

Creating a Math-Rich Environment

✓ Create a large group space for whole group thinking and discussions.

- **TIP:** Children focus better on a discussion when they are close to the teacher and the rest of the members of the class.
- **TIP:** A large group space allows opportunities for all children to work together with materials and see each other's work (e.g., when introducing a new material, new game, or new concept).
- **TIP:** When children are gathered together in one space, tables and other works spaces become free for other math activities to be set up around the room.

✓ Promote math language & literacy.

- **TIP:** When students have daily opportunities to explain, question, and discuss ideas & strategies, their understanding of mathematical concepts significantly increases (Klibanoff, 2006; Chapin, 2009) and helps to solidify their thinking.
- **TIP:** A combination of fiction and non-fiction literature (e.g., books, magazines, poems) allows children to extend and expand their mathematical thinking while fostering connections between math and "the real world".
- **TIP:** A Math Wall can help students represent mathematical thinking through the use of words, pictures, diagrams, charts, graphs, and manipulatives. Keep this interactive wall in a central part of the classroom and have students take ownership as it grows and evolves over the year.

✓ Use a variety of manipulatives to support students' development of mathematical concepts.

- **TIP:** Use a manipulative for multiple purposes. For example, snapping cubes can be used to support number development, measurement concepts, and graphing models. This way, students won't associate a concept with only one manipulative.
- **TIP:** It's better to have a large amount of fewer manipulatives than small amounts of a lot of different manipulatives. This allows children to have enough to work with without the fear of running out when sharing them with others.
- **TIP:** Store math manipulatives and materials (e.g., containers, work mats, games) in an easily accessible area for students to use in that space itself or to bring to other work areas in the room.

✓ Provide numerous opportunities for students to revisit math experiences.

- **TIP:** It takes children multiple times to learn the "rules" of a game or activity before the mathematics becomes the focus. Provide opportunities for children to play a game or revisit a math activity numerous times so that they can become proficient and strategic with the intended concepts.
- **TIP:** You've heard the saying: "*Children learn by doing.*" Resist the urge to tell children *everything* about a new skill. Instead, provide multiple activities and experiences that give children an opportunity to develop a new skill through exploration, scaffolding, learning from mistakes, and practice.
- **TIP:** Provide a variety of activities for children to develop a particular concept and then later allow children to choose which of those activities they would like to revisit. For example, when children are learning about the different combinations of "6", provide 3 different activities that all help the child learn about the different combinations. Then, no matter what the child later chooses, s/he is still working on the different combinations of 6!

✓ Be enthusiastic and curious about mathematics!

- **TIP:** Share the joy of mathematics by modeling behaviors of mathematicians. Think aloud about mathematics as you wonder "why?", question "what if?", and ask "why not always?". Students will then ask those same questions as they explore the math all around them!