long block and puts it across two other blocks to see if the size is right before continuing to build.</li> <li>► Uses a block as a doorstop when the classroom doorstop disappears.</li> <li>► When the telephone in the playhouse is missing, uses a curved block as a pretend phone.</li> <li>► When an unfamiliar toy stops working, looks to see if batteries are missing.</li> </ul>	<ul style="list-style-type: none"> <li>► When building a bridge with unit blocks, runs out of the same size blocks, looks for alternative materials and continues building with them.</li> <li>► Starts building a tower with a plan in mind even if it doesn't work—for example, puts the tallest block first, then tries again with the biggest block on the bottom.</li> <li>► When a ball gets stuck in a tree, comes up with several ideas of how to get it down.</li> <li>► Looks at a picture to figure out how to build something.</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



## ► **Measure 21: Socio-dramatic play**

**Definition:** Child learns to play with others using organized role-playing and symbolic play

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Engages in brief pretend play on own	Engages in brief pretend play with a peer, sharing materials or ideas	Takes a role in a play situation with other children, but without planning the role or the pretend play	Takes a role in a play situation with other children where they have agreed on roles and how they will pretend play
<div>  Not yet at first level         </div>			
<b>Examples</b> <ul style="list-style-type: none"> <li>► Sits in a box or on a chair and pretends to drive.</li> <li>► At the sandbox, pretends to make a cake by mixing sand and water in a pail.</li> <li>► Uses plastic banana as telephone and pretends to call Grandma.</li> </ul>	<ul style="list-style-type: none"> <li>► Sits in box and says to another child, <i>"I'm driving the bus to take kids to school."</i></li> <li>► Pretends to pour milk into cups and gives a cup to a peer.</li> <li>► Stirs with a spoon in a bowl, pretends to taste, and says to a child who is also cooking, <i>"It's not ready yet."</i></li> <li>► Pretends to be a gas station attendant and pumps gas for trikes.</li> </ul>	<ul style="list-style-type: none"> <li>► Joins in when he sees two children pretending to drive a bus, but does not talk to them about what role he will play.</li> <li>► In a dinnertime dramatic play sequence with peers, plays the parent or child having dinner at the small table.</li> <li>► In a 'visit to the doctor' dramatic play sequence, plays the doctor using the stethoscope and placing bandages on another child.</li> <li>► Plays superhero game, rescuing another child.</li> </ul>	<ul style="list-style-type: none"> <li>► Plays school bus, with one child playing the driver, another playing the child, and another the mommy helping her child.</li> <li>► In block area, children create a zoo and assign roles such as zookeeper, cage cleaners, tour guide/bus driver, and bird keeper.</li> <li>► Plays school with other children and assigns roles—<i>"I'll be the teacher, you be the calendar helper, and you be the snack helper."</i></li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator: MATH** – Preschoolers demonstrate competence in real-life **mathematical** concepts

**Preschool**

► **Measure 22: Number sense: Understands quantity and counting**

**Definition:** Child uses number names to represent quantities and counts increasingly larger sets of objects

**1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Uses numbers up to three to describe quantities without counting  <div> Not yet at first level</div>	Correctly recites numbers in order up to five	Counts at least five objects correctly, without counting an object more than once	Counts at least ten objects correctly
<b>Examples</b>  ► <i>"I only have one cookie. I want two."</i> ► <i>"I see three dogs."</i> ► Brings two cups to the sand table when adult asks for them.	► Recites the numbers 1 to 5 correctly.	► Counts five bears in a story book, <i>"1, 2, 3, 4, 5—there are five bears."</i> ► Brings the correct number of plates when an adult asks for six more plates for the snack table. ► When playing a board game with dice, rolls five, then counts five spaces while advancing her game piece.	► Paints a picture of ten flowers, then counts the flowers and correctly indicates how many there are. ► Counts objects up to 13 during small group time, <i>"I have 13 bears."</i> ► During small group for math, wants to see how many children are in the group, and counts eleven children correctly.

