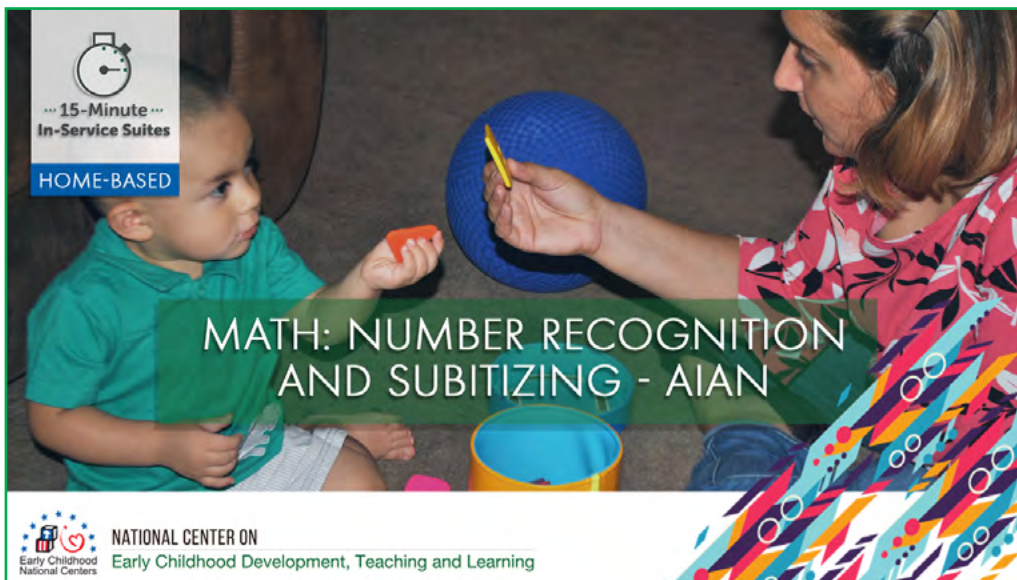




MATH: NUMBER RECOGNITION AND SUBITIZING-AIAN

OPTIONAL PRESENTER NOTES FOR HOME VISITORS



**HV OPTIONAL SLIDE 1:**

If participants are exclusively home visitors, you can replace the title slide with this slide.

MATH: NUMBER RECOGNITION AND SUBITIZING

WELCOME AND INTRODUCTIONS:

- Begin the training by giving participants background information about yourself.
- Provide an opportunity for participants to introduce themselves.
- Encourage them to introduce themselves in their tribal languages

INTRODUCE THE TOPIC:

Begin with an activity to get participants thinking about how their culture naturally uses math (e.g., counting beads, making baskets, planting, etc.)

**DISCUSSION:** HAVE PARTICIPANTS SHARE WHAT MATH SKILLS THEY USED THAT MORNING.

Offer examples and try to use local culture and language. Emphasize: You use math every day. The native way of life is rich with math.

REFERENCES

- Clements, D. H. 1999. "Subitizing: What Is It? Why Teach It?" *Teaching Children Mathematics*. 5 (7): 400–405.
- Clements, D. H., J. Sarama, & B. L. MacDonald. 2017. "Subitizing: The Neglected Quantifier." In N. Anderson & M. W. Alibali (Eds.), *Constructing Number: Merging Perspectives from Psychology and Mathematics Education*. Springer.



# HSPPS Support Math

## Subpart C – Education and Child Development Program Services

### 1302.30 Purpose

A program must deliver developmentally, culturally, and linguistically appropriate learning experiences in language, literacy, mathematics, social and emotional functioning, approaches to learning, science, physical skills, and creative arts.



### HV OPTIONAL SLIDE 2:

Read the content of the slide first.

Programs must provide high-quality early education and child development services to all children, including for children with disabilities, that promote children’s cognitive, social, and emotional growth for later success in school.

Children’s success in math-related skills is linked with school readiness goals, therefore it is important to provide a high-quality math-rich environment for young children to facilitate growth in this area. Using math language such as “Please pick up 2 blocks” or “You have 4 berries on your plate” will help children develop a sense of number and quantity and eventually perceptual subitizing—recognizing the number of objects without counting. Additionally, playing games with dice will help promote conceptual subitizing—putting together the parts of multiple sets.



