



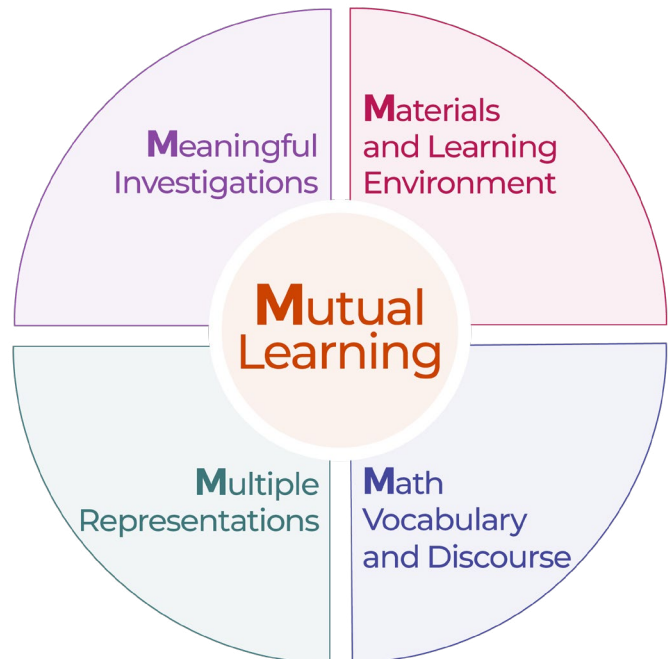
Using M⁵ to Support Learning About Shapes

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

Mutual Learning

Observe and learn about children's languages, cultures, strengths, and needs to provide relevant and individualized learning experiences about shapes.

- Observe how children demonstrate their knowledge of shapes in different ways.
 - ◇ Some children may use words or sign language to describe shapes. Others may show their knowledge by drawing or constructing with shapes.
- Notice the languages and vocabulary children use to name or describe shapes. Children who are multilingual learners may learn and describe shapes 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 cultural experiences.
 - ◇ Children may show interest in quilting, basket weaving, or beadwork with shapes that are part of their lived experiences.
- Provide children with alternative ways to explore shapes and express their knowledge. These alternatives support the needs of children with varying abilities.
 - ◇ Provide opportunities for children to engage with tactile shapes that can be picked up, moved, or rotated.
 - ◇ Consider using computer programs as an alternative way for children to make drawings and designs with shapes.





Meaningful Math Investigations

Offer opportunities for children to solve real-life problems and reason about shapes.

- Encourage children to match, sort, and classify shapes in the context of everyday routines and play.
 - ◇ “Show me another shape like this one.”
 - ◇ “Let’s place all the square blocks here and all the rectangle blocks on the shelf.”
- Invite children to compose shapes into new shapes, pictures, or designs.
 - ◇ “How might we use these triangles to create a square?”
 - ◇ “Show me how to use these shapes to make a tower.”
 - ◇ “How might you design different buildings with these blocks?”
- Challenge children to construct using two- and three-dimensional shapes.
 - ◇ Ask children to create a car or bus using foam shapes.



Materials and Learning Environment

Provide open-ended materials that allow children to explore, sort, and build with a variety of two- and three-dimensional shapes.

- Offer materials that respond to children’s cultures, languages, interests, strengths, and areas for growth. Some appropriate materials for this age group may include:
 - ◇ Blocks, puzzles, tangrams, play dough
 - ◇ Recycled materials, such as cardboard boxes, tubes, and containers, or other items from children’s home lives
- Consider using computer programs that allow children to manipulate shapes in different ways.
- Read books that have shape-related themes in children’s home languages, English, or both.
 - ◇ [*Perfect Square*](#) by Michael Hall
 - ◇ [*Color Zoo*](#) by Lois Ehlert
 - ◇ [*Circle! Sphere!*](#) (or *¡Círculo! ¡Esfera!* in Spanish) by Grace Lin





Math Vocabulary and Discourse

Invite children to observe, describe, and compare shapes using math language.

- Refer to shape names and encourage children to use shape names in the children's home languages, English, or both.
- Describe important attributes of shapes, such as corners and sides. Explain how shapes are similar or different from each other.
 - ◊ "A triangle has three sides, but a square has four."
- Use open-ended questions and prompts to discuss shapes and their attributes.
 - ◊ "How do you know that is a square?"
 - ◊ "Here is a rectangle, and here is a triangle. How are they different?"

Shape Vocabulary

- Two-dimensional shape names: square, circle, triangle, rectangle
- Three-dimensional shape names: sphere, cube, cylinder
- Shape attributes and properties: corner, side, pointy, round

Multiple Representations

Offer multiple ways for children to reason about shapes and represent them.

- Invite children to create similar shapes using different materials.
 - ◊ Offer materials for children to create shapes, such as play dough, pipe cleaners, straws, rope, and paper.
- Present varied examples of each shape category.
 - ◊ When showing children pictures of triangles, include typical and atypical triangles, such as equilateral, isosceles, right-angle, and scalene triangles.
- Allow children to explore shapes in a variety of ways.
 - ◊ Play "guess the shape." Hide a shape in a bag. Then, ask children to feel the shape.
 - ◊ Ask children to create a shape with their bodies. Invite them to use their arms to create a circle or use their hands to form a triangle.
- Invite children to notice different representations of shapes in their environment.
 - ◊ Go on a shape scavenger hunt in different environments (at home, in the classroom, outside). Ask children to point out all the circles they see.