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator:** MATH – Preschoolers demonstrate competence in real-life mathematical concepts

Preschool

## ► **Measure 23: Number sense: Math operations**

**Definition:** Child shows increasing ability to add and subtract small quantities of objects

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Demonstrates that items can be grouped and counted</b></p> <div> Not yet at first level</div>	<p><b>When two groups are different by a large amount, correctly says one group has more objects than the other</b></p>	<p><b>Adds or takes away objects to solve everyday problems with groups of at least three objects</b></p>	<p><b>Does simple addition and subtraction problems with groups of up to five objects</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"><li>► When there is a group of six cups and two cups, can point to the larger group.</li><li>► Takes farm animals and places horses together and counts, though may not count accurately.</li></ul>	<ul style="list-style-type: none"><li>► When there is a group of ten cups and two cups, points to group of ten cups and says, <i>"There are more cups here."</i></li><li>► When setting the table, recognizes that more plates are needed.</li><li>► <i>"There are more kids on that team!"</i></li></ul>	<ul style="list-style-type: none"><li>► When setting the table for snack, puts out three cups, then says, <i>"Oh, there are only two kids,"</i> and takes one cup away.</li><li>► When asked to take away one car from a block structure, child removes a car and says, <i>"Hey, now there are only two cars."</i></li><li>► Adds one counting bear to her group of two when adult says, <i>"You need to have three bears."</i></li></ul>	<ul style="list-style-type: none"><li>► Brings over two more cups to a group of two and says that there are four cups.</li><li>► Takes five goldfish for a snack, eats two, and says, <i>"I have three left."</i></li><li>► Has two blocks and gets three more. Says, <i>"I have five blocks."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator:** MATH – Preschoolers demonstrate competence in real-life **mathematical** concepts

**Preschool**

## ► **Measure 24: Shapes**

**Definition:** Child shows increasing knowledge of shapes and their characteristics

### **1. Mark the highest developmental level the child has mastered.**

<div>Exploring</div> <div></div> <div>Recognizes differences among shapes without naming them</div> <div><div> Not yet at first level</div></div>	<div>Developing</div> <div></div> <div>Correctly names at least two shapes (circles, squares, triangles)</div>	<div>Building</div> <div></div> <div>Recognizes shapes when they are presented in new orientation or as parts of other objects</div>	<div>Integrating</div> <div></div> <div>Describes characteristics and differences of several shapes</div>
<div><b>Examples</b></div> <ul style="list-style-type: none"><li>► Puts a circle-shaped puzzle piece into the correct hole.</li><li>► Places shapes in variety of form boards/simple puzzles.</li><li>► Picks out circles from a set that contains circles, squares, and triangles.</li></ul>	<ul style="list-style-type: none"><li>► <i>"The clock is a circle."</i></li><li>► <i>"My sandwich is a square."</i></li><li>► Points to a plate and indicates that it is the same shape as a circle.</li></ul>	<ul style="list-style-type: none"><li>► Identifies triangles even though some have equal sides, some have longer sides, and some are pointed downward.</li><li>► Identifies that the wheels of a car are circles and the windows are squares.</li><li>► Shows another child that he or she can put two triangles together to make a diamond shape.</li><li>► Turns and flips shapes to correct orientation to complete simple pattern block or Tangram puzzles.</li></ul>	<ul style="list-style-type: none"><li>► Looking at a circle and a triangle, says, <i>"This one has a pointy part and it's big; this one is curvy, but it's little."</i></li><li>► Says, <i>"A triangle has three sides; a square has four sides."</i></li><li>► Describing the difference between a circle and an oval, says, <i>"An oval looks like an egg."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator: MATH** – Preschoolers demonstrate competence in real-life **mathematical** concepts

**Preschool**

## ► **Measure 25: Time**

**Definition:** Child understands and uses time-related vocabulary for routine actions, sequences, and durations of events

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Shows initial understanding of order of events over time</b>	<b>Knows that events can be in the past or future</b>	<b>Indicates time of past, present, and future events</b>	<b>Connects some events with specific times</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Says, "Mommy will come after we eat lunch."</li><li>► Indicates that outdoor time comes after circle time.</li><li>► During pretend play, puts something in oven, checks to see if it is ready, and then takes it out.</li><li>► On arriving at school, puts lunch in cubby and goes to teacher to get a name tag.</li></ul>	<ul style="list-style-type: none"><li>► Refers to something that happened in the recent past, such as, "My mom just got back from a trip."</li><li>► Refers to an upcoming visit from Grandma, saying, "My grandma is coming from Japan."</li><li>► Talks about an event that happened a week ago, but says it happened yesterday.</li><li>► When child's friend refers to his birthday, says, "I had my birthday already."</li></ul>	<ul style="list-style-type: none"><li>► On Friday, says, "Tomorrow there is no school."</li><li>► "Today I'm going to Simon's birthday party."</li><li>► "Yesterday I was sick."</li><li>► Points to the next day on calendar when an adult asks if his birthday is soon.</li></ul>	<ul style="list-style-type: none"><li>► Says, "My mom visits Grandma for lunch on Saturdays."</li><li>► Knows the month of his or her birthday.</li><li>► "We don't come to preschool on Saturday."</li><li>► "I have soccer practice at four."</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