## HSPPS Support Language and Culture



### Subpart C – Education and Child Development Program Services

#### 1302.36 Tribal language preservation and revitalization

A program that serves American Indian and Alaska Native children may integrate efforts to preserve, revitalize, restore, or maintain the tribal language for these children into program services. Such language preservation and revitalization efforts may include full immersion in the tribal language for the majority of the hours of planned class operations.



### HV OPTIONAL SLIDE 3:

AIAN programs are encouraged to integrate tribal language and culture into program services. Language preservation and revitalization can be integrated into home-based services. Home-based services are integral in preserving, revitalizing, and restoring tribal languages.





## HSPPS Support Language and Culture



### ACF-IM-HS-15-02 Native Language Preservation, Revitalization, Restoration, and Maintenance in Head Start and Early Head Start Programs

“OHS strongly supports the full integration of AIAN languages and culture in their Head Start and Early Head Start programs, including the use of language immersion, dual language, and other proven approaches...”



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### HV OPTIONAL SLIDE 4:

OHS strongly supports full integration of tribal languages and culture in EHS and HS programs.





# HSPPS Support Math



## Subpart C - Education and Child Development Program Services

### 1302.35 Education in Home-Based Programs

A home-based program must provide home visits and group socialization activities that promote secure parent-child relationships and help parents provide high-quality early learning experiences in language, literacy, mathematics, social and emotional functioning, approaches to learning, science, physical skills, and creative arts. A program must implement a research-based curriculum...

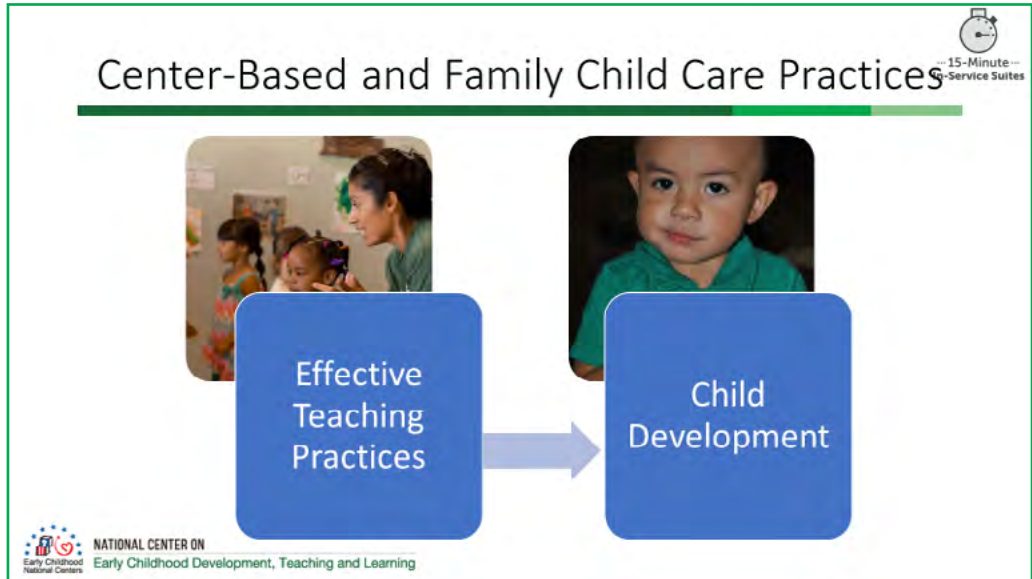


## HV OPTIONAL SLIDE 5:

Additionally, home-based programs must encourage parents as the child's first teacher and support parents as they provide high-quality early math experiences that build on children's individual patterns of mathematical development and learning.

