



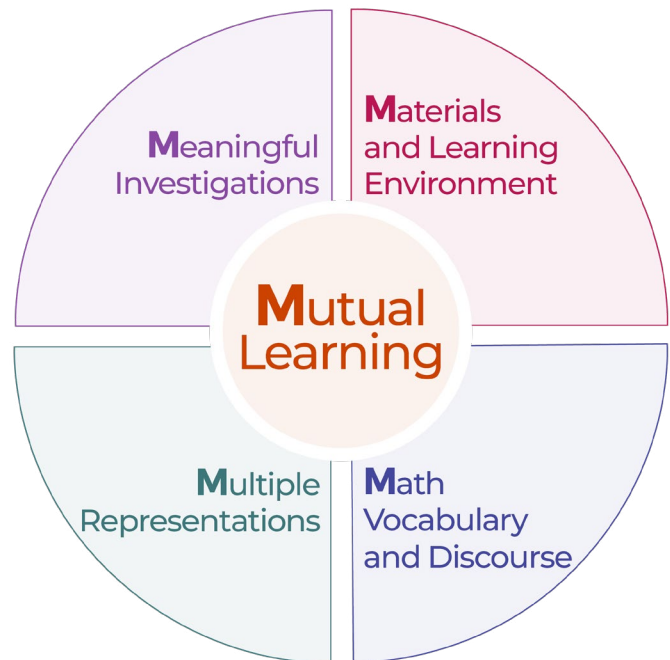
Using M⁵ to Support Learning About Shapes and Space

This handout provides specific examples for each practice in the M⁵ Early Math Approach to help educators support children in their understanding of shapes and spatial thinking.

Mutual Learning

Observe and learn about children's languages, cultures, strengths, and needs while they explore shapes and objects in the space around them.

- **Notice how children demonstrate their knowledge and express their interest in shapes and spatial thinking.**
 - ◇ Some children may enjoy building and moving objects and shapes in space, while others may prefer listening to a story about spatial relationships.
- **Notice the languages and vocabulary children use and respond to when exploring shapes and spatial relationships. Children who are multilingual learners may understand or use some shape names and spatial vocabulary in their home languages, English, or both. Consider introducing shape names in both English and the child's home language.**
- **Introduce shape activities that build on children's family, community, and cultural experiences.**
 - ◇ Discuss structures that are prominent in the child's community (for example, barns, libraries, skyscrapers, cities, villages, mercados, or parks) while children are building with two-dimensional and three-dimensional shapes.





- **Provide children with alternative ways to explore shapes and spatial thinking and express their knowledge. These alternatives meet the needs of children with varying abilities.**
 - ◇ Encourage toddlers to use gestures or objects to show their knowledge about shapes and spatial positions.
 - ◇ Offer objects that are lightweight and easy to grasp.

Meaningful Math Investigations

Provide opportunities for children to explore shapes and move their bodies in the space around them.

- **For young infants, place interesting objects where children can observe them. For example, place them next to or above their heads. This placement allows infants to track movement and reach out for objects.**
- **Create a variety of experiences for children to play with shapes and physically move objects in the spaces around them.**
 - ◇ Provide different shapes for children to fit inside a shape sorter. Describe children's actions, such as, "That circle doesn't quite fit. Let's try another one."
 - ◇ Create a ramp for children to experiment rolling different shapes down.
 - ◇ Provide children with a variety of large containers. Include some that the children can fit inside, such as large cardboard boxes or plastic tubs. Invite them to explore which containers they fit into.
- **Encourage children's thinking and problem solving when they are building.**
 - ◇ "What shape shall we put at the bottom of the tower?"
 - ◇ "What shape block might fit in here?"
 - ◇ "How might we reach that block over there?"





Materials and Learning Environment

Provide open-ended materials varying in size and shape that children can use to stack, roll, fill, and empty.

- Offer materials that respond to children's cultures, languages, interests, strengths, and areas for growth. Make sure the materials you choose are safe for children's ages and developmental levels. Some appropriate materials for this age group may include:
 - ◇ Blocks, shape sorters, balls, baskets
 - ◇ Recycled materials such as cardboard boxes, containers, plastic jars, tubes, and cones, or other items from children's home lives
 - ◇ Sensory tables filled with items such as sand, water, slime, or bubbles, and different-size containers, cups, and spoons
 - ◇ Objects with varying textures, lights, colors, and sounds
- Read books that focus on shapes, describe location, or discuss relationships between objects in children's home languages, English, or both.
 - ◇ [*Clean Up, Up, Up*](#) (or [*¡Limpia, arriba, arriba!*](#) In Spanish) by Ellen Mayer
 - ◇ [*Color Zoo*](#) by Lois Ehlert
 - ◇ [*The Birthday Box*](#) (or [*Mi caja de cumpleaños*](#) in Spanish) by Leslie Patricelli
- Provide open space and age-appropriate equipment for children to move their bodies in different directions and observe different perspectives.
 - ◇ Offer safe, open space for infants to lie on their backs or tummies, roll over, and move.
 - ◇ Provide age-appropriate equipment that children can explore with their bodies, such as play structures with tunnels, stairs, and ramps. Older infants and toddlers can use this equipment to explore by pulling their bodies up to stand, crawling, climbing, or walking.





Math Vocabulary and Discourse

Name and describe shapes. Use spatial words to describe direction, location, and relationships of objects in space during daily routines, interactions, and play.

- **Refer to shapes and encourage children to use shape names in the children's home languages, English, or both.**
 - ◇ "You are putting the triangle or the triángulo in the bucket."
 - ◇ "I noticed that you rolled your play dough into a ball."
- **Use open-ended questions and prompts to discuss shapes and their attributes with children.**
 - ◇ "The circle won't fit there because it is round. What other shapes might fit there?"
- **Highlight spatial language during daily routines, interactions, and play.**
 - ◇ "I'm going to lay you down and put your diaper on."
 - ◇ "Are you pouring water in the bucket?"
 - ◇ "I'm going to push the car under the bridge."

Shape Vocabulary

- Square, circle, triangle, rectangle

Spatial Thinking Vocabulary

- On/in, into, under/over, above/below, up/down

Multiple Representations

Offer multiple ways for children to explore, create, and manipulate shapes in space.

- **Invite children to create shapes using different materials.** You might use materials such as play dough, yarn, or paper.
- **Present varied examples of each shape category.**
 - ◇ When engaging toddlers in art, provide varied shapes such as different types of triangles or different sizes of squares or circles.
- **Invite toddlers to explore shapes and spatial relationships using different ways.**
 - ◇ Encourage children to use gestures and body movements to show spatial positions like under, on top, or inside.

