CORE SKILL: THINK – MATH

Geometry and Spatial Sense

What You Need to Know

Geometry involves shape recognition and understanding shape properties. Shape recognition consists of distinguishing between shapes and associating shapes with shape names. For example, selecting a triangle from a group of shapes and calling it a "triangle". Understanding shape properties involves learning the defining characteristics of shapes. Spatial sense refers to the knowledge of where you are, how to get around in the world, and how to represent our world. For example, using maps and symbols/signs. Directionality (i.e., describing space in terms of directions to move) and position (i.e., describing space in terms of the location of one object relative to another) are facets of spatial sense. You can help even the very young toddlers build a foundation for their later geometry-learning by using the language of shapes and spatial relationships in your interactions with them.

Things to Consider

Early geometry and familiarity with spatial orientation will all add to a toddler's understanding of the world around them. Include language of shapes and spatial sense in your interactions to support toddlers' understanding of these words and concepts. During their early years, you can support children to learn the names of basic shapes. You can also help them recognize when two shapes are the same or different, and begin to understand some concepts related to spatial sense, such as putting a blanket "on" the doll or looking for a toy "under" a shelf.

Development of Shape Recognition and Spatial Sense

Between 9 and 18 months, children may:	Between 16 and 36 months, children may:
Shape Recognition: Begin to compare real-world objects and determine if the shape is the same or different.	Shape Recognition and Spatial Sense: Fit a large puzzle piece into place, demonstrating an understanding of the relationships between shapes and early spatial sense.
Shape Recognition: Begin to match familiar shapes that have the same size and orientation.	Shape Recognition: Begin to sort and classify based on shape.
	Shape Recognition: Recognize and look for geometric shapes in the environment.
	Spatial Sense: Begin to understand some vocabulary related to spatial sense, such as "in," "on," "under," "up," and, "down."

Setting the Stage

Activities and materials that support the development of shape recognition and spatial sense:

- Incorporate shapes and spatial sense into routines, transitions, and pretend play: provide opportunities for children to move their bodies in specific directions. For example, dance and sing songs that encourage children to move their bodies in particular ways, calling attention to their position in space. Model and use position words during routines. For example, encourage a child to lie down for nap "next to" a friend, or "in front of" the classroom book area. Call attention to shapes in everyday moments. For example, "Some of the crackers we have for our snack today are square like this, and some are round like this."
- Read books that incorporate shape recognition and/or spatial sense: use book readings as an opportunity to look for common shapes in books, and to call attention to positions and spatial relationships between characters or objects on the pages. For example, *Color Farm*, by Lois Ehlert, is made up of animal images constructed from common shapes.
- For children with visual disabilities: incorporate geometry and spatial sense with tactile materials and/or high-contrast materials.
- Use songs and fingerplays to practices shapes and spatial sense.

Intentional Teaching Practices to Support Geometry and Spatial Sense

OBSERVE	**Observe** Observe children as they play and interact with one another. If you talk about circles, can they pick one out of a group of shapes? Do they match shapes when playing with basic puzzles or shape sorter toys? How do children respond when you use position words during routines and transitions, such as when you ask one to move to the front of the line to their wash hands? As you observe children throughout the day, take note of opportunities in which you will be able to call attention to shapes and spatial sense as you interact with them and engage with them in play.
FOCUS	**Label Shapes and Where Things Are in Space** During your play with children, call attention to shapes and the properties of shapes around them, as well as the position of objects/individuals in space. Be sure to model spatial sense with your *own* actions. ♦ "Your lunch box looks like a *square*. A square is a shape like this!" ♦ "I see you sitting *next to* your friend, (Child) today." ♦ "Look, (Child) and (Child) went *under* the slide!"
SCAFFOLD I	**Prompt Children to Identify Shapes and/or Their Properties** Encourage children to name shapes and their properties in informal ways and during play throughout the day. ♦ "I wonder if this shape will fit in here? Do you know what we call this kind of shape? It's a *square* – it has straight sides." ♦ "This shape won't fit in here! This hole is *square*-shaped, and my shape is a *circle*." To support nonverbal children or children with language delay, provide vocabulary boards with visuals of shapes, position words, and other math vocabulary so children can participate using symbolic language.
SCAFFOLD II	**Prompt Children to Identify Positions in Space** Ask questions and engage children in activities that will encourage them to identify the position of objects or individuals in space, offering support throughout. ♦ "This is a tricky puzzle! I know that my piece needs to go somewhere in here. Hmm, can you show me where it should go?"
KEEP IT GOING	Consider what you learned from observing children on Monday as well as their reaction to your Focus and Scaffolds. Find ways to build the activities from Setting the Stage into your regular routines.