## ► **Measure 26: Classification**

**Definition:** Child shows increasing ability to compare, match, and sort objects into groups according to some common attribute

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Recognizes when two things are the same	Sorts objects into three or more different groups	Sorts objects by different attributes (size, shape, or color), but not at the same time	Sorts objects by two attributes at the same time
<div>  Not yet at first level         </div>			
<b>Examples</b> <ul style="list-style-type: none"> <li>► Puts two circle tiles together.</li> <li>► Puts self into the same category as other people—<i>"We are both girls."</i></li> <li>► <i>"We both have red backpacks."</i></li> </ul>	<ul style="list-style-type: none"> <li>► Puts the big, medium, and small tiles together.</li> <li>► During clean up, puts red, green, and yellow apples in different baskets.</li> <li>► When cleaning up, puts away pencils, crayons, and markers into different baskets.</li> </ul>	<ul style="list-style-type: none"> <li>► Separates tiles into circles and squares, regroups the tiles, and then separates them into red and blue.</li> <li>► Helps make a class chart of the numbers of boys and girls. Then helps make another chart showing the numbers of children with brown eyes and blue eyes.</li> <li>► Sorts buttons by color alone, regroups the buttons, then sorts again by shape or size or number of holes.</li> </ul>	<ul style="list-style-type: none"> <li>► Separates tiles into four groups—blue circles, blue squares, red circles, and red squares.</li> <li>► Removes spoons, forks, and knives from the play kitchen, and sorts utensils into groups—big spoons, small spoons, big forks, small forks.</li> <li>► Helps make a class chart of the number of boys with brown eyes, girls with brown eyes, boys with blue eyes, and girls with blue eyes.</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator: MATH** – Preschoolers demonstrate competence in real-life **mathematical** concepts

**Preschool**

## ► **Measure 27: Measurement**

**Definition:** Child shows increasing understanding of measurable properties such as length, weight, and capacity and begins to quantify those properties

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p>Understands or uses words that describe some measurable property such as size, length, weight, or capacity (big or little)</p> <div> Not yet at first level</div>	<p>Understands or uses words that compare size, length, weight, or capacity of objects (bigger or smaller)</p>	<p>Tries to measure using tools (standard or nonstandard)</p>	<p>Describes and compares using standard or nonstandard measures</p>
<p><b>Examples</b></p> <ul style="list-style-type: none"><li>► <i>"This pumpkin is SO heavy."</i></li><li>► <i>"My grandma lives far away."</i></li><li>► <i>"I'm thirsty. I want a big glass of water."</i></li><li>► Gestures to indicate how big an object is.</li><li>► When asked to, brings the shovel with the long handle to the sand area.</li></ul>	<ul style="list-style-type: none"><li>► Looks at two girls and identifies the one who has the longer hair.</li><li>► Says, <i>"I'm taller than my friend Juan."</i></li><li>► Hands a friend a large block when he says, <i>"We need a bigger one for the bridge."</i></li></ul>	<ul style="list-style-type: none"><li>► Asks teacher to mark his <i>"tall tape"</i> on the wall to see if he's taller today.</li><li>► Tries to use hands or a stick to measure the length of a block tower.</li><li>► Uses a measuring tape to measure how long a large beetle is.</li><li>► Tries to use a scale to see how heavy a pinecone is.</li><li>► Fills the measuring cup twice to get two cups during a cooking activity.</li></ul>	<ul style="list-style-type: none"><li>► Measures a long block by putting smaller blocks along the edge and explains to another child, <i>"The big block is the same as three small blocks."</i></li><li>► Puts a pinecone on one side of the scale and a block on the other side and indicates that one is heavier than the other.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator: MATH** – Preschoolers demonstrate competence in real-life **mathematical** concepts

