Measuring the Effectiveness of Cognitive Play on Reasoning and Math Achievement
Building Blocks of Cognition Laboratory
PI: Silvia Bunge Ph.D.
Lead Post Graduate Researcher: Ariel Starr, Ph.D.
Graduate Student Mentor: Chloe Green, M.A.

We are seeking undergraduate students to work 3 days (9 hours per week) on an intervention research study to earn PSC99 units. Students must have prior experience working with young children. Eligible students must be available between 2-5pm during 3 days per week. Please email bungelab@berkeley.edu with your resume, cover letter, availability, and questions if you are interested. Please title the email “Cognitive Play RA Position.”

Goal: Specific Aims
Prior work demonstrates that children’s reasoning ability can be improved through interventions focused on cognitive play. This research aims to capitalize on these successes to elucidate the nature of the relationship between reasoning and academic achievement. In the current study, we aim to assess the impact of cognitive play on cognitive abilities and academic skills (e.g. math ability) in young children who have just begun formal math education. The intervention will take place in after-school program settings and will involve playing games geared towards improving relational reasoning, processing speed, and/or number sense games. Participants will complete cognitive and academic assessments before and after the training, some of which will be performed while eye-gaze and pupillometric measures will be recorded. The eyetracking metrics provide information regarding the strategies engaged during the task, which will provide insight into how cognitive play alters children’s reasoning strategies.

2. Methods:
This fall semester we will be working in the Berkeley School District After School Program with kindergarten and first-grade students. We will recruit approximately 25 children per cognitive play condition. Participants will complete pre- and post-testing using cognitive and academic tests as well as eyetracking measures. The cognitive play intervention itself will consist of a specially selected curriculum of board games that target either reasoning skills or processing speed. The entire length of the study will be approximately 10 weeks.

3. Student's Role:
Research assistants will be involved in all aspects of the study, from subject recruitment to data interpretation. Some students will administer the pre- and post-testing measures, and assist in scoring and entering testing data. Other students will be primarily involved in facilitating the cognitive play intervention. Ideally these teams will be separate so that researchers conducting the post-test will be blind to the cognitive play condition of the participants. Research assistants will be responsible for scoring and entering testing data, as well as maintaining accurate training logs throughout the study, and will also participate in data analysis. Research assistants are also encouraged to attend regular lab meetings as their schedules permit.