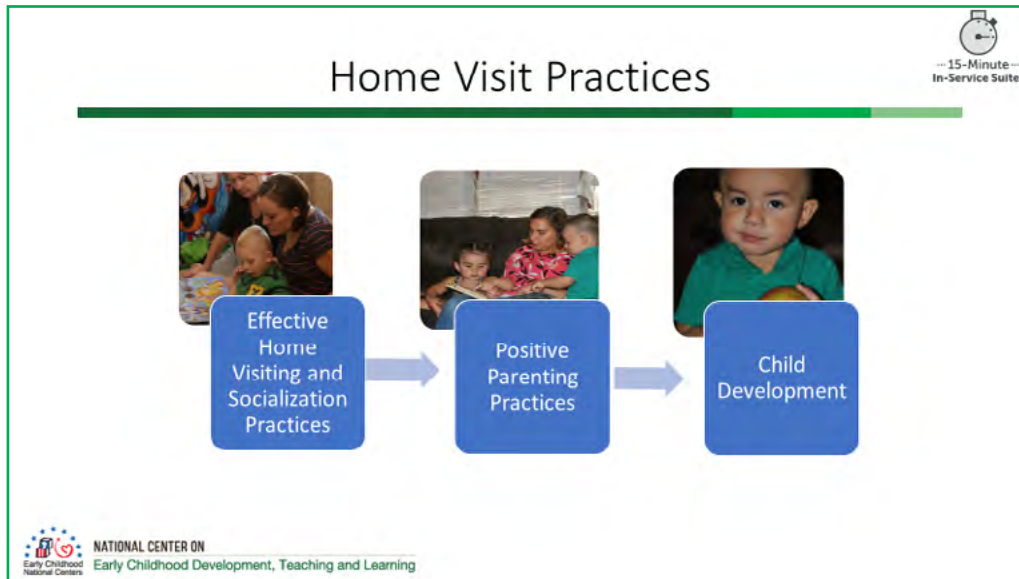
Number recognition of and subitizing are supported in the Cognition domain of the Early Learning Outcome Framework (ELOF). Children develop a sense of number and quantity during the infant and toddler years and will begin to recognize the number of small objects in groups without counting! These are ELOF goals across the developmental continuum for infants, toddlers, and preschoolers.





**HV OPTIONAL SLIDE 6:**

Here is an over-simplified representation of how to achieve positive child outcomes in center-based and family child care. The teacher is working directly with the child. The child is in the classroom 5 days a week and for around 6 hours or more each day. The teacher and child have approximately 30 hours together each week.



### HV OPTIONAL SLIDE 7:

When we look at what is different in home-based programs, the most striking difference is that the home visitor works to promote positive parenting which in turn impacts the child’s development. Part of positive parenting includes language and cultural activities.

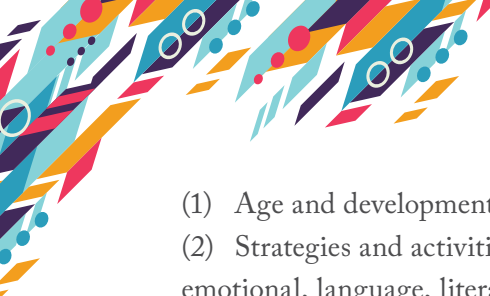
First, the home visitor is in the home 90 minutes once a week. Home visits are planned jointly with home visitor and parent. Home visitors provide age and developmentally appropriate, structured, and child-focused learning experiences. They work with the parent to provide strategies and activities that promote parent’s ability to support the child’s cognitive, social, emotional, language, literacy, and physical development. Home visitors encourage parents to promote the home as a learning environment that is safe, nurturing, responsive, and language- and communication-rich—emphasizing tribal language and the value of cultural activities.

Home visitors also offer group socializations. Socializations are planned jointly with families and conducted with both parent and child participation. They can be held in any convenient location including classrooms, a community facility, in the home of a parent, or a field trip-like setting. Group socializations provide age-appropriate activities that are aligned with tribal and state early learning guidelines. They encourage parents to share their child development, culture and language experiences with other parents to strengthen parent-child relationships and promote parents’ understanding of child development. This is a wonderful time to invite elders to lead language and cultural activities.

The goal of home-based programs is to provide home visits and group socializations that promote secure parent-child relationships and help parents provide high-quality early learning experiences. These home visits and group socializations offer an opportunity to share cultural ways.