**Preschool**

## ► **Measure 28: Patterning**

**Definition:** Child shows increasing ability to recognize, reproduce, and create patterns of varying complexity

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Recognizes or identifies simple patterns created by others*</b> *Simple patterns are in the form ABAB, such as red-blue, red-blue	<b>Builds or copies simple patterns</b>	<b>Builds or copies a pattern using different objects</b>	<b>Creates or extends a more complex pattern (more than two repeating elements)</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Says, <i>"This is red and blue and red and blue."</i></li><li>► Recognizes a simple repeating pattern like colored stripes on a friend's shirt.</li><li>► Sings, moves, or claps through part of a pattern song.</li></ul>	<ul style="list-style-type: none"><li>► Uses objects like blocks, beads, or toys to form a repeating pattern.</li><li>► Participates in a clapping song with repetitive clapping patterns.</li><li>► Puts toy animals in a pattern (duck-cow, duck-cow).</li><li>► Lines up LEGOS and says, <i>"Look, red, yellow, red, yellow."</i></li></ul>	<ul style="list-style-type: none"><li>► Creates red-red-blue-blue, red-red-blue-blue pattern with colored blocks on his own.</li><li>► Using a variety of objects (animals, vehicles, blocks, house-keeping toys, etc.), creates or extends a simple pattern on his own.</li></ul>	<ul style="list-style-type: none"><li>► Uses colored cubes to make red-white-blue, red-white-blue pattern.</li><li>► Strings beads on a necklace in a red-blue-purple, red-blue-purple sequence.</li><li>► Continues a clap-clap-stomp pattern with clap-clap-stomp.</li><li>► Creates own variation of the head, shoulders, knees, and toes pattern.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



► **Measure 29: Interest in literacy**

**Definition:** Child shows interest in books, songs, rhymes, stories, writing, and other literacy activities

**1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Participates in literacy activities</b></p> <div>  Not yet at first level         </div>	<p><b>Seeks out and engages in a variety of group and individual literacy activities</b></p>	<p><b>Initiates and listens to reading materials and links content to own experiences</b></p>	<p><b>Participates in reading activities, including discussions that relate the story to the outside world and predicts what will happen next in the story</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Listens to or looks at simple storybooks from beginning to end.</li> <li>► Participates in singing familiar songs and rhymes.</li> <li>► Draws a picture and presents it to the class during circle time.</li> </ul>	<ul style="list-style-type: none"> <li>► Given the opportunity, spends time in the book area.</li> <li>► Has one or more favorite storybooks and pretends to read them to self and others.</li> <li>► Listens attentively to a story and asks questions or makes comments about specific events or characters in the books, such as, “<i>Why is the boy sad?</i>” or “<i>That dog is silly.</i>”</li> <li>► Shows an interest in print in books and the environment. For example, asks, “<i>What’s that say?</i>”</li> <li>► Runs to the rug when she sees the teacher approaching with books.</li> </ul>	<ul style="list-style-type: none"> <li>► During a book sharing that involves discussion about pets, says that he has a dog with spots, too.</li> <li>► Requests that adult reads a book about butterflies to her, and then points to a butterfly when the class goes on a nature walk.</li> <li>► Requests that adults sing specific songs or play specific rhyming games that his family does at home.</li> <li>► Listens to a range of reading materials, including fiction or nonfiction (fairy tales as well as stories about real people and books on science) and relates these stories to her own experiences.</li> <li>► Incorporates books and other literacy materials that have been used in class into play (for example, magazines or signs when creating own artwork).</li> </ul>	<ul style="list-style-type: none"> <li>► Compares the content of stories—“<i>This story is not as funny as the one you read yesterday,</i>” or “<i>Diesel 10 was naughty in the other book, too.</i>”</li> <li>► After a book is read, participates in a discussion about the story or acts out the story in a dramatic activity (role play) or a song activity (making up words to a song that go with the story).</li> <li>► After a book about plants is read, predicts what will happen to a seed when it is planted in the ground.</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



## ► **Measure 30: Letter and word knowledge**

**Definition:** Child shows increasing awareness of symbols, letters, and words in the environment and their relationship to sound

