LEARNING TRAJECTORIES OF NUMBER RECOGNITION AND SUBITIZING

What is number recognition? Number recognition is the ability to tell *how many* objects are in a small set without counting them (given all the time they need to observe the group of objects). We distinguish this skill from subitizing (defined below) because children recognize how many are in a small set but may not do so quickly.

What is subitizing? Subitizing is the ability to tell how many objects are in a group *quickly* without counting them.

Children progress from slowly recognizing very small groups, to quickly subitizing groups of small numbers, to recognizing groups of larger numbers. When children can tell how many in larger numbers *and* know the parts, they've taken a big step in understanding math! For example, a child might say, "I knew there was 6 because I saw 4 here and 2 there." This is called *conceptual subitizing*. The table below describes what current research states children can do as they develop number recognition and subitizing skills!

POINT ON LEARNING TRAJECTORY	DESCRIPTION OF WHAT CHILD CAN DO
Small Collection Namer	Names groups of 1 to 2, sometimes 3. (ELOF, IT-C 8 and ELOF P-MATH 2)
Perceptual Subitizer to 4	Names group of up to 4 items without counting them. You might notice this when a child sees 4 rocks and quickly says "four." (ELOF P-MATH 2)
Perceptual Subitizer to 5	Names groups of up to 5 items without counting them after only been shown for up to 2 seconds or less. You might notice this when a child sees 5 crayons and quickly says "five." (ELOF P-MATH 2)
Conceptual Subitizer to 5	Names groups of up to 5 items without counting them. You might notice this when a child sees a group of three rocks and a group of two rocks and says "Five! I saw 3 and 2 so I said five." (ELOF P-MATH 2)

REFERENCES

ACF. 2015. *Head Start Early Learning Outcomes Framework: Ages Birth to Five*. Washington, DC: U.S. Department of Health and Human Services Administration for Children and Families Office of Head Start.

Clements, D. H., & J. Sarama. 2014. *Learning and Teaching Early Math: The Learning Trajectories Approach* (2nd ed.). New York, NY: Routledge.

Sarama, J., & D. H. Clements. 2009. *Early Childhood Mathematics Education Research: Learning Trajectories for Young Children*. New York, NY: Routledge.