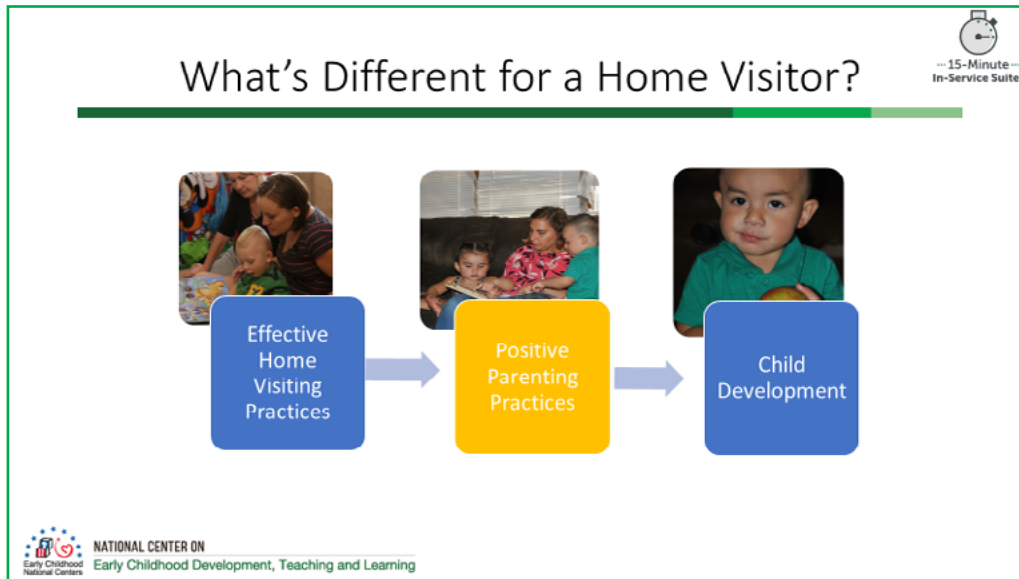
#### HSPPS: §1302.35 Education in home-based programs.

- (a) **Purpose.** A home-based program must provide home visits and group socialization activities that promote secure parent-child relationships and help parents provide high-quality early learning experiences in language, literacy, mathematics, social and emotional functioning, approaches to learning, science, physical skills, and creative arts.
- (c) **Home visit experiences.** A program that operates the home-based option must ensure all home visits focus on promoting high-quality early learning experiences in the home and growth towards the goals described in the Head Start Early Learning Outcomes Framework: Ages Birth to Five and must use such goals and the curriculum to plan home visit activities that implement:



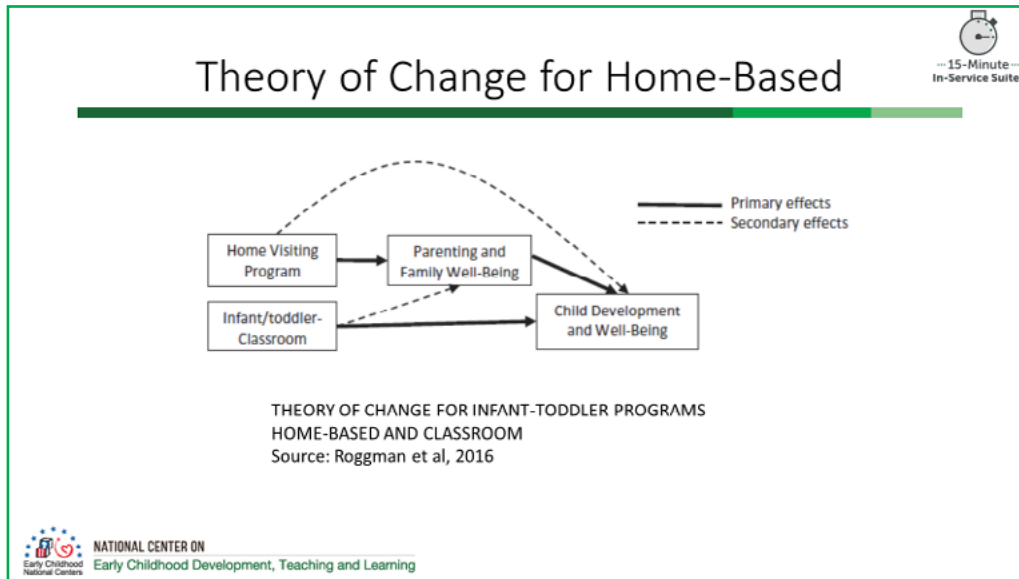
- (1) Age and developmentally appropriate, structured child-focused learning experiences;
  - (2) Strategies and activities that promote parents' ability to support the child's cognitive, social, emotional, language, literacy, and physical development;
  - (3) Strategies and activities that promote the home as a learning environment that is safe, nurturing, responsive, and language- and communication- rich;
  - (4) Research-based strategies and activities for children who are dual language learners that recognize bilingualism and biliteracy as strengths, and:
    - (i) For infants and toddlers, focus on the development of the home language, while providing experiences that expose both parents and children to English; and,
    - (ii) For preschoolers, focus on both English language acquisition and the continued development of the home language; and,
- (d) Home-based curriculum. A program that operates the home-based option must:
- (1) Ensure home-visiting and group socializations implement a developmentally appropriate research based early childhood home-based curriculum that:
    - (ii) Aligns with the Head Start Early Learning Outcomes Framework: Ages Birth to Five and, as appropriate, state early learning standards, and, is sufficiently content-rich within the Framework to promote measurable progress toward goals outlined in the Framework; and,
- (e) Group socialization.
- (2) Group socializations must be structured to:
    - (ii) Encourage parents to share experiences related to their children's development with other parents in order to strengthen parent-child relationships and to help promote parents understanding of child development;