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Recognizes simple symbols (numbers, letters, logos) in the environment</b></p> <div>  Not yet at first level         </div>	<p><b>Knows some letters by sight and by name, or recognizes own name in print</b></p>	<p><b>Knows ten or more letters by sight and by name, and understands that letters make up words and have corresponding sounds</b></p>	<p><b>Knows most of the letters by sight and by name, and recognizes some familiar whole written words</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Identifies one letter from an array of letters or numbers in the environment (although may not be correct).</li> <li>► Points to a letter and asks, <i>"What's that letter?"</i></li> <li>► Recognizes a logo for a known store or restaurant chain.</li> </ul>	<ul style="list-style-type: none"> <li>► Identifies first letter of own name. Kayla says, <i>"That's a K like my K."</i></li> <li>► Correctly names some letters in storybooks, artwork or logos, puzzles, or other presentations (alphabet poster).</li> <li>► Recognizes some letters of the alphabet and can identify them from among an array (finds the letter L on an alphabet puzzle).</li> <li>► Knows several or all of the letters in her name by sight and by name.</li> <li>► Differentiates own written name from other names in familiar environments, such as labels on cubbies or chairs.</li> </ul>	<ul style="list-style-type: none"> <li>► Identifies, by sight and name, at least ten letters (such as letters on the title page of a book or on a cereal box).</li> <li>► Identifies own name without having any environmental clues—for example, sees his name in a book and says, <i>"It says Tom, that's my name!"</i></li> <li>► Shows some awareness of the relationship between letters and sounds—<i>"M goes /m/."</i></li> </ul>	<ul style="list-style-type: none"> <li>► Names most of the alphabet letters in various literacy activities, such as while reading an alphabet book.</li> <li>► Recognizes similarities between two written words—<i>"Hey, those both start with a B!"</i></li> <li>► Has a beginning repertoire of a sight word vocabulary containing common words (stop, go, exit, dog, cat, names of other children).</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 






**4. If you are unable to rate this measure, explain why.**



## ► **Measure 31: Emerging writing**

**Definition:** Child shows increasing ability to write using scribbles, symbols, letters, and words to represent meaning

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Makes scribble-pictures to represent people, things, or events</b></p> <div>  Not yet at first level         </div>	<p><b>Makes letter-like symbols as pretend writing to represent ideas, and attributes meaning to writing</b></p>	<p><b>Writes own name with some letters formed correctly</b></p>	<p><b>Writes own name and simple words (mostly using correct letters)</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Produces different marks to represent different objects or events (circles, scribbles).</li> <li>► Draws a picture and says, <i>"This is my brother."</i></li> <li>► Uses crayons, pencils, markers, and paints to draw and to write.</li> </ul>	<ul style="list-style-type: none"> <li>► 'Writes' own name on a drawing using scribbles, random symbols, or letter-like marks.</li> <li>► Dictates writing to an adult (draws a picture and asks adult to label it; makes a card and tells adult what to write on it).</li> <li>► Attributes meaning to what one writes—points to a scribble and says, <i>"This says 'Mommy.'"</i></li> </ul>	<ul style="list-style-type: none"> <li>► Writes own name on a picture with several letters correctly formed.</li> <li>► Pretends to write a letter to her mommy and signs it with her name.</li> </ul>	<ul style="list-style-type: none"> <li>► Accurately writes his name on things he has made.</li> <li>► Writes some familiar words in their drawing, such as 'stop' on a stop sign.</li> <li>► Writes some simple words spelled correctly (e.g., cat, stop, mom, I, go).</li> <li>► Produces some writing and spelling through imitation (writes 'DOG' by looking at a poster and copying the word).</li> <li>► Asks how to spell some words and for help with writing these words.</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator:** LIT – Preschoolers demonstrate emerging literacy skills

**Preschool**

## ► **Measure 32: Concepts of print**

**Definition:** Child shows an increasing understanding of the conventions and physical organization of print material and that print carries meaning

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Understands the way books are handled and organized</b>  <div> Not yet at first level</div>	<b>Understands the role of print in telling a story, and uses printed materials to pretend to read</b>	<b>Understands that print is organized into units, such as words, and knows some vocabulary that describes print</b>	<b>Understands how print is used in various ways in books, and understands the organization and purposes of different print materials</b>
<b>Examples</b> <ul style="list-style-type: none"><li>► Handles books following customary conventions (right-side up, turns pages from front to back).</li><li>► During reading interactions with adults, helps to turn pages.</li><li>► Participates actively with special book features, such as flaps for lifting or buttons for pushing to make noises.</li><li>► Starts reading a book on the first page.</li></ul>	<ul style="list-style-type: none"><li>► Holds book appropriately and pretends to read to others (people or toys), turning the pages as if reading a story.</li><li>► When looking at books, differentiates between the role of print and the role of pictures, for example:<ul style="list-style-type: none"><li>► Points to print and says, <i>"I'm reading."</i></li><li>► Pointing to the words near a picture of a bunny and says, <i>"That says 'bunny.'"</i></li><li>► Points to print and says, <i>"What's that say?"</i></li></ul></li></ul>	<ul style="list-style-type: none"><li>► When reading a story with an adult, pretends to track words moving finger from left to right and top to bottom.</li><li>► Points to familiar words when an adult reads them a familiar book with big font. For example, when adult reads "Bear Goes to the Zoo," points to familiar words 'bear' and 'zoo.'</li><li>► Can point to a specific word after an adult says it out loud—points to the word 'cat' when adult asks, "Where does it say cat?"</li><li>► Uses words that talk about print, including how it works and what it is used for (read, write, spell, letter, word).</li></ul>	<ul style="list-style-type: none"><li>► Uses many different types of printed material appropriately (looks at a menu and pretends to order food, follows directions on signs).</li><li>► Pretends to read familiar books aloud while pointing to the words one by one going from left to right and top to bottom (although may get off track).</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 2:** Children are effective learners






▽ **Indicator:** LIT – Preschoolers demonstrate emerging literacy skills

**Preschool**

## ► **Measure 33: Phonological awareness**

**Definition:** Child shows awareness of the sounds that make up language, including the segmentation of sounds in words, and recognition of word rhyming and alliteration

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Engages in play with sounds in words and songs</b>	<b>Shows awareness of words and syllables as units of sound</b>	<b>Shows awareness of rhymes and sounds at the beginning of words</b>	<b>Blends and segments parts of words</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Pays attention to songs and rhymes (claps, stomps, or sings to nursery rhymes).</li><li>► Repeats the order of two or three sounds in the environment (repeats a pattern of two claps followed by one stomp).</li></ul>	<ul style="list-style-type: none"><li>► Claps out each word in <i>"I am Matt"</i> in a name game in the classroom.</li><li>► In a group activity, follows along when asked to clap the syllables in <i>"e-le-phant."</i></li></ul>	<ul style="list-style-type: none"><li>► Thinks of words that rhyme with <i>"cat,"</i> such as <i>"bat"</i> and <i>"hat."</i></li><li>► When an adult asks, <i>"What does the mouse see that starts with the /k/ sound?"</i> says, <i>"Cookie."</i></li><li>► Says, <i>"Cat and car sound alike at the beginning."</i></li><li>► Raises her hand when asked, <i>"Whose name starts with the /t/ sound?"</i></li></ul>	<ul style="list-style-type: none"><li>► Blends two or more syllables into multisyllabic words, such as <i>pic-nic</i> to make <i>picnic</i>, <i>di-no-saur</i> to make <i>dinosaur</i>.</li><li>► Blends sounds together to form words, such as <i>m+ at</i> or <i>m + a + t</i> to make <i>"mat."</i></li><li>► Segments syllables from words, such as removing <i>"ball"</i> from <i>"baseball"</i> to get <i>"base."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 3:** Children show physical and motor competence






▽ **Indicator: MOT** – Preschoolers demonstrate an increased proficiency in **motor skills**

**Preschool**

## ► **Measure 34: Gross motor movement**

**Definition:** Child refines the ability to move in a coordinated way using large muscles (arms and legs)

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Makes basic movements with confidence and ease</b>	<b>Uses movement skills to go smoothly up, down, and through a variety of spaces</b>	<b>Uses complex movement skills in active play</b>	<b>Participates in extended or integrated physical activities</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Moves body in response to music.</li><li>► Runs smoothly.</li><li>► Walks backwards smoothly.</li><li>► Jumps forward on two feet.</li><li>► Walks up steps one step at a time, putting both feet on each step.</li></ul>	<ul style="list-style-type: none"><li>► Follows movement prompts in a song.</li><li>► Attempts to throw a ball to another child.</li><li>► Climbs stairs with alternating feet.</li></ul>	<ul style="list-style-type: none"><li>► Dances using steps in a simple routine.</li><li>► Travels and changes direction quickly.</li><li>► Climbs on a jungle gym.</li></ul>	<ul style="list-style-type: none"><li>► Creates own dance steps to music.</li><li>► Participates in active play sequences that combine running, jumping, throwing, catching, kicking, etc.</li><li>► Throws a ball to another child with some accuracy or while doing something else.</li><li>► Throws a Frisbee.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**








- ▽ **Desired Result 3:** Children show physical and motor competence
- ▽ **Indicator: MOT** – Preschoolers demonstrate an increased proficiency in **motor skills**