### HV OPTIONAL SLIDE 8:

When we look at what is different for a home visitor, the most striking difference is that the home visitor works directly with parents to promote positive parenting. To be effective, home visitors in home-based programs must know adult learning principles and have the skills to work with parents to strengthen their parenting practices so they can support their child's healthy growth and development throughout the week, not just when the home visitor is present. Honor the family's culture and language to build these relationships and support the child's learning.



### HV OPTIONAL SLIDE 9:

Here’s another graphic to describe home-based programs. This one is a theory of change in an article by Lori Roggman and colleagues in a 2016 issue of *Early Childhood Teacher Education*. I imagine most of you are familiar with the term “theory of change.” It’s simply a series of clear statements or a diagram, as we see on this slide, that portrays the changes a program is trying to make. So we see from the solid lines that home visiting programs primarily and directly effect parenting and family well-being, which then leads to child development and well-being. This model shows us that through working with families we see change in child development and well-being. Keep this theory of change in mind as we talk about promoting math development for children in home-based programs.

#### REFERENCE:

Lori A. Roggman, Carla A. Peterson, Rachel Chazan-Cohen, Jean Ispa, Kallie B. Decker, Kere Hughes-Belding, Gina A. Cook & Claire D. Vallotton. 2016. “Preparing Home Visitors to Partner with Families of Infants and Toddlers.” *Journal of Early Childhood Teacher Education* 37 (4): 301-313.



## Support Parents in Speaking Math



- Encourage parents to use math language as children are exploring inside and outside the home in the following ways:
  - Explore materials around the house that can be used to recognize numbers and subitize
  - Sing counting songs and nursery rhymes
  - Use subitizing vocabulary
  - Play “guess how many” games and games using dice
  - Use hand drum to count beats
  - Count and subitize while eating berries, etc.



### HV OPTIONAL SLIDE 10:

Let’s talk about how we can help parents engage with children in ways that support children as they develop number recognition and subitizing. Encourage parents to use math language as children are exploring inside and outside the home. AIAN culture and language is rich with boundless opportunities to learn about number recognition and subitizing.

**Explore materials around the house that can be used to recognize numbers of objects and subitize:** Use rolled up socks, small soft toys, teething toys, etc.

**Sing counting songs and nursery rhymes:** Hold up the number of fingers you are talking or singing about to show children how the spoken number matches your fingers. Use a hand drum while singing and counting the beats. Use different rhythms.

**Use subitizing vocabulary:** “You have four berries on your plate!” or “How many buttons are on your shirt?”

**Play “guess how many” games and games using dice:** This will exercise children’s subitizing and number recognition. For infants and toddlers, dice would need to meet safety standards or find an alternative solution such as putting large dots on a shoebox!



## Home Visitors Can Support Children's Subitizing



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### HV OPTIONAL SLIDE 11:

Home visitors have a great opportunity to support parents in discovering what rich opportunities exist in everyday routines and family cultural activities that promote math skills. All parents want their children to learn and to be smart. What better way to help parents meet that goal for their children than by supporting the parents in identifying and taking advantage of countless math learning opportunities that occur every day in the home and community?

What are times of the day or materials in the home that you can encourage parents to take advantage of to support children's ability for number recognition and subitizing?

- During playtime?
- During meal times?
- During bath time?
- In the grocery store?
- Outside?
- During cultural events, such as drumming and dancing?

Encourage families to add cultural activities they may attend in the community. Also, include elders—children hear stories and learn skills from elders, such as weaving baskets. This can be as simple as an elder sharing how they pick berries or prepare traditional foods.



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Early Childhood Development, Teaching and Learning

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