## ► **Measure 35: Fine motor skills**

**Definition:** Child refines the ability to plan and coordinate use of grasp, release, strength, and control of fingers and hands for functional and play activities

### 1. Mark the highest developmental level the child has mastered.

Exploring 	Developing 	Building 	Integrating 
<p><b>Manipulates large objects with fingers and wrists on both hands to accomplish a simple task</b></p> <div>  Not yet at first level         </div>	<p><b>Uses fingers and both hands, with each hand doing something different, to smoothly accomplish simple tasks</b></p>	<p><b>Uses fingers to manipulate smaller objects or objects requiring precise eye-hand coordination</b></p>	<p><b>Shows increasing refinement and detail in fine motor movements requiring finger strength or control</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"> <li>► Unbuttons a large button.</li> <li>► Turns two knobs at the same time on an activity box.</li> <li>► Strings large beads.</li> <li>► Tears paper into smaller pieces.</li> <li>► Uses two hands to pour from a pitcher into a cup held by a caregiver.</li> </ul>	<ul style="list-style-type: none"> <li>► Cuts play dough with one hand while holding it in place with the other hand.</li> <li>► Uses scissors to cut paper into smaller pieces.</li> <li>► Positions large blocks using both hands.</li> <li>► Using both hands, pours water from one container to another on own.</li> <li>► Drives nails and pegs with a hammer.</li> </ul>	<ul style="list-style-type: none"> <li>► Hits intended keys on a computer keyboard.</li> <li>► Strings small beads.</li> <li>► Balances small blocks in a tower, or connects LEGO blocks.</li> <li>► Holds crayon with fingers instead of fist.</li> </ul>	<ul style="list-style-type: none"> <li>► Uses scissors to cut out an object.</li> <li>► Attempts to copy letters or simple shapes such as circles, plus signs, or stick figures.</li> <li>► Uses computer keyboard and mouse with accuracy.</li> <li>► Uses an eyedropper to transfer liquid from one container to another.</li> </ul>

2. Record evidence for this rating here. (Use back for more space.)

3. Mark here if child is emerging to the next level. 

4. If you are unable to rate this measure, explain why.








- ▽ **Desired Result 3:** Children show physical and motor competence
- ▽ **Indicator: MOT** – Preschoolers demonstrate an increased proficiency in **motor skills**

## ► **Measure 36: Balance**

**Definition:** Child refines the ability to balance self in space

### 1. Mark the highest developmental level the child has mastered.

Exploring 	Developing 	Building 	Integrating 
Shows a developing a sense of balance and the ability to carry an object while moving	Balances without support	Maintains balance while moving	Coordinates multiple movements involving balance
<div>  Not yet at first level         </div>			
<b>Examples</b> <ul style="list-style-type: none"> <li>► Walks on tiptoes.</li> <li>► Kicks a ball.</li> <li>► Carries a large stuffed animal across the room.</li> </ul>	<ul style="list-style-type: none"> <li>► Balances on one foot without support for a few seconds.</li> <li>► Briefly stands on one foot while putting the other foot through a pantleg.</li> <li>► Walks on a line without stepping off the line.</li> </ul>	<ul style="list-style-type: none"> <li>► Hops on one foot for a few hops.</li> <li>► Runs and jumps over small objects.</li> <li>► Changes direction when running.</li> </ul>	<ul style="list-style-type: none"> <li>► Runs and kicks a ball.</li> <li>► Holds a ping-pong ball on a spoon while walking.</li> <li>► Walks on a low wall or low balance beam.</li> <li>► Balances a bean bag on his or her head.</li> <li>► Hops on one foot, five or more times.</li> </ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 4:** Children are safe and healthy






▽ **Indicator:** SH — Preschoolers show an emerging awareness and practice of **safe** and **healthy behavior**

**Preschool**

► **Measure 37: Personal care routines**

**Definition:** Child shows increasing independence in performing personal care routines that support healthy growth and help prevent the spread of infection

**1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
Participates in own personal cleanliness, with help or supervision from adult	Follows through on personal cleanliness, with some reminders	Takes care of personal cleanliness on his own	Shows an understanding of why personal cleanliness is important
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Blows nose when an adult holds the tissue.</li><li>► Holds her hands under water and rubs her hands together when an adult turns the water on.</li><li>► Allows an adult to put a sweater on her.</li></ul>	<ul style="list-style-type: none"><li>► Takes a tissue and blows his nose into the tissue when reminded.</li><li>► Washes hands on her own when requested by an adult.</li><li>► Tries to wash paint off his arm.</li></ul>	<ul style="list-style-type: none"><li>► Uses a tissue when needed without being reminded.</li><li>► Washes hands without a reminder before eating and after toileting.</li><li>► Puts a sweater on without a reminder when going out to play in cold weather.</li></ul>	<ul style="list-style-type: none"><li>► Says, <i>"Tissues stop germs."</i></li><li>► Reminds other children to wash their hands so that they don't get sick or get others sick.</li><li>► Says, <i>"Don't put the apple sauce spoon in your mouth!"</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 4:** Children are safe and healthy






▽ **Indicator:** SH – Preschoolers show an emerging awareness and practice of **safe** and **healthy behavior**

**Preschool**

## ► **Measure 38: Personal safety**

**Definition:** Child shows increasing awareness of safety practices that minimize risk and support healthy growth

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<b>Cooperates when requested to follow simple safety rules</b>	<b>Usually follows simple safety rules on her own</b>	<b>Applies known safety rules in a variety of situations</b>	<b>Communicates an understanding of safety rules to others</b>
<div> Not yet at first level</div>			
<b>Examples</b> <ul style="list-style-type: none"><li>► Looks to his teacher for instructions when he hears the fire alarm bell.</li><li>► When reminded, takes an adult's hand while crossing the street.</li><li>► Will move away from a bike trail when asked.</li><li>► Follows adult direction not to build her block tower too high.</li></ul>	<ul style="list-style-type: none"><li>► Usually responds to the fire drill bell correctly.</li><li>► Leaves scissors at the table.</li><li>► Stops at the curb and doesn't step into the street.</li><li>► Usually is careful not to bump into other children or what they are making or playing with.</li><li>► Usually is careful on outdoor equipment.</li></ul>	<ul style="list-style-type: none"><li>► Responds to fire drill bell correctly, even when not in his usual classroom.</li><li>► Remembers to walk when indoors.</li><li>► Refrains from sitting on tabletops, shelves, etc.</li></ul>	<ul style="list-style-type: none"><li>► Tells other children to line up when he hears the fire alarm bell.</li><li>► While riding a trike, avoids bumping into others.</li><li>► Tells a child riding in the wrong direction to go the other way, so he won't crash.</li><li>► Reminds other children to stop at the curb.</li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**



▽ **Desired Result 4:** Children are safe and healthy






▽ **Indicator:** SH – Preschoolers show an emerging awareness and practice of safe and healthy behavior

**Preschool**

## ► **Measure 39: Understanding healthy lifestyle**

**Definition:** Child shows increasing independence in making healthy life choices

### **1. Mark the highest developmental level the child has mastered.**

Exploring 	Developing 	Building 	Integrating 
<p><b>Follows guidance given by adults about rest, health, food choices, and physical activity</b></p> <div> Not yet at first level</div>	<p><b>Begins to communicate about and take care of own health needs (food and rest), with occasional reminders from an adult</b></p>	<p><b>Independently takes care of some basic needs like rest, healthy food choices, and physical activity</b></p>	<p><b>Communicates to others about making healthy choices</b></p>
<p><b>Examples</b></p> <ul style="list-style-type: none"><li>► When a spoon falls on the floor, follows an adult's suggestion to get a clean spoon.</li><li>► Participates in physical activity during a free playtime.</li><li>► When told it is rest time, lies on a mat.</li></ul>	<ul style="list-style-type: none"><li>► Sometimes puts spoon aside if it has fallen on the floor, and sometimes needs guidance.</li><li>► Says, <i>"I am hungry"</i> when he or she wants to eat.</li><li>► When overheated, slows down physical activity when directed by an adult.</li></ul>	<ul style="list-style-type: none"><li>► Asks for clean spoon if it falls on the floor.</li><li>► When tired, stops and plays a quieter game or rests before resuming activity.</li><li>► Says, <i>"I'm tired. I want to rest now."</i></li></ul>	<ul style="list-style-type: none"><li>► Suggests getting a clean spoon to a child who has dropped her spoon.</li><li>► Pretends to feed fruit or vegetables to a doll and tells the doll, <i>"This is good for you."</i></li><li>► Runs and says, <i>"I'm exercising."</i></li></ul>

**2. Record evidence for this rating here.** (Use back for more space.)

**3. Mark here if child is emerging to the next level.** 

**4. If you are unable to rate this measure, explain why.**